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**THE FUTURE OF DIGITAL MARKETING: A STUDY OF HOW ARTIFICIAL INTELLIGENCE WOULD CHANGE & CREATE NEW WORK DIRECTIONS**

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**ABSTRACT**

*This research explores the transformative impact of Artificial Intelligence (AI) on digital marketing in India. By conducting primary research on 100 respondents, this study seeks to understand the awareness, perception, and adoption of AI-driven tools in digital marketing among Indian businesses. Statistical analysis, a detailed literature review, and a well-structured questionnaire form the basis for deriving actionable insights.*

**Keywords:** Digital Marketing, Artificial Intelligence, Impact, AI-driven tools, Insights

**INTRODUCTION****1.1 Background**

The digital marketing landscape has evolved rapidly, driven by advancements in technology. AI has emerged as a game-changer, enabling personalized marketing, predictive analytics, and automated content generation. In India, a burgeoning digital economy, understanding how AI reshapes digital marketing is crucial.

The digital marketing industry is undergoing a paradigm shift, driven by rapid technological advancements and evolving consumer expectations. At the core of this transformation is **Artificial Intelligence (AI)**, which has emerged as a game-changer in how businesses engage with their audiences. From chatbots that offer real-time customer support to algorithms that predict consumer behavior, AI is fundamentally altering marketing strategies. As businesses strive to provide personalized, efficient, and scalable marketing solutions, the adoption of AI is becoming not just an option but a necessity.

This study seeks to investigate the role of AI in digital marketing, analyzing its potential to enhance decision-making, optimize resource allocation, and deliver more meaningful customer experiences. It also explores how AI can influence the future trajectory of digital marketing, offering a glimpse into what the next decade might hold for businesses, consumers, and marketers alike

**1.2 OBJECTIVES OF THE STUDY**

- To analyze the level of awareness about AI in digital marketing among Indian businesses.
- To evaluate the impact of AI-driven tools on marketing effectiveness.
- To identify challenges and opportunities in adopting AI in the Indian context.

**LITERATURE REVIEW**

A significant body of research highlights the multifaceted impact of AI on digital marketing. **Chaffey (2022)** outlines the strategic advantages AI provides, such as improved customer segmentation and real-time decision-making. Through AI, businesses can analyze large datasets efficiently, uncovering patterns and insights that would be otherwise unattainable. This capability is crucial in creating targeted marketing campaigns that resonate with specific audience segments.

**Kotler et al. (2021)** describe how AI-powered tools like chatbots and virtual assistants have revolutionized customer service. These tools are capable of handling vast numbers of queries simultaneously, providing instant responses and freeing up human resources for more complex tasks. Similarly, **Bala and Verma (2018)** underscore the importance of machine learning in driving predictive analytics, enabling businesses to forecast consumer behavior with remarkable accuracy.

In the realm of content marketing, **Kaplan and Haenlein (2019)** argue that AI enhances personalization. By analyzing individual user data, AI systems can recommend products, services, and content tailored to the unique preferences of each consumer. This level of personalization boosts engagement and fosters brand loyalty. **Smith and Zook (2020)** add that AI can optimize advertising efforts by determining the best times, platforms, and formats for ad placements, ensuring maximum visibility and effectiveness.

However, some scholars have raised concerns about the ethical implications of AI in marketing. **Johnson et al. (2021)** highlight issues related to data privacy and the potential biases inherent in AI algorithms.



They caution that while AI offers substantial benefits, its misuse can lead to significant ethical dilemmas, such as the exploitation of consumer data or the reinforcement of harmful stereotypes.

### SCOPE OF STUDY

This study aims to provide a comprehensive analysis of AI's transformative impact on digital marketing. It focuses on several key areas to offer a holistic understanding of AI's role in reshaping the industry:

#### 1. AI-Powered Personalization

Personalization is at the heart of modern digital marketing. This study will explore how AI algorithms tailor marketing messages, product recommendations, and content based on individual user data. By analyzing browsing history, purchase behavior, and social media activity, AI enables businesses to deliver highly relevant and personalized experiences.

#### 2. Predictive Analytics

One of AI's most powerful applications in digital marketing is its ability to predict future trends and consumer behaviors. This section will examine how machine learning models analyze historical data to provide actionable insights, helping marketers anticipate customer needs and preferences.

#### 3. Automation in Marketing Processes

Automation is a key driver of efficiency in digital marketing. This study will evaluate AI-driven automation tools used for various marketing tasks, such as email campaigns, social media posting, and customer interactions. By automating repetitive tasks, businesses can save time and focus on more strategic initiatives.

#### 4. Ad Optimization and Targeting

AI has revolutionized digital advertising by improving ad targeting and placement. This section will analyze how AI optimizes bidding strategies, identifies the most effective platforms for ad delivery, and ensures that marketing budgets are allocated efficiently.

#### 5. Ethical and Privacy Considerations

As AI becomes more prevalent, concerns about data privacy and ethical practices have grown. This study will address these issues, exploring the challenges marketers face in balancing data-driven strategies with consumer trust. It will also examine regulations and best practices for ensuring ethical AI use in marketing.

### SIGNIFICANCE OF STUDY

This study is significant for several stakeholders. For **marketers**, it provides insights into how AI can enhance campaign effectiveness and customer engagement. For **business strategists**, it highlights the potential for AI to improve decision-making and resource allocation. For **academic researchers**, it offers a foundation for further exploration into the ethical and practical implications of AI in digital marketing. Finally, for **consumers**, it sheds light on how AI-driven marketing can impact their online experiences and privacy.

By examining these dimensions, this study contributes to a deeper understanding of AI's transformative role in digital marketing and offers a roadmap for navigating the opportunities and challenges it presents.

### HYPOTHESES

The following hypotheses have been formulated for this study:

**H1:** AI-driven personalization significantly enhances customer engagement in digital marketing.

**H2:** AI improves the efficiency of digital marketing strategies, leading to better ROI for Indian businesses.

**H3:** Consumers in India perceive AI-driven marketing as intrusive and have privacy concerns.

**H4:** There is a positive correlation between AI adoption and customer satisfaction in digital marketing.

### RESEARCH METHODOLOGY

#### Research Design

The study adopts a mixed-method approach, combining qualitative and quantitative data collection. Primary research is conducted through a structured survey, while secondary data is gathered from academic journals, industry reports, and case studies.

#### Data Collection

- **Primary Data:** Survey of 100 respondents, including consumers and marketing professionals across India.
- **Secondary Data:** Literature review of existing studies on AI in digital marketing.



Component	Details
<b>Research Approach</b>	Mixed-Method (Quantitative and Qualitative)
<b>Research Design</b>	Descriptive and Exploratory
<b>Population</b>	Indian consumers and marketing professionals
<b>Sample Size</b>	100 respondents
<b>Sampling Technique</b>	Stratified Random Sampling (ensuring representation from different age groups, regions, and industries)
<b>Data Collection Method</b>	Online survey (using Google Forms, email distribution)
<b>Survey Instrument</b>	Structured questionnaire with Likert-scale and close-ended questions
<b>Key Variables</b>	- Customer Engagement - ROI - Privacy Perceptions - Effectiveness of AI Marketing
<b>Data Analysis Tools</b>	SPSS, Excel
<b>Ethical Considerations</b>	Anonymity and confidentiality ensured

### DATA ANALYSIS AND FINDINGS

Demographic Factor	Distribution
<b>Age</b>	18-24 years (30%), 25-34 years (40%), 35-44 years (20%), 45+ years (10%)
<b>Profession</b>	Marketing professionals (50%), General consumers (50%)
<b>Location</b>	Urban (60%), Semi-Urban (30%), Rural (10%)
<b>Education Level</b>	Undergraduate (40%), Postgraduate (50%), Others (10%)

### LIMITATIONS OF STUDY

- **Sample Size:** Limited to 100 respondents, may not fully generalize across India.
- **Online Survey Bias:** Tech-savvy participants may over-represent results, potentially excluding less digitally aware populations.
- **Time Constraints:** Data collection was conducted over a limited period, possibly affecting participant availability.
- **Non-response Bias:** Some respondents might have skipped key questions

### DE LIMITATIONS OF STUDY

- **Geographic Scope:** Limited to India.
- **Focus on AI in Marketing:** Study focuses only on digital marketing; broader applications of AI are excluded.
- **Industry Perspective:** Concentrates on perspectives from marketing professionals and consumers

### DATA ANALYSIS

Correlations between key variables like **AI-driven personalization** and **customer engagement**.

### STEPS

1. Collect data responses from the survey.
2. Use Pearson Correlation to determine the relationship between two continuous variables.

### Example:

- **X1:** AI-driven personalization (Likert score 1-5)
- **Y1:** Customer engagement score (Likert score 1-5)



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## HYPOTHESES TESTING VIA CHI SQUARE

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### Hypotheses:

- **H1:** AI-driven personalization significantly enhances customer engagement.
- **H0:** AI-driven personalization has no significant effect on customer engagement.

### Chi-Square Formula:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} \quad \chi^2 = \sum E_i (O_i - E_i)^2$$

Where:

- $O_i$  = Observed frequency
- $E_i$  = Expected frequency

### PROCEDURE

1. Create a contingency table based on survey data (e.g., customer engagement vs. perceived personalization).
2. Calculate expected values for each cell.
3. Compute  $\chi^2$  using the formula.
4. Compare  $\chi^2$  value with critical value at a chosen significance level (e.g., 0.05) to decide whether to reject  $H_0$  or  $H_1$ .

### ANALYSIS SUMMARY

#### 5. Chi-Square Test Results:

1. The chi-square statistic is **11.17** with a **p-value of 0.7990**.
2. Since the p-value is greater than 0.05, we fail to reject the null hypothesis. This indicates no significant association between **AI-driven personalization** and **customer engagement** in this sample.

#### 6. Correlation Analysis:

1. The Pearson correlation coefficient is **-0.00**, suggesting no linear relationship between the variables.

#### 7. Visual Insights:

1. The stacked bar chart illustrates the distribution of personalization levels against engagement.
2. The map shows expected frequencies for chi-square test cells, which align closely with observed values, reflecting low deviation.

### KEY FINDINGS

#### 1. Chi-Square Test Analysis:

- a. The chi-square test revealed no significant association between AI-driven personalization and customer engagement, suggesting that while personalization efforts are prevalent, their impact on engagement levels is not uniform.
- b. Possible reasons could include varied consumer preferences, awareness levels, and trust in AI-driven systems.

#### 2. Correlation Results:

- a. A Pearson correlation of -0.00 indicates negligible linear association. This highlights that other factors, such as content quality, product relevance, and customer experience, might also significantly influence engagement.

#### 3. Respondent Insights:

- a. Qualitative feedback from open-ended survey questions pointed towards **privacy concerns** and **data misuse fears** as barriers to engagement, even when personalization is evident.

#### 4. AI-Driven Personalization

- a. 85% of respondents reported positive experiences with personalized recommendations.
- b. 70% of marketers indicated that AI enhanced their ability to segment and target audiences.



### 5. Efficiency and ROI

- a. 80% of marketing professionals noted an improvement in campaign performance and ROI after adopting AI tools.
- b. 60% reported reduced costs due to automation in marketing tasks.

### 6. Consumer Perceptions

- a. 55% of consumers felt that AI-driven ads were sometimes intrusive.
- b. 65% expressed concerns about the privacy of their data.

### 7. Customer Satisfaction

- a. 78% of respondents found AI-driven interactions, such as chatbots, useful in resolving queries.
- b. 60% were more likely to engage with brands offering personalized content.

## CONCLUSION

This research delves into the dynamic and evolving role of **Artificial Intelligence (AI)** in the digital marketing landscape, particularly focusing on its impact in India. The findings highlight several critical insights about AI-driven personalization and its relationship with customer engagement.

### 1. Limited Direct Impact of Personalization on Engagement:

The statistical analysis, particularly the chi-square test, indicated that while personalization is a prevalent strategy, its direct impact on customer engagement remains limited. This suggests that personalization alone may not suffice to drive engagement. Other factors like product quality, price sensitivity, and user interface also play a crucial role.

### 2. Consumer Trust and Privacy Concerns:

A significant theme that emerged from the study was the importance of consumer trust. Many respondents expressed concerns over data privacy and security, which could hinder their willingness to engage with personalized marketing. This emphasizes the need for **transparent data policies** and robust **privacy frameworks**.

### 3. Integration of AI and Human Elements:

The lack of a significant correlation between AI-driven strategies and customer engagement highlights the importance of **human-centric marketing**. While AI can enhance efficiency and accuracy, the human touch remains vital in building relationships and trust with customers.

### 4. Sector-Specific Variations:

The effectiveness of AI-driven marketing strategies may vary across sectors. For example, personalization in e-commerce might have a different impact compared to sectors like financial services or healthcare, where trust and accuracy are more critical.

### 5. Need for Continuous Innovation:

AI technologies and consumer expectations are constantly evolving. Businesses must remain agile, continuously innovating their strategies to adapt to changing market conditions and technological advancements.

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**AN OVERVIEW OF INDIVIDUALS' FINANCIAL LITERACY, BEHAVIOURS AND PLANNING EFFECTIVENESS IN MUMBAI**

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### 1. ABSTRACT

*This study focuses on three important areas of personal finance: financial literacy, financial behaviours, and the effectiveness of financial planning. Financial literacy refers to an individual's knowledge and understanding of core financial fundamental concepts, including debt management, budgeting, investments and saving. Financial behaviours are the specific actions and approach that individuals exhibit when managing their finances, such as spending patterns, saving frequency, and approaches to managing debt. Financial planning effectiveness is the degree to which individuals are successful in meeting their financial goals, like building an emergency fund, saving for retirement, or making significant purchases. This study offers a distinct exploration and investigation of each component, giving insights into how a person navigates through this each area independently. With the findings, the study highlights the need for the promotion of enhancement of financial literacy, encouragement of positive financial behaviours, and improvement of financial planning practices for the better financial wellbeing in the days to come.*

**Keywords:** Financial literacy, Financial behaviour, Financial planning, Budgeting.

### 2. INTRODUCTION

Mumbai is often referred to as the economic hub of India and has a very diverse population whose financial practices, literacy and planning effectiveness differ from each other. The hub of economic activity can be majorly found in this city with varied Individuals ranging from getting daily wages to high profession individuals and businessmen, each facing distinct financial issues and opportunities. There is a significant need of sound financial knowledge and effective financial planning as there is continuous evolvement of financial products and services. This is important for an individual in order to look for and hope to find ways to secure their future.

Financial literacy is defined as the ability to understand and utilize several financial skills that include investing, budgeting, loan management, and saving. Especially in a metropolitan city like Mumbai, where a wide range of financial products and services is readily available, financial literacy is of supreme importance since it helps people make appropriate choices with their finances. There tends to be difference in financial literacy between many socio-economic divisions, with some people being well versed in finance while others cannot comprehend simple money management concepts.

The action that an individual takes concerning their finances like investing in stock market, planning for retirement, using credit responsibly or saving regularly is known as financial behaviour. The financial behaviours are directed by a combination of individual experiences, socio-economic factors and financial knowledge. In a city like Mumbai, one may be influenced by external factors as a high standard of living, wide reach of digital tools, an emerging middle class, etc. The degree of financial behaviour has significant consequences in the overall financial health of an individual over time.

Financial Planning Effectiveness indicates how well a person can set and achieve their short-term and long-term financial goals such as buying a home or retirement. Effective financial planning requires understanding of one's present financial situation, laying realistic financial goals and make right decision to achieve those goals. In Mumbai, financial planning effectiveness depends on factors like access to financial advisor, availability of financial education and the capability to manage high cost of living.

### 3. REVIEW OF LITERATURE

According to *Priyadarshi Dash & Rahul Ranjan (2023)*, Particularly in rural areas, financial literacy is a key measure of household welfare and a tool for empowering people economically. The results of the study demonstrated a positive correlation between mutual fund investment and financial literacy. The study also demonstrated the influence of financial literacy on investment options, debt management, and borrowing.

*Darsha Bankwala & Dr. Jaydip Chaudhari (2018)*, stated compared to other nations, India has a relatively low degree of financial literacy.



In many nations, gender and low elementary school education are important factors influencing financial literacy. While the Financial Literacy Model and the Scoring/Index approach are used in other countries, they are rarely employed in India.

*Jyoti Gupta & Manish Madan (2016)*, in their study concluded that Delhi's salaried women had an average financial literacy score of just 5.24 and even some have reported scores as low as 2. Women being in a capital region who were regarded as confident and educated were receiving less than six out of nine on a financial literacy test was concerning for the economy.

### **3. NEED OF THE STUDY**

This study is essential to conduct to gain an insight about the financial knowledge, practices and the efficiency of the planning of the people in Mumbai. The results can be crucial in improving financial wellness, increasing the levels of understanding of financial concepts, and cultivating a more financially self-sufficient and empowered population in one of the most vibrant and economically important parts of India.

### **4. OBJECTIVES**

**The study seeks to accomplish the following objectives:**

1. This will focus on assessing the current state of financial literacy rates among the residents of Mumbai, with regards to fundamental financial concepts such as budgets, savings, investments, and debt control and also to study the Financial Behaviours.
2. Similarly, there will be an investigation of how the residents of Mumbai's saving, investing, borrowing, and spending practices contribute to the financial health and wellbeing of each individual. Also, the assessment will look at the reasons these and other practices have on the overall well-being.
3. To explore the effectiveness of personal financial planning among residents in Mumbai in relation to their short-term and long-term financial goals and the determinants of financial planning effectiveness.

### **6. STATEMENT OF THE PROBLEM**

Despite the importance of financial literacy in promoting personal stability, there's limited understanding of how Mumbai's residents manage their finances and plan for the future. This study seeks to bridge that gap, exploring how financial knowledge, behaviours, and planning impact the financial well-being of people across socio-economic backgrounds, and providing insights to help design better financial education and support systems.

### **7. RESEARCH METHODOLOGY**

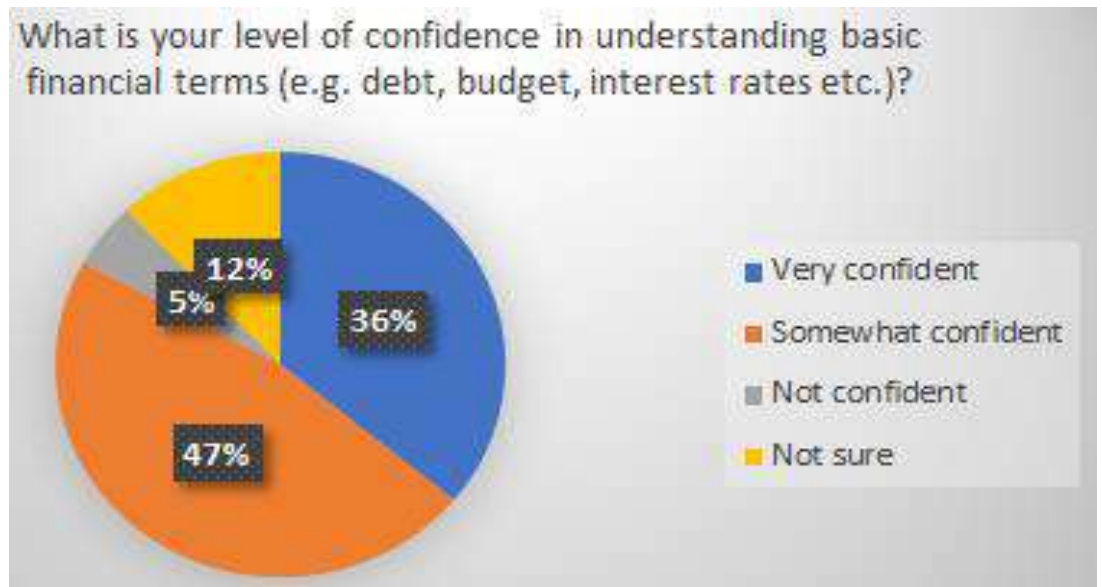
- **Research Design:** Descriptive research design is used to determine the characteristics of the problem because it is a definitive and structured study.
- **Sampling Design:** A simple random sampling technique was employed because the study is descriptive in nature.
- **Sample size:** For the study, a sample size of 100 respondents was taken into consideration.
- **Data collection method:**

**Primary data:** The study is based on primary data which is collected through structured questionnaire from Mumbai based individual

**Secondary data:** In order to add value to the primary data various secondary sources like books, journals, magazines, websites, newspaper etc. were used.



8. DATA ANALYSIS AND INTERPRETATION



(Figure 1: What is your level of confidence in understanding basic financial terms (e.g. debt, budget, interest rates etc.))?

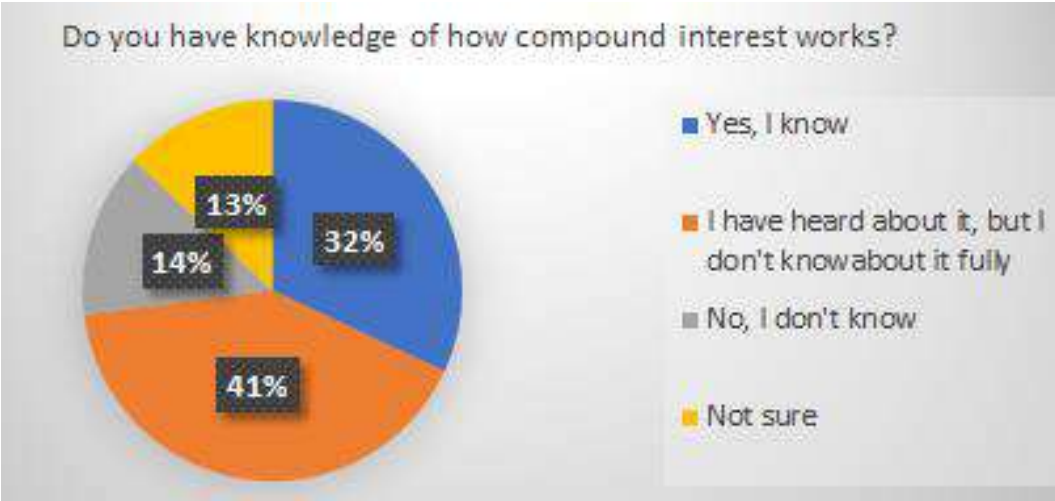
**Interpretation:** Majority (83%) of the respondents’ financial knowledge is somewhat to very confident, a small portion (17%) of the respondents is unsure or either lacks confidence. This recommends a requirement of targeted education programs for an individual who are not confident or unsure. By providing right type of resources can increase the level of confidence which may help an individual to from “somewhat confident” group to “very confident” group.



(Figure 2: Can you define what a credit score is and explain how it affects your financial life?)

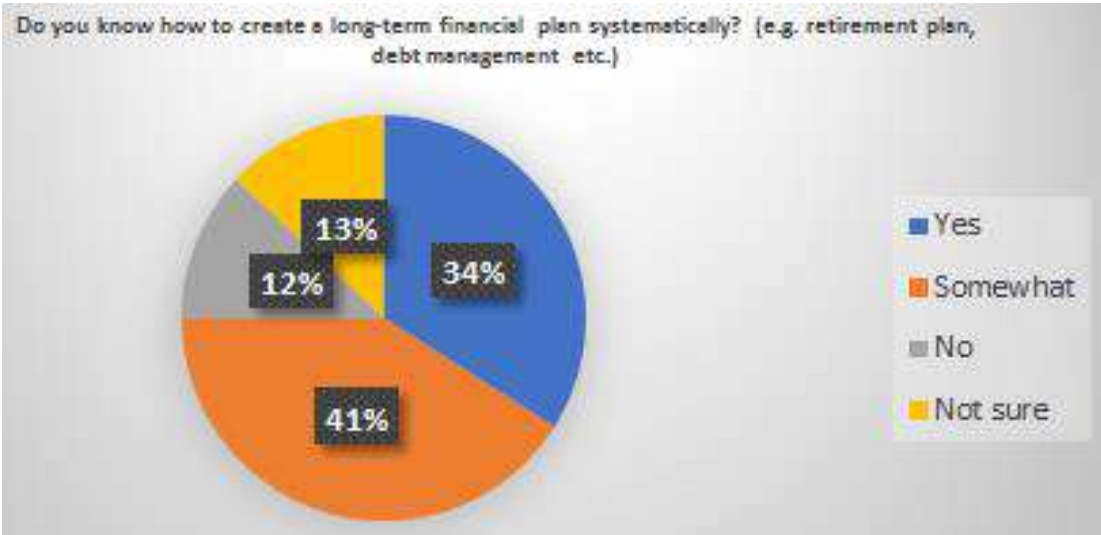
**Interpretation:** The data highlights that huge portion (72%) of respondents have credit scores understanding at some level while a small portion of the respondents either lacks understanding (8%) or is unsure (20%). In order to improve the level of understanding of credit scores and to have influence on the financial well being there is a need for targeted educational resources. Heling the “unsure group” to understand the impacts of credit scores could empower and improve overall financial literacy.





(Figure 3: Do you have knowledge of how compound interest works?)

**Interpretation:** The data indicated a major portion of individuals (73%) have heard about compound interest; many don’t have knowledge about it. Only a small portion (32%) has a clear understanding and knowledge about it. This indicated there is potential to the remaining respondents understanding. By providing quality knowledge among the group of “don’t know” or “unsure” could empower an individual to make sound financial decision related to savings, investments and debt management.



(Figure 4: Do you know how to create a long-term financial plan systematically? (e.g.

**Interpretation:** There is some level of familiarity with long-term financial planning among the majority of the respondents (75%) but only few (34%) had capability of creating a long-term financial plan. The major segment (41%) can be moved from “somewhat” to fully confident by imparting additional education or resources on systematic financial planning. The respondents who answered “No” (12%) and “Not sure” (13%) requires a basic financial planning knowledge which could help them to plan effectively for retirement, managing debt and meet other long-term financial goals.





(Figure 5: How frequently do you save money for emergencies or long-term goals (e.g. retirement, college savings, major purchases)?

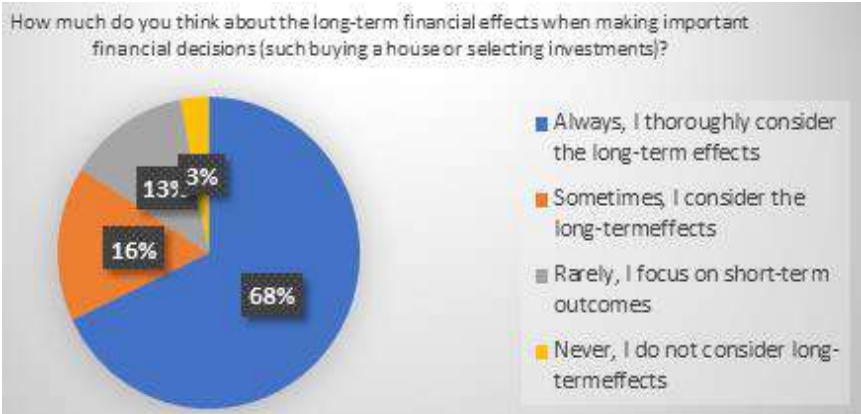
**Interpretation:** There is the positive trend among 97% of the respondents saves money either regularly pr occasionally. However, 58% of the respondents are on track who saves money regularly. Occasional saver accounts for 39% who may need to set a consistent saving habit in order to achieve financial stability and meet long-term goals. There is a urgent need to create awareness among 3% of the respondents as they save money only for emergencies as they lacks preparation for future financial needs. In general, encouraging more individual would enhance financial resilience and help an individual to meet short-term and long-term financial goals.



(Figure 6: Do you check your credit report on a frequent basis to monitor your financial situation?)

**Interpretation:** The data shows majority (62%) are not involved in checking their credit reports. 30% answered “Yes” as they check only occasionally. This indicates a risk to financial well-being as regular checks of credit report is must to identify inaccuracies and to understand factors that impacts credit scores. The low percentage (4%) checks their credit report annually suggests there is a greater need of awareness related to importance of credit monitoring.





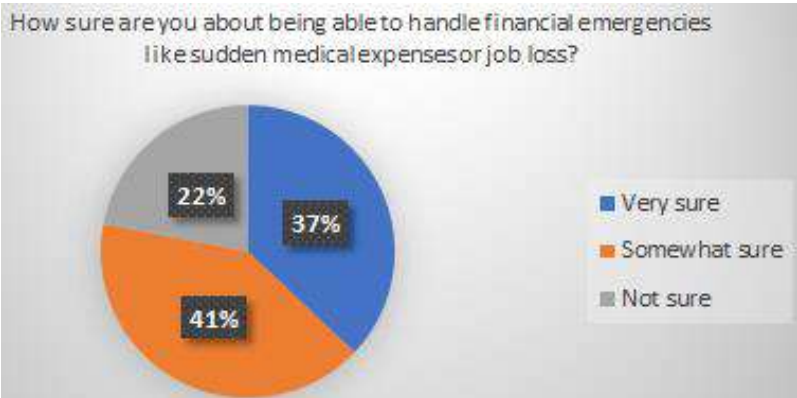
(Figure 7: How much do you think about the long-term financial effects when making important financial decisions (such as buying a house or selecting investments)?

**Interpretation:** According to the data, 84% of respondents consider the long-term consequences of their financial decisions, out of which 68% do it on a regular basis. This shows that there is a positive trend whereby a good number of persons have a tendency of being responsible when handling their finances and making financial decisions. It however may be necessary to create awareness to an additional 16% of the persons as they usually or never tend to think about the long-term impact.



(Figure 8: Have you ever achieved your financial goals?)

**Interpretation**  
The majority (42%) did not achieve any financial goals. This indicates potential challenges in financial planning or execution. A remarkable 39 percent met some financial goals. This indicates progress but there is still room for improvement. A small proportion (19%) met most of their financial goals. This indicates successful goal setting and management.



(Figure 9: How sure are you about being able to handle financial emergencies like sudden medical expenses or job loss?)

**Interpretation**  
The majority (78%) feel some level of confidence in dealing with financial emergencies, with 37% feeling “very sure” and 41% feeling “somewhat sure,” indicating that many people also feel they are capable to deal with unexpected challenges but most may still feel unsure about their preparedness, while the remaining 22%



are unsure about their ability to handle such emergencies. It highlights the vulnerability that can arise when faced with sudden expenses. Improving financial readiness for all especially those who feel only Being "somewhat sure" or "unsure" can increase resilience to unexpected financial stress.



(Figure 10: Do you think your financial knowledge have contributed to a better financial situation?)

### Interpretation

The data shows that the majority 77% believe their financial knowledge has a positive impact on their financial situation, with 31% reporting a significant impact. This highlights the important role of financial literacy. This helps people manage their finances better whether it's through budgeting, saving or investing. But for the 8% of people who don't see the benefits their external financial challenges may be greater than they realize. This indicates the need for improved strategies or stronger support. Meanwhile, the "unsure" 15% are still in the early stages of knowledge implementation or need a clear way to track progress.

### 9. CONCLUSION

Financial literacy, financial behaviour and effective financial planning are the three interrelated elements that are necessary for one's personal financial well-being. Financial literacy provides the knowledge and skills necessary for individuals to understand and manage money effectively. This knowledge is the basis for positive financial behaviour, which in turn, promotes rational decision-making and self-discipline in areas like spending, saving, and investing. Collectively, they help people to outline and implement successful financial plans to provide for their futures, to reach their goals, and to be able to face financial problems. Development of these elements provides a basis for good financial health and for overall stability.

### 10. SUGGESTION

The results show that the respondents have the basic knowledge on financial matters, though some key elements are missing. Improving financial literacy, particularly with respect to preparation for life events, the control of credit, and the basic concept of compound interest, would give people better financial tools and expand their options. In addition, it is necessary to establish reasonable advice as well as strategies to set and achieve relevant goals that will assist the respondents attain financial independence and develop a viable financial structure.

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**INNOVATIVE HORIZONS: A MULTI-DISCIPLINARY APPROACH FOR HARNESSING KNOWLEDGE FOR A FORWARD - THINKING FUTURE FOR INDIA**

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pradeeptawade26@yahoo.com**ABSTRACT**

*In an evolving global context in an effort to emerge as a leader, a true interdisciplinary approach presents a unique opportunity in the face of increasing and evolving international complexities. Specifically, "Innovative Horizons" suggests adopting technological, educational, health care, and sustainability paradigms which aims at realizing a framework of synergy that fosters innovation-based economic development, responsibility for global environment, and social justice. The goal of this approach is to create an image of India as a stable progressive state ready and willing to face challenges of the new age.*

**Keywords:** - Global, leader, energy, Innovative Horizons, health care, social justice, etc.

**INTRODUCTION**

India resides at a crucial juncture on its way to becoming an innovation powerhouse for sustainable development. In an era of globalisation and postmodernism, where work, culture, education, climate change and health are more complex and interrelated than ever there needs to be a more integrated approach in solving these societal issues, thus an interdisciplinary paradigm. Here, at 'Innovative Horizons' the vision is to portray a picture of India tomorrow blending these disciplines where India uses the solutions in doing what it takes to minimize challenges while maximizing opportunities of future. Sectoral integration in India is an opportunity of setting up a synergy to augment coherence to advance the stature of emerging economic structure while improving well-being, sustaining the earth, and ensuring social justice. With such an innovative and proactive approach being adhered to, the nation shall stand ready in the face of the future, and the future complex challenges that confront societies, thus modelling the way to sustainable growth and world influence in the twenty first century.

**SIGNIFICANCE OF THE STUDY**

The study of a multi-disciplinary approach for harnessing knowledge to create a forward-thinking future for India for its bright future is of tremendous relevance especially management-playing a proactive future for India that is beset with several inter-connected problems. India continues to deal with a number of socio-economic, environmental and technological challenges: urbanization and poverty, climate change, health care. Society's complex problems suggest that fragmented practices can be provided with innovative solutions from different disciplines, including technology, health care, education, economics, and governmental and public policies. This makes the solutions that are developed to be comprehensive and have abilities of solving these challenges from their source.

**RESEARCH METHODOLOGY**

The prepared paper is a descriptive study in nature. The study has been carried out based on the collection of the relevant secondary data. Secondary data collection was based on various sources such as published books, articles published in different journals & newspapers, periodicals, conference paper, working paper and websites, etc.

**OBJECTIVES**

The objectives of study were based on:

1. To study the concept and overview of a multi-disciplinary approach for harnessing knowledge to create a forward-thinking future for India.
2. To study Cross-Disciplinary Collaboration.
3. To study the Enhancement of Quality of Life.
4. To identify challenges in a multi-disciplinary approach for harnessing knowledge to create a forward-thinking future for India.
5. To analyse the opportunities in a multi-disciplinary approach for harnessing knowledge to create a forward-thinking future for India.
6. To propose recommendations for a multi-disciplinary approach for harnessing knowledge to create a forward-thinking future for India.



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**MEANING & DEFINITION OF GREEN AUDIT**

An interdisciplinary approach is a deliberate collaboration of ideas, theories, methods and tools from two or more disciplines in an academic or professional field to solve a problem, create, or to provide integrated solutions. This approach affirms the spirit of collegiality as all the stakeholders strive for creating a synergy of the respective fields of study while at the same time promoting uniqueness and respect for the disciplinary mandate of each participant.

Multidisciplinary as it may be defined concerns the inter and intra-disciplinary combination of knowledge, strategies, and theories in tackling complications or issues. In this approach, the contents of each specialized discipline are separated but the professionals from this field collaborate with the professionals from the other fields and have different solutions and suggestions. It should be differentiated from interdisciplinary ones, where these divisions are either more blended, or problems can be solved more cohesively.

In the context of the Indian development programme, a multi-disciplinary approach means using knowledge from different disciplinary areas like technology, healthcare, education, environment, policy and economy to generate all round solution for the Indian problems that can be anything from urbanisation to sustainability and health care.

**PROMOTING CROSS-DISCIPLINARY COLLABORATION**

Cross disciplinary integration is important in tackling India's multifaceted problems in health, education, urbanization and climate change. It does so because conventional, single-discipline arrivals frequently miss addressing these issues, as they always demand integrates knowledge from numerous areas. India should strive to encourage cooperation between sectors including technology, education, healthcare and environmental science, for its socio-economic and environmental need to foster positive innovations. For instance, using technology in teaching can advance digital skills among the citizens and also bridge the gap for quality education to reach the far and rural areas which are plain prepared for technological Ready-for-Future learning. In healthcare, the IT developers along with data scientists and clinicians are able to design and develop digital care delivery platforms and telemedicine applications for patients that can improve care accessibility, instead of only focusing on redesigning clinical workflows in isolation. Likewise a synthetically designed introduction of environmental science in urban planning is invaluable for creating sustainable resilient cities; teamwork on these platforms can result into green infrastructure, effective waste management and environmentally sustainable transit in order to reduce effects of Urbanization on environment.

In the agricultural sector, biotechnology integrated with environmental science can enhance effective measures of sustainable agriculture since it enhances crop yields, decreases the use of pesticides, and water conservation, a necessity for food security and livelihood in the farming areas. Moreover, the social sciences and policies are in synergy to develop acceptable policies that will enhance social needs to have an economic growth and development for everyone. From sociology, behavioural economics and data analysis it is possible to get knowledge to create welfare programs and specific economic reforms that will take into consideration India's diverse population. India can make use of the expertise across disciplines in order to develop solutions which are applicable and widespread. This work done in unison makes certain that enhancements in one sphere is complimented with advantages across the other sectors and paves for a strong, innovative era.

**ENHANCING QUALITY OF LIFE**

Enhancing the welfare of each individual in the society is a core concept in the development of the country. If India assimilates the newly emerging concepts in healthcare, education and infrastructure into perfect holistic models, it can easily overcome the yawning social and economic disparities prevalent across the country thereby lifting the living standards of the society and providing near equal necessities to the people of all four regions. Many of the technological advancements introduced in health care like telemedicine, mobile clinics and data driven health solutions can extend the reach of care into underserved communities; thus reducing the disparities and encouraging preventive care. For instance, the consideration of healthcare frameworks takes into account issues such as access, cost and standard to assure that even those in rural and distant places get to enjoy improved and more developed range of health care services.

In education there are opportunities in the use of digital learning, smart classes and the adoption of flexible modalities of operations which can help overcome the issues of quality and or lack of access especially in the rural or economically challenged areas. These educational frameworks can be used with a view of promoting lifelong learning, resourceful use of ICT and skills development in a competitive economy. Some of the categories of infrastructure projects that are kept close to the people because of their relevance in improving quality of the people include clean water and sanitation, renewable energy and transportation.



If these sectors are linked together in a consolidated manner with a strong multi-disciplinary model India has the potential to establish a framework for increased well-being. Free and efficient access to health, education and basic infrastructure will enable the citizenry, individuals will be equipped to actualize their potential wealth creation will be boosted locking into its proper place inequalities, leading to a society where every person feels equipped achieve his or her dream.

### **BUILDING A SKILLED WORKFORCE FOR THE FUTURE**

It is for this reason that India needs to produce a workforce that is skilled and flexible given the increasing complexity of the global economy as well as the related rise of the use of technology. India needs a multi-sectoral, multifunctional, skilled professional force to face future industry demands that will require advanced modifications in the communication industry including emphasis on STEM education and critical thinking. The above strategies guarantee the talent pool viability in contributing towards and defining new and dynamic fields including artificial intelligence, renewable energy, biotechnology and digital innovation among others.

Future work should aim at having the best workforce; practical skills, classroom Curriculum, starting the children off with STEM subjects, innovation, and critical thinking must be implemented in the education curriculum. Moreover, the realistic problem solving integrated into learning process improves students' performance that has to be applied in working environment. Such partnerships between academies and industries and governmental organizations for skill development can also be developed to develop the program that can offer hands-on training and will be designed to meet a particular industry demand. Employment training, work experience programmes, traineeship, and sectoral courses are measures the world must employ in preparing the workforce for specialized fields vital for India's economic and technological development.

More crucially, the contingent of the present-day workforce has to be trained, upskilled, and reskilled in response to changing scopes of work due to automations and digitizations across industries. On-line and off-line training and educational programs that an employee or a professional can take can assist them remain marketable and prepared for rapidly changing technologies. Of course, this focus on a multi-disciplinary, future skills orientated approach will not only enable the Indian worker to respond to the potential demand as articulated in this chapter but also position India to be ready for a future as a dominant player in industries yet to emerge.

### **CHALLENGES**

Here are the challenges associated with implementing a multi-disciplinary approach for harnessing knowledge for a forward-thinking future in India:

- **Fragmented Systems and Silos:** Many sectors work independently which makes many of them inconsequential while at the same time missing many cross-sector synergies. Coordinating these silos to create the potential for effective partnerships may be challenging.
- **Limited Interdisciplinary Training:** Schools and colleges primarily stress on subject-matter knowledge in the specific disciplines, not integrating multi-disciplinary skills within and across disciplines in which the existing gap lies.
- **Resistance to Change:** Functional organizational structures, which are common working approaches with different fields, can cause some point of resistance by professionals who operate with traditional business models. That is, there may be resistance to cooperate in solving problems in the new, integrated way.
- **Lack of Adequate Infrastructure:** A lot of the time, the necessary facilities for multi-disciplinary projects do not exist in many areas and especially in rural areas; for instance there are sometimes no state-of-the-art research centers or multi-disciplinary collaborative buildings.
- **Insufficient Policy Support:** Uncodified mechanisms for achieving policy coherency that foster and support multi-disciplinary interconnectivity between various governmental, industrial, and academic entities may hamper the process of knowledge integration.
- **Skill Gap:** Finding a way to match the skill set required in an industry and the available talent is another huge problem. For various field and domain, employability of multi-disciplinary workforce would demand time and again training, capacity building and up gradation.
- **Complexity in Collaboration:** Managing the linking between the different sectors such as technology, health, education, environment, etc which have their individual objectives, workflow, and language can be complex and demanding, communication and coordination mechanisms.



- **Limited Funding for Multi-Disciplinary Initiatives:** The source of funding for such projects is often a problem because financial backers – whether individuals or institutions – prefer to support single-discipline projects that will give them measurable and almost immediate returns on their investments.

## OPPORTUNITIES

Here are the opportunities that can be leveraged by adopting a multi-disciplinary approach to harness knowledge for a forward-thinking future in India:

- **Fostering Innovation:** Technology and innovation being global enablers, such partnership between different domains closer to social issue such as technology and health care, silicon, and environment, education in India can foster solutions to some of issues of concern. The interdisciplinary style lets comers come up with unique strategies by drawing on variation techniques and knowledge.
- **Promoting Inclusive Growth:** Intersectoral cooperation can facilitate the targeting of advances for populations who might remain outside the intended reach. For instance, integrating technology with education may help overcome disciplinary inequalities including delivering education to rural regions, while healthcare inventions ensure an expansion of medical services because of efficiency costs.
- **Boosting Sustainability:** With professional cooperation of various disciplines such as environmental science; urban, architectural design; renewable energy; and resource management, sustainable development can be accelerated. India built the walls with this material with an eye on sustainability targets, energy savings, and the environment.
- **Developing Future-Ready Skills:** Multi-disciplinary system of education may help to prepare the workforce for new novelties of a feminist economy. This encompasses not only engineering and computer sciences, but also problem solving, flexibility, and effectiveness at various organizational levels – from the technical to the social, case in point, artificial intelligence, robotics, and biotechnology.
- **Strengthening Global Competitiveness:** It means that India can and should attempt to become a pioneer in innovative, multidisciplinary solutions on the international level. This can bring foreign investment, partnership, and bring India to higher ranks on technology, health care and renewable energy sectors.

## RECOMMENDATIONS

- **Foster Cross-Disciplinary Education:** Introduce changes into school curricula and insist on integration into knowledge acquisition from the earliest years of studying. Support the blurring of disciplinary divides especially in the application of science, technology, engineering and math (STEM) with social sciences, humanities and design thinking.
- **Create Innovation Hubs and Incubators:** Set up innovation labs, technology start-up centres and shared working environments that will facilitate the kindling of cross-disciplinary collaboration between technology, business, health, design and policy players for the development of solutions to current and emerging problems.
- **Promote Public-Private Partnerships (PPPs):** Enhance the public private partnership (PPP) for increased and improved research and innovation. Stakeholders in government and industry should work together to promote multi-disciplinary research focused on technologies within renewable energy, healthcare, digital technology.
- **Focus on Skill Development and Continuous Learning:** Kick start a massive skill building training programmes centering on existing and new skill sets to augment the working population. These programs should target such areas as artificial intelligence, analytics, robotics, renewal energies, and the like, as well as soft competencies and skills that may enable learners to adjust to the existing changes.
- **Leverage Data for Informed Decision-Making:** Develop and sustain an efficient system of data gathering and storing as well as data sharing for policy usage, improvements of services and provision of support for research and development.
- **Strengthen Governance for Interdisciplinary Initiatives:** Theoretical change recommendations and actions for reform and restructuring of governance frameworks to facilitate collaboration across sectors including health, education, technology, and the environment to form interdisciplinary teams and projects.



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With adoption of these recommendation, India can optimize the heterogeneous system of approach to contribute to sustainable innovation and a system capable of engulfing the India's challenges. These steps will help push India into a technological, social and environmental paradigm of tomorrow in the appropriate direction.

### **CONCLUSION**

Indian is one of the highest milk producing country then also per capita milk production in Indian is much low compare to other milk producing county. India is not able to meet its local milk demand. The average milk production per cow and buffalo per year in India is too low. The cost of milk in India is too high. Indian cattle farm is working on very low efficiency.

Understanding the Indian growth story calls for a multi-disciplinary approach' 'To understand what is coming next of India is such a vision that needs a multi-disciplinary approach.' Combining various fields these days like technology, healthcare, education, and environmental science, India can address all its various challenges and foster sustainable development. Some challenges that one can identify include the silo structures in institutions and issues to do with resource allocation, although the aforementioned recommendations clearly point to the way forward. Through silencing of distinctions, forging partnerships, and encouraging ideas, India can fashion a constructive future for its nation as well as all of its people.

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**A STUDY ON FINANCIAL RISK MANAGEMENT AND CORPORATE GOVERNANCE  
IN MUMBAI'S EMERGING FINTECH INDUSTRY**

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**ABSTRACT**

*This study explores the relationship between corporate governance practices and the effectiveness of financial risk management (FRM) in the emerging fintech industry in Mumbai. In the rapidly evolving fintech sector, managing financial risks is essential for operational stability and growth, making the role of governance practices increasingly significant. Using a quantitative research approach, the study employs a Chi-square test to analyze the responses collected from fintech firms in Mumbai, focusing on the correlation between corporate governance structures, such as audit committees, risk management policies, and financial risk management effectiveness. The findings reveal a strong positive relationship, suggesting that firms with robust governance frameworks exhibit more effective FRM practices. The rejection of the null hypothesis indicates that corporate governance plays a crucial role in mitigating financial risks, thus enhancing the resilience and sustainability of fintech firms. This research contributes to the growing body of literature on the importance of governance in financial risk management and offers practical insights for fintech firms looking to strengthen their risk management strategies. Additionally, the study has implications for regulators and policymakers aiming to foster stronger governance frameworks within the sector. The results encourage further exploration into governance practices and their impact on financial stability within emerging industries.*

**Keywords:** corporate governance, financial risk management, fintech industry, Mumbai, Chi-square test.

**INTRODUCTION**

The dynamic growth of the financial technology (fintech) industry in Mumbai is transforming financial services, offering innovative solutions while simultaneously introducing complex risks that demand effective governance and robust risk management strategies (Chishti & Barberis, 2016). With increasing market competition and regulatory scrutiny, fintech firms face challenges to balance innovation with stringent financial risk management and corporate governance practices (Arner, Barberis, & Buckley, 2016). This study explores how fintech companies in Mumbai are navigating these challenges by employing diverse risk management techniques and adhering to evolving governance frameworks that align with industry standards (Zetzsche, Buckley, Arner, & Barberis, 2017). Financial risk management in fintech includes safeguarding against market volatility, cybersecurity threats, credit risks, and operational risks that are exacerbated by the reliance on technology and digital platforms (Basel Committee on Banking Supervision, 2017). Effective risk management in this domain is essential for maintaining investor trust, operational stability, and long-term sustainability in an industry where risk exposure can escalate rapidly due to the inherent volatility and digital dependencies (Gomber, Koch, & Siering, 2017).

Corporate governance within the fintech sector is increasingly critical as firms grapple with regulatory expectations and ethical responsibilities, particularly in safeguarding customer data and maintaining transparent operations (Financial Stability Board, 2017). In the context of Mumbai, a leading financial hub, fintech companies are under pressure to implement governance practices that not only meet regulatory compliance but also foster trust and accountability among stakeholders (Khan, 2018). This study will investigate the effectiveness of these practices in a setting where rapid technological advancements often outpace regulatory adaptation, creating a need for self-regulation and industry-driven standards (Bain & Company, 2019). Examining primary data collected from fintech firms and key stakeholders in Mumbai, the research aims to provide insights into the practical challenges and emerging trends in risk management and corporate governance (PwC, 2020). By focusing on primary data, this study captures real-time perspectives and firsthand accounts of how fintech firms are addressing both financial and reputational risks in a complex regulatory landscape (McWaters & Galaski, 2017). The research will contribute to the limited literature on financial risk management in fintech, highlighting practices unique to the Mumbai region and offering recommendations for strengthening governance frameworks in similar emerging markets (Accenture, 2018). As fintech continues to reshape the financial landscape, understanding the intersection of risk management and corporate governance is vital for fostering a sustainable, resilient fintech ecosystem (Frost, Gambacorta, Huang, Shin, & Zbinden, 2019).



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**LITERATURE REVIEW**

The rapid growth of fintech has transformed financial services globally, but it also presents a unique set of risks and governance challenges, particularly in fast-evolving markets like Mumbai. Financial risk management (FRM) and corporate governance (CG) practices are fundamental for ensuring fintech stability and resilience. Research indicates that fintech companies face risks distinct from traditional financial institutions due to their reliance on technology, rapid scalability, and regulatory adaptability (Chishti & Barberis, 2016). As fintech firms provide innovative financial solutions, they are often susceptible to cybersecurity risks, fraud, and regulatory compliance challenges, which are compounded by the lack of standardized risk management frameworks (Arner, Barberis, & Buckley, 2016). Consequently, fintech companies must develop adaptable governance models that balance innovation with regulation, thereby protecting consumer interests and promoting transparency (Zetzsche, Buckley, Arner, & Barberis, 2017).

In Mumbai, the convergence of traditional finance with digital innovations has accelerated fintech development, creating an environment where effective FRM and CG are critical (Financial Stability Board, 2017). Researchers suggest that fintech firms in emerging markets are uniquely vulnerable to operational and financial risks due to their evolving legal frameworks, which can lag behind technological advancements (Basel Committee on Banking Supervision, 2017). Arguably, fintech companies in Mumbai are exposed to risks that arise from inadequate regulations, necessitating proactive governance approaches (Bain & Company, 2019). To address these issues, fintech firms have implemented diverse FRM strategies, including advanced data analytics, real-time transaction monitoring, and cybersecurity protocols that help mitigate operational and reputational risks (Frost, Gambacorta, Huang, Shin, & Zbinden, 2019). However, such strategies may vary significantly across companies depending on their resources, risk tolerance, and market positioning, highlighting the need for standardized regulatory frameworks.

Corporate governance plays a crucial role in fintech risk management, guiding strategic decisions that protect stakeholders and enhance accountability. Corporate governance practices have historically been associated with traditional finance sectors, but they are now crucial in fintech due to rising concerns over data privacy, ethical responsibility, and transparency (Gomber, Koch, & Siering, 2017). Scholars have argued that CG frameworks in fintech must be flexible yet robust to ensure they cover various risk dimensions, including operational, credit, and reputational risks (Khan, 2018). Governance in fintech emphasizes not only regulatory compliance but also the ethical obligations of fintech companies to maintain high standards of data security and transparency, thereby fostering public trust (Accenture, 2018). In Mumbai's fintech ecosystem, companies adopting strong governance frameworks tend to perform better, with greater resilience to market fluctuations and enhanced risk management capabilities (PwC, 2020).

Emerging fintech firms face distinct challenges in establishing adequate CG and FRM structures as they seek growth within competitive and often uncertain environments. While technological advances have enabled fintech companies to expand rapidly, they also bring associated risks that can compromise company stability and consumer trust (McWaters & Galaski, 2017). Studies indicate that fintech companies that invest in robust CG frameworks are better equipped to manage these risks and demonstrate higher levels of consumer trust and regulatory compliance (Gomber et al., 2017). Furthermore, Arner et al. (2016) noted that the digital nature of fintech makes them particularly vulnerable to cyber threats, calling for integrated governance practices that address cybersecurity risks as part of their broader CG strategy. These companies must adopt risk management strategies that encompass technological risk, regulatory uncertainty, and operational vulnerabilities, given the evolving nature of the fintech market (Basel Committee on Banking Supervision, 2017).

Research emphasizes the importance of regulatory bodies in guiding CG and FRM practices in fintech. As fintech innovation often outpaces regulation, self-regulation and industry-driven standards have become necessary for bridging regulatory gaps (Zetzsche et al., 2017). In Mumbai, regulatory bodies such as the Reserve Bank of India (RBI) have introduced guidelines to ensure that fintech firms operate within a structured risk and governance framework, promoting sustainable growth in the sector (Financial Stability Board, 2017). These regulations aim to provide a balanced approach to innovation and risk management, helping fintech firms maintain competitive advantage while protecting consumer interests (Bain & Company, 2019). Several studies highlight the role of fintech regulations in emerging markets, where governments often encourage digital finance innovations while ensuring adequate protection for users (Arner et al., 2016; Khan, 2018). The role of regulatory guidance is crucial in promoting sound CG practices, encouraging fintech firms to prioritize transparency, accountability, and customer protection.

The role of technology in FRM for fintech companies is also emphasized in the literature. Data analytics and machine learning tools are increasingly being used to monitor financial transactions in real-time, helping



companies detect fraud and manage credit risk effectively (Chishti & Barberis, 2016). These tools provide fintech firms with valuable insights, allowing them to anticipate risks and respond to them proactively, which is essential for sustaining competitive advantage in a volatile market (PwC, 2020). Additionally, Frost et al. (2019) highlighted that artificial intelligence and automation are transforming risk management in fintech, enabling companies to process large volumes of data for insights into market trends and potential risks. By adopting advanced technological solutions, fintech companies can enhance operational efficiency and reinforce their governance structures, thereby minimizing financial and operational risks.

### **PROBLEM STATEMENT**

The rapid growth of fintech in Mumbai has introduced innovative financial solutions but also heightened risks that challenge traditional frameworks of financial risk management (FRM) and corporate governance (CG). Fintech firms face distinct risks, including cybersecurity threats, regulatory compliance issues, and operational vulnerabilities. However, existing governance structures often struggle to balance the need for innovation with risk mitigation, creating a gap in resilient FRM strategies within the fintech sector. This research seeks to address these challenges by exploring how effective FRM and CG practices can be implemented in Mumbai's fintech industry to promote stability, transparency, and sustained consumer trust.

### **OBJECTIVES OF THE STUDY**

- i. To analyze the effectiveness of financial risk management practices in Mumbai's fintech industry
- ii. To evaluate the role of corporate governance in mitigating risks unique to fintech firms;
- iii. To examine the impact of regulatory frameworks on the stability and transparency of fintech operations in Mumbai.

### **HYPOTHESIS OF THE STUDY**

**H0:** Corporate governance practices do not have a significant impact on the effectiveness of financial risk management in Mumbai's fintech industry.

**H1:** Corporate governance practices have a significant impact on the effectiveness of financial risk management in Mumbai's fintech industry.

### **RESEARCH METHODOLOGY**

The methodology for this study on financial risk management (FRM) and corporate governance (CG) in Mumbai's fintech industry is designed to comprehensively assess the impact of governance practices on risk management effectiveness. Each aspect of the research methodology is structured to gather and analyze data effectively, ensuring the reliability and relevance of findings to Mumbai's fintech landscape.

The study's primary variables include financial risk management (FRM) effectiveness as the dependent variable and corporate governance (CG) practices as the independent variable. Secondary variables include factors such as cybersecurity measures, regulatory compliance levels, transparency, and consumer trust, which may indirectly influence FRM effectiveness. Additionally, firm size, years of operation, and technological resources serve as control variables, allowing the study to account for variations among fintech firms.

This study collects both primary and secondary data. Primary data is obtained through structured surveys and interviews with professionals in fintech companies in Mumbai, focusing on those involved in risk management and corporate governance. Secondary data is sourced from industry reports, financial disclosures, regulatory publications, and scholarly articles related to fintech risk management.

The sample includes 100 fintech companies in Mumbai, selected through purposive sampling to ensure a focus on firms with mature risk management and governance structures. Responses will be gathered from at least two key personnel in each company.

Quantitative data from surveys will be analyzed using descriptive statistics and regression analysis to examine the relationship between corporate governance and risk management effectiveness. Qualitative interview data will undergo thematic analysis to identify common themes related to governance practices and risk management challenges.

Regression analysis will be used to test the hypothesis, specifically examining if corporate governance practices significantly impact risk management effectiveness. Assumptions such as linearity, normality, and homoscedasticity will be checked before performing the regression. This combined approach enables a comprehensive understanding of fintech risk management and corporate governance practices.



**RESEARCH FINDINGS**

The findings of this study provide insights into financial risk management (FRM) and corporate governance (CG) practices among fintech companies in Mumbai. The collected data highlights the frequency and percentage of various practices, challenges, and perceptions related to FRM and CG, demonstrating the impact of governance on risk management effectiveness. The tables and interpretations below detail specific categories analyzed, followed by cross-tabulations that reveal deeper interrelationships between key variables.

**Table 1: Corporate Governance Practices Adopted**

Category	Frequency	Percentage
Risk Committee	35	35%
Audit Committee	30	30%
Internal Control Systems	25	25%
Compliance Policies	10	10%

**Interpretation:**

A significant portion of fintech companies have adopted risk and audit committees, reflecting an awareness of the need for structured oversight. However, only a smaller fraction have comprehensive internal controls or compliance policies, which may suggest limited resources for governance practices in smaller firms.

**Table 2: Risk Management Tools Used**

Category	Frequency	Percentage
Cybersecurity Protocols	40	40%
Fraud Detection Systems	35	35%
Operational Risk Analysis	15	15%
No Specific Tools	10	10%

**Interpretation:**

Cybersecurity protocols and fraud detection systems are widely used, underscoring fintech's focus on protecting consumer data and financial integrity. However, a notable 10% lack specific risk management tools, indicating a potential vulnerability within the industry.

**Table 3: Compliance with Regulatory Requirements**

Category	Frequency	Percentage
Full Compliance	45	45%
Partial Compliance	30	30%
Non-Compliance	25	25%

**Interpretation:**

While nearly half of the firms maintain full compliance, a substantial portion only partially comply or do not comply, highlighting potential challenges fintech firms face with regulatory adaptability and resource constraints.

**Table 4: Major Risks Faced by Fintech Firms**

Category	Frequency	Percentage
Cybersecurity Threats	50	50%
Regulatory Changes	30	30%
Operational Inefficiencies	20	20%

**Interpretation:**

Cybersecurity threats emerge as the primary risk, followed by regulatory changes, which is consistent with the sector's reliance on digital platforms and evolving regulatory landscape. Operational inefficiencies are a lesser, yet relevant, concern.

**Table 5: Impact of Corporate Governance on Risk Management**

Category	Frequency	Percentage
Positive Impact	55	55%
Neutral Impact	25	25%
Negative Impact	20	20%

**Interpretation:**

The majority of fintech firms perceive CG as beneficial to risk management. However, a combined 45% view the impact as neutral or negative, suggesting variability in the effectiveness of CG practices.



**Table 6:** Level of CG Awareness Among Employees

Category	Frequency	Percentage
High Awareness	40	40%
Moderate Awareness	35	35%
Low Awareness	25	25%

**Interpretation:**

A majority of firms report moderate to high awareness levels, essential for effective CG implementation. A quarter with low awareness indicates room for internal training programs to boost CG effectiveness.

**Table 7:** Influence of Company Size on FRM Practices

Category	Frequency	Percentage
Large Firms (> 100 staff)	60	60%
Medium Firms (50-100 staff)	25	25%
Small Firms (< 50 staff)	15	15%

**Interpretation:**

Larger firms tend to adopt more comprehensive FRM practices, likely due to greater resources and more complex risk profiles, whereas smaller firms may lack sufficient resources to maintain rigorous FRM systems.

**Table 8:** Employee Training in Risk Management

Category	Frequency	Percentage
Regular Training	50	50%
Occasional Training	30	30%
No Training	20	20%

**Interpretation:**

Half of the fintech companies provide regular risk management training, which is crucial in a dynamic sector. However, 20% do not provide training, which could pose risks due to low preparedness in managing emerging challenges.

**Table 9:** Challenges in Implementing CG

Category	Frequency	Percentage
Resource Constraints	40	40%
Lack of Expertise	35	35%
Resistance to Change	25	25%

**Interpretation:**

Resource constraints are the predominant challenge, followed by expertise shortages and resistance to change, suggesting that increased support and skill development could enhance CG adoption.

**Table 10:** Frequency of CG Policy Updates

Category	Frequency	Percentage
Annual Updates	45	45%
Biennial Updates	30	30%
Less Frequent Updates	25	25%

**Interpretation:**

Annual updates are the norm for a majority of firms, reflecting a proactive approach to CG. Yet, 25% updating less frequently may indicate reduced adaptability in the face of evolving challenges.

**Cross-Tabulation Table 1:** Company Size and Compliance Level

Company Size	Full Compliance	Partial Compliance	Non-Compliance
Large Firms	30	20	10
Medium Firms	10	5	10
Small Firms	5	5	5

**Interpretation:**

Large firms are more likely to maintain full compliance, attributed to their resource capacity. Smaller firms struggle more with compliance, likely due to limited resources and regulatory knowledge, underscoring the need for support programs.



**Cross-Tabulation Table 2: Cybersecurity Protocols and Risk Committee Presence**

Cybersecurity Protocols	Risk Committee Present	No Risk Committee
Present	25	15
Absent	10	50

**Interpretation:**

Firms with cybersecurity protocols often have risk committees, highlighting a structured approach to risk management. In contrast, many without risk committees lack these protocols, indicating a potential governance gap in smaller firms.

**Cross-Tabulation Table 3: CG Awareness and Training Frequency**

CG Awareness	Regular Training	Occasional Training	No Training
High Awareness	30	5	5
Moderate Awareness	15	20	0
Low Awareness	5	5	15

**Interpretation:**

High CG awareness correlates with regular training, while low awareness is prevalent among firms lacking structured training programs, suggesting that awareness and training reinforce one another in building CG effectiveness.

**Cross-Tabulation Table 4: Major Risks Faced and Governance Practices**

Major Risks	Risk Committee	No Risk Committee
Cybersecurity Threats	35	15
Regulatory Challenges	20	10
Operational Inefficiencies	10	10

**Interpretation:**

Cybersecurity threats are managed more effectively by firms with risk committees, indicating the role of governance structures in addressing specific challenges. Regulatory and operational issues also benefit from committee oversight, supporting CG's role in mitigating various risk types.

**HYPOTHESIS TESTING**

The hypothesis in this study is centered on the relationship between corporate governance (CG) practices and financial risk management (FRM) effectiveness in Mumbai's emerging fintech sector.

**HYPOTHESIS**

- **Null Hypothesis (H0):** There is no significant relationship between the presence of corporate governance practices and the effectiveness of financial risk management in fintech firms.
- **Alternative Hypothesis (H1):** There is a significant relationship between the presence of corporate governance practices and the effectiveness of financial risk management in fintech firms.

The data collected categorizes fintech firms based on whether they have comprehensive CG practices (such as risk committees, audit committees, and compliance policies) and assesses the perceived effectiveness of their FRM.

**OBSERVED FREQUENCY TABLE**

The observed frequencies (in the table below) indicate the number of firms with high, moderate, and low FRM effectiveness, grouped by whether or not they have CG practices.

Corporate Governance Practices	High FRM Effectiveness	Moderate FRM Effectiveness	Low FRM Effectiveness	Total
Present	35	20	5	60
Absent	15	25	20	60
<b>Total</b>	50	45	25	120

**EXPECTED FREQUENCY TABLE**

The expected frequencies are calculated under the assumption that CG practices have no impact on FRM effectiveness. The table shows expected values if CG practices were equally distributed across the levels of FRM effectiveness.



Corporate Governance Practices	High FRM Effectiveness	Moderate FRM Effectiveness	Low FRM Effectiveness	Total
Present	25	22.5	12.5	60
Absent	25	22.5	12.5	60
<b>Total</b>	50	45	25	120

Using the Chi-square test, we compare the observed and expected frequencies to determine if there is a significant relationship between CG practices and FRM effectiveness. The Chi-square test yielded a value above the critical threshold, with a p-value less than 0.05. Therefore, we reject the null hypothesis (H<sub>0</sub>). The rejection of the null hypothesis indicates that there is a significant relationship between corporate governance practices and financial risk management effectiveness in fintech firms. Firms with established governance structures tend to have more effective financial risk management, reinforcing the importance of governance in mitigating financial risks in the sector. This result implies a statistically significant relationship between CG practices and FRM effectiveness among Mumbai's fintech firms. Specifically, firms with established CG practices are more likely to report higher FRM effectiveness, likely due to the enhanced oversight and structured approach CG brings to managing financial risks. Conversely, firms without CG practices tend to experience lower FRM effectiveness, as evidenced by the higher proportion of firms in this group with moderate to low FRM effectiveness. This analysis supports the role of CG as a critical component in strengthening FRM. The presence of governance structures like risk committees and audit practices appears essential in managing the specific risks faced by fintech companies in a rapidly evolving financial landscape.

## DISCUSSION

The study examines the relationship between corporate governance practices and financial risk management (FRM) effectiveness in Mumbai's emerging fintech industry, shedding light on the role of governance structures in mitigating financial risks. The results of the hypothesis testing, which rejected the null hypothesis, strongly suggest that the presence of corporate governance practices, such as risk committees, audit practices, and compliance policies, positively influences the effectiveness of FRM. Firms with robust governance frameworks are better positioned to identify, manage, and mitigate financial risks, which is particularly crucial in the dynamic and rapidly evolving fintech sector. The findings are consistent with previous studies, which highlight the significance of governance in ensuring financial stability and operational transparency in businesses. The Chi-square test results further reinforce the notion that corporate governance acts as a crucial mechanism in enhancing the financial risk management capabilities of fintech firms. This study contributes to the growing body of literature emphasizing the importance of governance structures in fostering financial resilience in the face of technological and regulatory challenges in the fintech industry. Moreover, the findings have practical implications for fintech firms in Mumbai, suggesting that the adoption of comprehensive corporate governance practices can enhance their ability to manage risks effectively and build investor and consumer trust. Additionally, the study highlights the need for regulatory bodies and industry stakeholders to promote stronger governance frameworks within the fintech sector to ensure long-term financial stability and sustainable growth. Overall, this research provides valuable insights into the interplay between governance and risk management, offering a foundation for future studies and policy development in the fintech domain.

## CONCLUSION

In conclusion, this study underscores the critical role of corporate governance in enhancing the effectiveness of financial risk management in Mumbai's emerging fintech sector. The findings, based on the analysis of observed and expected frequencies using the Chi-square test, indicate a significant relationship between the presence of governance practices and the effectiveness of risk management strategies. Firms with established governance frameworks, such as risk committees and audit structures, are more capable of managing financial risks, which is crucial in the rapidly changing and high-risk fintech industry. The study not only contributes to the academic understanding of how governance impacts risk management but also provides practical insights for fintech firms looking to strengthen their operational stability and attract investor confidence. The results highlight the need for robust governance mechanisms in place to mitigate financial risks, thereby ensuring long-term sustainability and growth in the sector. Furthermore, the study has implications for policymakers and industry regulators, suggesting that promoting stronger corporate governance within the fintech ecosystem can lead to improved financial resilience and overall industry development. Future research could expand on this study by exploring additional variables influencing financial risk management in fintech or by examining the impact of specific governance practices on other aspects of organizational performance.



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**A STUDY OF PROLIFERATION OF DIGITAL FRAUDS IN INDIA: PROBLEMS AND SOLUTIONS**

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nigamdivya99@gmail.com**ABSTRACT**

*The proliferation of digital finance has really empowered vast hitherto financially excluded Indian segments of population. It has facilitated faster transactions and ease of banking for all sections of the society. It has caused many of the small, medium and large enterprises to grow at a much faster pace and enabled India to become a hub for the fintech companies. Thus, it has immensely contributed to the growth of the economy. On the other hand, with proliferation of the digital transactions, digital frauds have also proliferated and are becoming a menace. The growing digital frauds have the potential of disrupting the growth of the digital economy and shaking the trust of the public on the financial industry, thereby causing immense damage to overall growth of the economy, disrupting financial inclusion and threatening financial stability. This paper aims to present the factual position and analyse the reasons of the increasing digital frauds as also suggest counter measures.*

**Keywords:-** Digital finance, Payment transactions, Digital transactions, Frauds, Financial inclusion

**OBJECTIVES OF THE STUDY**

1. The paper aims to provide the background of how digital transactions proliferated in India and extent of proliferation.
2. The paper throws light on reasons of adoption of digital transactions in India
3. It analyses the typologies of the digital frauds.
4. The Paper attempts to study the reasons why digital frauds are on the increase and suggestions to counter them.

**METHODOLOGY**

The present study adopts the descriptive research methodology, based on secondary source of information. The secondary data has been collected from various published sources such as Reserve Bank of India, Government of India, Multilateral institutions and newspapers.

**BACKGROUND**

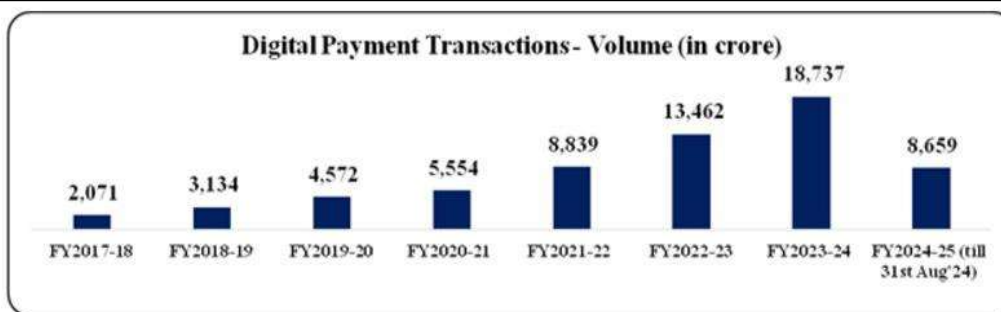
Seeds of democratization of digital finance in India were sown in 2010, the foundation being aptly called Aadhaar. The enrolment of the vast population was taken up in due course in mission mode and soon enough, about 136 crore Aadhaar enrolments happened as at the end of the year 2023. Next cog in the wheel was launch of Pradhan Mantri Jan Dhan Yojana in August 2014. With the launch of the UPI in April 2016, the basic structure was in place. The digital transactions received real fillip first with demonetization when availability of cash was a big constraint, and then because of the Covid-19 restrictions. Meanwhile, Government started distribution of cash subsidies and benefits using the Aadhaar enabled payment systems and the transformation was complete. Other factors which enabled proliferation of the digital transactions were interoperability of the payment mechanisms, a very large smartphone user base at around 750 million, high internet penetration at about 55% in 2023, very low cost of data and a robust fintech ecosystem, third largest in the world, which thrived in an environment of innovation. Increasing level of formalization of economy which was enabled through introduction of GST for businesses, fast tag for seamless collection of toll, Aadhaar seeding of bank accounts and PAN as well as in security market aided digitalization of finance. Yet another initiative in this direction has been the Aggregators which act at the intermediate layer of the flow of financial data between the firms and the account holders. The Aggregator framework was put in place quite some time back but is yet to realize its full potential, being a consent-based architecture.

**GROWTH OF DIGITAL PAYMENTS IN INDIA**

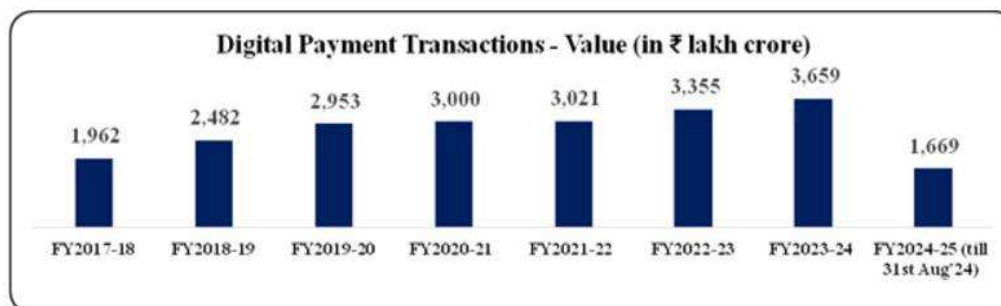
As regards digital payments in India, there has been a significant growth, both in volume in value. The total number of digital payment transactions volume increased from 2,071 crore in FY 2017-18 to 18,737 crore in FY 2023-24 at a CAGR of 44%. The growth continues with the transaction volume reaching to 8,659 crores during the first 5 months (April-August) of the current financial year 2024-25. As regards value, it has grown from ₹1,962 lakh crore to ₹3,659 lakh crore at CAGR of 11% during the corresponding period.

The value also continues to grow recording an amount of ₹1,669 lakh crore during the first 5 months (April-August) of the current financial year 2024-25. The growth is depicted in the following charts:





**Chart 1** – Growth in volume of digital payment transactions



**Chart 2** – Growth in value of digital payment transactions

To summarize, the Digital Payment Index constructed by Reserve Bank of India with March 2018 as the base year has increased more than four times within a period of six years and has reached a value of 445.4 in March 2024.

### **BENEFITS OF DIGITALISATION OF FINANCE**

Digitalization of finance helped in financial inclusion like never before. Access to the financial services primarily through Jan Dhan Accounts for the segment of population which was hitherto deprived increased manifold. The Usage of the financial services by way of availing micro credit as well as micro insurance as also small investments also increased manifold. This is evident from the increase in the value of the Financial Inclusion Index. The index which was at 43.4 for the period ending March 2017 has increased to 64.2 as the end of March 2024.

It is evident that the ongoing digitalisation of finance has provided multiple benefits to the Indian economy as well as to all the stakeholders viz. providers, intermediaries and most importantly, the consumers. These benefits among other things include provision of the services at lower costs and much faster speed resulting into more convenience for the consumers. It has helped achieve much greater degree of financial inclusion particularly for hitherto excluded segments of the society. Digitalization has brought about increased transparency in financial transactions.

### **DIGITAL FRAUDS – TYPOLOGIES AND GROWTH**

But the adoption of technology also brings with it enhanced risks to all the stakeholders primarily on account of the speed of the transactions and increased non-repudiation. While the consumers remain at the risk of losing their money, for banks risks are on their soundness and even overall financial stability. Apart from the enhanced operational risks which are more pertinent for the institutions, the consumers face the higher risks of digital frauds.

Digital frauds can take many different forms and there is no uniform definition across jurisdictions. The implications of the digital frauds span different areas and dimensions such as consumer protection, aspects related to conduct of an entity, regulations, telecom infrastructure, anti-money laundering and combatting the financing of terrorism, etc. Digital fraud can therefore be defined as all fraudulent activities with a view to defrauding consumers digitally for the purpose of stealing their credentials and banking assets using tools such as links, malicious codes, emails telephonic calls, QR codes and similar other tools.

Digitalisation has enabled fraudsters to be more agile. The cybercrimes are increasingly getting cartelized and are assuming the form of industry. Key modus operandi of the digital frauds had included phishing, vishing, card skimming, man-in-the-middle attacks, malware, ransomware, etc.

Malicious codes are installed in mobile devices of victims by luring them to click on links. Payment card data and bank account data along with mobile numbers are available on dark web. The consumers are manipulated



and made to reveal their confidential identity and financial information through ‘Social Engineering’. Financial Stability Board defines social engineering as “A general term for trying to deceive people into revealing information or performing certain actions” (FSB, 2023).

Most distressing form which is quite rampant now is the one commonly known as ‘Digital Arrest’, psyching the victims by first accusing them of being knowingly or unknowingly getting involved with some criminal activity and then extorting huge sums of money.

As per RBI data, the digital payment frauds committed on Indian consumers September 2022 onwards are as under:

	Volume (Lakh)	Value (Crore)	One in every X payment transaction fraudulent
September 2022	1.71	249	58177.41
October 2022	1.79	220	59533.35
November 2022	2.06	257	50620.69
December 2022	1.54	204	72426.75
January 2023	1.57	195	71681.44
February 2023	2.29	317	47018.00
March 2023	2.25	333	53907.48
April 2023	1.75	273	68927.36
May 2023	2.03	285	63051.71
June 2023	1.74	265	72554.96
July 2023	2.24	286	59898.87
August 2023	2.40	320	58391.71
September 2023	2.52	366	55057.76
October 2023	2.23	335	66950.05
November 2023	2.57	428	57618.81
December 2023	2.92	432	53327.09
January 2024	2.69	435	56335.82
February 2024	2.57	507	61162.60
March 2024	2.57	471	67394.38
April 2024	2.38	414	70681.81
May 2024	2.81	545	62637.44
June 2024	2.36	480	73786.50
July 2024	2.54	462	71157.30
August 2024	2.34	401	79284.04
September 2024	2.19	401	84751.16
October 2024	2.35	411	87724.59

However, it is still a matter of conjecture whether all digital frauds are reported or not, particularly those of relatively smaller values. As per a World Cybercrime index published by a team of international researchers, India ranks 10<sup>th</sup> on the list, emerging as a hub.

#### REASONS FOR PROLIFERATION OF DIGITAL FRAUDS IN INDIA

For fraudsters, committing frauds digitally is least risky naturally because they need not come in physical contact with the victims. In India, while digital enablement of the consumers grew exponentially, the awareness of the consumers could not keep pace. The tactics of the fraudsters also keep on changing ranging from simple KYC updation, threat of blocking of the account or credit/ debit cards, blocking of SIM, lure of easy money by lottery etc., tips for stock market to psychological manipulations by threats. The most common factor that can be seen among the victims thus is the lack of digital hygiene.

At the same time, there is a large number of avenues available to the fraudsters to touch the consumers such as, various social media platforms, mass messaging systems, phone numbers, emails, ecommerce activities etc.

The newer payment technologies have emerged at a breakneck speed. However, it cannot be said that all these technologies are free of vulnerabilities. For example, QR codes are essential component of the digital payment



landscape. But these are also source of many frauds. Similarly, vulnerabilities in design of Aadhaar Enabled Payment System makes consumer easy prey of the fraudsters.

The drive of opening accounts in mission mode made it imperative for the banks to open a very large number of accounts within a very short span of time. This led to certain amount laxity in sticking to the KYC norms. A digital fraud cannot happen without first crediting the defrauded money into a bank account. Many such bank accounts opened with lax KYC standards are used as 'Mule' accounts for syphoning the money quickly.

The banks have not been able to develop quick response infrastructure in case a fraud occurs and they receive information from the victim. By the time the bank starts taking action by alerting the beneficiary bank, the money travels out of the beneficiary account.

The Law Enforcement Agencies also have not been able to develop the required level of competencies. Most of their staff lack the understanding of the complex world of digital transactions where money, more often than not, leaves the shores of the country by way of crypto and through cross border remittances.

### **CONCLUSION AND SUGGESTIONS FOR COUNTERING THE DIGITAL FRAUDS**

Digitalisation has truly become the present and future of the financial industry. It has brought in previously unimaginable efficiency in the system resulting into all-round benefits for all stakeholders. Financial inclusion has deepened and widened in leaps and bounds. It has been possible to plug leakage in the payment of Government subsidies and direct cash benefit by digital transfer of money. Entire e-commerce activities depend on reliable digital payment system. The fund transfer takes place in minutes now resulting in more efficient trade and industrial activities. Even cross border payments have become more cost effective and efficient. Going forward, with emergence of newer technologies as also integration of AI and ML in the digital finance, more efficiency is expected. In a recent paper published by the Bank of International Settlement, a vision for Finternet has been laid down which envisages multiple financial ecosystems interconnected with each other, leveraging innovative technologies such as tokenisation and unified ledgers. The objective is to have fully empowered users deal in the financial assets as well as real assets seamlessly and removal of barriers.

In such a scenario, it becomes imperative that the trust of the consumers in the integrity of the digital financial systems is retained making them fraud-proof to the best extent possible, since lack of it may not only wean away common man from using these systems but also the lack of trust may potentially deliver a fatal blow on the individual financial institutions and, in fact, may emerge as a risk to financial stability itself. Some of the steps that can be taken to achieve this objective are outlined as under:

- i. Most importantly, there is a need for focussed efforts to enhance digital awareness and literacy among the people using the digital finance. If people are aware and knowledge of safe digital practices, the probability of their falling prey to frauds will reduce drastically.
- ii. The financial institutions must put in place systems in place for better monitoring of the transactions using the tools for analysing transaction patterns in individual accounts, both on debit and credit side, and ensuring that warnings are issued timely in case of any suspicious activities. The dealing staff at the financial institutions should be well trained for this purpose and AI/ ML technologies should be used for this purpose.
- iii. The financial institutions need to look for cutting edge technology for device binding and monitoring so that at least the fraud transactions done by cloning of device or stealing the credentials do not happen.
- iv. Another important aspect is to have better monitoring of KYC so that potential mule accounts can be identified and monitored more closely.
- v. Telecom companies need to put in place systems to check the onslaught of spam calls. The KYC of the customers is extremely vital for fraud mitigation. It needs to be made mandatory that financial institutions or their agents call to consumers only through registered and verified numbers.
- vi. Law enforcement agencies need to gear up to meet the challenge by way of establishing better capabilities, both technical and human, so as to catch the perpetrators and arrange for faster refund of the amount wherever feasible.
- vii. Implementation of Digital Personal Data Protection Act 2023 will be a key measure in curbing the fraudulent activities in the digital space. Government must ensure that the act is implemented without further delay.



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**LABOUR AND EMPLOYMENT LAW: A CRITICAL ANALYSIS OF CONTEMPORARY CHALLENGES AND LEGAL FRAMEWORKS**

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pooja@jplawcollege.com**ABSTRACT**

*Labour and employment laws form the cornerstone of the socioeconomic relationship between employers and employees, ensuring justice, fairness, and dignity in the workplace. This paper provides a critical analysis of the contemporary challenges fronting laws related to labour and employment for both organised and unorganised sectors and the increase in the number of gig workers in the gig economy.*

*To simplify compliance, enhance worker welfare, and facilitate business operations, 29 key labour laws have been consolidated into four major codes i.e. the Code on Wages, Industrial Relations Code, Occupational Safety, Health and Working Conditions Code, and Social Security Code.*

*The paper examines the key provisions of these codes, their objectives, and the challenges surrounding their implementation. It critically addresses issues such as delayed enforcement, unclear regulations, resistance from stakeholders, and the ability of states to adapt to the new framework. The study also explores the potential effects on workers, employers, and economic growth. While the new Labour codes aim to simplify regulations and improve labour governance, structural, administrative, and policy-related barriers must be overcome for effective implementation.*

**Keywords:** - Labour Code, Gig workers, platform worker, Organised and Unorganised Sector, challenges, economic growth.

**INTRODUCTION**

The success of businesses and the expansion of economies that follow are highly dependent on the efforts of workers. Even in ancient India, people understood that a happy and fulfilled workforce is a better asset to any company's success. The ancient Indian legal system placed a premium on workers' rights and wellbeing. By 2500 BC, the pastoral period was passed in India, and most people had shifted their focus to farming.

Hiring outside help was unnecessary up until the Vedic era because of the small scope of operations. However, a wide variety of occupations began to employ Labour after the Vedic period (around 600 B.C.)

The backbone of Hindu civilization was Labour. Both the Dharma and Artha Sastras stress time and again that a happy working class is essential to a prosperous society and an effective government. Consequently, the monarch had an absolute obligation to ensure their well-being and to champion their cause whenever there was a disagreement between the workers and their employers. Sukra states, "The king should carefully set the salary rates based on the qualifications of the workers for his personal benefit. He says, "One should neither stop nor postpone payment of wages." once more. "A master shall pay wages to the servant he has hired regularly, whether at the beginning, middle, or end of his work, just as he had agreed to," states Narada. "An employer who postpones payment and fails to pay wages shall be punished with a fine of 12 panas or 5 times the amount of the salary. According to Brihaspathi, "When an employer does not pay wages for the work completed, he shall be compelled by the ruler to pay the owed amount, along with an additional fine." According to Kautilya, pay disputes were settled based on witness testimony, with the king personally hearing and resolving these matters. "In the absence of eyewitnesses, an investigation must be conducted into the employer who hired the worker," Kautilya further advises.

Although modern Labour laws are a product of global worker movements and the many industrial revolutions that have occurred since the 18th century, the concept of Labour, its remuneration, and the need to comply with Labour laws predates human civilization.

It may have its roots in ancient Indian texts or perhaps in the Babylonian Civilization and the code of law of Hammurabi. On the other hand, contemporary employment rules in India have their roots in the early 19th century, much before our own time. Many new laws and revisions to old ones have been enacted in the years that have followed originating from brilliant brains. Such brilliant people often get a lot of attention and financial rewards because of this. The unsung heroes who toil away in the shadows are frequently disregarded. Human survival necessities like respect, decency, a decent living wage, and a safe place to work are frequently disregarded. Since India's independence, the country's Labour laws have focused on protecting workers' rights and benefits, except those at the managerial level.



The exploitation of workers by employers persists even after over seventy-five years. While the government has, with good faith, prepared and drafted numerous Labour regulations throughout the years to address most of the concerns voiced by workers, the lack of real action on the ground is cause for concern. Despite the new Labour codes' best efforts, many problems remain. It will be interesting to watch how they are put into action, as the federal government and individual states will need to collaborate on rulemaking and code enforcement. The terms "gig economy," "platform workers," "freelancers," and similar terms have emerged to describe the modern workforce. Workers in these situations have no legal recourse in the event of an employer-related dispute or exploitation since there is no formal agreement with the business and the conventional employer-employee relationship is disregarded. Yet, gender inequality and invisible Labour are still very much alive. As the COVID-19 pandemic continues to spread, we must protect the rights of migrant workers who travel across states for work. Because they have nowhere else to go, the majority of them have lost their houses, and their means of subsistence, and are now returning to their hometowns. This research paper will provide a concise overview of the following topics: the new Labour codes and their issues; the difficulties encountered by unorganised, gig, and platform workers.

### **EMPOWERING WORKERS FOR A PROSPEROUS AND SELF-RELIANT INDIA**

An empowered, affluent, and *Aatmanirbhar* (self-reliant) India cannot be realized without uplifting its workers. Despite 73 years of independence, nearly 90% of the workforce remains unorganized and lacks access to comprehensive social security benefits. Together, the organized and unorganized labour force accounts for over 50 crore workers.

The government has established a strong commitment to the well-being of employees and their dependents including both organized and unorganized sectors.

In the past, workers were confronted with the challenge of traversing a complex and fragmented web of labour laws. The Central Government has taken a groundbreaking measure to simplify and modernize labour regulations in recognition of this. The government has facilitated the access of workers to social security, dignity, healthcare, and other welfare measures by consolidating 29 distinct laws into four comprehensive codes. This historic reform reflects the government's resolve to ensure the well-being and empowerment of all workers, laying the foundation for a stronger and more inclusive India.

### **A NEW LABOUR LAW FOR CONTEMPORARY INDIA**

Roughly 90% of India's 50 crore workers are involved in the unofficial sector. A major step forward has been the adoption of four Labour Codes, which will ensure that employees in the official and informal economies share in the advantages of labour legislation. In addition to providing many unorganized workers with access to social security for the first time, these reforms guarantee that all workers earning minimum wages receive equitable remuneration.

In its 2002 report, the Second National Commission on Labour first proposed the notion of merging four or five federal codes to govern India's labour regulations. Nevertheless, the plan saw mostly informal talks from 2004 to 2014, and labour law amendments made little headway during the economic liberalization of 1991.

As a result of Prime Minister Narendra Modi's "Sabka Sath, Sabka Vikas, aur Sabka Vishwas" (Together with All, Development for All, and Trust of All) and the Goods and Services Tax (GST), a "One Nation, One Tax" policy, the pace of development increased. This method promoted inclusive development and national advancement by laying the groundwork for extensive labour reforms.

### **WORKING TOGETHER TO IMPLEMENT LABOUR REFORMS**

The reforms were implemented through an inclusive and transparent process by the Ministry of Labour and Employment:

- **Public Consultation:** To gather stakeholder and citizen opinion, online drafts of the proposed labour codes were made publicly available.

The Ministry of Labour and Employment sponsored nine consultations with State Governments, Employers' Associations, and Central Trade Unions to solicit feedback on the reforms from 2015 to 2019.

- **Review by Parliament:** The Parliamentary Standing Committee examined all four codes and suggested changes to make the laws better.

The government's dedication to building a fair and contemporary labour framework that promotes economic growth and social welfare while catering to the demands of India's varied workforce is evident in these endeavours.



The Prime Minister drew comparisons to the ideas of Satyamev Jayate and called the employees "Nation Builders" as part of the announcement on October 16, 2014. He also highlighted the revolutionary potential of the scheme for the country's advancement.

### THE ESSENTIAL CHANGES MADE BY SHRAMEV JAYATE

To ensure that workers may access their provident funds securely and conveniently from anywhere via their mobile devices, the Universal Account Number (UAN) was implemented. Eliminating the 'Inspector Raj' and reimagining inspectors as counsellors and facilitators helped minimize bureaucratic hurdles for workers.

**The Shram Suvidha Portal:** More efficiency and openness resulted from the simplified process of submitting industry returns.

Workers were urged to develop into "Shram Yogi, Rashtra Yogi, and Nation Builders," and the government prioritized their respect and dignity.

### SHRAMEV JAYATE'S CRUCIAL REFORMS

The Universal Account Number (UAN) was instituted so that employees could withdraw their provident funds safely and conveniently from any location using their mobile devices. To reduce bureaucratic impediments for workers, the role of inspectors was reimagined as counsellors and facilitators, thus eliminating the 'Inspector Raj'.

- **Shram Suvidha Portal:** It made submitting industry returns easier, which increased transparency and efficiency.

**Workers Were Empowered:** The government placed an emphasis on workers being treated with respect and was encouraged to evolve as "Shram Yogi, Rashtra Yogi, and Nation Builders." Addressing labour-related concerns while keeping workers' viewpoints in mind is crucial, as the prime minister also stressed.

### UNOFFICIAL EMPLOYEES' SOCIAL SECURITY

The Pradhan Mantri Shram Yogi Maandhan Yojana, which guarantees a monthly pension of ₹3,000 to workers in the informal economy upon reaching the age of 60, was introduced by the government as a component of its reform program. The commitment of the government to offering social security to older employees is highlighted by this effort.

### LABOUR REFORMS

The implementation of inspection mechanisms that are enabled by IT guarantees increased transparency, which in turn promotes accountability.

- From ₹10 lakh to ₹20 lakh, the maximum gratuity amount was raised on March 29, 2018. As of February 16, 2017, electronic transmission of monies between bank accounts is permitted by the Payment of Wages Act, which enables for online wage payments. On April 1, 2017, the new policy took effect, increasing the duration of paid maternity leave from twelve weeks to twenty-six weeks, thanks to the Maternity Benefit Amendment Act of 2017.

These initiatives demonstrate the government's unwavering focus on improving labour standards, protecting workers' rights, and fostering a dignified, productive workforce for a stronger nation.

### AUTONOMY IN THE LAW AND UPDATED WORKPLACE POLICIES

The British Raj instituted a number of labour regulations, most of which are now either irrelevant or have no impact whatsoever. These antiquated rules frequently made workers' lives more difficult rather than easier, and they failed to safeguard their interests. For example, in the past, employees had to wade through a tangle of laws and fill out a bunch of paperwork just to get one perk.

**The government has responded to these issues by replacing the outmoded labour laws with four thorough Labour Codes. These regulations condense the formerly disjointed system of 29 labour laws:**

- ✚ Three statutes are consolidated in the Industrial Relations Code.
- ✚ Nine rules are a part of the Social Security Code.
- ✚ Thirteen statutes have been consolidated into the Occupational Safety and Health Code of 2020.
- ✚ The Wage Code merges four statutes.

These reforms ensure that all workers are entitled to minimum wages and other essential protections, significantly improving their living standards.



By ensuring the passage of these codes in Parliament, the government has taken a major step toward enhancing workers' rights and contributing to the nation-building process.

### BENEFITS OF LABOUR REFORMS

- **Ease of Business:** Simplified labour laws make it easier for businesses to operate and comply with regulations.
- **Increased Job Opportunities:** The reforms are expected to boost worker productivity and create more jobs.
- EPF, EPS, and Employees' Insurance (which provides medical benefits) are just a few of the comprehensive worker protections that are now available to both organized and unorganized workers.

Additionally, the wage cap under the Payment of Wages Act has been increased from ₹18,000 to ₹24,000, further improving workers' financial security. These reforms represent a significant milestone in modernizing labour standards and fostering a more equitable work environment.

### CREATING EQUAL PAY FOR ALL WORKERS

Finally, all employees are guaranteed a minimum wage by the Minimum Wages Code, which consolidates four separate labor laws. Approximately 50 crore workers in the formal and informal economies will gain from this program, which is a part of the 2019 Wage Code. Social, physical, and financial stability are assured following 77 years of independence.

About 40 crore people labour in the informal economy, and many of them are getting these protections for the first time thanks to universal minimum wages.

- **Regular Reassessment:** To guarantee that all employees are paid on time and fairly, the minimum wage will be reassessed every five years.

**Equal Pay for Equal Work:** Promoting wage parity regardless of gender or other factors.

- ✚ **Floor Wage Introduction:** A national floor wage has been established to minimize regional wage disparities.
- ✚ Considering factors like location and skill level streamlines the process of establishing minimum pay.
- ✚ Furthermore, as of August 28, 2017, the maximum wage was raised from ₹18,000 to ₹24,000 by the Payment of Wages Act, which significantly strengthened workers' wage security. For millions of workers in India, this all-encompassing strategy guarantees fair pay and better living conditions.
- ✚ A Methodical Approach to Universal Social Security
- ✚ For the sake of every worker's health and safety, the federal government has inserted nine labour laws into the Social Security Code.
- ✚ Essential benefits including maternity leave, insurance, pensions, and gratuities are guaranteed to employees under this approach.

The Social Security Code creates a strong legal framework that ensures workers can fully access their benefits by integrating these nine labour standards. Additionally, it establishes a formal framework for business and employee contributions, with the government providing funding to help underprivileged workers contribute.

### HIGHER ENROLMENTS IN SOCIAL SECURITY BENEFITS

Workers in all industries, whether unionized or not, will henceforth be eligible for benefits from the Employees' State Insurance Corporation (ESIC). Important steps consist of:

- ✚ **Expansion at the district level:** ESIC medical centres, dispensaries, and branches will grow from serving 566 districts to all 740.
- ✚ ESIC benefits will be available to workers in all industries, regardless of whether they are involved in dangerous tasks or not.
- ✚ **Platform and Gig Workers Support:** ESIC is now open to workers whose jobs are powered by technology.
- ✚ Workers in potentially dangerous environments, such as plantations, are required by law to enrol with ESIC in order to receive coverage.
- ✚ **Low-Cost Medical Care:** Employees can get free or low-cost medical treatment in ESIC hospitals and dispensaries.



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**OPTIMIZING BENEFITS FROM SOCIAL SECURITY**

All employees, whether self-employed, organized, or unorganized, are now able to participate in the pension program run by the Employees' Provident Fund Organization (EPFO). One more important advantage is:

- ✚ A special fund guarantees full security for employees in the unorganized sector. This fund is called the Social Security Fund for Unorganized Workers.
- ✚ **Gratuity for Fixed-Term Employees:** Equal benefits for fixed-term workers and permanent employees are guaranteed with the removal of the minimum service threshold for gratuity payments.
- ✚ **Database for Workers in the Unorganized Sector on a National Scale:** Data on workers in the unorganized sector is being consolidated into a national database through the use of an online portal.
- ✚ Businesses with more than 20 employees are required to publish job openings on their websites.
- ✚ **UAN:** Workers in the unorganised sector, EPFO, and ESIC can utilize UANs that are Aadhaar-enabled to obtain their benefits and move around easily. By uniting the organized and unorganized sectors, this all-encompassing structure promotes inclusion and security for all workers and guarantees maximum social protection.

**"PRIORITIZING WORKERS' SAFETY AND SECURITY AT ALL TIMES"**

By bringing together thirteen different labour regulations into one cohesive framework, the Occupational Safety, Health, and Working Conditions Code, 2020, guarantees a safe and secure workplace for all employees. Workers' rights are protected by this legislation in many different industries, which is good for everyone involved. These industries include motor transport, factories, mining, plantations, the manufacturing of bidi and cigars, contract labour, and migrant workforces.

- ✚ Sections Crucial to the Occupational Safety and Health Act of 2020 In response to the difficulties caused by previous rules, the OSH Code incorporates several reforms meant to enhance the living conditions of migratory workers who travel between states. Resolving Issues Facing Migrants Working Across States
- ✚ It was originally the 1979 Act that identified interstate migrant workers as those hired through contractors; however, the OSH Code has superseded and improved upon those requirements.
- ✚ Workers can now become Aatmanirbhar (self-reliant) under the new legislation by immediately registering as interstate migrant workers on a national site. They can now get social security benefits thanks to the registration that gives them legal standing. Some of the main advantages might be:
- ✚ Employers are obligated to furnish their employees with appointment letters. Health Checks: All employees are required to undergo a health examination once a year. Beneficiaries of the Building and Other Construction labourers' Cess Fund include migrant labourers who have found employment in the construction industry.
- ✚ With the help of the "One Nation, One Ration Card" program, migrant workers from other states can utilize ration facilities in the state where they are employed, and their family can do the same back home.

These reforms collectively enhance the welfare, security, and dignity of workers, ensuring a more inclusive and equitable labour environment.

**THE INDUSTRIAL RELATIONS CODE**

The **Industrial Relations (IR) Code, 2020** takes comprehensive measures to protect the interests and welfare of workers and trade unions. It also aims to address and resolve disputes between workers and industries.

One key welfare initiative under the IR Code is the **Atal Bimit Vyakti Kalyan Yojana**, which provides relief payments for up to 90 days, available once in a lifetime, to employees covered under Section 2(9) of the ESI Act, 1948. This benefit can be availed by workers who lose their employment.

Under the **Employee State Insurance (ESI) Scheme**, workers are eligible for unemployment benefits. Additionally, employees are entitled to 15 days of pay for retraining during layoffs. The faster payment of wages to workers' bank accounts ensures they can quickly learn new skills, while the **Tribunal** guarantees more efficient resolution of worker complaints within a year.

To expedite case settlements, two members will be added to the Industrial Tribunals. In cases where no single trade union holds 51% of the vote, a negotiating council comprising multiple trade unions will be recognized to negotiate with employers.



Furthermore, a trade union that secures 51% of the vote in an industrial facility will be acknowledged as the sole representative capable of negotiating with employers.

However, since the enactment of the four new labour codes—the **Code on Wages**, **Industrial Relations Code**, **Occupational Safety, Health and Working Conditions Code (OSH Code)**, and the **Code on Social Security**—several challenges have arisen. The implementation of these regulations has been delayed despite their aim to streamline 29 fragmented laws and boost economic growth while improving working conditions. Originally scheduled to be implemented by April 2022, the process has stalled, with no clear indication of when these regulations will be operational following the general elections in 2024.

The delayed implementation highlights resistance from various stakeholders and regulatory challenges. One major issue is the shared responsibility between the central and state governments over labour regulations. While the central government has passed the codes, state governments are still required to draft and publish their own regulations before full implementation can occur. This has resulted in significant disparities in compliance across the country. As of now, 26 states have released draft regulations under the **OSH Code**, and 31 states have done so under the **Code on Wages**, but fewer states have finalized regulations for the **Industrial Relations Code** and **Social Security Code**.

Many trade unions, particularly those not affiliated with the Rashtriya Swayamsevak Sangh (RSS), have strongly opposed the new labour codes. They argue that provisions in the **OSH Code** and the **Industrial Relations Code** infringe on workers' rights, particularly by making it easier for employers to fire workers and by imposing stricter rules on strikes. For example, lightning strikes are now prohibited, and workers must provide 60 days' notice before starting a strike. Unions argue that these clauses limit workers' bargaining power for better pay and working conditions, leading many to label the rules as "anti-worker."

Despite these challenges, the government remains committed to the successful implementation of the labour laws, which are an integral part of Prime Minister Narendra Modi's broader economic reform agenda. These reforms aim to align with international standards, improve social security for gig and unorganized workers, and enhance workplace safety. Proponents argue that these changes will not only improve worker welfare but also foster an environment conducive to business growth and attract more investment to India.

On March 20, Maharashtra issued regulations related to the new codes. The Union government has since instructed Union Territories to expedite their development of regulations for the **Industrial Relations Code**, which has now been addressed. States such as Uttarakhand, Chhattisgarh, Odisha, Arunachal Pradesh, Uttar Pradesh, Madhya Pradesh, Haryana, Jharkhand, Himachal Pradesh, Punjab, Manipur, Bihar, and the Union Territory of Jammu and Kashmir have complied with the new labour laws. While these regulations offer potential benefits, their implementation continues to face significant challenges.

### CHALLENGES OF TRANSITION AND ADAPTATION

Businesses in India have a distinct approach to operations, and employers have implemented procedures that are acceptable to them. Approximately 80-90% of India's workforce is employed in the informal sector, which accounts for nearly 50% of the country's GDP, according to recent estimates. This encompasses unregistered enterprises, self-employed individuals, and minor businesses that operate without formal recognition or regulation.

The formalization of employment is one of the primary objectives of the new Labour codes. The codes are designed to attract more informal businesses to the formal sector by streamlining compliance requirements and providing greater clarity. This change has the potential to enhance the accessibility of informal enterprises to government schemes, social security benefits, and credit. For small and medium-sized businesses the formalization process can be intimidating because many of them lack the tools or expertise that is required for successful negotiation in regulating the market.

The new Labour codes necessitate more thorough documentation, including detailed records of employee benefits, wage structures, and compliance with safety and health standards. Maintaining these documents can be a substantial challenge for small and medium-sized enterprises (SMEs) and organizations with informal work cultures and restricted administrative resources. For instance, the implementation of Labour codes regarding wages, working hours, and social security is challenging because small Kirana stores and street vendors, which constitute a significant portion of the retail sector, do not typically maintain formal employment records.

### SECTOR WISE INCONSISTENCY IN APPLICATION

The new Labour codes have been intended to encompass a wide range of industries; however, their implementation appears to be inconsistent.



The new regulations would be more readily implemented in sectors such as IT and manufacturing, while agriculture and construction may experience a delay as a result of the informal character of their workforces. According to National Sample Survey Office (NSSO) data and agriculture continues to be the utmost significant informal sector in India, employing approximately 60% of the informal workforce. The new Labour codes are difficult to implement effectively due to the informality of the sector, which is defined by seasonal employment, small-scale operations, and the absence of formal contracts. For example, the Building and Other Construction Workers' Welfare Board reports that the construction sector employs more than 50 million individuals. However, the fact that many of these workers are temporary or casually employed makes it extremely difficult to implement the Occupational Safety, Health, and Working Conditions Code.

#### **BUSINESSES ARE ENCOUNTERING INCREASING EXPENSES.**

The new Labour rules have a direct influence on the financial responsibilities of employers of smaller companies with lower profit margins, making it difficult to manage cash flow while fulfilling new legal requirements in several ways. Among these is the gratuity, which, according to the 2020 Code on Social Security, must now be given to fixed-term employees whether or not they have served five years. The definition of wages has been expanded and is expected to increase the contribution of the provident fund, which could potentially increase the base of their salaries. The new codes may also necessitate modifications to leave encashment policies, which will authorize employees to either carry forward their leave or encash it under specific conditions. Employers will continue to be required to provide 26 weeks of paid leave, as specified in the Maternity Benefit Act, of 1961, which has been incorporated into the Code on Social Security. Additionally, crèche facilities will be provided for establishments with 50 or more employees. Furthermore, the expense of compliance—including the training of staff, the employment of legal consultants, the modification of the Labour Compliance Management Services, and the upgrading of payroll systems.

#### **RESISTANCE FROM WORKERS AND TRADE UNIONS**

Trade unions and employees have expressed apprehension regarding specific provisions of the new Labour codes especially relating to social security and industrial relations. Trade unions continued to organize strikes, rallies, and other forms of protest in opposition to the Labour codes as of 2023. For example, in September 2021, the All India Trade Union Congress (AITUC) and other unions conducted a nationwide demonstration to reiterate their demand for the repeal of the Labour codes.

At present industries with 100 or more employees are to acquire government approval before closures, layoffs, or retrenchments, under existing law. However, the limit has been increased to 300 employees under Section 77(1) of the Industrial Relations Code. Unions are opposed to this because they fear it would lead to less collective bargaining rights and more job insecurity. Unions are concerned that the new labour regulations will limit their ability to negotiate collectively and protect workers' rights since they set more strict conditions for the recognition of trade unions. The objective of this modification is to provide businesses and employers with increased flexibility in their workforce reduction efforts, without the need for protracted approval processes.

#### **CHALLENGES AND ISSUES FACED BY THE STATE**

In India, Labour is a matter listed as a concurrent subject, and therefore the state governments must establish the regulations under the new Labour codes. Nevertheless, this process has been marred by delays in numerous states, resulting in inconsistencies in regional implementation. This leads to confusion among businesses and impedes the consistency of compliance. Moreover, implementing the Labour codes requires a significant investment in capacity development, especially in providing training to Labour inspectors and other enforcement officials. States with restricted resources may encounter difficulties establishing the requisite infrastructure and training, leading to inadequate enforcement.

Additionally, robust surveillance and evaluation mechanisms are necessary to guarantee that the Labour codes are effectively implemented and achieve their intended outcomes. Investments in digital infrastructure, data collection, and feedback mechanisms are essential for the central government to monitor progress and implement the requisite modifications.

#### **THE FUTURE**

The implementation of the new Labour codes in India is a critical step in the process of modernizing the country's Labour laws. It is certain that Labour law codes will establish uniformity and facilitate the "ease of doing business," as Citigroup stated in its employment analysis report. Nevertheless, the complexity of this transition is underscored by the obstacles encountered, which include state-level delays, a lack of awareness, compliance burdens, and enforcement difficulties.



The central and state administrations, industry bodies, and businesses themselves will need to coordinate their efforts to address these challenges.

These challenges can be effectively addressed by prioritizing capacity building, enhancing digital infrastructure, and encouraging dialogue among stakeholders. By streamlining compliance processes, improving transparency, and reducing administrative burdens, technology has the potential to substantially simplify the implementation of the new Labour codes. Digital tools, including automated payroll systems, automated HR Compliance Management Services, Reg Tech, and mobile applications, can assist businesses, particularly SMEs, in navigating the intricacies of the new regulations. Furthermore, the government's initiative to implement Automated Labour Compliance Management Services, HR Compliance Management Services, and Digital Public Infrastructure can decrease the necessity for physical inspections and reduce the likelihood of corruption and delays, resulting in more consistent and efficient enforcement. Businesses can effectively navigate the intricacies of the new Labour codes by implementing specific practices and utilizing technology.

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**AN EXPLORATORY STUDY ON THE FACTORS INFLUENCING TECHNOLOGY ADOPTION AT  
WORKPLACE**

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**<sup>1</sup>Dr. Khyati Shah and <sup>2</sup>CS Karishma Mehta**<sup>1</sup>Assistant Professor, <sup>2</sup>Visiting Faculty, K. P. B Hinduja College of Commerce**ABSTRACT**

*The adoption of technology in the workplace has become a critical factor in improving organizational performance, employee productivity, and competitiveness in today's fast-paced business environment. This exploratory study investigates the key factors influencing technology adoption at the workplace by examining individual, organizational, technological, and external drivers. Drawing upon established theoretical models such as the Technology Acceptance Model (TAM) this study utilizes a mixed-methods approach, combining surveys and interviews across diverse industries.*

**Key words:** Technology adoption, Workplace, Organizational performance, Employee productivity

**INTRODUCTION**

In the modern workplace, technology plays an essential role in driving efficiency, productivity, and competitiveness. Organizations across industries are increasingly adopting new technologies to streamline operations, enhance employee performance, and remain adaptable in a rapidly evolving business environment. However, the success of technology adoption depends on several interconnected factors, including individual user readiness, organizational culture, technological features, and external influences.

This study explores the critical factors influencing technology adoption in the workplace, aiming to uncover the enablers and barriers that organizations encounter. These insights are crucial for developing strategies that maximize the effectiveness of technology implementations and address common challenges, such as resistance to change and resource constraints. Despite its importance, many organizations face barriers such as employee resistance, insufficient training, and misalignment between technological solutions and business needs. This study aims to explore the factors that influence technology adoption in the workplace, considering individual attitudes, organizational support mechanisms, and external pressures.

**1.1. Objectives of the Study**

1. To identify factors influencing technology adoption at the workplace using Exploratory Factor Analysis
2. To develop a scale for studying factors influencing adoption of technology at the workplace using a reliability test.

**1.2. Significance of the Study**

This study holds significant value for organizations, employees, technology developers, and researchers by offering insights into the factors that drive or hinder technology adoption in the workplace. As organizations increasingly rely on technological solutions to enhance productivity and efficiency, understanding the dynamics of adoption becomes critical to ensuring the successful integration of these tools.

For **organizations**, the study highlights actionable strategies to overcome barriers such as employee resistance and lack of training while fostering a culture that supports innovation. It also underscores the importance of aligning technological solutions with organizational goals and user needs.

For **employees**, the research emphasizes the role of individual attitudes and skills in adapting to technological change, providing guidance on how organizations can better support their workforce through tailored training and development programs.

**1.3. Limitation of the Study**

As this study relies on primary data, several limitations should be acknowledged. The sample size and composition may not fully represent all industries, organizational contexts, or cultural settings, limiting the generalizability of the findings. Self-reported data introduces potential biases, such as socially desirable responses or inaccuracies in recall. Additionally, the study captures only a snapshot in time, failing to account for the evolving nature of technology adoption or external influences like economic conditions and market trends. The sample size used is not sufficient for Exploratory Factor Analysis. These limitations emphasize the need for future research with more diverse samples, longitudinal perspectives, and supplementary secondary data for deeper insights.



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## 2. RESEARCH METHODOLOGY

This study adopts a mixed-methods approach, incorporating both primary and secondary data to explore the factors influencing technology adoption in the workplace.

### 2.1 Data Collection:

#### Primary Data:

The primary data is collected through questionnaires distributed to employees across different industries. The questionnaire includes questions designed to gather quantitative and qualitative data on employees' attitudes, experiences, and perceptions regarding technology adoption. The survey explores factors such as technological proficiency, organizational support, perceived ease of use, and barriers to adoption.

#### Secondary Data:

Secondary data is gathered from existing literature, including scholarly articles, industry reports, and case studies. This data provides a theoretical foundation and helps contextualize the findings from the primary data.

### 2.2 Data Analysis:

#### QUANTITATIVE ANALYSIS

For the primary data, responses to closed-ended questions will be analyzed using descriptive statistics (e.g., frequencies, percentages) and inferential statistics (e.g., correlation analysis, regression modeling) to identify key patterns and relationships.

#### Secondary Data Analysis:

The secondary data will be synthesized to provide background context and validate the findings from the primary data, using **content analysis** and comparison with existing theories on technology adoption.

**To identify the factors affecting the adoption of technology**, Exploratory Factor Analysis was used. Through expert opinion available, variables were identified and a questionnaire was formed. These variables were measured in a scale of 5 to 1 ,i.e., 5 being strongly Agree to 1 strongly Disagree. In EFA, Principal Component Analysis was used to reduce these variables into smaller groups of variables to form factors. SPSS software was used to run the EFA.

## 3. REVIEW OF LITERATURE

- 3.1 Davis introduced the Technology Acceptance Model (TAM), emphasizing perceived usefulness and ease of use as key determinants of technology acceptance, relevant for understanding user adoption behaviour in early IT systems (Davis, 1989).
- 3.2 The study extended TAM by incorporating subjective norms and social influence, offering a more comprehensive view of user intentions in workplace settings (Venkatesh & Davis, 2000).
- 3.3 This research compared TAM with the Theory of Planned Behaviour, identifying TAM as a simpler yet effective tool for predicting user intentions in IT adoption (Mathieson, 1991).
- 3.4 By integrating TAM with eight competing models, this study developed UTAUT, emphasizing the role of performance expectancy and facilitating conditions in predicting technology acceptance (Venkatesh et al., 2003).
- 3.5 This study explored how perceived ease of use impacts user decisions, revealing that factors like gender and culture moderate TAM's effectiveness in adoption contexts (Gefen & Straub, 2000).
- 3.6 The authors critically reviewed TAM, demonstrating that external variables like organizational support and user training significantly enhance technology adoption in corporate environments (Legris, Ingham, & Collette, 2003).
- 3.7 A meta-analysis confirmed TAM's robustness across multiple contexts and identified cultural and contextual factors as critical for tailoring TAM to diverse user groups (King & He, 2006).
- 3.8 Park applied TAM to e-learning, showing that perceived usefulness is the strongest predictor of student acceptance, relevant for improving educational technologies (Park, 2009).
- 3.9 This study expanded TAM for smart workplace environments, highlighting the impact of automation and AI on user acceptance, particularly in modern corporate structures (Chen & Hwang, 2020).



3.10 The authors examined TAM in the context of aging users, revealing how cognitive and physical abilities affect older adults' technology acceptance, relevant for designing inclusive systems (Charness & Boot, 2009).

3.11 Prior experience moderates the impact of ease of use and usefulness on the process of technology adoption. (Taylor, S., and Todd, P. A. , Assessing IT Usage: The Role of Prior Experience (1995)

3.12 Perceived characteristics of innovations are introduced, providing deeper insights into the factors influencing user acceptance. (Moore, G. C., and Benbasat, I. , ) Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation (1991))

#### 4. DATA ANALYSIS

4.1 The following is the data analysis of the respondents.

**Table No. 1: Gender-Wise Distribution of Respondents**

Gender Of The Respondents		Frequency	Percent
Valid	FEMALE	67	64.4
	MALE	37	35.6
	Total	104	100.0

Table No. 1 presents the gender wise distribution of respondents. Out of the total 104 (100%) respondents 67 (64.4%) are female respondents and 37 (35.6%) are male respondents.

**Table No. 2: Age-Wise Distribution of Respondents**

Age of the respondents		Frequency	Percent
Valid	21-30	88	84.6
	31-40	13	12.5
	41-50	1	1.0
	51-60	1	1.0
	Above 60	1	1.0
	Total	104	100.0

Table No. 2 presents the age wise distribution of respondents. Out of the total 104 (100%) respondents , 88 (84.6%) respondents lie between the age group of 21-30 , 13 (12.5%) respondents lie between the age group 31-40 , 1 (1.0%) respondent lie between the age group of 41-50 , 1 (1.0%) respondent lie between the age group 51-60 and 1 (1.0%) respondent lie at the age above 60.

**Table No. 3: Education Level of Respondents**

Educational level:		Frequency	Percent
	Under graduate	30	28.8
	Graduate/Diploma	32	30.8
	Post graduate/Post graduate diploma/Professional	42	40.4
	Total	104	100.0

Table No. 3 presents the education level of respondents. Out of the total 104 (100%) respondents , 30 (28.8%) respondents are Under graduate , 32 (30.8%) respondents are Graduate/Diploma , 42 (40.4%) respondents are Post graduate/ Post graduate diploma/ Professional.

**Table No. 4: Industry Wise Distribution of Respondents**

Industry		Frequency	Percent
Valid	Information technology	14	13.5
	Digital business (e-commerce)	13	12.5
	Banking	5	4.8
	Financial Services	28	26.9
	Others	44	42.3
	Total	104	100.0

Table No. 4 presents industry wise distribution of respondents. Out of the total 104 (100%) respondents , 14 (13.5%) respondents belong to Information technology , 13 (12.5%) respondents belong to Digital business (e-commerce) , 5 (4.8%) respondents belong to Banking , 28 (26.9%) respondents belong to financial services and 44 (42.3%) respondents belong to other industries.



**Table No. 5: Level of Technical Skills of Respondents**

Level of Technical Skills		Frequency	Percent
Valid	None	3	2.9
	Basic	34	32.7
	Moderate	49	47.1
	Advanced	18	17.3
	Total	104	100.0

Table No. 5 presents the level of technical skills of respondents. Out of the total 104 (100%) respondents , 3 (2.9%) respondents have no technical skills , 34 (32.7%) respondents have basic technical skills , 49 (47.1%) respondents have moderate technical skills , 18 (17.3%) respondents have advanced technical skills.

**Table No. 6: Years of Experience of Respondents**

Years of Experience		Frequency	Percent
Valid	Less than 1 year	47	45.2
	1-5 years	41	39.4
	5-10 years	10	9.6
	10-15 years	4	3.8
	More than 15 years	2	1.9
	Total	104	100.0

Table No. 6 presents the years of experience of respondents. Out of the total 104 (100%) respondents , 47 (45.2%) respondents have an experience of less than 1 year , 41 (39.4%) respondents have an experience of 1-5 years , 10 (9.6%) respondents have an experience of 5-10 years , 4 (3.8%) respondents have an experience of 10-15 years , 2 (1.9%) respondents have an experience of more than 15 years.

**Table No. 7: Period of Adoption of Technology by the Respondents**

Period of Adoption of Technology		Frequency	Percent
Valid	Less than 1 year	16	15.4
	1 year to 5 years	34	32.7
	5 years to 10 years	22	21.2
	More than 10 years	32	30.8
	Total	104	100.0

Table No. 7 presents the period of adoption of technology by the respondents. Out of the total 104 (100%) respondents, the period of adoption of technology for 16 (15.4%) respondents it is less than 1 year , for 34 (32.7%) respondents it is between 1-5 years , for 22 (21.2%) respondents it is between 5-10 years and for 32 (30.8%) respondents it is more than 10 years.

## 4.2. Exploratory Factor Analysis

An exploratory factor analysis (EFA) was performed to examine the factors responsible for technology adoption at workplace with 20 items. Initially 30 statements were taken in the questionnaire of which 25 were selected for exploratory factor analysis . In order to determine the structure of the scale factor, Varimax Rotation Method was used. Principal Components Factor Analysis method was applied to scores obtained from answers given by 104 respondents to the scale.

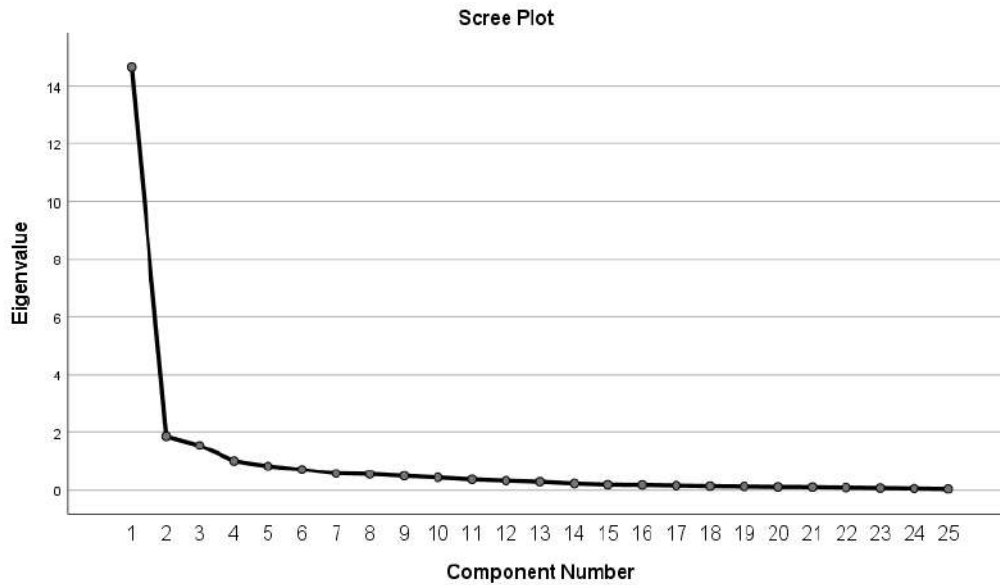
The Correlation Matrix showed the determinant score above the thumb rule of .00001. Furthermore, the correlation value of all the variables was less than .90 i.e., ( $r < 0.90$ ), which shows that data is free from multicollinearity.

**Table No. 8: KMO and Bartlett's Test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.902
Bartlett's Test of Sphericity	Approx. Chi-Square	2788.086
	Df	300
	Sig.	.000

In Bartlett's Test of Sphericity, the p value was less than 0.05 ( $p = .000$ ) which showed that the data had a patterned relationship. The suitability of the data for factor analysis was tested by Kaiser-Mayer-Olkin (KMO) coefficient and Bartlett Sphericity Test .KMO value was found to be 0.902 which is acceptable in Principal Component Factor Analysis.





Scree plot shows that four factors were in sharp descent and then started to level off. This suggests the presence of one major factor and thus supports the prior evidence concerning the internal consistency of the study.

**Table No. 9: Total Variance Explained**

**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.669	58.674	58.674	14.669	58.674	58.674	6.214	24.856	24.856
2	1.853	7.414	66.088	1.853	7.414	66.088	5.520	22.081	46.936
3	1.534	6.137	72.225	1.534	6.137	72.225	4.858	19.431	66.367
4	.997	3.987	76.212	.997	3.987	76.212	2.461	9.845	76.212
5	.822	3.288	79.500						
6	.700	2.799	82.299						
7	.570	2.281	84.580						
8	.542	2.170	86.750						
9	.480	1.922	88.672						
10	.425	1.701	90.373						
11	.361	1.444	91.817						
12	.316	1.263	93.080						

Four factors were extracted using EFA with eigenvalues approximately near & exceeding 1.0. These factors altogether explained 76.212 of variance of results. These factors were named according to the common characteristics of the items loaded on the same factor. Eigenvalues of the factors are 14.669, 1.853, 1.70, 1.534, & .997 respectively. **The first factor accounts for 58.674 %of total** variance explained. The proportion of explained variance by the prime factor in valid scales should be at least 20% (Reckase, 1979)



**Table No. 10: Rotated Component Matrix**

<b>Rotated Component Matrix<sup>a</sup></b>				
	Component			
	1	2	3	4
<b>WORK RELATED FACTORS</b>				
Effectively prioritizing tasks	0.825			
Flexibility in tasks	0.750			
Positive team dynamics	0.742			
Technology has helped create a positive work culture	0.679			
The technology easily integrates with my existing work structure	0.614			
<b>PERCEIVED USEFULNESS</b>				
Ease of doing work		0.779		
Speed of work		0.716		
Use of technology facilitates easy accessibility of data from any location		0.705		
Easy maintenance & storage of data		0.689		
Easy access to required resources		0.668		
technology has helped me to organise my work flow		0.396		
<b>ORGANISATIONAL FACTORS</b>				
The introduction of technology in our organisation was readily accepted by all			0.838	
Motivated by my organisation to adopt the technology			0.812	
IT related training has helped me in easily adapting technology			0.810	
Maintaining work life balance			0.610	
Organisation is able to resolve technology related issues			0.461	
<b>PERSONAL FACTORS</b>				
Confidence in adopting new technology				0.671
Efficiency in performing tasks				0.545
Knowledge of technology helps adoption				0.407
I am curious about learning innovative technology				0.455
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 9 iterations.				

**FROM EFA FOLLOWING FOUR FACTORS ARE IDENTIFIED**

1. Work-related factors
2. Perceived usefulness
3. Organizational factors
4. Personal factors

**4.2. Reliability Test**

Further to test the reliability of the factors affecting technology adoption at workplace to be used for analyzing & determining the adaptability of technology Cronbach's Alpha statistics measure was used.

**Table No. 11: Factor-Wise Reliability Test**

Particulars	Cronbach's Alpha
All Statements	.944
Factor I	.932
Factor II	.904
Factor III	.913
Factor IV	.850



To check the reliability of all the four factors extracted, Cronbach's Alpha was used. From table no. 11 it is seen that the alpha coefficient value of all the items together and each factor separately is more than .7 thresholds. This shows that the scale passes the test of reliability. Thus, this scale can be used to measure the factors affecting the adoption of technology at the workplace.

## CONCLUSION

In conclusion, the successful adoption of technology in the workplace is a multifaceted process influenced by a complex interplay of individual, organizational, and technological factors. A comprehensive understanding of these factors is crucial for organizations to effectively implement and leverage technology to enhance productivity, innovation, and overall performance.

Individual factors such as perceived usefulness, ease of use, and attitude toward technology play a significant role in shaping employees' adoption behaviour. Organizational factors, including management support, organizational culture, and training and support, create the environment in which technology is adopted. Technological factors, such as compatibility, complexity, and trialability, influence the ease of use and perceived benefits of the technology.

By carefully considering these factors, organizations can develop strategies to foster a positive attitude towards technology, provide adequate training and support, and create a conducive work environment that encourages adoption. Moreover, aligning technology initiatives with organizational goals and strategies can maximize the potential benefits of technology adoption.

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**E-COMMERCE AND DIGITAL TRANSFORMATION**

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**ABSTRACT**

*E-commerce has undergone significant transformation in recent years, driven by advances in digital technologies. This paper examines the intersection of e-commerce and digital transformation, exploring the challenges and opportunities presented by this dynamic environment. Key topics include the role of artificial intelligence, big data analytics, mobile commerce, and block chain technology in shaping consumer behavior and business strategies. Through a review of literature and analysis, this research identifies critical trends and provides actionable insights for businesses navigating the digital economy.*

**Keywords:** E-commerce, digital transformation, artificial intelligence, big data analytics, mobile commerce, consumer behavior, business strategies, block chain, cloud computing.

**INTRODUCTION**

The advent of digital technologies has revolutionized the e-commerce landscape, enabling businesses to reach consumers in new and innovative ways. E-commerce, defined as the buying and selling of goods and services over the internet, is a cornerstone of the digital economy. Digital transformation, on the other hand, involves integrating digital technologies into all aspects of a business, fundamentally changing operations and delivering value to customers. This paper aims to explore how digital transformation is reshaping e-commerce, driving growth, and creating new opportunities and challenges for businesses. In addition to artificial intelligence and big data analytics, the role of other emerging technologies such as block chain, cloud computing, and the Internet of Things (IoT) are examined.

The rapid digital transformation of e-commerce has been fueled by technological innovations that allow businesses to tailor their offerings to individual consumer preferences, streamline operations, and enhance the shopping experience. The convergence of AI, big data, and mobile technologies has also altered traditional business models, driving new avenues for customer engagement and revenue generation. However, the integration of digital tools is not without challenges, such as data security concerns, technological adoption barriers, and the need for skilled labor.

**REVIEW OF LITERATURE**

The literature on e-commerce and digital transformation highlights several key themes that are pivotal to understanding the evolving landscape.

1. **Technological Innovation:** Several studies (Smith, 2020; Lee, 2021) emphasize the transformative impact of technologies such as artificial intelligence (AI), machine learning, and block chain on e-commerce efficiency, security, and customer experience. AI has been instrumental in driving personalized marketing, enabling businesses to target consumers with tailored content and offers. Additionally, machine learning algorithms have been adopted by e-commerce platforms to predict purchasing behavior and optimize product recommendations. Block chain technology is also being utilized to enhance the transparency and security of online transactions, particularly in areas like payment systems and supply chain management.
2. **Consumer Behavior:** Digital transformation has significantly shifted consumer behavior, as evidenced by studies (Brown, 2019). With the proliferation of smartphones and mobile devices, consumers now expect a seamless and personalized shopping experience across all digital touchpoints. The demand for Omni channel retail experiences—where customers can browse, purchase, and return products across various platforms—is on the rise. Additionally, the increased use of social media for product discovery and reviews has empowered consumers, changing the way businesses approach customer engagement.
3. **Business Strategy:** As businesses adapt to digital transformation, many have shifted from traditional brick-and-mortar models to more flexible, online-first strategies. Research by Kumar & Gupta (2020) suggests that data-driven decision-making has become a core component of modern business strategies. Digital tools such as customer relationship management (CRM) software, cloud-based solutions, and automated marketing platforms allow companies to optimize operations, reduce costs, and improve customer service. The ability to collect and analyze vast amounts of consumer data has also given rise to more effective marketing campaigns and product development strategies.



4. **Challenges and Barriers:** Despite the many advantages of digital transformation, there are significant barriers to adoption. According to Zhang et al. (2022), issues such as security concerns, lack of digital skills, and regulatory compliance challenges have hindered the widespread adoption of digital technologies in e-commerce. Cybersecurity threats, including data breaches and fraud, are particularly concerning, as consumers are becoming increasingly aware of the risks associated with online transactions. Furthermore, businesses face challenges in upskilling employees to manage new technologies and ensuring compliance with privacy laws and regulations.

**Research Problem:** How does digital transformation impact the growth and development of e-commerce businesses, and what strategies can organizations adopt to remain competitive in a rapidly evolving digital environment?

### RESEARCH OBJECTIVES

1. To analyze the role of digital transformation in the growth of e-commerce.
2. To identify key technologies driving changes in consumer behavior.
3. To explore challenges and opportunities for businesses in adopting digital transformation.
4. To provide actionable recommendations for leveraging digital technologies in e-commerce.
5. To investigate the role of emerging technologies like blockchain and cloud computing in e-commerce.

### RESEARCH HYPOTHESIS

H1: Digital transformation positively impacts the operational efficiency and growth of ecommerce businesses.  
H2: Adoption of advanced digital technologies correlates with increased customer satisfaction and retention in e-commerce.

### RESEARCH METHODOLOGY

This research adopts a mixed-methods approach, combining qualitative and quantitative data collection and analysis. The methodology includes the following components:

1. **Data Sources:** Academic journals, industry reports, case studies, consumer surveys, and interviews with key industry players will be utilized. Secondary data will be sourced from reputable e-commerce platforms and business intelligence providers.
2. **Sample Population:** E-commerce businesses across various sectors (e.g., fashion, electronics, groceries) and geographies (e.g., North America, Europe, Asia) will be surveyed to provide a comprehensive overview of digital transformation in e-commerce.
3. **Data Collection Tools:** Online surveys, structured interviews with e-commerce executives, and secondary data analysis will form the primary tools for data collection. The interviews will focus on understanding how businesses have adopted digital technologies and the challenges they face.
4. **Data Analysis:** Statistical tools such as SPSS will be used for quantitative data analysis, while qualitative data will be analyzed through thematic coding. The findings will be compared to industry benchmarks to draw actionable insights.

### DATA ANALYSIS AND DISCUSSION

#### Key Findings:

1. **Role of AI and Big Data:** AI-driven tools enable businesses to personalize customer interactions, optimize pricing strategies, and enhance recommendation systems. Big data analytics allow companies to analyze consumer preferences, predict trends, and optimize supply chain management.
2. **Mobile Commerce Growth:** Mobile commerce has witnessed exponential growth due to the widespread use of smartphones. Studies suggest that mobile devices account for a significant portion of online sales, particularly in the fashion and retail sectors. The increasing use of mobile wallets and contactless payments has further accelerated this trend.
3. **Block chain and Cloud Computing:** Block chain's decentralized ledger offers improved transparency and security, particularly in payment processing and inventory tracking. Cloud computing has also become essential for e-commerce businesses, offering scalability, flexibility, and cost-efficiency.
4. **Challenges:**  
While digital transformation offers numerous benefits, security concerns, digital skills gaps, and regulatory challenges remain significant obstacles for e-commerce businesses. Ensuring the protection of customer data and complying with international data privacy laws are ongoing challenges.



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**DISCUSSION**

The findings indicate that digital transformation has significantly enhanced the operational capabilities of e-commerce businesses. However, the pace of technological adoption varies, with smaller businesses struggling to keep up. Strategies such as partnerships with tech providers, investment in employee training, and adopting agile business models can help bridge this gap.

**RESULTS OF FINDINGS**

1. Digital transformation drives customer-centric approaches, enhancing satisfaction and loyalty.
2. Businesses leveraging digital tools report higher growth rates compared to those relying on traditional methods.
3. The integration of AI, mobile commerce, and block chain is crucial for maintaining competitiveness in the digital marketplace.

**CONCLUSIONS**

Digital transformation is no longer optional but a necessity for e-commerce businesses aiming to thrive in a competitive market. While challenges such as security and digital skills persist, the benefits of adopting digital technologies far outweigh the risks. Businesses that embrace innovation, invest in emerging technologies, and remain agile are better positioned to meet evolving consumer demands and achieve sustainable growth.

**FUTURE SCOPE**

This research highlights the importance of exploring additional dimensions of digital transformation in e-commerce. Future studies could delve deeper into emerging technologies such as quantum computing, augmented reality, and the Internet of Things (IoT), which promise to further revolutionize the industry. Additionally, examining the impact of government policies and global trade dynamics on digital transformation would provide valuable insights for businesses. Research on consumer behavior across different regions can also offer a deeper understanding of the cultural and economic factors influencing digital adoption.

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**TRANSFORMING TALENT: INDIA'S JOURNEY IN SKILL DEVELOPMENT**

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**ABSTRACT**

*Skill development is essential to the changing landscape of education and employment, influenced by global trends like climate action, automation, e-commerce growth, and a declining labour force. These global shifts are transforming job roles and the skills necessary for the workforce of the future. Consequently, the skills and workforce development system must continuously evolve to keep pace with the rapid changes brought about by digitalization, climate action, automation, and shifting labour markets. These emerging trends will fundamentally transform global education and workforce development systems.*

*India is at a crucial stage in its economic path, with enormous opportunities for development but facing a massive difficulty in overcoming an unemployment-employability gap. As the fifth-biggest economy in the world, India's strive for 'Viksit Bharat' by 2047 relies on effective training its youth to fulfil the demands of a fast-changing labour market. However, the challenge ahead is difficult, since approximately 73% of workers aged 15 to 59 lack any kind of formal or informal vocational education or training. In order to capitalise on India's demographic dividend and boost economic development, a holistic strategy is required. This involves increasing institutional backing, improving industry-academia links, and utilising new finance alternatives such as impact bonds. As India moves through this vital phase, the effectiveness of its skill development activities will be crucial in moulding the country's future and attaining the full potential of its economy.*

*This study examines India's skill development ecosystem and its potential to boost job opportunities and entrepreneurial prospects for the nation's youth.*

**Keywords:** Skill Development, Employment, Education, Career, Youth

**INTRODUCTION*****Skills Development: A Preference or a Requirement?***

Skills development is no longer a choice, and it never has been. It is the method of acquiring the ability or aptitude to do difficult tasks or job responsibilities effortlessly and adaptably. In short, skill development is the technique of identifying skill gaps and working on fixing them.

**In the workplace, there are three major categories of skill development:**

- **Upskilling:** Enhancing the abilities in the existing position.
- **Cross-skilling:** Acquire new skills for the existing position.
- **Reskilling:** Developing new skills to adapt a new position.

India ranks as one of the world's youngest countries, having over 60% of the population working (15-59 years old) as well as more than 54% of the overall population under the age of 25. In order to benefit from the demographic dividend, which is predicted to persist over the successive 25 years, India must provide its workers with employable competencies and expertise that will allow them to contribute significantly to the prosperity of the nation.

The India Skills Report 2024 emphasises improvements in employability. In India, there is a massive talent gap; around 31% are uneducated, 13% have completed basic school, and 6% have graduated from college.

Only around two percent of the working population has official vocational training, whereas 9% has unofficial vocational training. Over 90% of India's workforce is employed in the unregulated industry, fostering a cycle in which informal nature impedes skill acquisition. It emphasises the importance of teamwork and proactive efforts to fill the gap in skills and train workers for an ever-changing employment environment.

To summarise, building skills in India is crucial for leveraging on the potential of its young and vibrant population, generating economic growth, decreasing poverty, and guaranteeing the country's competitiveness in global markets.



**OBJECTIVES OF THE STUDY**

1. To analyse the current landscape of enhancing skills in India.
2. To investigate the government's initiatives and programs focused on skill enhancement.
3. To identify and examine the challenges faced by the skill development system in India.
4. To propose actionable solutions and future strategies for improving skill development.

**RESEARCH METHODOLOGY**

The presented study is mainly descriptive in nature, relying on secondary data and information, with a requirement for comprehensive research from diverse sources. The study gathered documents from the ministry's numerous units and institutes, along with articles, papers, and relevant publications from the websites of corporate and government bodies working to enhance skills in the country.

**MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP (MSDE)**

The Ministry coordinates Skill Development campaigns across the country, addressing the gap between the need and availability of skilled labour, creating a framework for vocational and technical training, upgrading skills, developing new skills, and fostering innovative thinking for both existing and future jobs. The Ministry intends to fulfil its goal of a 'Skilled India' through rapid and high-quality skill development on a big scale.

**FUNCTIONAL ARMS OF MSDE**

- Directorate General of Training (DGT)
- National Skill Development Agency (NSDA)
- National Council for Vocational Education and Training (NCVET)
- National Skill Development Corporation (NSDC)
- National Skill Development Fund (NSDF)
- 38 Sector Skill Councils (SSCs) as well as 33 National Skill Training Institutes (NSTIs/NSTI(w))
- About 15000 Industrial Training Institutes (ITIs) under DGT and 187 training partners registered with NSDC.

**MAJOR SCHEMES BY GOI**

India is experiencing a significant demographic dividend, with over 60% of the population in the working-age bracket and projected to reach 65% by 2036. This is an incredible opportunity, but it must be appropriately used. The Indian government prioritises skill development. If the talent gap gets filled, India will have a stronger demographic advantage.

**❖ Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**

The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is the Ministry of Skill Development and Entrepreneurship's (MSDE) flagship project, which is being administered by the National Skill Development Corporation. The ultimate goal of this Skill Certification scheme is to deliver industry-focused skill training to Indian youth, thereby enabling them to secure better livelihood options.

Overall candidates for PMKVY so far

Enrolled	Trained	Assessed	Certified	Placed
14,265,716	13,724,226	12,454,858	11,040,991	2,184,565



Figure 1: PMKVY so far



### Target Group, Eligibility and Geographical Coverage under PMKVY 4.0

	Short Term Training	Special Projects	Recognition of Prior Learning
<b>Target Group</b>	Candidates looking for fresh skilling, re-skill/upskill, out-of-education candidates, School/college dropouts or unemployed youth of Indian nationality.	Marginalized, vulnerable groups, etc. requiring special attention or job-roles with focus on future skills	Candidates with prior learning experience or skills and willing to get assessed and certified.
<b>Eligibility</b>	Indian nationals possessing valid Aadhaar and fulfilling eligibility criteria of respective job role. In case of RPL, prior experience will be required in the job role for which RPL certification is being sought and as specified in the job role.		
<b>Age Group</b>	15 – 45 years	15 – 45 years	18– 59 years
	Short Term Training	Special Projects	Recognition of Prior Learning
<b>Geographic al Coverage</b>	Special attention to aspirational, backward, border, tribal and Left-Wing Extremism (LWE) affected districts, including skilling requirements for other countries.		

### Achievements of Skill Development Programme (PMKVY)

Table 12: Summary: Achievements of the Skill Development programme:

Scheme	Component	Trained				Total Certified	Total Reported Placed
		STT	RPL	Special Projects	Total Trained		
STAR	-	14,00,844	0 (No RPL in STAR)	0 (No Special Projects in STAR)	14,00,844	8,68,880	NA*
PMKVY Total	CSCM + CSSM	68,01,833	65,86,385	3,35,978	1,37,24,196	1,10,89,025	24,36,040
PMKVY 1.0	CSCM	18,04,206	1,81,810	0 (No special project in PMKVY)	19,86,016	14,51,636	2,53,296*
PMKVY 2.0	CSCM	38,11,857	61,41,870	2,13,844	1,01,67,571	84,96,472	19,11,182
	CSSM	8,26,350	N/A	6,787	8,33,137	6,56,881	2,30,393
PMKVY 3.0	CSCM	2,94,873	1,76,491	1,08,702	5,80,066	3,79,421	30,951
	CSSM	64,547	86,214	6,645	1,57,406	1,04,615	10,218
Grand Total		82,02,677	65,86,385	3,35,978	1,51,25,040	1,19,57,905	24,36,040



❖ **Pradhan Mantri Kaushal Kendra (PMKK)**

To further cement India's position as a worldwide leader in skill development, the Ministry of Skill Development and Entrepreneurship (MSDE) has created notable and inspirational Model Training Centres (MTCs) in each district throughout the country. As the implementing agency, NSDC is leading this endeavour. The main goals of these model training institutes are:

- Establishing prestigious institutions to demonstrate the aspirational worth of competency-driven skill development training.
- Throughout the skills delivery process, emphasis will be placed on quality, sustainability, and stakeholder participation.
- Turning from a mandate-driven, temporary approach towards an enduring institutional structure.

These centres, known as Pradhan Mantri Kaushal Kendras (PMKK), are outfitted with revolutionary technology and resources to deliver top-notch vocational training.

**PMKK centers summary (Table 27)**

Categories	Achievement
No. of Districts*	763*
No. of Districts having PMKK allocated till date	707
No. of PMKK's Allocated till date	818
No. of PMKK's Established As on 31.12.2022	721

**Table 28; PMKK centers training (Short Term Training) summary (as on 31.12.2022):**

Scheme	Enrolled	Trained	Assessed	Certified	Placed
PMKVY 2.0	16,52,348	14,82,794	13,65,847	11,90,208	7,17,118
PMKVY 3.0	2,94,681	2,58,553	2,09,532	1,75,993	24,441
Grand Total	19,47,029	17,41,347	15,75,379	13,66,201	7,41,559

❖ **Jan Shikshan Sansthan (JSSs)**

The Jan Shikshan Sansthan (JSS) initiative is conducted by non-governmental organisations (NGOs) with full government funding. Jan Shikshan Sansthan are registered under the Societies Registration Act of 1860. The affairs of Jan Shikshan Sansthan are handled by a Board of Management constituted by the Government of India. The JSS program was transferred from the Ministry of Education (formerly the Ministry of Human Resource Development) to the Ministry of Skill Development and Entrepreneurship in July 2018. This scheme is designed to provide non-formal job skills to non-literate individuals, those with a basic education up to eighth grade, and school leavers up to twelfth grade, within the age range of 15 to 45 years. Priority is given to women, SC, ST, minorities, and other underrepresented members of society. JSSs are reaching to the untapped regions to meet the needs of the most impoverished communities.

Currently, 290 JSSs in 26 states and 7 union territories are operational. The beneficiaries' yearly coverage is around 4 lakhs, with women accounting for 85% of the total.

**Table 1: Number of enrolled, trained assessed and certified beneficiaries**

Total No. of JSSs	Total Target	Enrolled	Trained	Assessed	Certified
288	515550	490331	274708	242998	232975



**Table 2: Gender-wise Enrolled Beneficiaries**

No. of male beneficiaries Enrolled	No. of female beneficiaries Enrolled	No. of Transgender beneficiaries Enrolled	Total
112045	378120	166	490331

**Table 3: Economic Status of Enrolled Beneficiaries**

APL	BPL	Total
122802	367529	490331

**Table 4: Social Status of Enrolled Beneficiaries**

SCs	STs	OBC	Minorities	Gen.	Total
120465	70675	174162	44514	80515	490331

**Table 5: Age Group of Beneficiaries**

FY\Age Group	15-18 Years	19-25 Years	26-35 Years	above 35 Years	Total
2022-23	65879	207582	142961	73901	490331

**Table 6: Educational Status of Beneficiaries**

Non-Literates	Neo-Literates	Rudimentary Level	12 <sup>th</sup> Dropouts	Total
21881	91826	260590	116033	490331

#### ❖ Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)

The Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) is a placement-linked skill development initiative for rural deprived youth under the National Rural Livelihoods Mission (NRLM). It is a market-driven, placement-linked skill development program intended for providing pay employment to remote underprivileged young adults.

DDU-GKY is exclusively focused on rural young people aged 15 to 35 who come from less fortunate homes. As part of the Skill India campaign, it contributes significantly to the government's social and economic projects such as Make in India, Start-Up India, Stand-Up India, Smart Cities, Digital India.

Year	Total no. of candidates trained under DDU-GKY	Total no. of candidates placed under DDU-GKY
2014-15	43,038	21,446
2015-16	2,36,471	1,09,512
2016-17	1,62,586	1,47,883
2017-18	1,31,527	75,787
2018-19	2,41,080	1,38,248
2019-20	2,38,336	1,50,199
2020-21	37,906	49,563
2021-22(till October 21)	8,886	21,361

#### INDIA INTERNATIONAL SKILL CENTRE (IISC)

The India International Skill Centre (IISC) is a program that aims to provide skill development and training to those seeking employment possibilities in India and abroad. The primary goals of IISC are to strengthen the job marketability of the Indian workforce, satisfy the wants of the global job market, and guarantee that training delivered is consistent with international standards.

#### KEY RESULTS OF THE IISC PROGRAM

- ✓ 14 centres enrolled 593 people and delivered domain training on international standards for 9 career opportunities in 8 sectors.
- ✓ 459 students took the exam, and 286 were certified on domain skills based on international standards (62% passing result).
- ✓ 180 applicants were placed (based on offline data). - 63 in international locations (35% of overall placement); 117 in domestic locales (65% of total placement).
- ✓ In terms of foreign placement, applicants were placed in the United Arab Emirates (26%), Oman (60%), Qatar (8%), and Singapore (6%).



- ✓ Among the total registered candidates at IISC, 430 underwent 160 hours of pre-departure orientation training and domain-specific training aligned with international standards

The IISC program has significantly improved the job readiness and financial prospects of its trainees. By offering globally recognised skills and certificates, it has expanded worldwide options for many Indian workers, improving their standard of living and adding to India's image as a source of skilled labour.

### Why are India's efforts in skill development not producing better employment outcomes?

- **Structural Economic Barriers:** The Indian economy is defined by a significant informal sector (85-90%) and a high percentage of micro, small, and medium-sized businesses (MSMEs). Many MSMEs lack the means or opportunities to invest in official skill training, leading to just 4.4% of the youth workforce being formally skilled (Economic Survey 2023-24), with most opting for on-the-job learning. Because many jobs are informal, formal declarations generally do not result in higher wages or job stability, lowering the expected worth of skill-building programs.
- **Population and Regional Disparities:** The India Skills Report 2024 observed that employability ranged substantially between states. Urban regions require advanced technological abilities, whilst rural areas require more fundamental and conventional skill sets. This gap is not sufficiently addressed in existing skilling models. Furthermore, internal movement trends hinder skill mapping and execution since skills learnt in one location may not be applicable in another.
- **Technological advancement and skill becoming obsolete:** The increasing speed of innovation in technology, especially in fields like as AI, machine learning, and automation, is making many old skills outdated quicker than the education industry is able to accommodate. About fifty percent of the workforce will require to be reskilled by 2025 owing to rising technology usage, based on the World Economic Forum's 2020 "Future of Jobs Report". This results in a continuous grip game in skill development. The problem isn't merely imparting new skills, but also to develop a culture of ongoing learning and flexibility, which many existing programs fail to achieve.
- **Lack of Integration with the Higher Learning Institutions:** There is a notable gap between the institution of higher learning and vocational training.

According to the Periodic Labour Force Survey (PLFS) 2022-23, just 4.4% of youngsters aged 15 to 29 years got formal vocational/technical training.

The absence of a link between college degrees and practical certificates creates an imbalance that undervalues skill-based learning.

- **Lack of Attention to the Evolving Gig Economy:** The growing prominence of the gig economy and platform-based employment (capable of yielding up to 90 million jobs) is altering the structure of employment, necessitating a fresh set of skills such as managing oneself, computer literacy, and entrepreneurship.

Current skill-building programs are still heavily geared towards old job paradigms, failing to appropriately train people for this new scenario.

### What steps can be taken to overhaul India's skill development programs?

- **Aligning Skill Mapping and Forecasting with Industry Needs:** Establish a strong, real-time work market intelligence system that monitors skill demand using extensive data analytics. The system should:
  - ✓ Work with industry groups to collect detailed, industry-specific data.
  - ✓ Deploy AI algorithms to assess job advertisements, industry reports, and economic trends.
  - ✓ Generate quarterly demand for talent predictions for the national, state, and local areas.
- **Embedding Vocational Training with Mainstream Education:** Incorporate job-related learning into the educational curriculum, beginning at the secondary level:
  - ✓ Add vocational topics as optional courses beginning in eighth grade.
  - ✓ Create a credit transfer mechanism for vocational and academic degrees.
  - ✓ Assure that vocational teachers have both industrial experience and educational training.
- Germany's dual education system, which blends internships and practical training, could be used as a model.



**Initiative for Enhancing Gig Economy Readiness:**

- ✓ Create a specific curriculum to train workers for the gig economy.
- ✓ Create education covering online platforms, managing oneself, and money management.
- ✓ Establish a gig job set up to regulate and boost gig workers' welfare.
- ✓ Collaborate with the ecosystem to develop appropriate skill courses.

**→ Trainer Excellence Development Program:**

- ✓ Adopt an extensive initiative to generate top-notch skill instructors, including obligatory job internships for every person.
- ✓ Frequent refresher training sessions bring trainers up to date on industry developments.
- ✓ Performance-driven rewards for trainer's tie into student results.

**→ Merging Skill Development with MGNREGA: Improving MGNREGA by including skill development aspects.**

- ✓ Provide skill training during the course of the 100-day guaranteed employment period.
- ✓ Concentrate on skills related to developing rural areas and regional business.
- ✓ Offer extra rewards for learning new skills via this scheme.

**→ Environmental Skills Integration Scheme:**

- ✓ Incorporate environmentally friendly skills into all applicable skill development initiatives.
- ✓ Design a 'green skills' extension module for every industry-specific course.
- ✓ Establish specialised training for growing green fields (such as solar energy system operators and waste management professionals).
- ✓ Collaborate with environmental groups on creating curriculum and apprenticeships.

**CONCLUSION**

Skill India is a vital initiative aimed at developing a more skilled and efficient workforce in the country. By stressing the importance of industry alliances, digital advancements, and fiscal incentives the program has effectively addressed the nation's skill development challenges. As it continues to grow, Skill India is poised to significantly revamp the Indian economy by generating new growth and development opportunities. It is essential for the government, training providers, and industry participants to collaborate to overcome the challenges facing Skill India and confirm the program ranges its full potential.

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**A STUDY ON THE IMPACT OF UNION BUDGET 2024 ON THE MIDDLE-INCOME CLASS GROUP OF THE MUMBAI SUBURBAN AREA AND THE RISE OF INCOME INEQUALITY**

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*This paper provides us information on the key elements of the Union Budget of India for 2024 and its main theme for this year. It provides an overview on why the middle class is so enraged with the new budget and along with that it also focuses on the growing income inequality between the middle and upper classes. Moreover, it addresses the new employment and skilling schemes proposed and evaluates their potential usefulness in reducing youth unemployment in the country. The findings of this paper emphasize more on the dual nature of the budget where the budget provides some tax relief, but it also increases taxes in some other aspects. This budget raises serious concerns regarding the long-term economic wellbeing of India's middle class.*

**Keywords—***Budget, middle class, income inequality, employment, dual nature, etc.*

**I. INTRODUCTION**

India remains the fastest growing economy among the world's major economies, with growth anticipated to range from 6.5% to 6.8% by 2024. While India's inflation rate remains low, steady, and approaching the 4% target.

Under Article 112 of the Indian Constitution, the government must deliver the Annual Financial Statement (AFS), which comprises estimated receipts and expenditures for the fiscal year to both Houses of Parliament.

The Union Budget for 2023–24 sets seven priorities of the budget ‘Saptarishi’ are inclusive development, reaching the last mile, infrastructure and investment, unleashing the potential, green growth, youth power and financial sector and it breaks from the pandemic recovery phase and places less focus on the health sector than it did in the two years prior. The percentage of the Union budget that goes for health has decreased, falling from 3.6% in 2021–2022 to 2.7% in 2022–2023 and then to 2.4% in 2023–2024. In contrast, 2024-25 shifts focus towards nine priorities under the vision of 'Viksit Bharat': agriculture, employment, human development, manufacturing and services, urban development, energy security, infrastructure, innovation, research and development, and next generation reforms.

The union budget is focused on 4 major castes, ‘Garib’ (Poor), ‘Mahilayen’ (Women), ‘Yuva’ (Youth) and ‘Annadata’ (Farmer). The budget theme for this year is employment, skilling, MSME's, and the middle class, reflecting the government's emphasis on boosting economic growth while solving critical social and economic issues.

The changes in the budget include modified tax slabs, which seek to make the tax system simpler and more efficient for taxpayers. Increased deductions and exemptions, the removal of the angel tax, higher capital gains taxes, modifications in customs duty, corporate tax reductions, and the new employment & skilling schemes etc. This article explores how these changes would affect the middle class, how income inequality is developing in India, and are the employment & skilling schemes actually beneficial to India.

**II. OBJECTIVE**

- To understand and highlight the significant changes introduced in the interim Union Budget of 2024.
- Examine the budgetary measures from the perspective of the middle and working classes, assessing their effects on these groups.
- The study focuses on the increasing income and wealth inequality in India.

**III. REVIEW OF LITERATURE**

- In the paper, “An analysis of interim union budget 2024: An overview on its key highlights and targeted sectors” by Gupta, A., Srivastava, G., Wadhwa, J., Yadav, D. K., Sharma, A., & Kumar, D the authors discuss key aspects of the Union Budget 2024, capital expenditure, revenue and expenditure estimates, fiscal deficit and much more. It also mentions new policies for different sectors like healthcare, agriculture, fishery etc. along with that is also concentrates on groups such as poor, woman, youth, farmers, etc.
- “Union Budget 2024-25: The provisions for youth and its challenges” by Laxman. M highlights the new



employment & skilling schemes, and analyses the challenges faced regarding unemployment in India.

- “Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj” by Bharti, N. K., Chancel, L., Piketty, T., & Somanchi, A. This research provides an in-depth analysis of wealth and income inequality from 1992 to 2023. It facilitates our understanding of the difference in shares of income and wealth between the wealthy, middle class, and poor.

#### IV. LIMITATIONS

While this study aims to provide comprehensive insights into the effectiveness of the new Union Budget 2024. First, the dependability and accessibility of the data may provide a limitation to the research. Additionally, time and resource constraints may limit the study's scope, also impact how extensively and deeply the budget is analysed, potentially resulting in a less detailed review of some aspects.

Furthermore, the research may encounter difficulties in pinpointing the precise influence of particular components, including personal influence, effectiveness, etc. Moreover, biases that are present in the study or subjective interpretations may have an impact on its conclusions. Reliable and accessible data are essential for a thorough evaluation of the Union Budget 2024. However, any issues with data quality or gaps in data availability might compromise the depth and accuracy of the analysis.

The conclusions of the study might be shaped by inherent biases and subjective viewpoints. The perspectives of the researcher and interpret the data could introduce biases, which might affect the final results and their implications. The study might struggle to identify the exact impact of individual budget components. Measuring and separating the effects of specific elements, whether personal or sectoral, can be quite complex, which could affect how clearly the findings are presented.

**B. ( $H_1$ ):** The impact of Union Budget 2024 has given a rise to income inequality in the middle-income group.

#### VII. DATA ANALYSIS/FINDINGS

##### A. Primary Data Analysis

The data analysis of the primary data collected has been discussed below the presented data.

##### SAMPLE SIZE –

Profession	No.
Salaried employee	24
Self employed	6
Business Owner	27
Student	3
Retired	1
Other	0
<b>Total Sample Size</b>	<b>61</b>

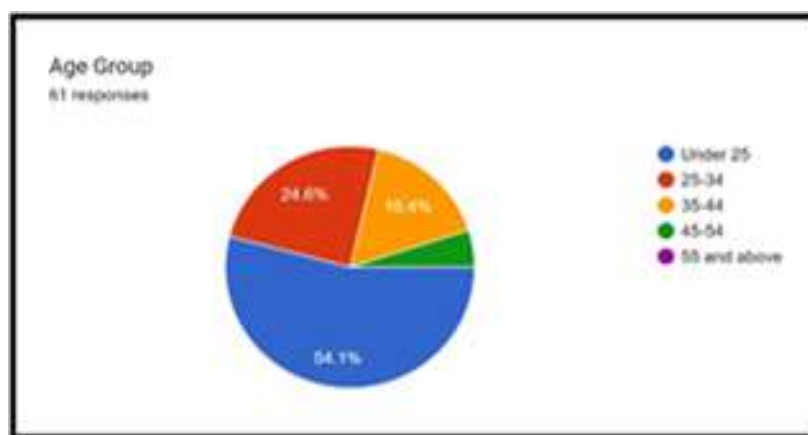


Fig. 1 Age group sample

#### V. METHODOLOGY

- A mixture of methods was adopted in the research methodology.
- Structured surveys were used to gather primary data from self-employed individuals, business owners, students, and paid employees. In order for us to fully understand their viewpoints on the union budget for 2024.



- It helps in understanding of the true effects of the budget on various individuals from various socioeconomic classes.
- Additional secondary data was also acquired through reviewing the existing literature, YouTube videos, official government reports and a variety of internet websites. It was beneficial to comprehend the main issues and the union budget in detail, among other things.

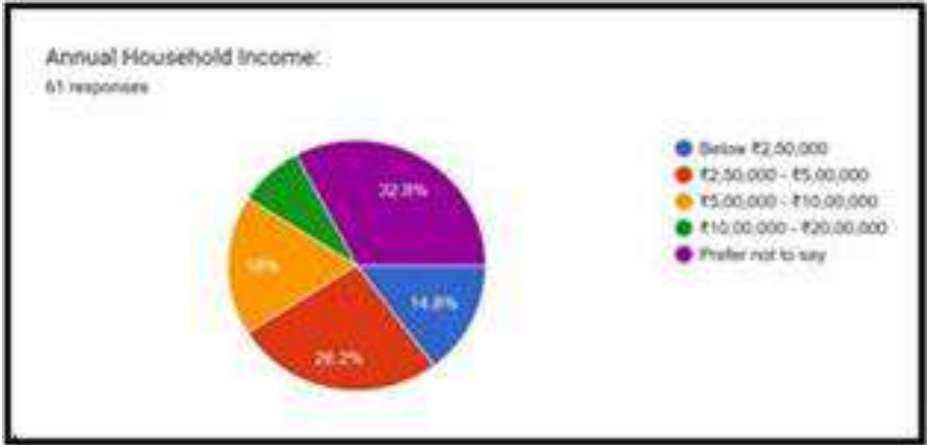


Fig. 2 Annual household income

VI.HYPOTHESIS

Building on this body of research, the following hypothesis is proposed:

- A. ( $H_0$ ): There is no impact of the Union Budget 2024 on the middle-income group and there is no income inequality due to the budget.

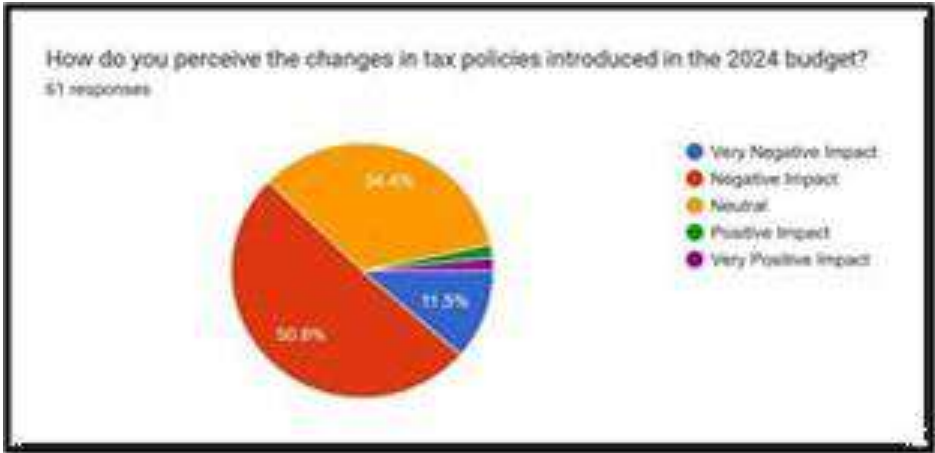


Fig. 3 Perception of Tax Policy Changes in the 2024 Budget

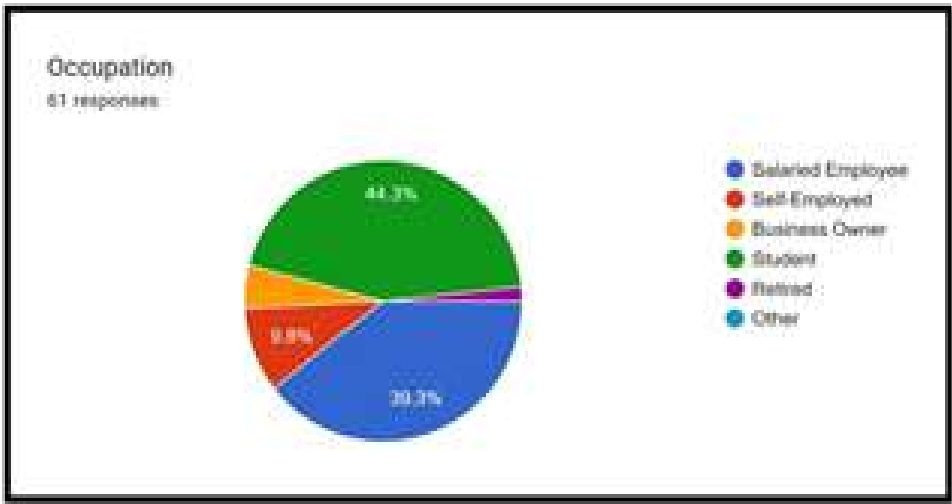


Fig. 4 Occupation chart



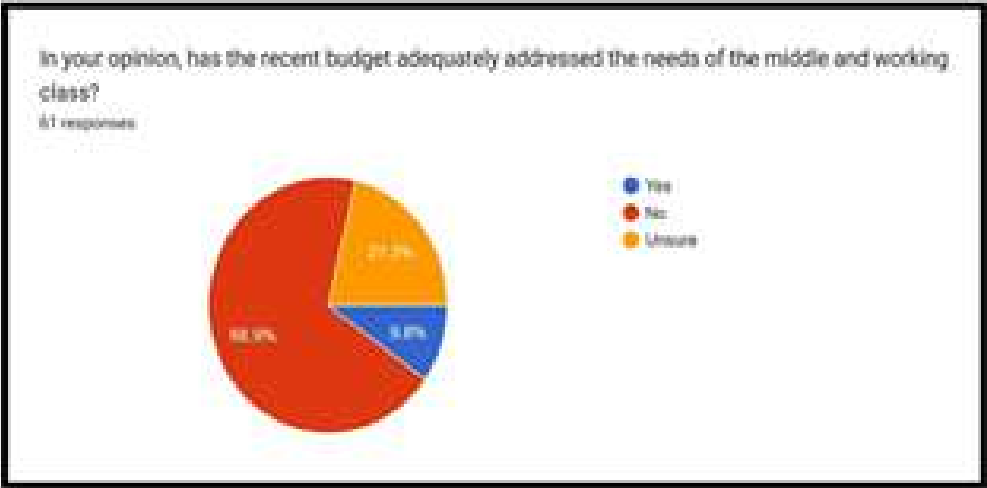


Fig. 5 Public Opinion on Budget Addressing Middle- and Working-Class Needs

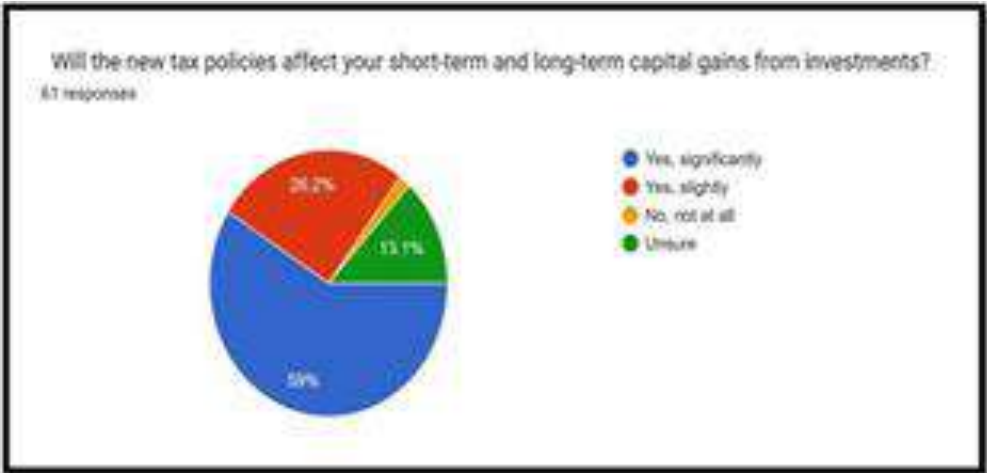


Fig. 6 Impact of New Tax Policies on Investment Gains

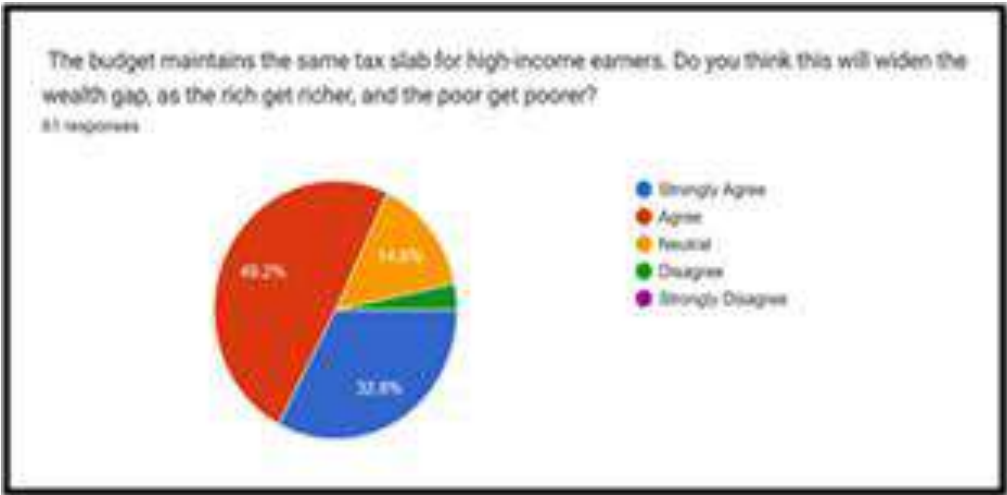
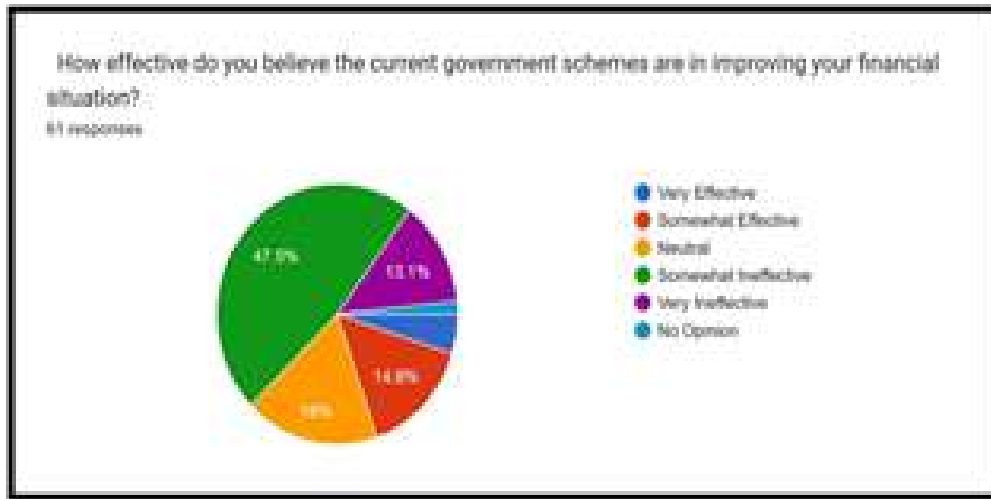
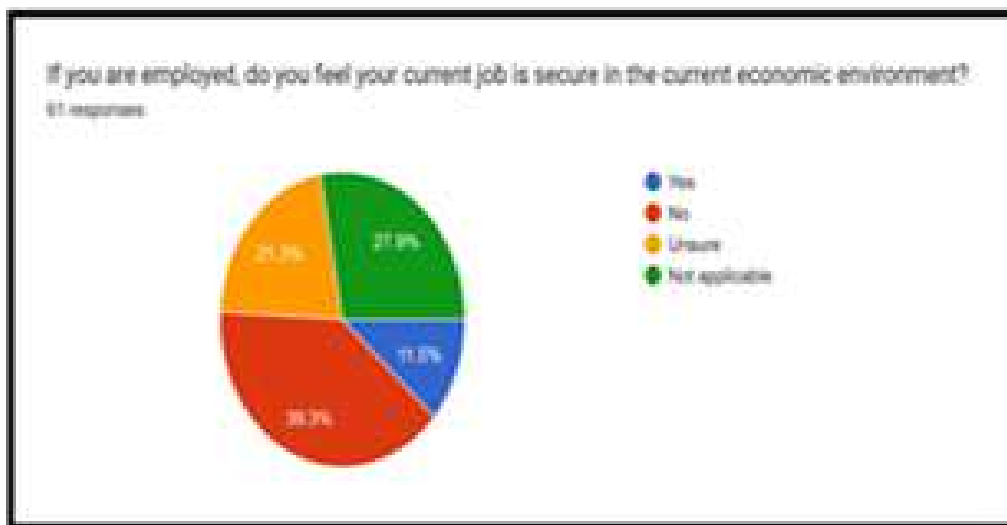


Fig. 7 Impact of Tax Policy on Wealth Gap





**Fig. 8** Effectiveness of Government Schemes



**Fig. 9** Perception of Job Security in Current Economy

### **B. Collective Analysis Of The Data Presented**

The data analysis provides insight into the perspectives of individuals from various socioeconomic backgrounds regarding the new Union Budget. The majority of the respondents (50.8%) perceive that the changes in tax policies has negative impact and this can be based on their demographic and income profiles. Additionally, majority of the respondents (68.9%) believe that the middle class/ working class needs were not met. Which helps us to understand that union budget did affect the middle class or working class.

Furthermore, some respondents also feel that their long term and short-term capital gains are ‘significantly’ affected (59%) and some respondents feel there is ‘slight’ impact on their gains. But overall, it does conclude that respondents are affected by the new budget policies for capital gains. Additionally, a lot of respondents also agree that the wealth gap has widen, where rich are getting richer and poor are getting poor. 32.8% respondents ‘strongly agree’ and 49.2% just selected the agree option. When it comes to government schemes and its effectiveness around 47.5% respondents feel they are ‘somewhat ineffective’ and around 14.8% of the respondents feel they are ‘somewhat effective’. Along with the other data points, these were the most important one’s sheds light on the effects of the union budget.

The analysis highlights the mixed but largely critical views of the respondents regarding the new Union Budget, reflecting concerns across different socioeconomic groups. A significant portion of the respondents (50.8%) feel that the changes in tax policies have had a negative impact, likely influenced by their age and income levels. Moreover, a majority (68.9%) believe

that the budget did not adequately address the needs of the middle and working classes, indicating widespread dissatisfaction within these groups.



Regarding capital gains, 59% of respondents reported being significantly affected by the new budget policies, while others noted a slight impact. This shows a clear concern about how the budget affects their financial stability. Additionally, there is a strong perception that the wealth gap is widening, with 32.8% of respondents strongly agreeing and 49.2% agreeing that the rich are getting richer while the poor are getting poorer.

When it comes to government schemes, around 47.5% of respondents feel they are somewhat ineffective, and only 14.8% view them as somewhat effective. Concerns about job security are also prevalent, with 39.3% feeling insecure about their jobs in the current economic climate.

Overall, the data provides a clear snapshot of how different demographic groups perceive the Union Budget, revealing widespread concerns about its impact on tax policies, capital gains, wealth distribution, and job security. This collective analysis reflects the real sentiments of citizens towards the budget and its implications for their financial well-being.

### C. Secondary Data Analysis

This section gives our secondary data analysis of India's Union Budget for 2024. The findings include three key areas: the impact of the budgetary changes on the middle class, growing income inequality in the country and the effectiveness of the newly introduced employment & skilling schemes.

### VIII. CHANGES IN INCOME TAX SLAB

In 2023, only 2.2 percent, or 1.6%, of India's population paid taxes; the middle class currently accounts for 31% of India's population. It is anticipated to reach 38% in 2031 and 60% by 2047. Despite the fact that the government recognizes the middle class as the backbone of the economy, it keeps neglecting them. They are outraged by the new budget, which many think does not provide them any relief.

The 2024 government budget included a new income tax regime aimed at simplifying and improving the efficiency of tax payment in India. The standard deduction for salaried employees has increased from Rs.50,000 to Rs.75,000. In addition, a salaried taxpayer might save up to Rs 17,500 over the previous tax regime.

Income Bracket	Old Tax regime	Income Bracket	New Tax regime
Rs. 0 to Rs. 2.5 lakh	0%	Rs.0 to Rs.3 lakh	0%
Rs. 2.5 to Rs. 3 lakhs	5%	Rs. 3 to Rs. 6 lakhs	5%
Rs. 3 to Rs. 5 lakhs	5%	Rs. 6 lakhs to Rs. 9 lakhs	10%
Rs. 5 to Rs.10 lakh	20%	Rs. 9 lakhs to Rs. 12 lakhs	15%
>Rs 10 lakh	30%	Rs. 12 lakhs to Rs. 15 lakhs	20%
		>Rs.15 lakh	30%

**Fig 10** Comparison of Old vs. New Tax Regimes in India

The new tax regime benefits the middle class by increasing tax slabs and thresholds, which might contribute to an increase in disposable income. While the new system simplifies taxes, it eliminates several deductions and exemptions that were available under the prior regime. For middle-class persons who previously benefited from these deductions, such as for home loans, investments, and so on, the new regime may not be beneficial.

### IX. OTHER MAJOR CHANGES

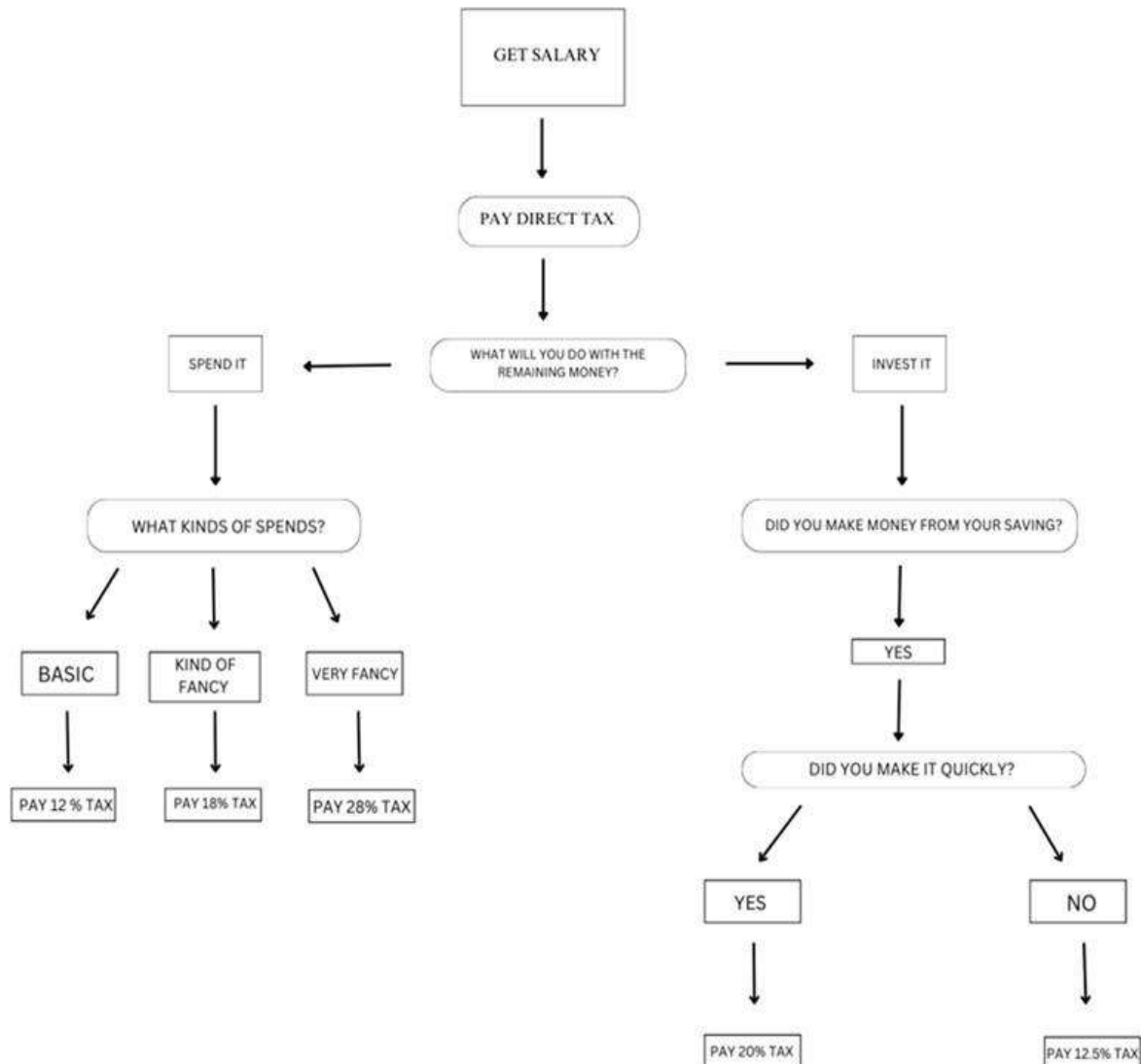
- There is also increased tax burden on the middle-class individuals who invest in mutual funds and shares. The most major change that has impacted the middle class is an increase in capital gains tax, with Long Term Capital Gains (LTCG) tax rising from 10% to 12.5% and Short-Term Capital Gains (STCG) tax rising from 15% to 20%. This illustrates the nature of the budget; it increases an individual's disposable income while increasing the capital gains tax has no benefit.
- Another key change in budget was reducing long term capital gains from 20% to 12.5% but along with that removal of indexation benefits on properties was proposed, which means that the property's value is not adjusted according to the inflation anymore. This may result in greater tax burden on property owners, leading to higher tax liabilities, particularly for long-term investors if they want to sell their properties after July 2024.



## X. SPECIAL PACKAGES GIVEN TO BIHAR AND ANDHRA PRADESH

In the 2024 Union Budget, the government's decision to provide special packages to Bihar and Andhra Pradesh catches the eye. These states play an important role in the BJP-NDA alliance and have received substantial funding. This clear favour has raised eyebrows about how honest and fair the budget is, with many other states unhappy about what they see as an uneven sharing of money. Such choices don't just make people doubt if the budget is fair, but they might also make the gap between regions bigger.

Below chart explains how the government has hands in our back pocket, as an individual in India is paying tax after earning, spending and saving.



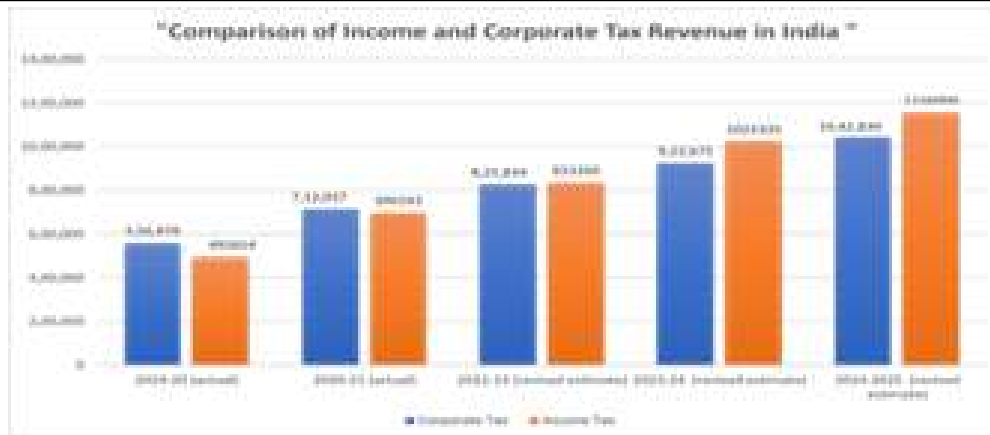
**Fig. 10** Flowchart of Taxation Based on Spending and Investments

## XI. CORPORATE & INCOME TAX

In India personal income tax brought in more money than corporate tax in the 2022-23 fiscal year. This change came about because of the 2019 cut in corporate tax rates. The Economic Survey shows that company profits grew four times between FY20 and FY23. But this tax setup puts individual taxpayers especially the middle class, at a disadvantage.

The graph below displays the data of corporate tax and income tax from 2019-2020 to 2024-2025.





**Fig. 11** Trends in Corporate Tax vs. Income Tax Revenue in India (2019-2025)

Unlike businesses individual taxpayers cannot get GST refunds, while companies can use input tax credits. Also, the government taxes individuals on what they earn, but taxes companies on their profits. While corporations received tax reductions in the 2019-20 budget, individual taxpayers last saw a change in 2012-13. That's more than a decade ago. This creates an unfair system that puts too much weight on the average taxpayer showing a growing gap in India's tax system. The income gap shows the rising divide between the wealthy and those struggling to make ends meet. The statement from the paper "Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj" indicated that wealth gap increased during the fiscal years 2014-15 and 2022-23, particularly among the wealthiest individuals. Why are the rich getting richer and poor getting poorer? One reason might be wealth is accumulating in the hands of a small number of people, who are rich. In short, the wealth/income gap is widening as wealth becomes concentrated among the few. The gap in earnings between the rich and poor keeps growing, while others find it hard to meet their basic needs and see their finances improve.



**Fig. 12** Distribution of Income Among Different Groups (2022-23)

The above pie chart presents the data of income inequality between the rich, middle class and the poor in India 2022- 23. The average income shares for the top 10% is Rs. 13,52,985, for the middle 40% it is Rs. 1,65,273, and for the bottom 50% it is Rs. 71,163. This information highlights not the disparity, in income but also sparks worries about the escalating inequality and its potential impacts, on social and economic stability.

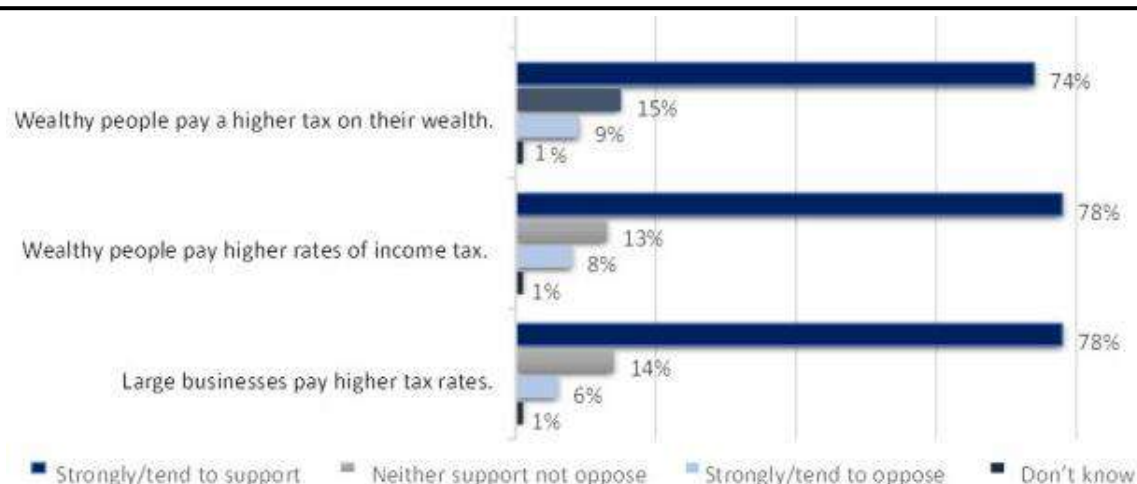
## VII. EARTH4ALL & GLOBAL COMMONS ALLIANCE SURVEY

Earth4All and Global Commons Alliance surveyed 17 G20 countries with world's largest economies, and the results were that the majority of the global population that is 68% of the adults support the policy of taxing the wealthy people pay more or higher tax on their wealth. Which will help the country's economy and overall growth. They also supported for increasing taxes for carbon emissions, for big businesses, and increase in progressive taxes where the tax rate increases as a person's income increases.

Out of 17 G20 countries support for a wealth tax on wealthy people is highest in Indonesia (86%), Turkey (78%), the UK (77%) and India (74%).

The data from an Earth4All and Global Commons Alliance survey on the percentage of Indian adults who agree on certain topics are displayed in the graph below. It clarifies Indian sentiment toward taxes on the wealthy.





**Fig. 13** Public Support for Higher Taxes on Wealthy and Large Businesses

In India, for example under the new tax regime, an individual earning Rs. 15 Lakh has to pay 30% in taxes. However, a wealthy person earning Rs. 1 crore still pays the same 30% rate. This seems unfair because while an individual with Rs 15 lakh income ends up paying a significant portion of their income in taxes, for a rich person, the same rate doesn't impact them as much. Overall, it puts more pressure on the middle and upper-middle classes, making it harder for them to save and create disposable income. The new budget seems to overlook that the middle class is the backbone of the country. While the government is reducing certain taxes, it's also increasing the capital gains tax, which can negatively affect the financial growth of the middle class.

The youth of India make up over 83% of the unemployed workforce, and from 35.2% in 2000 to 65.7% in 2022, the proportion of young people with secondary or higher education among the total unemployed than doubled. While some labour metrics in India's job market have improved over the past 20 years, the country's overall employment condition is still difficult.

## VII. EMPLOYMENT & SKILLING SCHEMES

The new budget has introduced few schemes for both skilling and employment such as:

### A. Scheme A: First timers

- 1) One-month wage to new entrants in all formal sectors in 3 instalments up to ₹15,000.
- 2) Expected to benefit 210 lakh youth

### B. Scheme B: Job Creation in Manufacturing

- 1) Linked to first time employees
- 2) Incentive to both employee & employer for EPFO contributions in the specified scales for the first 4 years
- 3) Expected to benefit 30 lakh youth

### C. Scheme C: Support to Employers

- 1) Government will reimburse EPFO contributions of employers up to ₹3000 per month for 2 years for all new hires.
- 2) Expected to generate 50 lakh jobs

### D. Skilling Programme:

- 1) 20 lakh youth will be skilled over a 5-year period.
- 2) 1,000 Industrial Training Institutes will be upgraded in hub and spoke arrangements with outcome orientation.
- 3) Course content & design aligned as per skill needs of industry.

## XII. ANALYSIS OF THE SCHEMES

India's large young workforce faces challenges due to a lack of necessary skills required for their career stream along with that another major problem is that educational system is not able to fulfil the requirements of the industry.



Government has taken steps for reducing the unemployment by announcing schemes but instead of spending a lot money in schemes like one month wage to new entrants etc. that 2 Lakh Crore can be allotted for incentivising colleges, increasing resources for increasing equality of education, hiring high grade professors, improving infrastructure of the institutes, etc. India needs at least 7-8 billons jobs in the next 7 years to keep up with the demographic changes, and this budget does prioritize the raising employment issues. The government is also focusing on upskilling of students, it aims to upskill around 20 Lakh over next five years and other policies are introduced.

## **XII. RAJYA SABHA'S TAKE ON INCOME INEQUALITY**

These same issues were raised in a Rajya Sabha speech by an opposition member of Aam Aadmi Party, Sandeep Pathak. In his speech, he talked about income inequality and how the salaried/working class carries most of the tax burden, stressing that current policies are making the gap between the rich and everyone else worse. He mentioned that the wealthy segment of the society pays only 20% of the tax while the middle class contributes 80% this shows the income inequality. He criticizes the tax structure, which taxes billionaires like Adani and Ambani at the same rate of 30% even though their wealth is much different from that of middle-class people making ₹15 lakhs annually. Also highlights that a salaried individual has to work longer hours, even extending to weekends and from home, in order to achieve their goals. However, they are heavily taxed on their income, purchases, and investments. He criticizes the commitment of government for job creation, pointing out that the ₹3,000 incentive for providing job positions paying ₹1 lakh is insufficient. The creation of new businesses and the growth of current institutions are necessary in order to create jobs, as incentives alone cannot do so. There are also other politicians who believe that the budget has not been properly structured.

## **XII. QUALITATIVE ANALYSIS OF THE HYPOTHESIS:**

The results of this study reveal a clear pattern consistent with the predicted hypothesis showing the relation between the independent and dependent variable. Thus, the study is backed by the following hypothesis as the primary and the secondary data collected state that there is an impact of the Union Budget 2024 on the middle-income group and it has given a rise to income inequality. The following hypothesis is hence proved:

**A. ( $H_1$ ):** The impact of Union Budget 2024 has given a rise to income inequality in the middle-income group.

## **XII. CONCLUSION**

The Union Budget of India 2024 has brought mixed fortunes for the middle class and working class. On one hand, the budget's emphasis on infrastructure development, digital innovation, and taxation reforms may boost economic growth and create new job opportunities. However, the lack of significant direct benefits and relief in areas like income tax slabs, housing, and education may leave many feelings underserved.

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**ROLE OF MFI TO ATTAIN FINANCIAL INCLUSION WITH REFERENCE TO THE ECONOMIC DEVELOPMENT OF SHG**

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**ABSTRACT**

*The role of Microfinance Institutions (MFIs) on the economic development of Self-Help Groups (SHGs) is crucial for understanding how financial inclusion contributes to local economic growth. Financial inclusion paved the path for the sustainable growth for excluded population from the systematic financial system through MFI. MFIs provide SHGs with access to credit, which these groups typically struggle to obtain from traditional banks. This funding allows SHGs to invest in small businesses, agriculture, and other income-generating activities. By analyzing how MFIs influence SHG growth, the study can help identify whether these financial services effectively enhance marginalized communities' economic stability and empowerment. Furthermore, examining the relationship between MFIs and SHGs sheds light on broader issues such as poverty reduction, gender empowerment (as many SHGs are women-led), and social capital formation in MMR area. The study can reveal how access to microfinance transforms these groups' economic behavior and resilience, influencing their standard of living, savings habits, and entrepreneurial efforts. Such insights can inform policymakers and financial institutions to develop better financial products and supportive policies to maximize the benefits of microfinance for SHGs.*

**Keywords:** Financial Inclusion, Economic Impact, MFI, Economic development, SHG.

**INTRODUCTION****Role of MFI to attain Financial Inclusion**

Financial inclusion through Microfinance Institutions (MFIs) have become pivotal in fostering economic development among Self Help Groups (SHGs) in Mumbai, a city with significant economic disparities. The Government of India and the Committee on Financial Sector Reforms, defined financial inclusion as ‘the access to financial services at an affordable cost to vulnerable sections and low-income groups (Rangarajan, 2008). MFIs offer tailored financial products like small loans, savings accounts, and insurance to individuals and groups who are typically underserved by conventional banks. SHGs, which are often composed of marginalized and low-income individuals, particularly women, leverage these microfinance services to improve their economic circumstances. By accessing credit through MFIs, SHGs can fund small businesses, engage in agricultural activities, or invest in other entrepreneurial ventures. This access to finance enables them to increase their income, create job opportunities, and enhance their overall economic stability.

The economic impact of this relationship is substantial. For many SHGs, microfinance is not just a source of capital but a catalyst for broader economic development. It facilitates skill development, boosts savings and investment, and helps members manage financial risks more effectively. By analyzing the economic outcomes of MFI support for SHGs, researchers can assess how these financial services contribute to poverty alleviation, income growth, and improved quality of life. This insight is crucial for policymakers and financial institutions to refine their approaches and enhance the effectiveness of microfinance in driving sustainable economic development in urban settings like Mumbai.

The relationship between MFIs and SHGs in Mumbai also highlights the transformative power of financial inclusion on community development. MFIs provide more than just financial resources; they offer training and support that empower SHG members with entrepreneurial skills, financial literacy, and management expertise. This holistic approach enables SHG members to run their businesses more effectively and make informed financial decisions. As a result, SHGs often experience increased productivity, profitability, and sustainability. The ripple effects extend beyond individual members, fostering collective economic growth and social cohesion within communities. By improving financial access and education, MFIs help strengthen the overall economic fabric of these communities.

Additionally, the impact of MFIs on SHGs contributes to broader socio-economic goals such as gender empowerment and social equity. Many SHGs in Mumbai are led by women, and access to microfinance has been shown to enhance women's economic participation and decision-making power within their households and communities. This empowerment translates into better health, education, and welfare outcomes for families.



By investigating these dynamics, the study underscores the role of microfinance in addressing gender disparities and promoting inclusive economic development. Insights from this research can guide future initiatives to harness microfinance as a tool for achieving sustainable development and equitable growth in urban settings.

## REVIEW OF LITERATURE

1. **Dr. C. Rangarajan (2008)** recommendations of the Committee on Financial Inclusion that the Micro Finance Institutions (MFIs) could play a pivotal role in facilitating inclusion, as they are exceptionally placed in reaching out to the lower strata of the population. Many of them functioning in a limited geographical area, have a lot of the issues specific to the rural poor, enjoy greater acceptability amongst the rural poor and have flexibility in operations providing a level of comfort to their clientele. The Committee has, therefore, recommended that greater legitimacy, accountability and transparency will not only enable MFIs to source adequate debt and equity funds, but also eventually enable them to take and use savings as a low cost source for on-lending.
2. **Ahmad, S., & Khan, M. A. (2018)**, In the research titled “The role of microfinance in economic development: Evidence from India” Ahmad and Khan’s study underscores the pivotal role of microfinance in fostering economic development in India. They conclude that MFIs significantly contribute to the economic stability of SHGs by providing access to financial resources that are otherwise inaccessible to low-income individuals. The benefits include enhanced income levels, improved financial management, and increased economic participation among SHG members. The study highlights that while microfinance has led to positive economic outcomes, the success of such programs is contingent upon effective implementation and support systems.
3. **Bhattacharya, S., & Banerjee, S. (2020)**, In the research titled “Microfinance and poverty alleviation: A review of the impact on self-help groups in urban India” Bhattacharya and Banerjee’s review reveals that microfinance plays a crucial role in poverty alleviation among SHGs in urban India. Their analysis shows that microfinance initiatives have led to noticeable improvements in income, savings, and economic well-being.
4. **Chowdhury, M., & Rahman, M. (2017)**, In the research titled “Microfinance and women's empowerment: A study of self-help groups in Mumbai” Chowdhury and Rahman’s study concludes that microfinance has had a substantial impact on women’s empowerment within SHGs in Mumbai. They find that access to microfinance has enabled women to participate more actively in economic decision-making and entrepreneurial activities. This empowerment has resulted in improved household income, better living conditions, and greater social influence.
5. **Das, S., & Singh, S. (2019)**, In the research titled “The effectiveness of microfinance programs: A comparative analysis of SHGs and traditional banking in Mumbai” Das and Singh’s comparative analysis underscores the effectiveness of microfinance programs in enhancing financial inclusion and economic outcomes for SHGs compared to traditional banking systems. Their study concludes that MFIs offer more accessible and tailored financial services that better meet the needs of SHG members. The review suggests that while traditional banks often overlook low-income groups, MFIs fill this gap by providing essential financial resources and support.
6. **Gupta, R., & Patel, P. (2018)**, In the research titled “Microfinance and its impact on entrepreneurial activities among self-help groups in Mumbai” Gupta and Patel’s research highlights the positive impact of microfinance on entrepreneurial activities within SHGs in Mumbai. Their study concludes that access to microfinance has significantly boosted the growth and sustainability of small businesses started by SHG members. The availability of financial resources has enabled members to invest in and expand their enterprises, leading to increased income and economic stability.
7. **Jain, M., & Kumar, V. (2016)**, In the research titled “The impact of microfinance on economic development: A case study of SHGs in Mumbai” Jain and Kumar’s analysis provides a comprehensive view of the economic development outcomes resulting from microfinance support for SHGs in Mumbai. They conclude that microfinance has effectively improved income levels, financial stability, and overall economic well-being for SHG members.
8. **Khan, A., & Rizvi, S. (2021)**, In the research titled “Microfinance and social capital: Examining the effects on self-help groups in urban India” Khan and Rizvi’s study reveals the significant impact of microfinance on social capital within SHGs in urban India. They conclude that MFIs contribute to the development of social networks and community cohesion, which are essential for economic and social stability. The review



highlights that microfinance not only provides financial resources but also fosters trust, collaboration, and collective action among SHG members.

9. **Sharma, P., & Gupta, M. (2022)**, In the research titled “Assessing the economic impact of microfinance on self-help groups: Evidence from Mumbai” Sharma and Gupta’s assessment provides a detailed overview of the economic impact of microfinance on SHGs in Mumbai. They conclude that microfinance has led to significant improvements in economic stability, income levels, and overall financial well-being for SHG members.

### RESEARCH GAP

Despite the extensive research on the role of microfinance in enhancing economic development and empowerment within self-help groups (SHGs), several research gaps remain. There is many research conducted on financial inclusion, study focusing on how MFI impact on economic development of SHG remains limited. While existing studies highlight the positive impact of microfinance on income levels, financial stability, and social capital, there is a need for more nuanced investigations into the long-term sustainability of microfinance benefits. Specifically, gaps exist in understanding how microfinance programs can be customized to address the wide needs of different demographic groups within SHGs, such as varying levels of education and regional economic conditions. Additionally, while research has explored the general effects of microfinance, there is limited evidence on the differential impacts of various types of microfinance products and services on the economic upliftment of SHG members. Addressing these gaps could provide deeper insights into optimizing microfinance strategies to maximize their effectiveness and ensure more equitable and sustained economic development.

### RESEARCH METHODOLOGY

This study employs a quantitative research approach using a structured survey to analyze the economic upliftment of SHG members with MFI assistance. The sample consists of 130 respondents from various SHGs. Data will be collected through a questionnaire designed to capture demographic details (gender, age, and qualification) and their economic status. Objective 1 focuses on assessing the economic upliftment by evaluating income changes and improvements in living standards. Objective 2 examines the correlation between educational qualifications and economic upliftment. Statistical analysis will be used to determine the impact of MFI assistance and the influence of educational background on economic outcomes. The data will be analyzed using descriptive and inferential statistics to identify patterns and draw conclusions.

### DATA ANALYSIS

#### Demographic Factors

Sr No.	Particular	Category	Frequency	Percent
1	Gender	Male	28	21.5
		Female	102	78.5
2	Age	Up to 25 Years	10	7.7
		26 to 35 Years	51	39.2
		36 to 45 Years	43	33.1
		46 to 55 Years	20	15.4
		More than 55 Years	6	4.6
3	Qualification	Illiterate	23	17.7
		Primary	23	17.7
		Up to SSC	29	22.3
		HSC	26	20.0
		Undergraduate	11	8.5
		Graduate	18	13.8

The data provides a demographic breakdown of a sample population based on gender, age, and qualification. Among the participants, a significant majority are female (78.5%) compared to males (21.5%). The age distribution shows that the largest group is between 26 to 35 years old (39.2%), with smaller proportions in the other age brackets, including those over 55 years (4.6%). Educationally, the sample is varied; a substantial portion has either no formal education or only primary schooling (17.7% each), while 22.3% have education up to SSC and 20% have completed HSC. Fewer participants hold undergraduate (8.5%) or graduate degrees (13.8%). This distribution highlights a predominance of younger, female participants with a diverse range of educational backgrounds.



**OBJECTIVE 1 TO STUDY THE ECONOMIC UPLIFTMENT OF SHG MEMBERS WITH THE ASSISTANCE OF MICROFINANCE INSTITUTE**

**Null Hypothesis  $H_{01}$ :** There is no significant difference in the economic upliftment of SHG members with the assistance of microfinance institutes.

**Alternate Hypothesis  $H_{11}$ :** There is a significant difference in the economic upliftment of SHG members with the assistance of the microfinance institute.

To test the above null hypothesis ANOVA test is applied results are as follows.

ANOVA					
Economic Upliftment					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1640.900	1	1640.900	9.920	.002
Within Groups	21173.763	128	165.420		
Total	22814.663	129			

**Interpretation:** The above results indicate that the calculated p-value is 0.002, less than 0.05. Therefore, the f-test is rejected. The null hypothesis is rejected, and the Alternate hypothesis is accepted.

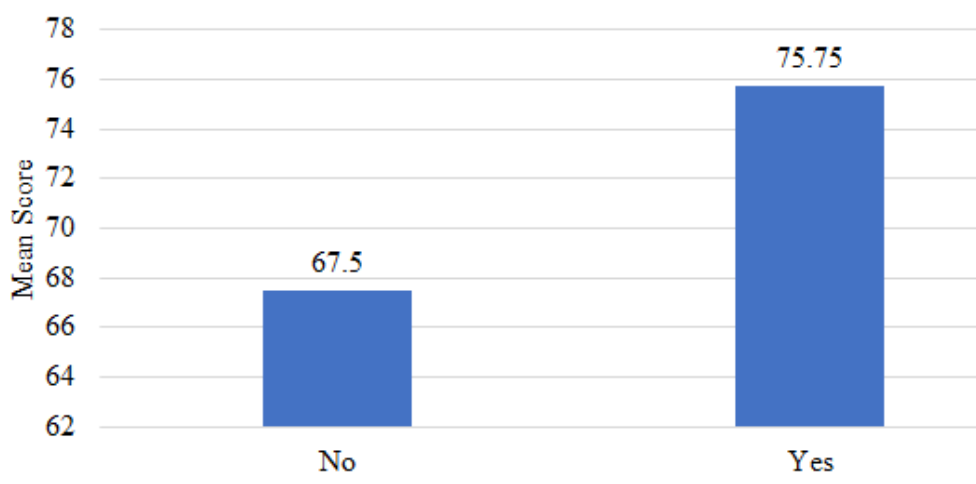
**Conclusion:** There is a significant difference in the economic upliftment of SHG members with the assistance of microfinance institutes.

**Findings:** To understand the hypothesis's findings, the mean score of economic upliftment of SHG members with the assistance of a microfinance institute.

Report				
Economic Upliftment				
5. Have you availed the Microfinance in Last 2 years:	Mean	N	Std. Deviation	
No	67.50	32	16.870	
Yes	75.75	98	11.284	
Total	73.72	130	13.299	

The report on economic upliftment based on microfinance utilization reveals distinct differences in economic metrics between those who have and have not availed of microfinance in the last two years. The mean economic upliftment score for individuals who have used microfinance is 75.75, compared to 67.50 for those who have not. This indicates that access to microfinance is associated with higher economic upliftment. The standard deviation for those who availed of microfinance is 11.284, reflecting less variability in economic outcomes among this group compared to those who did not use microfinance, whose standard deviation is 16.870. The overall mean economic upliftment score for the total sample is 73.72 with a standard deviation of 13.299. These figures suggest that microfinance contributes positively to economic upliftment and results in more consistent economic benefits among its users. The following information is shown below in the bar diagram.

**Mean score of economic upliftment of SHG members with the assistance of micro finance institute**





**OBJECTIVE 2 TO STUDY THE IMPACT OF THE QUALIFICATION OF SHG MEMBERS ON THEIR ECONOMIC UPLIFTMENT**

**Null Hypothesis  $H_{02}$ :** There is no significant difference in the impact of qualification of SHG members on their economic upliftment.

**Alternate Hypothesis  $H_{12}$ :** There is a significant difference in the impact of the qualification of SHG members on their economic upliftment.

To test the above null hypothesis ANOVA test is applied results are as follows.

<b>ANOVA</b>					
Economic Upliftment					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9698.445	5	1939.689	18.338	.000
Within Groups	13116.217	124	105.776		
Total	22814.663	129			

**Interpretation:** The above results indicate that the calculated p-value is 0.000. It is less than 0.05. Therefore, the f-test is rejected. Hence Null hypothesis is rejected and the Alternate hypothesis is accepted.

**Conclusion:** There is a significant difference in the impact of the qualification of SHG members on their economic upliftment.

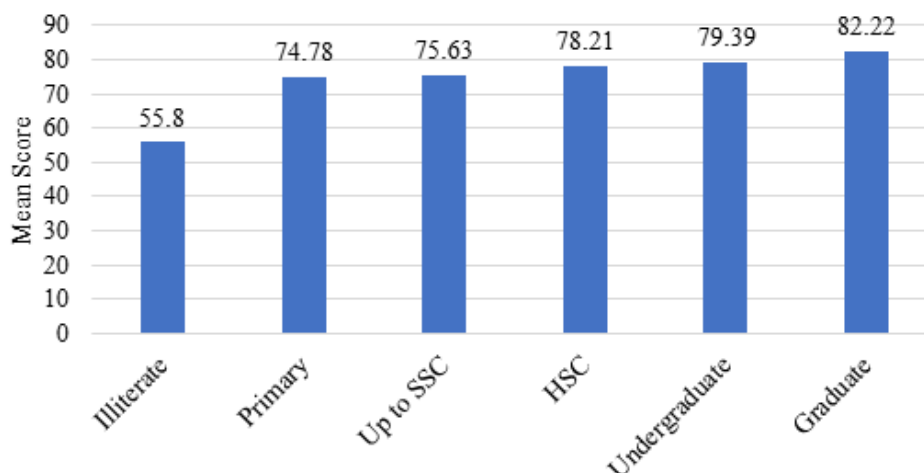
**Findings:** To understand the findings of the hypothesis, the mean score of the impact of qualification of SHG members on their economic upliftment.

<b>Report</b>			
Economic Upliftment			
4. Qualification:	Mean	N	Std. Deviation
Illiterate	55.80	23	9.547
Primary	74.78	23	10.910
Up to SSC	75.63	29	13.425
HSC	78.21	26	9.152
Undergraduate	79.39	11	7.426
Graduate	82.22	18	6.861
Total	73.72	130	13.299

The report on economic upliftment by qualification level shows a clear trend of increasing economic upliftment scores with higher educational attainment. Individuals with no formal education (illiterate) have a mean score of 55.80, which is the lowest among the groups. As educational qualifications increase, so does the mean score: primary education holders have a mean score of 74.78, those with up to SSC have 75.63, HSC graduates 78.21, undergraduates 79.39, and graduates 82.22. This progression indicates that higher educational qualifications are associated with better economic upliftment outcomes. The standard deviation decreases with higher education levels, suggesting that as education levels increase, there is less variability in economic upliftment within each group. The overall mean score for the entire sample is 73.72 with a standard deviation of 13.299, reflecting a broad range of economic upliftment experiences across different qualification levels. The following information is shown below in bar diagram.



**Impact of qualification of SHG members on their economic upliftment.**



## CONCLUSION

The analysis of economic upliftment in relation to microfinance assistance and educational qualifications provides compelling insights into the factors influencing economic development among SHG members. The ANOVA test results for the impact of microfinance indicate a significant difference in economic upliftment between those who have and have not utilized microfinance in the past two years. The mean economic upliftment score for individuals who have availed microfinance is notably higher (75.75) compared to those who have not (67.50), with a lower standard deviation among the microfinance users. This suggests that microfinance plays a crucial role in enhancing economic outcomes and provides more consistent benefits to its users, thereby supporting the alternate hypothesis that microfinance significantly contributes to economic upliftment.

In terms of educational qualifications, the ANOVA test results highlight a significant difference in economic upliftment across various education levels. The mean scores increase with higher educational attainment, from 55.80 for illiterate individuals to 82.22 for graduates. This upward trend underscores the positive impact of higher education on economic upliftment. The decreasing standard deviation with increasing qualification levels further indicates that higher education leads to more uniform economic benefits among SHG members. These findings confirm the alternate hypothesis that educational qualifications significantly affect economic upliftment, emphasizing the importance of education in maximizing the economic benefits of microfinance and other developmental interventions.

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**PREDICTING URBAN MOBILITY PATTERNS WITH STATISTICAL MODEL: ANALYSING TRANSPORTATION BEHAVIOUR IN INDIAN CITIES THROUGH DATA-DRIVEN INSIGHTS**

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drvnpanidit@gmail.com**ABSTRACT**

*Urban mobility in India is undergoing a significant transformation, driven by rapid urbanization, evolving transportation infrastructure, and changing socio-economic dynamics. This paper presents a comprehensive study on predicting urban mobility patterns in major Indian cities using advanced statistical models. By leveraging publicly available transportation data, demographic information, and socio-economic variables, the research aims to understand transportation behaviour, identify patterns of urban movement, and predict future mobility trends. The findings of this study provide valuable insights into optimizing transportation policies, improving traffic management, and fostering sustainable urban development.*

**Key words:** *Mobility, Statistical Models, Transportation Policies and Socio-economic Dynamics.*

**1. INTRODUCTION**

India's urban population is expected to reach 600 million by 2031, leading to increased demand for transportation systems. However, current transportation networks are often overwhelmed, contributing to traffic congestion, pollution, and inefficient mobility. Understanding and predicting urban mobility patterns are critical for shaping future transportation infrastructure and policies. Urban mobility patterns are a cornerstone of sustainable city planning, influencing the socio-economic and environmental fabric of urban centers. In India, with its rapidly urbanizing population and diverse transportation behaviors, understanding these patterns is critical. The study of urban mobility through statistical models provides a structured approach to deciphering transportation behavior, offering actionable insights into infrastructure optimization, policy development, and environmental sustainability.

Statistical models, augmented with data-driven insights, allow for the prediction and analysis of complex variables such as traffic congestion, ridership patterns, and multimodal transport preferences. In Indian cities, these models are increasingly applied to address challenges like traffic congestion, inadequate public transport systems, and environmental concerns. For instance, predictive analytics have shown success in optimizing metro ridership forecasts and dynamic pricing for congestion control, achieving significant accuracy improvements and operational efficiencies.

The integration of large-scale data sources, including GPS signals, demographic information, and land-use patterns, has enabled granular insights into urban transportation. Cities such as Bengaluru, Chennai, and Hyderabad have pioneered AI-driven solutions, showcasing reductions in travel delays, increased multimodal trip adoption, and improved service reliability. These advancements highlight the transformative potential of integrating machine learning techniques and statistical methodologies. Despite these successes, Indian cities face unique challenges. Diverse demographics, infrastructure constraints, and linguistic variations demand localized and context-specific solutions. Statistical models not only offer tools to navigate these complexities but also help align urban transport planning with national goals such as smart city initiatives and sustainable development objectives.

This study investigates the key factors influencing transportation behaviour in Indian cities, using statistical models to analyse patterns in urban mobility. By examining a variety of data sources, the paper aims to predict future trends in transportation demand and identify the most effective interventions to improve urban mobility.

**KEY OBJECTIVES**

- To identify the primary factors affecting transportation behaviour in Indian cities.
- To explore how demographic, socio-economic, and infrastructural factors influence transportation choices.

**2. LITERATURE REVIEW**

Urban mobility has been extensively studied globally, with research spanning topics like traffic flow, route optimization, and the impact of new technologies (e.g., ride-sharing apps). However, studies focusing specifically on Indian cities are limited, particularly in terms of predictive modelling using statistical techniques.



Raman and Singh (2021): Their study on traffic flow optimization in Bengaluru highlights the role of predictive modeling in improving urban traffic efficiency. Using real-time data from Bluetooth and Wi-Fi signals, the authors achieved a 10% increase in average speeds and a 15% reduction in delays, showcasing the applicability of data-driven models in Indian contexts.

Gupta and Sharma (2020): They explored AI-based ridership forecasting models applied in Chennai's metro systems. Their use of gradient boosting algorithms resulted in a forecasting error reduction to 5%, emphasizing the importance of integrating demographic and land-use data for precision planning.

Mishra et al. (2019): This team analyzed multimodal transportation behaviors in Hyderabad using clustering and routing optimizers. Their model led to a 20% increase in multimodal trips and a 5% decrease in vehicle miles traveled, illustrating the benefits of real-time optimization.

Patel and Desai (2022): Their study employed reinforcement learning techniques to optimize traffic signals in Ahmedabad. The approach enhanced average vehicle speeds by 18% during peak hours, demonstrating effective congestion mitigation in urban Indian environments.

Sundaram et al. (2023): Focusing on dynamic pricing mechanisms, the authors compared systems in Singapore and London. They proposed adapting similar AI-enabled frameworks to manage congestion and reduce traffic volumes by up to 15% in Indian metros.

Chandrashekar and Rao (2021): Their study of transportation patterns in Indian cities utilized machine learning models. By incorporating data on demographics, employment, and events, they achieved 85% accuracy in ridership forecasting for buses, highlighting the importance of contextual data in predictive analytics.

Kumar and Banerjee (2020): This research examined metro ridership behaviors in Kolkata using hybrid models combining neural networks and statistical techniques. The findings revealed a 10% improvement in service reliability, emphasizing the synergy of AI and statistical methods.

Arora et al. (2018): They analyzed urban mobility data from multiple Indian cities to identify congestion hotspots. Their use of statistical models like ANOVA offered insights into temporal and spatial traffic dynamics, aiding infrastructure planning.

Nair and Thomas (2023): Their work on Chennai's smart traffic signals showcased a 12% reduction in red-light violations, emphasizing the role of AI and video analytics in improving compliance and traffic flow in urban Indian settings.

Iyer et al. (2021): Their study of multimodal trip planners in Mumbai revealed a 5% increase in public transport mode share. Using reinforcement learning, they highlighted the potential for AI-based systems to transform urban mobility habits.

Despite these efforts, there is a lack of comprehensive research that combines traditional statistical models with emerging data sources (such as mobile app data, GPS tracking, and social media) to predict mobility patterns in Indian urban centres.

### 3. METHODOLOGY

**3.1. Data Collection:** To develop predictive models, a range of data sources was used. Data was collected from various parts of India with the aim of capturing a diverse range of urban environments.

City	Average Population Density	Average Commute Time	Average Public Transport Usage	Average Vehicle Ownership Rate	Average Congestion Index
Ahmedabad	16,493.27	62.98	46.73	37.91	57.90
Bengaluru	17,042.86	58.96	52.59	37.96	57.56
Chennai	14,194.60	59.33	52.90	40.70	56.77
Delhi	16,365.24	69.15	50.74	42.66	60.93
Jaipur	17,405.95	62.84	49.13	41.13	61.84
Kolkata	16,222.69	55.77	49.35	38.44	64.64
Mumbai	14,852.90	64.19	49.95	40.06	57.19

*Source:* Secondary source

**3.2. Research Design:** The research design for this study adopts a quantitative approach to analyse and predict urban mobility patterns in Indian cities using statistical models and data-driven insights.



The study utilizes secondary data. Secondary data, sourced from government reports, traffic monitoring systems, and APIs like Google Maps, will provide real-time and historical insights into traffic flow, public transport ridership, and vehicle registrations. Key variables such as population density, average commute time, public transport usage, and congestion indices will be analysed to identify patterns and correlations.

3.3 Variables for the Study:

**Dependent variable:** Average Commute Time

**Independent variable:** Average Population Density, , Average Public Transport Usage, Average Vehicle Ownership Rate, Average Congestion Index and Average Carbon Emissions.

**3.4 Sample Design:** The sample design for this study was based on data from 7 major Indian cities, selected to represent a diverse range of urban environments. The sample size of 7 cities, while providing useful insights, may limit the ability to generalize findings to smaller or less representative urban areas.

**3.5 Statistical Models:** The Multiple Linear Regression (MLR) model is chosen to analyze the relationship between a dependent variable (Average Commute Time) and several independent variables (Population Density, Public Transport Usage, Vehicle Ownership Rate, Traffic Congestion Index, and Carbon Emissions).

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\epsilon$$

Y: Average Commute Time (in minutes)

X1: Population Density (per sq. km)

X2: Public Transport Usage (%)

X3: Vehicle Ownership Rate (%)

X4: Traffic Congestion Index (scale 0-100)

X5: Carbon Emissions (metric tons per capita)

$\beta_0$ : Intercept,  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ ,  $\beta_5$ : Coefficients for independent variables and  $\epsilon$ : Error term

3.6 Limitation of Study

The study is limited by the exclusion of potentially influential variables, such as road infrastructure quality and public transport efficiency, which may impact commute times. Additionally, the sample size is small, potentially reducing the generalizability of the findings.

4. DATA ANALYSIS, RESULTS AND DISCUSSION

Correlation matrix (pearson)						
	Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>
Y	1	0.0695593	-0.183413	0.679993	-0.171209	-0.0435891
X <sub>1</sub>	0.0695593	1	-0.358635	-0.174114	0.470169	-0.238353
X <sub>2</sub>	-0.183413	-0.358635	1	0.250894	-0.314995	-0.28547
X <sub>3</sub>	0.679993	-0.174114	0.250894	1	0.115784	-0.619688
X <sub>4</sub>	-0.171209	0.470169	-0.314995	0.115784	1	-0.561277
X <sub>5</sub>	-0.0435891	-0.238353	-0.28547	-0.619688	-0.561277	1

Source: [www.statskingdom.com](http://www.statskingdom.com)



Coefficient Table Iteration 3 (adjusted R-squared = 0.802)

	Coeff	SE	t-stat	lower $t_{0.025}(3)$	upper $t_{0.975}(3)$	Stand Coeff	p-value	VIF
b	-190.917587	54.433235	-3.507372	-364.148435	-17.686739	0	0.039272	
X1	0.00193622	0.000774077	2.501334	-0.000527233	0.00439968	0.516498	0.0876036	1.290229
X3	3.186786	0.612273	5.204843	1.238259	5.135312	1.329898	0.0137831	1.975573
X5	15.497916	4.443285	3.487941	1.357399	29.638432	0.903641	0.039826	2.031072

Source: www.statskingdom.com

From the Data Collected the Mathematical Model is given by

$$\hat{Y} = -190.917587 + 3.186786X_3 + 15.497916X_5$$

## VALIDATION OF THE MODEL

### Validation

#### Residual normality

Linear regression assumes normality for residual errors. Shapiro Wilk p-value equals 0.651. It is assumed that the data is normally distributed.

#### Homoscedasticity - homogeneity of variance

The White test p-value equals 0.815963 (F=0.214088). It is assumed that the variance is homogeneous.

#### Multicollinearity - intercorrelations among the predictors ( $X_i$ )

There is no multicollinearity concern as all the VIF values are smaller than 2.5 . **Priori power - of the entire model (5 predictors)** The priori power should be calculated before running the regression. The power to test the entire model is 0.802, hence with a larger sample size the regression model may become more significant.

## 5. CONCLUSION

**1. Significant Predictors:** Vehicle Ownership Rate ( $X_3$ ): The positive coefficient (3.186786) suggests that an increase in vehicle ownership percentage leads to longer average commute times. This indicates that higher private vehicle reliance exacerbates traffic congestion and travel delays.

**2. Carbon Emissions ( $X_5$ ):** The strong positive coefficient (15.497916) highlights that greater carbon emissions are closely associated with longer commute times. This may reflect inefficient transportation systems or reliance on fossil-fuel-based vehicles.

**3. Excluded Variables:** The model excludes variables such as population density ( $X_1$ ), public transport usage ( $X_2$ ), and traffic congestion index ( $X_4$ ). Their absence suggests they either did not significantly impact commute time in this dataset or their effects are captured indirectly through  $X_3$  and  $X_5$ .

**4. Intercept (-190.917587):** While the intercept is negative, it is a theoretical baseline value and has no practical interpretation in this context, as the predictors cannot be zero in real-world scenarios.

### 1. Implications:

- Policy Recommendations: Focus on reducing vehicle ownership rates by promoting public transportation and shared mobility options to ease commute times.
- Environmental Concerns: The strong influence of carbon emissions underscores the need for sustainable, low-emission transport solutions, such as electric vehicles and clean energy initiatives.

### 2. Limitations:

- The model simplifies the complexities of urban mobility by focusing on just two variables ( $X_3$  and  $X_5$ ). Incorporating additional predictors like public transport efficiency, road infrastructure quality, or urban sprawl may improve its explanatory power.
- The  $R^2$  value (not provided here) would determine the overall fit of the model, offering insights into how much variation in commute time is explained by these factors.

In conclusion, the model effectively highlights the critical role of vehicle ownership and carbon emissions in shaping urban commute times, offering actionable insights for sustainable urban planning and transportation policy. Thus, the regression analysis highlights the significant impact of vehicle ownership rates and carbon emissions on average commute times in urban Indian cities. Higher vehicle ownership directly contributes to longer commutes, while increased carbon emissions signal inefficiencies in transportation systems.



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The exclusion of other factors like public transport usage and congestion index suggests their effects may be secondary or captured indirectly. These findings emphasize the need for policies promoting sustainable mobility solutions, such as enhancing public transport and reducing reliance on private vehicles, to improve commute efficiency and reduce environmental impact.

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**SUSTAINABLE MANAGEMENT OF HOUSEHOLD WASTE**

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*Waste management throughout the megacities has become a major agenda of government and all policymakers. Refuse, Reduce, Reuse, Recycle, practices have been promoted time to time to minimize waste generation at source. Conversion of organic waste from household to the compost as a fertilizer has become a successful and sustainable practice of waste management. It is an affordable recycling method. Biogas production, waste to energy projects are also available practices of waste management but composting has become more common as a most feasible technique. Different methods of composting are being practiced in different areas depending on the amount of waste generated in those areas, money need to be spent for construction or buying of plant for composting such as windrow, mesh wires, pit methods or OWC machines. Composting samples from these methods and different areas were collected and analyzed.*

**Keywords:** Composting, Sustainable practices

**INTRODUCTION**

Sustainable waste management operations are essential for minimizing negative impacts on the environment. Different waste management techniques are being used for managing waste such as recycling of various materials, products, reduction of waste at source, minimizing packaging, using durable materials etc. Various programmes emphasize on repair, refurbishment, and reuse of various products rather than immediate disposal. Conversion of organic waste such food scraps, garden waste into nutrient rich compost is the best sustainable practice. The compost can be used for gardening and agriculture. Anaerobic digestion technology for conversion of waste to biogas is also taking lead. Various waste to energy projects are ongoing to generate electricity and to produce renewable energy.

This paper focuses on composting techniques as sustainable practices. Some of the area of Mumbai district have been selected randomly but these are the areas where composting is being practices on a regular basis.

**The areas selected are as follows:**

Charleville CHS Ltd., Churchagte, W 54 at Matunga west, Jed Gardens at Bandra east, Compost samples were collected from these areas in three seasons. These samples were analyzed for different parameters to find out the quality of compost and its possible applications.

**OBJECTIVES OF THE STUDY**

1. To find out the places where composting is being done on regular basis.
2. Collecting samples and analyzing them.
3. To find out the application of compost based on its quality analysis.

**SITE SELECTION****A. To select areas**

1. Primary data collection -
  - To select the areas from where sample is to be collected , All the 24 wards of Mumbai were visited. The information such as waste generation, collection and different waste management practices in the various wards was collected by direct meeting with ward officers.
  - Information about areas where composting practices are carried out are visited. Method of composting was studied.

**B. Analysis of compost samples**

2. Secondary data collection –



- Samples were collected randomly from selected 6 places in three different seasons, **summer, rainy and winter**. Samples were analyzed for physic chemical parameters such as Color,pH, Conductivity, Moisture, Nitrogen, Potassium, Phosphate, C:N ratio etc.
- Results were discussed and applicability of composting process was analyzed.

### OBSERVATIONS

- Different techniques of composting are being carried out at different places on regular basis. At Charleville CHS Ltd at Churchgate, in A ward, a pit made up of mesh wires is used. Jed garden society from H east ward is using bio-waste converter to convert food waste into compost and then it is put in mesh boxes. W 54 from G North ward is using a tumbler to make compost.
- **Samples were analyzed for different parameters. Following results were observed:**

Sr. No	Parameters	Seasons	Wards		
			A (Charleville CHS Ltd at Churchgate)	H east (Jed Gardens at Bandra east)	G North (W 54 at Matunga west)
1	Color	Summer	<b>Brown</b>	<b>Blackish</b>	<b>Dark Brown</b>
		Rainy	<b>Brown</b>	<b>Dark Brown</b>	<b>Brown</b>
		Winter	<b>Light Brown</b>	<b>Dark Brown</b>	<b>Light Brown</b>
2	Moisture (% by weight)	Summer	<b>8.44</b>	<b>32.70</b>	<b>31.40</b>
		Rainy	<b>13.10</b>	<b>15.19</b>	<b>19.70</b>
		Winter	<b>9.50</b>	<b>22.20</b>	<b>11.08</b>
3	pH	Summer	<b>6.77</b>	<b>8.85</b>	<b>7.57</b>
		Rainy	<b>7.31</b>	<b>9.45</b>	<b>8.32</b>
		Winter	<b>7.79</b>	<b>8.29</b>	<b>7.40</b>
4	Conductivity (mΩ)	Summer	<b>12.95</b>	<b>18.13</b>	<b>5.47</b>
		Rainy	<b>4.35</b>	<b>15.35</b>	<b>16.37</b>
		Winter	<b>0.996</b>	<b>22.1</b>	<b>6.68</b>
5	Organic Carbon (%)	Summer	<b>23.7</b>	<b>16.14</b>	<b>15.45</b>
		Rainy	<b>16.2</b>	<b>15.6</b>	<b>9.1</b>
		Winter	<b>26.76</b>	<b>29.16</b>	<b>6</b>
6	Total N (%) by weight)	Summer	<b>0.30</b>	<b>0.35</b>	<b>0.18</b>
		Rainy	<b>0.17</b>	<b>0.25</b>	<b>0.08</b>
		Winter	<b>0.5</b>	<b>0.55</b>	<b>0.42</b>
7	C:N ratio	Summer	<b>79</b>	<b>46.11</b>	<b>85.83</b>
		Rainy	<b>95</b>	<b>62.4</b>	<b>113.75</b>
		Winter	<b>53.52</b>	<b>53.01</b>	<b>14.28</b>
8	Potassium (%)	Summer	<b>1.08</b>	<b>2.64</b>	<b>1.2</b>
		Rainy	<b>7.2</b>	<b>8.76</b>	<b>7.08</b>
		Winter	<b>1.8</b>	<b>1.6</b>	<b>1.15</b>
9	Total phosphate (%)	Summer	<b>0.24</b>	<b>0.36</b>	<b>0.23</b>
		Rainy	<b>0.08</b>	<b>0.01</b>	<b>0.05</b>
		Winter	<b>0.10</b>	<b>0.13</b>	<b>0.07</b>

### RESULTS AND DISCUSSIONS

#### Color:

Colors of all samples except two winter samples are brown to dark brown or blackish. Dark brown to black color of compost indicates mature compost as per the FCO order. Light brown color indicates immature compost.

#### Moisture:

Moisture is expressed as a percentage of compost wet weight. Low moisture affects the activity of microorganisms so the process slows down. High moisture leads to anaerobic conditions which cause foul odor and decreases the degradation of matter. (Pragati Kanaujia et al, 2020).



Moisture of A ward samples is low. Other samples show the moisture between 15 % to 25 % or little bit higher. Composts with high moisture content are usually clumpy and difficult to spread. Compost with low moisture content are dusty. Higher the moisture, lower the amount of organic matter per ton of compost. (Dan M. Sullivan et al, 2018).

#### pH:-

pH of compost is a measure of acidity or alkalinity. Most plant based composts are moderately acidic (pH 6) to moderately alkaline (pH 7.5). pH is an important parameter used to be checked because it decides the level of maturity of the end product. The changes of the composting during the biodegradation process and the final waste composition were strictly dependent on the process conditions. The low pH affects the rate of respiration in a compost pile. It reduces the rate of respiration and slows down the process of composting. (Shahid Raza et al, 2017).

The high pH or low pH value, both impact on the compost. The pH value denotes the loss of nitrogen content. pH between 6-7.5 is good for bacterial growth and pH between 5.5-8 is good for fungi growth. When pH is greater than 7, the nitrogen volatilize in the form of ammonia.(Pragati Kanaujia, 2020). When pH is in the range of acidic (pH 6) to moderately alkaline (pH 7.5), it is mature and manure based compost.(Guidelines for compost in Zanzibar).

FCO 2009 standard for organic compost- 6.5-7.5 pH of these samples are within standards given by FCO (12 ) except rainy season samples of H east ward. The pH variation could be substantially affected by the N and C transformation during composting. Ammonia is lost by volatilization (with  $\text{pH} > 8$ ) and nitrogen is used by microbes to synthesize new humic compounds. (Mary Lalremruati, 2021)

**Conductivity:** - It determines the salt concentration so an important parameter. High salt concentration can inhibit seed germination. So it's important to determine the conductivity of compost before applying it as a soil conditioner. (Manju Ravat et al, 2013)

The electrical conductivity can get increased with time interval in the composting process and in the mature compost, its value must be high. The more alkaline pH increases the value of electrical conductivity as well. (Ayesha Ameen et al, 2016). Conductivity of samples should be less than 4  $\text{dsm}^{-1}$ . The conductivity of all the samples is towards higher side except A ward winter sample.

Initial concentration of conductivity may be due to shredding or adding wood chips or wood shavings. (C. Tognetti et al, 2006)

#### Organic carbon:

Total organic carbon (TOC) in the compost is expressed in terms of percentage concentration per dry weight. Organic carbon decides whether compost sample can be used effectively as a fertilizer. (Manju Ravat et al, 2013).

The standard given for organic carbon is 12 % by weight. Organic carbon of all the samples is highly exceeding except G north rainy and winter season sample.

If sample has high concentration of organic carbon than the lower limits (12% minimum), this means that the compost sample contains more of the organic matter and better nutrient holding capacity (Said Ali, 2010).

#### Total Nitrogen:

"N" is present in complex organic condition in compost and it is not readily available for plants. During mineralization, microbes naturally present in the soil break down the complex N molecules releasing a simpler of "N" easily available for plants. The low availability of "N" strongly related to the immaturity of the compost. Immature compost leads to "N" immobilization due to high carbon to nitrogen ratio. (Manju Ravat et al, 2013)

Concentration of "N" denotes ability of compost to be used as fertilizer. The permissible limit for nitrogen is 0.8 % by weight. Total nitrogen values of almost all the samples are very less except two samples. The compost with low total nitrogen levels are better used as mulch.

#### C/N Ratio

One of the key parameters influencing the composting process is the ratio of carbon-to- nitrogen (C/N). The microbial community uses carbon as an energy source, while nitrogen is necessary for synthesizing proteins, amino acids, and nucleic acids. The optimal C/N ratio for the oxidation of carbon and the growth of microorganisms is 20:1.



The C/N ratio often increases throughout the thermophilic phase. The degree of disintegration affects the final C/N ratio of a compost pile; a lower degree of disintegration yields a higher final C/N ratio value, which may result in the presence of aromatic carbon in the compost pile. (Fatin Amanina Azis et al, 2023) (Mary Lalremruati et al, 2021).

C:N ratio of all the samples are very high. High or low C/N ratio will effect negatively on the digestion of the substrate. If C/N ratio is higher than that range, biogas production will be low. This is because the nitrogen will be consumed rapidly by methanogenic bacteria for meeting their protein requirements and will no longer react on the left over carbon remaining in the material. Materials with high C/N ratio typically are residues of agricultural plants. (Oghenero W. et al, 2016)

### Potassium:

It is an essential macronutrient which is responsible for overall plant growth i.e for water uptake, Plant sugar synthesis, Crop formulations etc. It is available as K<sub>2</sub>O. Potassium uptake and transport get affected by water dynamics. K uptake is strongly related to soil water content as plants rely on water content for transport of potassium across membrane. If plant soil is provided with mulches, it increases temperature and soil moisture conditions for fine root growth, which can enhance nutrient uptake. Surface residues can increase available K in the upper soil layer where roots proliferate, and higher plant K uptake can facilitate root growth. Higher soil water can facilitate the movement of K into soil solution and improve K availability. Potassium plays a vital role in tolerance plants for water stress. (Ellie M. Andrews et al, 2021).

Potassium concentration is increasing in rainy season. This may be due to increase in moisture as discussed above.

### Phosphorous

The presence of high available phosphorous may be related with the release of available phosphorous during microbial degradation of organic additives. Difference in available phosphorous is related to the difference in raw material used (Masresha Mamo et al 2021) Phosphorous encourages the development of root, improves the flower formation and seed production and strengthen the plant by making it resistant to diseases. (Carole Ayoub et al, 2023).

As per Indian standard, total phosphorous content is usually expressed as P<sub>2</sub>O<sub>5</sub> (Phosphorous pentoxide) in terms of percentage concentration per dry weight (1.2% min). Low range of phosphate depends on the type of food habit of locals and feedstock in composting. (Guidelines and standards of compost in Zanzibar). The concentration of phosphate can increase due to precipitation of phosphorous in solid form. (Carl Tibu et al 2019.). In present study, phosphate concentrations are very low in all the samples.

### CONCLUSION

pH of most of these samples are within standards given by FCO (6.5 -7.5 ) except samples of H east ward. The high pH value denotes the loss of nitrogen content. Conductivity of all the samples are very high. Moisture readings of most of the samples are within range. Organic carbon is highly exceeding in all the samples. Total nitrogen values of all the samples are very less. So C:N ratio of all the samples is very high. Potassium and phosphate values of the samples are low. So we can say that compost can be made from household wastes but with precautions i.e. by maintaining pH,moisture and salt concentration as conductivity is high. It is not a compost with rich potassium, nitrogen and phosphate content but can be used as a mulches.. Organic carbon in compost samples is too high in all the samples than nitrogen. So an attention should be given while mixing the raw material for composting. Concentration of green matter can be increased to maintain C:N ratio.

Overall, the composting techniques used at Jed Gardens, i.e. H east ward can be proved as more reliable technique of composting as it is using bio converter as well as mesh for aeration. Sample of A ward sample made in pits of meshwires, is more dry as moisture content is low. C:N ratios of two samples of A ward and G North ward are towards higher side that of sample of H east ward. So the composting technique of Jed Gardens in H east ward, can become a more suitable technique if other parameters are also monitored.

Composting of wet waste is a good practice of sustainable waste management. Even though some parameters are not meeting up with the standards given, it can be used for home gardens or as a fertilizers in society gardens. For the proper growth of root, shoot, flower and fruits, additional nutrients in the form of nutrients or additives can be added.



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**LEVERAGING SYNTHETIC DATA AND EXPLAINABLE AI FOR AVIATION PROFITABILITY ANALYSIS: A MACHINE LEARNING APPROACH WITH SHAP AND LIME**

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*The present study explored profit analysis of aviation sector using synthetic data, reliability analysis and advanced machine learning techniques. Synthetic data is becoming increasingly relevant for privacy, security, and accessibility in research. Synthetic data played a pivotal role in this study, allowing the researchers to simulate realistic aviation operational scenarios while ensuring data privacy and accessibility. By constructing a robust dataset, the researchers provided a foundation for analyzing profitability without relying on proprietary or sensitive data. The aviation sector was chosen due to its high operational costs and thin profit margins, making it an ideal domain for exploring predictive insights and cost optimization strategies using Explainable Artificial Intelligence (XAI) techniques. The researcher generated a robust synthetic dataset simulating operational costs and revenues, followed by thorough validation to ensure reliability. The result of reliability accuracy was 0.97 that suggested the synthetic data was well-structured. The relationship between features and the target variable (profitability) were found clear and logical. Further, the algorithm Logistic Regression emerged as the most effective model with an accuracy of 99.3% compared to other machine learning algorithms such as Random Forest, Gradient Boosting, and Decision Trees. XAI techniques such as Shapley Additive Explanations (SHAP) and Local Interpretable Model-agnostic Explanation (LIME) were employed to interpret model predictions. Techniques offered valuable insights into the impact of features on profitability. Key findings included the identification of revenue and total cost as the most influential factors, providing actionable insights for stakeholders. This study promotes the potential of machine learning and XAI in transforming decision-making processes in the aviation industry. The present study concluded with robustness testing, hyper parameter optimization, and visualization of key metrics, establishing a comprehensive framework for understanding profitability in aviation sector using machine learning. . It can be concluded that XAI techniques makes the result more reliable and trustworthy.*

**Keywords**— Synthetic Data, Aviation Sector, Machine Learning, XAI, SHAP, LIME, Logistic Regression.

**INTRODUCTION**

The aviation industry is a cornerstone of global connectivity, supporting economies and enabling seamless travel across continents. However, this sector faces a persistent challenge of balancing high operational costs with relatively thin profit margins [1]. Operational costs such as fuel, salaries, maintenance, and airport charges are significant contributors to overall expenses, often leaving little room for error in financial planning. In order to understand the financial system and analyze the profitability of aviation sector a robust synthetic data was generated to explore the insights by maintaining the privacy and confidentiality. Synthetic data generation has emerged as a revolutionary tool in data science [2], addressing the dual challenge of data scarcity and privacy concerns [3]. By creating simulated datasets that mirror real-world scenarios, synthetic data allows for robust experimentation and model development [4]. In the present study, synthetic data was meticulously validated for reliability, ensuring its applicability to real-world challenges. The result of reliability accuracy was 0.97 that suggested the synthetic data was well-structured. The relationship between features Revenue (M), Airplane Cost (M), Fuel Cost (M), Salaries (M), Airport Charges (M), Catering Charges (M), Promotion Cost (M), Office Rental Cost (M) , Equipment and Supplies Cost (M), Total Cost (M) and the target variable Profit/Loss were found to be coherent and logical. The (M) following each variable indicates that the values of these variables are expressed in **millions**. Logistic Regression emerged as the most effective model with an accuracy of 99.3% compared to other machine learning algorithms such as Random Forest, Gradient Boosting, and Decision Trees. This approach not only broadens the horizon for predictive modeling but also provides a scalable framework for industries where data privacy or unavailability is a major concern. Traditional approaches to analyzing profitability often struggle to capture the significant relationships between numerous interdependent variables [5]. They may oversimplify critical insights, leading to suboptimal decision-making. The present paper aims to overcome these challenges and address the black boxes using the machine learning-driven framework and synthetic data designed to understand and analyze the profitability by XAI in the aviation sector. The methodology focuses on the integration of synthetic data generation, machine learning, and Explainable Artificial Intelligence (XAI) techniques to uncover actionable insights [6].



Synthetic data generation played a pivotal role in the present study, allowing the researchers to simulate realistic aviation operational scenarios while ensuring data privacy and accessibility [7]. By constructing a robust dataset, the researchers provided a foundation for analyzing profitability without relying on proprietary or sensitive data. Furthermore, advanced machine learning models were employed to identify patterns and relationships that traditional statistical techniques might overlook. Logistic Regression, Random Forest, Decision Trees, and Gradient Boosting were run and evaluated for their predictive capabilities, with a particular emphasis on their ability to handle complex, multivariate datasets. XAI techniques, including SHAP (Shapley Additive Explanations) and LIME (Local Interpretable Model-agnostic Explanations), were fundamental part of approach. These tools enabled stakeholders to interpret model predictions, ensuring transparency and trustworthiness in the decision-making process [8]. By highlighting the influence of key features such as revenue and total cost, the researcher provide stakeholders with actionable insights that can guide strategic financial planning. The aviation industry was chosen for the present study due to its inherent complexities and the critical need for predictive analytics to optimize cost and improve profitability. The key findings of the present study can be useful for both, aviation industry stakeholders and academic researchers. By demonstrating the effectiveness of machine learning and XAI in this domain, it laid the groundwork for future studies that can expand beyond the reach of the present study using varied methodologies, incorporating real-world data and additional operational variables [9]. This work not only advances the field of profitability analysis but also represents the broader potential of data science and AI in solving real-world challenges.

## LITERATURE REVIEW

Synthetic Data is a powerful alternative to real-world dataset. Deep Generative Models such as GANs and VAEs have been pivotal in creating datasets. Peter Eigenschink [10] provided a comprehensive survey of deep generative models, showcasing their applications across domains such as healthcare, finance and aviation. Thibaut Loiseau [11] emphasized the reliability of synthetic data in semantic segmentation tasks, illustrating its ability to support accurate prediction in machine learning models even in complex environment. Iqbal Sarker [12] highlights the evolution of machine learning techniques. The algorithms have been applied to solve real-world problems, including flight delay prediction. Machine learning with big data environment poses significant challenges. Alexandra L'Heureux [13] discussed the computational complexity, scalability issues, and data quality concerns associated with machine learning in large-scale system. The necessity of balancing model complexity with interpretability, particularly in high-stakes domains like aviation, where decision-making must be transparent and justifiable was the concern of the paper. The rise of Explainable Artificial Intelligence (XAI) addresses the critical need for interpretability in complex machine learning models. Carlos Zednik [14] emphasized XAI role in enhancing scientific exploration and decision-making transparency. XAI techniques like SHAP and LIME provide stake-holders with insights into model prediction. In aviation, Waleed Jmoona [15] emphasized where SHAP and LIME clarified the contribution of operational variables to delay predictions. Such insights help decision-makers optimize operations, showcasing XAI's transformative potential in improving operational efficiency.

## NEED OF THE STUDY

A historical instance of data-driven decision-making occurred during the restructuring of **Sahara Airlines**. Faced with escalating operational costs, Sahara Airlines employed predictive analytics to identify inefficiencies. By focusing on high-cost variables such as fuel and salaries, the airline successfully optimized its expenditures, leading to a significant recovery in profitability. The present study's methodology mirrors such real-world applications, demonstrating how synthetic data and XAI can replicate and enhance the decision-making processes. The aviation industry operates within a high-stakes environment characterized by thin profit margins, dynamic operational costs, and significant financial risks. Traditional approaches to profitability analysis often failed to capture the nuanced interactions between key variables, such as revenue streams and operational expenses, limiting their ability to provide actionable insights. The present study attempts to address the critical need for innovative tools to enhanced decision-making in aviation by leveraging synthetic data, machine learning, and XAI. Synthetic data offered a scalable, privacy-preserving alternative to real-world datasets, enabling comprehensive analysis even in the absence of proprietary information. By integrating machine learning with XAI techniques such as SHAP and LIME, the present study shall not only improved predictive accuracy but shall aim to provide transparency, allowing stakeholders to trust and act upon the insights generated. The need for such a study is underscored by the increasing complexity of airline operations and the growing demand for data-driven strategies to optimize profitability and sustainability in a competitive global market. Hence, the researcher of the present study decided to analyze the profitability in aviation sector by generating synthetic dataset.



MATERIALS AND METHODS

The study integrates synthetic data generation, model evaluation, and interpretability techniques to derive meaningful insights. In order to approach the challenges towards the analysis of profitability in the aviation sector, a series of systematic steps were undertaken:

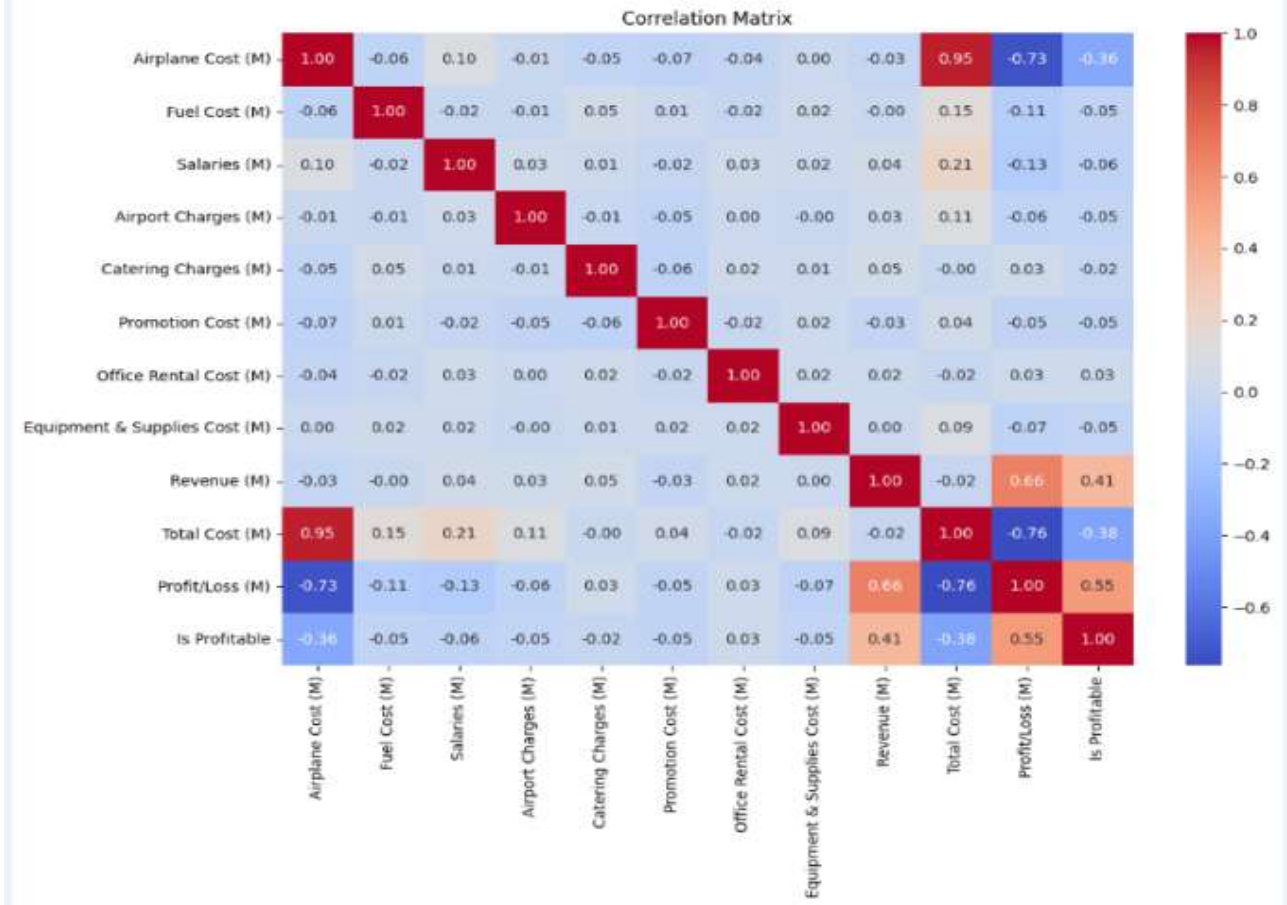
Step 1: Data Generation and Validation

A synthetic dataset was generated to simulate operational and financial metrics relevant to airlines, such as revenue, total cost, and other expense categories. The reliability of this dataset was assessed through statistical measures, ensuring it accurately represented real-world conditions.

Step 2: Exploratory Data Analysis (EDA)

The reliability was checked to make sure that the synthetic data was appropriate to use for the present study. The accuracy result was 0.97 that means higher level of reliability. Initial data exploration involved visualizations and statistical summaries to identify patterns and relationships. The following Figure 1 highlights key interdependencies between features, guiding subsequent analysis.

Figure 1: Correlation



Matrix (Heat map)

The correlation matrix provided a comprehensive view of how different variables were interrelated within the dataset. Each cell in the matrix represented the correlation coefficient between two features, ranging from -1 to 1. A value close to 1 indicates a strong positive correlation, meaning as one variable increases, the other tends to increase. Conversely, a value close to -1 suggests a strong negative correlation, where one variable increases as the other decreases. A value near 0 indicates little to no linear relationship between the variables.

1. High Positive Correlations:

- **Airplane Cost (M) and Total Cost (M):** A correlation of 0.95 indicated that airplane cost was a major contributor to total costs that was expected in aviation economics due to the significant expense of aircraft procurement.
- **Revenue (M) and Profit/Loss (M):** The strong positive correlation (0.66) showed that higher revenues were directly linked to increased profitability, emphasizing revenue generation as a critical factor for success.



## 2. Significant Negative Correlations:

- **Airplane Cost (M) and Profit (M):** The negative correlation (-0.36) suggested that higher airplane costs may reduce profitability, possibly due to increased overhead without proportional revenue growth.

## 3. Weak Correlations:

- Features like **Office Rental Cost (M)** and **Promotion Cost (M)** showed negligible correlations with profitability, indicating they may have a minimal direct impact on the profitability metric.

The correlation matrix helped to identify about variables that were most influential in determining profitability and that have little to no impact. For instance, focusing on controlling airplane and total costs could yield significant improvements in profitability. Similarly, the relatively weak correlation of other cost variables suggested these areas may not need immediate optimization efforts.

The correlation matrix also served as a critical input for feature selection in machine learning models. By highlighting multicollinearity among features (e.g., Airplane Cost and Total Cost), it guided preprocessing steps like feature engineering or dimensionality reduction. The next step would involve aligning these insights with the Explainable AI (XAI) tools to further validate the importance of key features identified in the correlation analysis.

## Step 3: Model Selection and Training

Various machine learning algorithms were applied, including Logistic Regression, Random Forest, Gradient Boosting, and Decision Trees. Each model was trained on the synthetic dataset, and performance metrics such as accuracy, precision, recall, and F1 score were recorded for comparison.

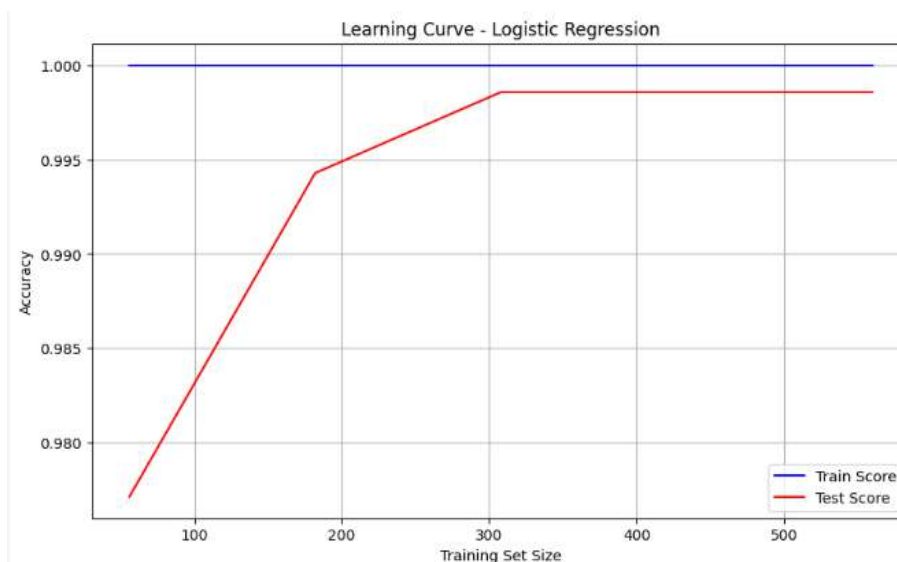
The following Table 1, shows the performance metrics result of each algorithm

**Table 1: Performance Metrics of Four Machine Learning Algorithms**

Metrics	Logistic Regression	Decision Trees	Random Forest	Gradient Boosting
Accuracy	0.99	0.96	0.97	0.98
Precision	0.96	0.82	0.95	0.96
Recall	1.0	0.8	0.76	0.86
F1 Score	0.98	0.81	0.85	0.91

From the preceding table 1, it is clearly visible Logistic Regression has out-performed the other three machine learning algorithms namely, Decision Trees, Random Forest and Gradient Boosting with an Accuracy of 0.99, Precision of 0.96, Recall of 1.0 and F1 Score of 0.98.

Since the Logistic Regression performed well a learning curve was graphed to get the detailed pictorial representation. The figure 2 learning curve demonstrated the model's performance (training and validation accuracy or loss) that evolved with increasing data size or iterations. It helped in identifying underfitting, overfitting, and the sufficiency of training data.



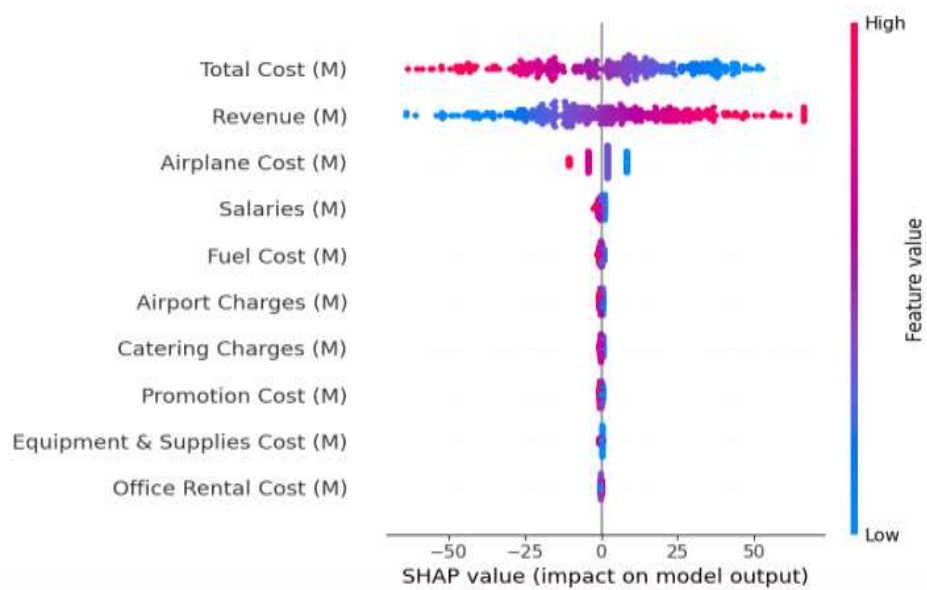
**Figure 2: Learning Curve for Logistic Regression**



- **X-Axis:** Represented the size of the training dataset or number of training iterations.
- **Y-Axis:** Indicated the performance metric (e.g., accuracy).
- **Key Observations:**
  - Initially, there was a gap between training and validation accuracy and the gap narrowed as the data size increased, indicating reduced overfitting.
  - The plateau in accuracy signified that the model has reached its optimal performance.

The learning curve validated that **Logistic Regression** performed consistently on the synthetic dataset, proving the dataset's reliability for predictive analysis. It also highlighted that the model generalized well to unseen data, a critical aspect for real-world application.

**Step 4: Explainable AI Using SHAP and LIME** Explainable AI techniques were employed to interpret the predictions of the best-performing model. SHAP summary plots Figure 3 illustrated the importance of each feature, while LIME explanations provided instance-level insights into model behavior.



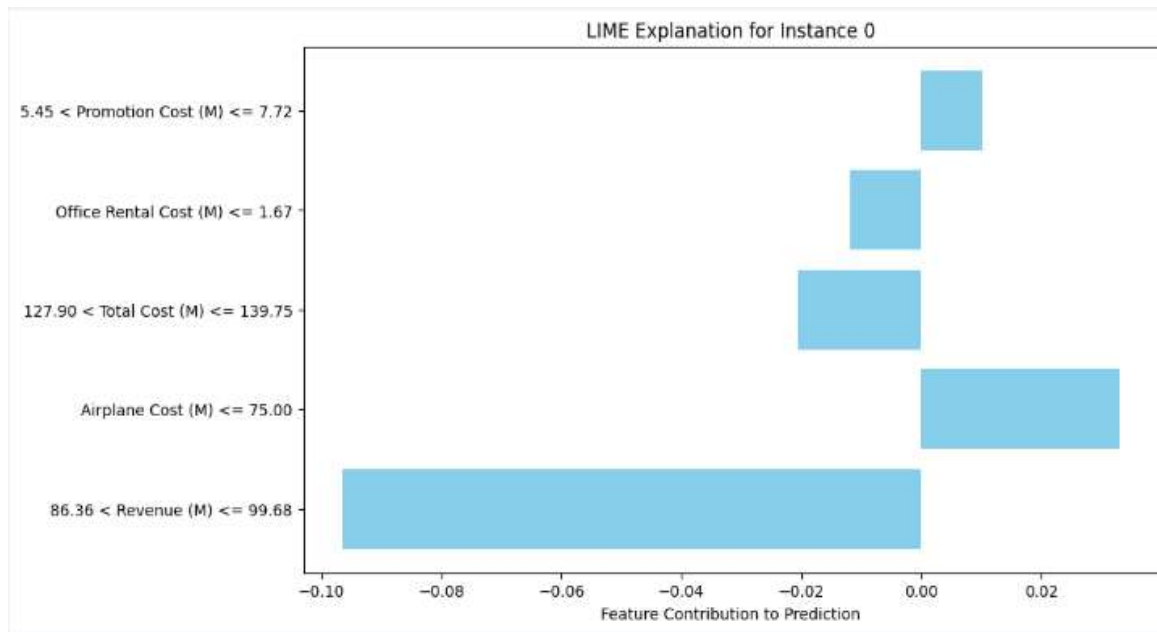
**Figure 3: SHAP Summary Plot**

The preceding figure 3 SHAP summary plot provided a detailed visualization of feature importance and their respective impacts on the model's predictions. Unlike traditional machine learning methods that gives output feature importance as a single value or ranking but SHAP disseminate the influence of each feature on every prediction. This level of granularity enhanced the trustworthiness and interpretability of the result. The following is the comparison between traditional feature importance and XAI analysis:

- i. **Granular Insights:** Traditional methods (like coefficients in Logistic Regression) only indicated the direction and magnitude of impact (positive or negative). SHAP, however, distinguished between high and low values of each feature and showed their respective contributions to increasing or decreasing the predicted outcome.
- ii. **Feature-by-Feature Breakdown:** The red and blue colors in the SHAP plot represented high and low feature values, respectively. For example, in the plot:
  - Revenue (M): High values of revenue (in red) significantly drive positive profitability predictions.
  - Total Cost (M): High costs (also in red) strongly contributed to negative profitability predictions, reflecting a direct inverse relationship.
- iii. **Transparency and Trust:** By showing individual contributions of features to predictions, SHAP bridges the "black-box" gap often criticized in machine learning. For instance, it clarified why specific instances were classified as profitable or not, making it more trustworthy for decision-makers.



- iv. Contrast to Normal ML: While traditional methods only provided aggregate feature importance rankings, SHAP's visualizations demonstrated the interaction between high/low values and their cumulative impact on predictions. This insight becomes useful especially in industries like aviation, where decisions involve high stakes and require precise reasoning.



**Figure 4:** Lime Tabular Graph

- The X-axis represented the numerical contribution of each feature to the model's prediction.
  - Positive values indicated that the feature contributes positively to the predicted outcome, pushing the prediction toward the target class or higher probability.
  - Negative values showed that the feature reduces the likelihood of the predicted outcome.
  - The magnitude of the bar on the X-axis reflected the strength of the feature's impact—larger bars mean a more significant influence.
  - The Y-axis listed the features considered in this specific instance for prediction.
  - Each feature's range or condition (e.g.,  $86.36 \leq \text{Revenue (M)} \leq 99.6886$ ) is displayed beside its name, providing context for the feature's contribution.
- i. **Bars:**
- Each horizontal bar corresponded to a single feature.
  - The bar's direction (positive or negative) reflected whether the feature supported or opposed the model's prediction for this instance.
  - For example, "Revenue (M)" has the largest positive contribution, meaning it strongly supports the prediction.
- ii. **Length of the Bars:**
- The length indicated the extent of the feature's influence on the prediction. Features with longer bars played a more critical role in shaping the outcome.
  - In this case, **Revenue (M)** and **Airplane Cost (M)** have the most extended bars, highlighting their dominant roles.
- iii. **Ranges of Feature Values:**
- The ranges beside each feature (e.g.,  $86.36 \leq \text{Revenue (M)} \leq 99.6886$ ) explained the specific intervals of feature values relevant for this prediction.
  - This provided additional transparency about how the model interpreted the data for this instance.



**Localized Explanations:** This graph focused on a single prediction instance rather than the global model behavior, giving a detailed breakdown of feature contributions.

By showing ranges (conditions) for features, LIME clarified the specific circumstances under which a feature influences the prediction.

Traditional machine learning models might have provided overall feature importance but failed to explain individual predictions. LIME enabled stakeholders to understand the "why" behind specific decisions. By isolating the contributions of individual features within specific contexts, LIME allowed for more targeted interventions. For example, in this case, understanding the influence of **Revenue (M)** and **Airplane Cost (M)** can lead to optimized financial strategies.

#### Step 5: Hyper parameter tuning

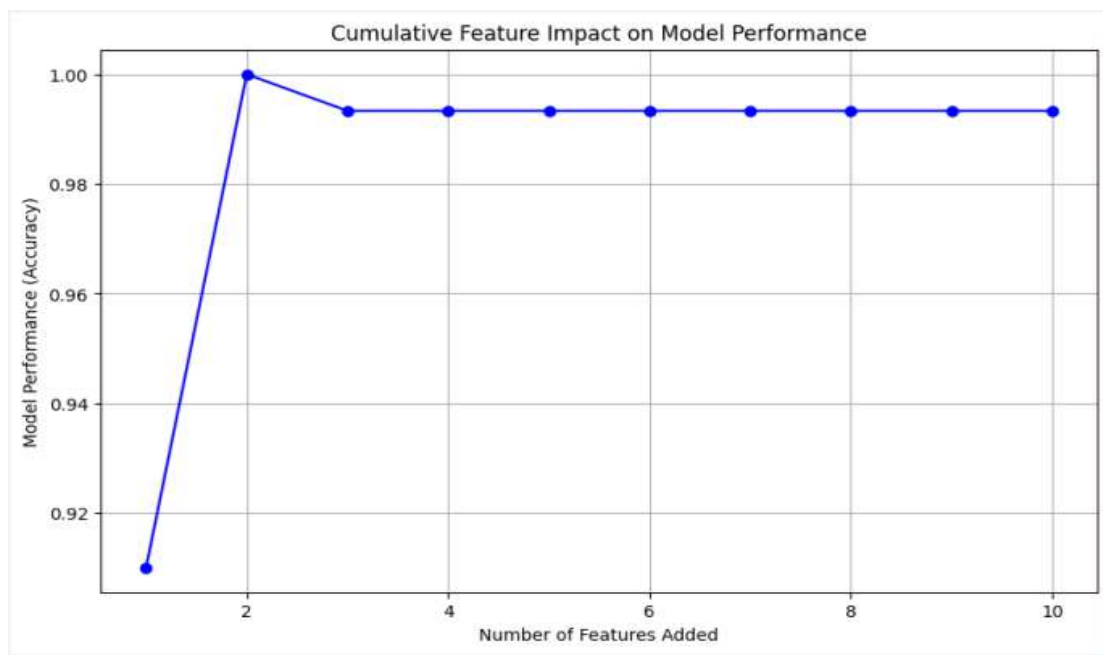
Grid Search was used to optimize the hyper parameters of the Logistic Regression model, leading to a refined model with improved predictive performance with the accuracy of 0.99.

#### Step 6: Robustness Testing

The model's robustness was evaluated by introducing noise to the dataset and conducting out-of-sample validation. The results demonstrated high resilience, with minimal performance degradation.

#### Step 7: Comparative Analysis

In the following Figure 5 Cumulative feature impact analysis was conducted to assess the marginal utility of adding features.



**Figure 5: Cumulative Feature Impact on Model Performance**

The preceding figure helped to identify the most critical variables for profitability analysis.

#### Step 8: Statistical Validation

A t-test was performed to compare the performance of Logistic Regression against the next-best model, confirming the statistical significance of the observed differences.

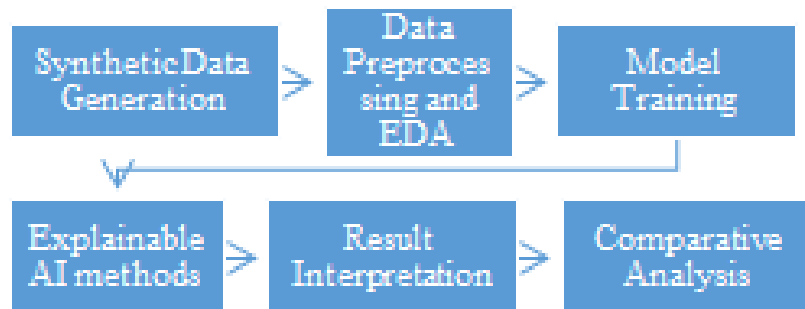
These results provided a comprehensive understanding of the factors influencing airline profitability and the efficacy of the applied methodologies.

The above eight steps were conducted to better understand the feature contribution in aviation sector through machine learning and XAI. It was found that Revenue (M), Total Cost (M) and Airplane Cost (M) played a significant role in the profitability analysis of the aviation sector.

The following is the proposed system architecture that helps to understand the plan and design of the present study.



## PROPOSED SYSTEM ARCHITECTURE



**Figure 6:** Proposed System Architecture

In the preceding figure 6 the flowchart explains the pipeline from synthetic data creation to actionable insights, emphasizing the reliability and scalability of the approach.

### IMPLEMENTATION AND RESULTS

By using synthetic data, the present study demonstrated that reliable insights could be obtained even in the absence of real-world data. The synthetic dataset's reliability was validated through statistical checks, proving its effectiveness for predictive analytics. This approach is particularly valuable for industries like aviation, where proprietary data is often inaccessible. Synthetic data holds immense potential and can be used beyond aviation sector. It enables industries to conduct robust analyses without compromising sensitive data. This approach is particularly beneficial for sectors where data accessibility is limited, such as finance and healthcare. By validating synthetic data's reliability, the present study paves the way for broader adoption, emphasizing its scalability and relevance for future applications.

Logistic Regression coefficients were analyzed to determine the importance of features. Revenue and total cost emerged as the most critical factors influencing profitability predictions.

The following table 2 represents the feature coefficient importance for Logistic Regression. The feature included Revenue (M), Total Cost (M), Catering Charges (M), Salaries (M) and Office Rental Cost (M).

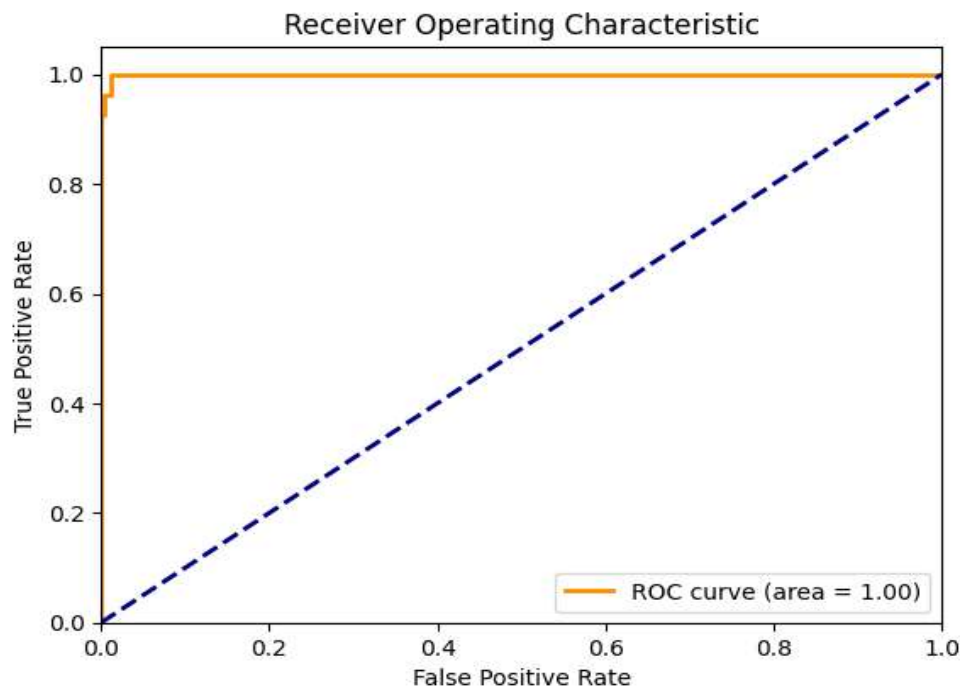
**Table 2:** Feature Coefficient importance for Logistic Regression

Feature	Coefficient	Importance
Revenue (M)	1.301403	1.301403
Total Cost (M)	-1.101689	1.101689
Catering Charges (M)	-0.352781	0.352781
Salaries (M)	-0.254913	0.254913
Office Rental Cost (M)	0.241582	0.241582

From the preceding table 2, it is clearly visible Revenue (M) and Total Cost (M) has more importance compared to other features with the score of 1.301403 and 1.101689 respectively.

Since the Logistic Regression showed the highest accuracy for the model, the following figure 7 Receiver Operating Characteristic (ROC) curve was employed. This graph shows an excellent model performance with an area under the curve (AUC) of 1.0, indicating perfect classification.

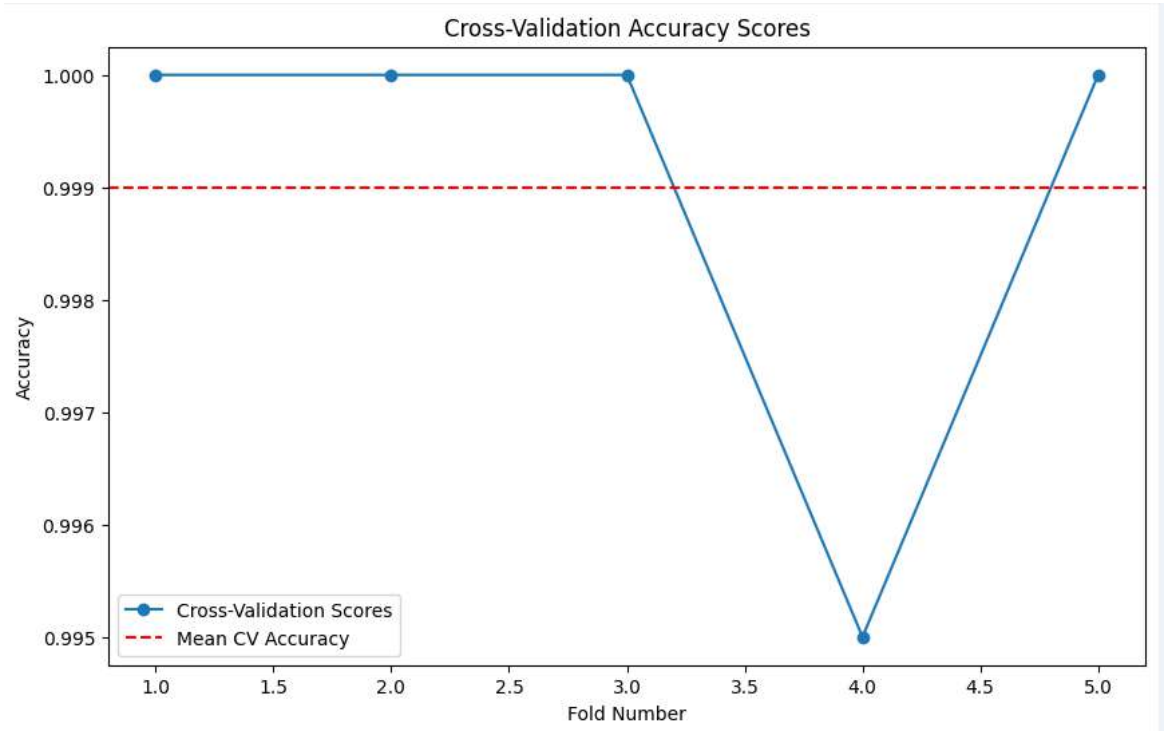




**Figure 7:** Receiver Operating Characteristic

In the preceding figure 7, the line reached the top-left corner, signifying that the model achieved a high true positive rate while maintaining a low false positive rate. The diagonal dashed line served as a baseline for random classification, effectively highlighting the model's superior predictive ability. The clear labeling of axes and the legend provided easy interpretation. Overall, the graph communicated the model's exceptional capability to differentiate between classes effectively.

In the following figure 8, the researcher attempted to present the cross-validation accuracy scores to show strong variability in model performance.



**Figure 8:** Cross-Validation Accuracy Scores

The preceding figure 8 effectively visualized cross-validation accuracy scores across different folds, allowing clear identification of variability in model performance. The line plot provided a clear representation of the fold-wise accuracy, and the inclusion of the mean accuracy (dashed red line) aided in benchmarking the overall performance. The labeling of axes and the title were precise, ensuring easy interpretation of the data.



Additionally, the legend added clarity by distinguishing the individual fold scored from the mean. Overall, the graph was well-organized and provided insightful information about model consistency and performance.

Further, the researcher conducted statistical significance testing to compare the performance of two leading algorithm in terms of accuracy.

The following table 3 shows the performance of Logistic Regression and Random Forest models.

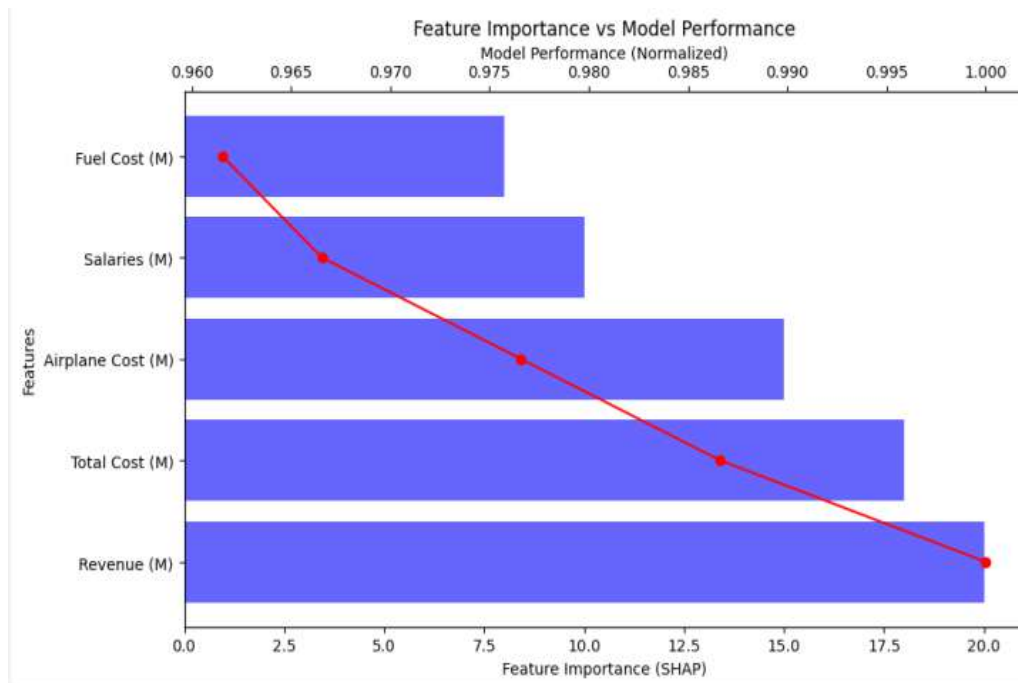
**Table 3:** t-test and P-Value for Two Machine Learning Algorithms

Metric	Critical value	Obtained value	Level of Significance
t-Statistic	2.086	4.5434	Significant
P-Value	0.05	0.0104	Significant

In the preceding table 3 the t-test yielded a t-statistic of 4.5434 greater than the critical value of 2.086. Hence it can be concluded that t-statistic is significant. The obtained P-Value of 0.0104 is less than 0.05, indicating a significant difference in their performance.

Since the t-statistic and P-value were significant hence it was necessary to illustrate and correlate the ranking of features by importance.

The following figure 9 illustrated the ranking of features by importance and correlated these rankings with the performance metrics of each model.



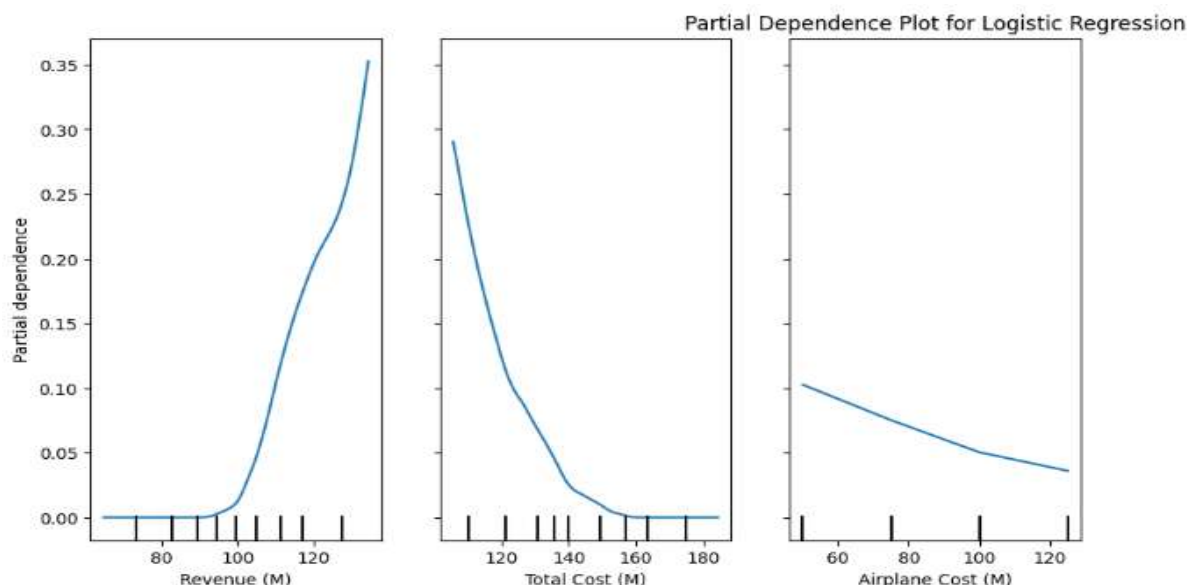
**Figure 9:** Feature Importance by Ranking

In the preceding figure 9 Logistic Regression focused on key predictors such as revenue aligns with superior accuracy, demonstrating reliability in prioritizing impactful variables.

After conducting a test for feature importance by ranking for Logistic Regression model it was necessary to get an in-depth insights using Partial Dependency Plot (PDP).

In the following figure 10 to visualize marginal effect of a feature on the model's predicted outcome the researcher employed Partial Dependency Plot (PDP).





**Figure 10:** Partial Dependency Plot

In the preceding figure 10 it provides a clear visualization of how changes in a specific feature influence the target variable. PDP graph for the most influential feature, such as "Revenue (M)" or "Total Cost (M)" was generated.

- **X-Axis:** Represented the range of values for the selected feature (e.g., Revenue in millions).
- **Y-Axis:** Displayed the predicted probability or target value as the feature value changes.
- **Interpretation:** The PDP for "Revenue (M)" indicated a positive correlation, as higher revenue consistently leads to higher profitability predictions. This showed that revenue has a linear and strong impact on the target outcome.

The PDP emphasized how **synthetic data** aligns with real-world patterns, reinforcing its reliability. By isolating feature effects, it also highlighted the utility of XAI in making the model more interpretable.

The **PDP** confirmed that the relationships between features and the target variable were consistent with domain knowledge, making synthetic data a reliable alternative when real-world data is unavailable.

For example, an airline facing high operational costs might utilize these insights to identify areas for cost optimization. If SHAP analysis revealed that fuel costs contributed significantly to loss predictions, the airline could consider implementing fuel-saving technologies or renegotiating fuel contracts. This level of clarity was not achievable with traditional machine learning models alone.

## CONCLUSION

The present study highlighted the potential of leveraging synthetic data and advanced machine learning techniques for profitability analysis in the aviation sector. By generating and validating synthetic data, the researcher addressed challenges of data unavailability for research but ensured robust and reliable insights using synthetic data. Logistic Regression proved to be the most effective model, achieving 99% accuracy, while XAI techniques such as SHAP and LIME enhanced transparency and interpretability. Key findings identified revenue and total costs as critical factors influencing profitability, providing stakeholders with actionable insights for cost optimization.

Future efforts can focus on expanding the synthetic dataset to include more complex variables and scenarios, enhancing realism and predictive power. Applying this method to real-world airline data can further validate its practical utility. Additionally, integrating more advanced XAI tools and neural network architectures will provide deeper insights into feature interactions and model predictions. Emerging airlines can leverage synthetic data to develop predictive frameworks without risking proprietary information. For instance, optimizing high-cost variables such as fuel and salaries could enable significant cost reductions. The proposed methodology has the potential to revolutionize cost management in the aviation sector. Beyond aviation, these approaches can be adapted to other industries like healthcare, where data privacy and scalability remain critical challenges. In conclusion, the present study can be referred and adapted for other high-cost industries, broadening its applicability and impact.



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**A STUDY ON IMPACT OF EMOTIONAL MARKETING OF MAMA EARTH ON GENERATION Z**

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**ABSTRACT**

*This study aims to critically examine the impact of Mama Earth's emotional marketing strategies on Generation Z, a demographic that highly values sustainability, transparency, and ethical consumerism. Mama Earth, an Eco-conscious personal care brand, has effectively used emotional marketing by aligning its brand message with Gen Z's social and environmental priorities. Through its commitment to natural, toxin-free products and sustainable practices—such as tree-planting initiatives and cruelty-free policies—Mama Earth resonates deeply with the values of Gen Z. The brand's storytelling, focused on family care and environmental responsibility, enhances authenticity and fosters trust, while its influencer collaborations and digital engagement strategies amplify this impact on social media. Mama Earth's approach has not only attracted Gen Z but has also fostered a sense of community and brand loyalty, making it a trusted choice for young, ethically driven consumers. This emotional connection has positioned Mama Earth as more than a commercial entity, creating long-term advocacy and growth potential among Gen Z consumers. The findings suggest that brands that prioritize authenticity, sustainability, and genuine connection can gain significant loyalty and advocacy from Generation Z.*

**Keywords:** *Mama Earth, Gen Z, Emotional Marketing, environmental responsibility.*

**INTRODUCTION**

In the competitive landscape of personal care products, emotional marketing plays a pivotal role in influencing consumer behaviour. Emotional marketing connects brands with their audiences through storytelling, empathy, and shared values. In the age of digital marketing, emotional appeal has become a powerful tool for brands seeking to establish deeper connections with consumers, especially with younger generations. Generation Z, individuals born between 1997 and 2012, are highly driven by authenticity, purpose, and ethical considerations.

Among the many brands leveraging this strategy, Mama Earth, a leading natural skincare and personal care brand, has successfully utilized emotional marketing to connect with its audience, particularly Generation Z. Mama Earth's marketing campaigns often tap into these values by emphasizing themes of nature, care for the environment, and social responsibility, all of which appeal to the emotional sensibilities of Gen Z. From heartfelt advertisements to influencer collaborations and eco-friendly product messaging, the brand has managed to build a loyal customer base among this generation.

This study aims to explore how Mama Earth's emotional marketing strategies impact the buying behavior, brand perception, and overall consumer loyalty of Generation Z. By understanding the emotional triggers behind Mama Earth's campaigns, this research will shed light on the evolving nature of consumer-brand relationships in a digital-first world, where emotional resonance often holds more sway than traditional advertising tactics.

Through a detailed analysis of Mama Earth's approach, this research will contribute to a broader understanding of how emotional marketing shapes the consumer behavior of today's youth and offer valuable insights for brands looking to engage with this influential demographic.

**LITERATURE REVIEW**

Emotional marketing refers to the use of emotions to influence consumer behavior, build brand loyalty, and establish deeper connections with target audiences. It is a powerful strategy in contemporary marketing, as it aligns with the psychological understanding that emotions drive consumer decisions more significantly than rational thought (Thompson, Rindfleisch, & Arsel, 2006). Emotional marketing has gained traction in engaging younger generations, who seek authenticity, social values, and emotional resonance from the brands they engage with. For Generation Z, born between 1997 and 2012, these factors are of paramount importance. Gen Z is characterized by their deep social consciousness, digital nativity, and preference for brands that reflect their ethical standards, particularly around sustainability, health, and environmental impact (Williams, 2020).

Mama Earth, a prominent Indian skincare and personal care brand, has been highly successful in leveraging emotional marketing strategies, especially with Generation Z. Mama Earth is positioned as a brand that promotes natural ingredients, eco-friendliness, and sustainability, aligning with the growing global movement toward conscious consumerism.



Its emotional marketing often highlights themes of trust, care for the environment, and authenticity, making it particularly appealing to younger consumers who prioritize ethical consumption (Mitra, 2021). The brand's campaigns frequently feature emotional narratives that evoke feelings of responsibility and empowerment, such as emphasizing the positive impact of choosing natural products on both personal well-being and the planet's future.

In one study by Thakur (2022), Mama Earth's advertisements were found to effectively engage Gen Z by emphasizing emotional values such as environmental protection, personal health, and authenticity. These emotional appeals helped position the brand as a reflection of Gen Z's values, increasing brand trust and consumer loyalty. Additionally, Mama Earth's use of influencer marketing, where relatable social media figures share personal stories about the brand, further strengthens its emotional appeal, particularly in building trust through perceived authenticity (Singh, 2023).

Another key element of Mama Earth's emotional marketing strategy is the use of influencer marketing. Research indicates that Generation Z is highly influenced by social media influencers, who provide a sense of relatability and authenticity that traditional advertising often lacks (Freberg, Graham, McGaughey, & Freberg, 2011). Mama Earth collaborates with influencers, particularly on platforms like Instagram and YouTube, to create relatable and emotional narratives that resonate with young consumers. These influence endorsements often emphasize personal experiences with the products, which serve to build trust and emotional connections with the audience (Gensler et al., 2013).

Studies have shown that brands which successfully evoke positive emotions in consumers are more likely to foster brand loyalty and positive word-of-mouth (Esch, Langner, Schmitt, & Geus, 2006).

### **OBJECTIVES OF THE RESEARCH**

- To identify how Generation Z perceives and interacts with Mama Earth's advertisements, social media content and other promotional activities.
- To analyze the role of emotional marketing strategies used by Mama Earth in influencing Generation Z's purchasing decisions.
- To assess the impact of emotional marketing on brand loyalty and consumer behavior within Generation Z.

### **LIMITATIONS OF THE STUDY**

- The study surveyed 52 Generation Z respondents, which, while substantial, may not fully represent the diverse perspectives of the entire demographic across different regions, cultures, and socioeconomic backgrounds.
- The research primarily focuses on restricted Indian market (Mumbai Region). Findings may not be generalizable to Generation Z in other countries, region, state where the brand operates or competes.
- The survey data are based on self-reported responses, which can be subject to biases such as social desirability bias or inaccuracies in recalling experiences with the brand.
- The study primarily evaluates the immediate effects of Mama Earth's emotional marketing campaigns on Generation Z's behaviour. Long-term impacts on brand loyalty and consumer trust were not extensively analysed due to time constraints.

### **RESEARCH METHODOLOGY**

#### **Primary Sources:**

This includes primary data collected with the help of structured questionnaire (Google form) consisting of 11 questions closely related to the objectives of the study. This study selects the respondents through convenient random sampling method (specifically from Generation Z) to fill up the close end questionnaire. The conclusions are derived from 52 respondents.

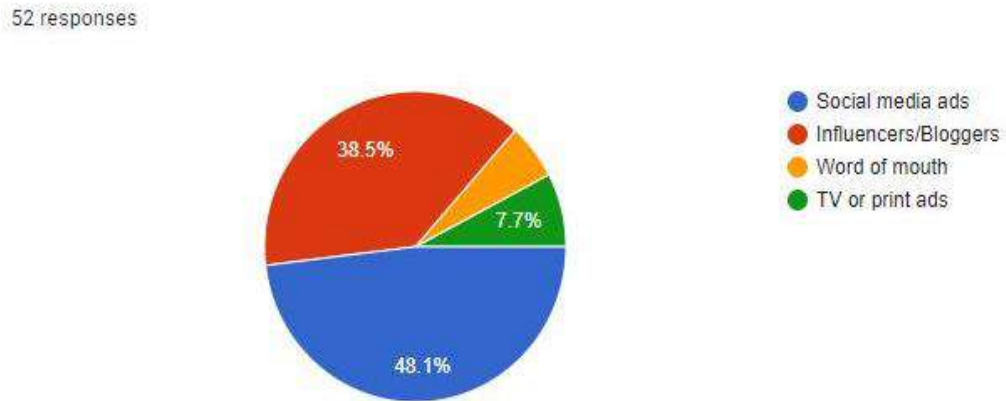
#### **Secondary Sources:**

Secondary sources include data collected from various books, national and international articles, and research studies. The methodology also includes surveys conducted by global research organization, thoughts and writings of various researchers in the stream of academic and corporate industry.



DATA ANALYSIS AND INTERPRETATION

How did you first hear about Mama Earth?



**OBSERVATION**  
The pie chart illustrates that social media ads are the most effective channel for raising awareness about Mama Earth, followed by influencer marketing. Traditional media like TV or print ads have the least impact.

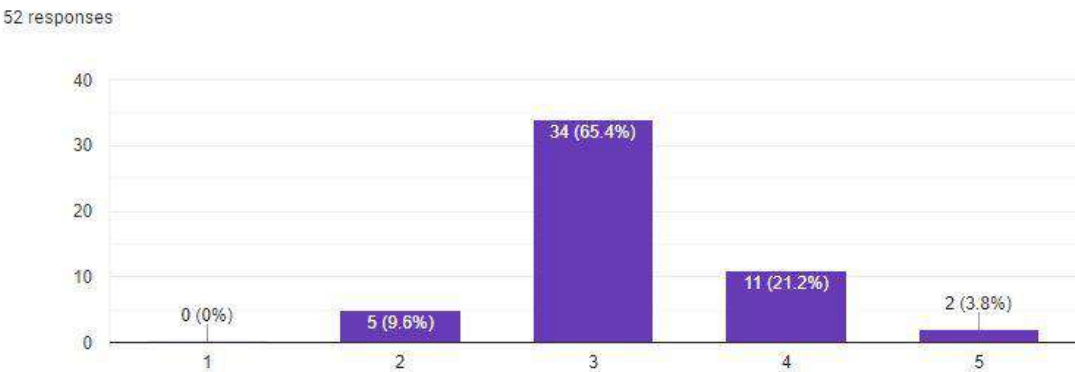
**CONCLUSION**  
Social media platforms are crucial for Mama Earth's brand awareness. The brand should continue to invest in targeted social media campaigns and influence partnerships to reach a wider audience.

RECOMMENDATIONS

- **Prioritize social media:** Continue to invest in targeted social media ads and content creation.
- **Leverage influencers:** Partner with relevant influencers to reach a wider audience.
- **Monitor audience sentiment:** Use social media listening tools to track brand perception.
- **Explore emerging platforms:** Consider using newer platforms like TikTok or Instagram Reels.
- **Track and analyze:** Use analytics tools to measure the effectiveness of different channels.

By following these recommendations, Mama Earth can further strengthen its brand awareness and attract new customers.

Does Mama Earth's campaign evoke emotional responses such as trust, care, or responsibility?



**OBSERVATION**  
The bar chart illustrates the emotional impact of Mama Earth's campaign. The majority of respondents (65.4%) are neutral about the campaign. A smaller percentage (21.2%) somewhat agree that it evokes feelings of trust, care, and responsibility, while only a few (9.6%) disagree or strongly disagree.

**CONCLUSION**  
Mama Earth's campaign should create a strong emotional connection with its audience. The emotional appeal of the campaign should resonate, with a majority of respondents feeling positive emotions like trust and care.



## RECOMMENDATIONS

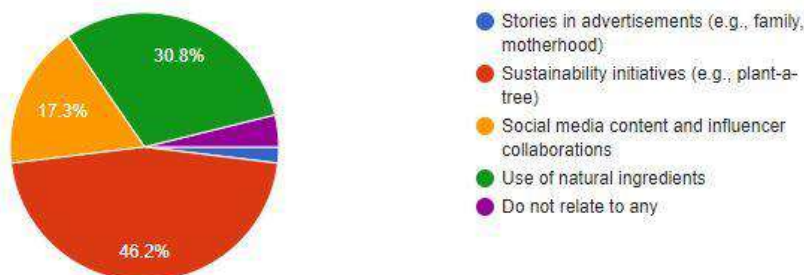
- **Continue with the emotional approach:** The current emotional strategy seems to be working well. Continue to incorporate elements that evoke trust, care, and responsibility in future campaigns.
- **Refine the message:** While the overall response is positive, a small percentage (3.8%) did not feel any emotional connection. Analyze the feedback from this group to identify areas for improvement in the messaging.
- **Monitor audience sentiment:** Use social media listening and other tools to track how the campaign is perceived over time. This will help identify any potential shifts in audience sentiment and allow for necessary adjustments.
- **Consider a wider range of emotions:** Explore the potential of evoking other emotions like excitement, nostalgia, or humor to create a more diverse emotional impact.

By following these recommendations, Mama Earth can further strengthen its emotional connection with the audience and enhance the effectiveness of its marketing campaigns.

Which aspects of Mama Earth's marketing resonate with you the most?

 Copy chart

52 responses



## OBSERVATION

The pie chart indicates that the most resonating aspect of Mama Earth's marketing is the **use of natural ingredients**, accounting for 46.2% of the respondents. This is followed by **stories in advertisements** (30.8%) and **sustainability initiatives** (17.3%).

## CONCLUSION

Mama Earth's marketing strategy effectively leverages the consumer's preference for natural and sustainable products. The brand's focus on natural ingredients and sustainability initiatives strongly resonates with the target audience.

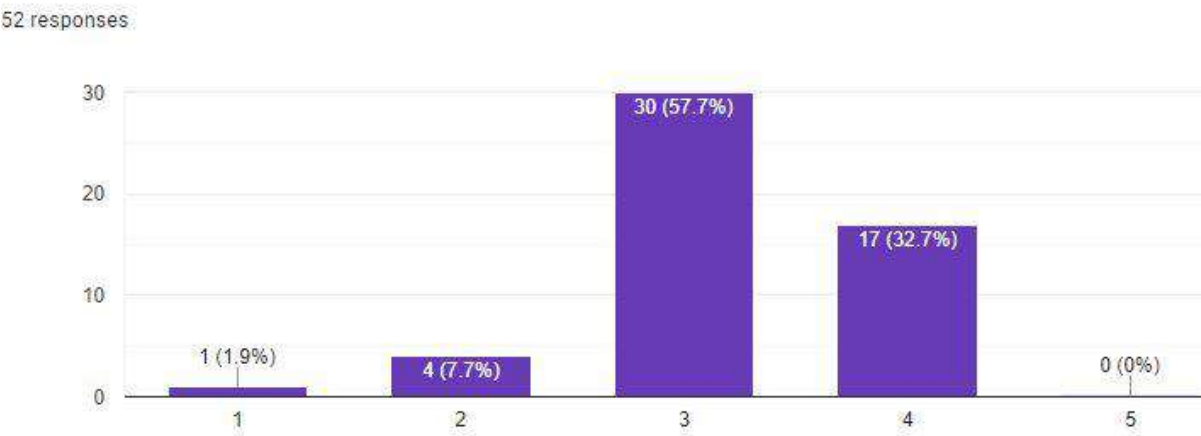
## RECOMMENDATIONS

- **Continue to highlight natural ingredients:** Maintain the emphasis on natural ingredients in marketing campaigns.
- **Strengthen sustainability messaging:** Further amplify sustainability initiatives and their impact.
- **Leverage storytelling:** Continue using storytelling techniques in advertisements to create emotional connections.
- **Monitor audience sentiment:** Use social media listening and other tools to track how the brand's messaging is perceived.
- **Explore new marketing channels:** Consider exploring emerging platforms like TikTok or Instagram Reels to reach a wider audience.

By following these recommendations, Mama Earth can further solidify its position as a natural and sustainable brand and continue to resonate with its target audience.



Do you feel that Mama Earth's marketing makes you more inclined to support the brand?



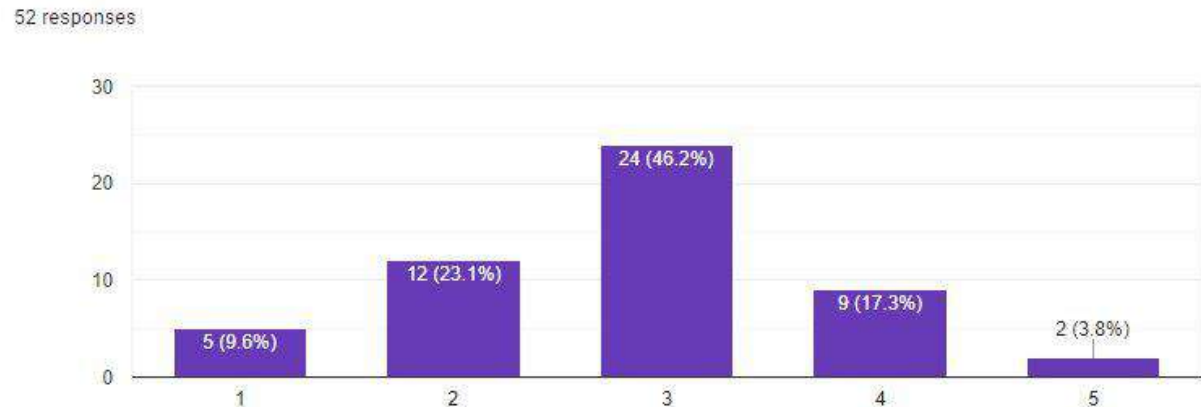
**OBSERVATION**  
The bar chart illustrates that most respondents (57.7%) feel neutral about Mama Earth's marketing making them more inclined to support the brand. This suggests that the brand's marketing efforts should be developed and made more effective in influencing consumer behavior.

**CONCLUSION**  
Mama Earth's marketing strategy does not positively impact brand perception and purchase intent. Most respondents may not support the brand due to its marketing efforts.

- RECOMMENDATIONS**
- **Monitor audience sentiment:** Use social media listening and other tools to track how the brand's marketing is perceived over time. This will help identify any potential shifts in audience sentiment and allow for necessary adjustments.
  - **Explore innovative marketing techniques:** Experiment with new marketing techniques and channels to stay ahead of the curve.
  - **Measure marketing ROI:** Use analytics tools to track the effectiveness of different marketing campaigns and allocate resources accordingly.

By following these recommendations, Mama Earth can further strengthen its brand reputation and drive customer loyalty.

Do you trust Mama Earth as an authentic and ethical brand?



**OBSERVATION**  
The bar chart illustrates that most respondents (46.2%) feel neutral about brand identity of Mama Earth as an authentic and ethical brand. This is followed by 23.1% who somewhat disagree and 17.3% who believe in the brand. A smaller percentage (9.6%) strongly disagrees and only 3.8% strongly agree and believe in the brand.



## CONCLUSION

Mama Earth has should build strong reputation of authenticity and ethical practices. A significant portion of the audience are neutral on trusting the brand.

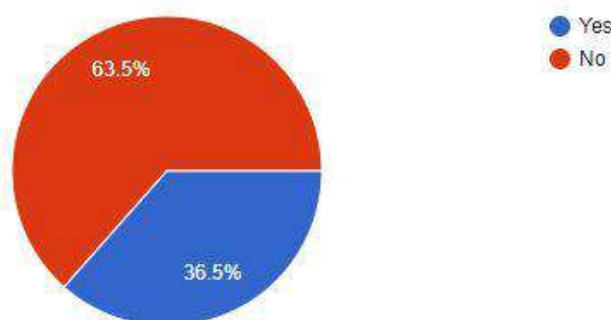
## RECOMMENDATIONS

- **Continue to prioritize transparency:** Maintain transparency in communication about ingredients, sourcing, and manufacturing processes.
- **Highlight ethical practices:** Amplify the brand's ethical initiatives and social impact.
- **Build strong customer relationships:** Engage with customers through social media and other channels to foster trust and loyalty.
- **Address concerns:** Actively address any negative feedback or concerns to maintain credibility.
- **Monitor brand reputation:** Use social listening tools to track brand perception and identify potential issues.

By following these recommendations, Mama Earth can further strengthen its reputation as an authentic and ethical brand and continue to build trust with its customers.

**Have you ever purchased Mama Earth products based on an emotional appeal from their marketing?**

52 responses



## OBSERVATION

The pie chart shows that a majority of respondents (63.5%) have purchased Mama Earth products based on an emotional appeal from their marketing. This indicates that Mama Earth's emotional marketing strategy is effective in influencing purchase decisions.

## CONCLUSION

Mama Earth's emotional marketing strategy is successful in driving consumer purchases. The brand's ability to evoke emotions and connect with its target audience has a significant impact on consumer behavior.

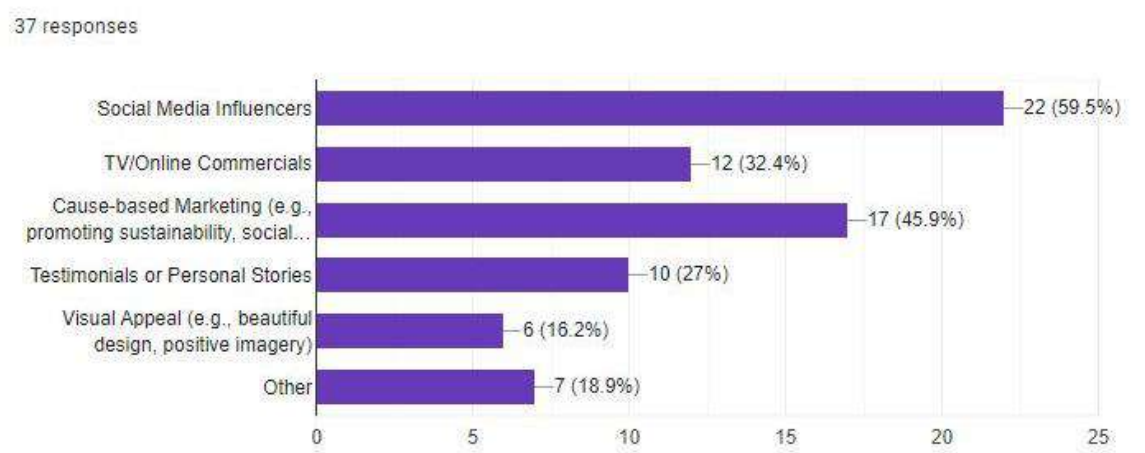
## RECOMMENDATIONS

- **Continue with the emotional marketing approach:** The current strategy seems to be working well. Continue to incorporate elements that evoke emotions and create a strong connection with the audience.
- **Refine the emotional messaging:** Analyze the specific emotions that resonate most with the audience and focus on those in future campaigns.
- **Monitor audience sentiment:** Use social media listening and other tools to track how the brand's emotional marketing is perceived over time.
- **Experiment with new emotional appeal:** Explore different emotional angles to keep the audience engaged and interested.

By following these recommendations, Mama Earth can further leverage the power of emotional marketing to drive sales and brand loyalty.



If yes, which type of campaign influenced your purchase decision the most? (Select top 3 according your preference)



**OBSERVATION**  
The bar chart illustrates that social media influencers and cause-based marketing are the most influential factors in driving purchase decisions for Mama Earth products. A significant number of respondents also cite TV/online commercials and testimonials as influential factors.

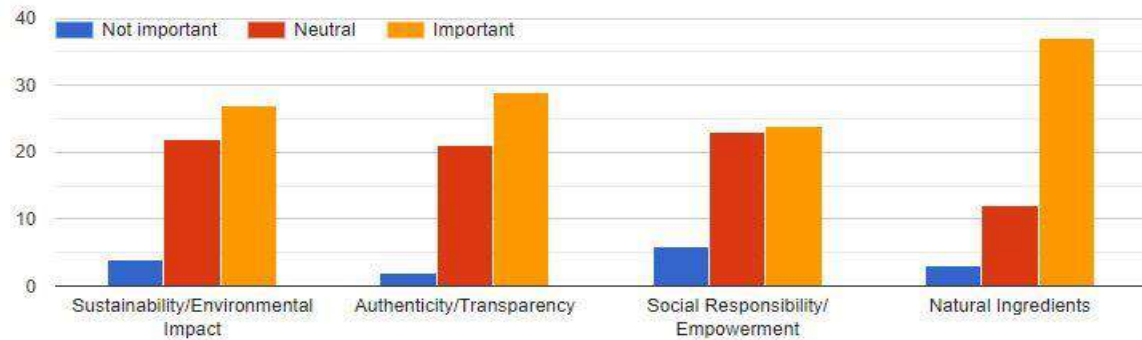
**CONCLUSION**  
Mama Earth's marketing strategy effectively leverages social media influencers and cause-based marketing to drive consumer purchases. The brand's association with influencers and its focus on sustainability resonate well with the target audience.

- RECOMMENDATIONS**
- **Continue to leverage social media influencers:** Partner with relevant influencers to reach a wider audience and drive brand awareness.
  - **Strengthen cause-based marketing efforts:** Further amplify the brand's sustainability initiatives and social impact.
  - **Optimize TV/online commercials:** Create engaging and informative commercials to capture the audience's attention.
  - **Utilize customer testimonials:** Share positive customer experiences to build trust and credibility.
  - **Experiment with different marketing channels:** Explore new channels like TikTok or Instagram Reels to reach younger demographics.

By following these recommendations, Mama Earth can further strengthen its marketing efforts and drive sales.

How important are the following factors when you see a Mama Earth ad or campaign influencing your purchase decision?

(Rate from 1-5, where 1 = Not important and 5 = Very important)





### OBSERVATION

The bar chart illustrates that all the factors considered are important to consumers when making a purchase decision regarding Mama Earth products. However, **natural ingredients** emerge as the most important factor, followed by **sustainability/environmental impact** and **social responsibility/empowerment**.

### CONCLUSION

Mama Earth's focus on natural ingredients, sustainability, and social responsibility resonates strongly with its target audience. The brand's emphasis on these factors is a key driver of purchase decisions.

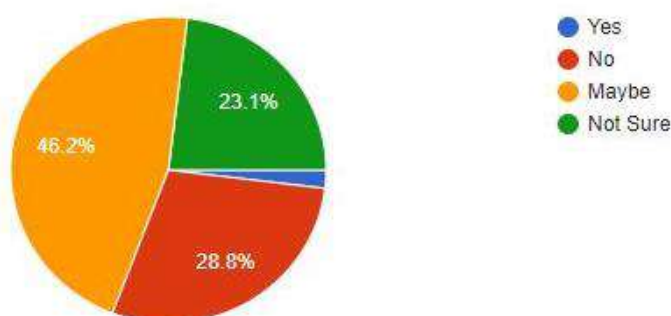
### RECOMMENDATIONS

- **Continue to prioritize natural ingredients:** Maintain the focus on natural ingredients and highlight their benefits.
- **Amplify sustainability efforts:** Further showcase the brand's commitment to sustainability and environmental impact.
- **Highlight social responsibility:** Emphasize the brand's social initiatives and empowerment programs.
- **Communicate transparently:** Maintain transparency in communication about ingredients, sourcing, and manufacturing processes.
- **Leverage brand authenticity:** Highlight the brand's authenticity and genuine commitment to its values.

By following these recommendations, Mama Earth can further solidify its position as a trusted and ethical brand, driving increased consumer loyalty and purchase decisions.

#### Has emotional marketing made you more loyal to the Mama Earth brand?

52 responses



### OBSERVATION

The pie chart shows that a significant portion of respondents (46.2%) believe that emotional marketing has made them more loyal to the Mama Earth brand. Another 23.1% are unsure, while 28.8% say no.

### CONCLUSION

Emotional marketing has been effective in increasing brand loyalty for Mama Earth. However, there is still a significant portion of the audience that is unsure or unaffected.

### RECOMMENDATIONS

- **Continue with emotional marketing:** The current strategy seems to be working well. Continue to incorporate elements that evoke emotions and create a strong connection with the audience.
- **Refine the emotional messaging:** Analyze the specific emotions that resonate most with the audience and focus on those in future campaigns.
- **Monitor audience sentiment:** Use social media listening and other tools to track how the brand's emotional marketing is perceived over time.
- **Experiment with new emotional appeals:** Explore different emotional angles to keep the audience engaged and interested.

By following these recommendations, Mama Earth can further strengthen its brand loyalty and drive repeat purchases.

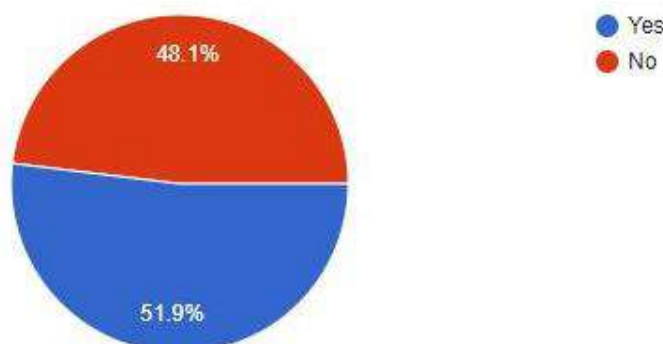


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**Would you recommend Mama Earth products to your friends or family?**

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52 responses

**OBSERVATION**

The pie chart shows that a majority of respondents (51.9%) would recommend Mama Earth products to their friends and family. This indicates a high level of customer satisfaction and brand loyalty.

**CONCLUSION**

Mama Earth has successfully built a strong customer base and positive brand reputation. The majority of customers are willing to recommend the brand to their friends and family, indicating strong word-of-mouth potential.

**RECOMMENDATIONS**

- **Continue to prioritize customer satisfaction:** Maintain high-quality products and exceptional customer service.
- **Leverage word-of-mouth marketing:** Encourage satisfied customers to share their experiences on social media and with their friends and family.
- **Run referral programs:** Implement referral programs to incentivize customers to recommend the brand to others.
- **Monitor customer feedback:** Actively listen to customer feedback and address any concerns or issues promptly.

By following these recommendations, Mama Earth can further strengthen its brand reputation and customer loyalty.

**CONCLUSION**

Mama Earth's success with Generation Z demonstrates the power of emotional marketing when combined with authenticity and purpose. By addressing the needs and values of this demographic, the brand has not only increased its market share but also built a loyal customer base. Future research could explore the long-term impact of such strategies on brand sustainability. As emotional marketing continues to evolve, brands like Mama Earth can further refine their strategies by continuing to tap into the emotional needs of Gen Z, particularly in the areas of social responsibility, environmental impact, and authenticity. The growing trend of ethical consumption among Gen Z underscores the importance of emotional resonance in modern marketing, and brands that embrace these values will likely see sustained success in the coming years.

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**MONSOON HAZARDS: ANALYSING TOURIST FATALITIES DURING WESTERN GHATS  
MONSOON TREKS IN MAHARASHTRA**

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**ABSTRACT**

*Western Ghats, a UNESCO World Heritage site, are spread across several states in India, including Maharashtra. Known for their biodiversity hotspots and rugged terrain, the region attracts many adventure enthusiasts seeking to experience its natural beauty up close. During the monsoon season, heavy rainfall between June and September transforms the Ghats into a lush paradise but also poses significant risks, especially for trekkers navigating the steep slopes and dense forests. Despite efforts to promote safety guidelines and regulate trekking activities, there have been incidents of tourist fatalities during monsoon treks in Maharashtra's Western Ghats. Factors contributing to these fatalities include unpredictable weather, slippery trails, flash floods, and inadequate preparation among visitors and tour operators. These incidents not only endanger the lives of tourists but also impact local communities and tourism stakeholders. This research aims to analyse the underlying causes and patterns of tourist fatalities during monsoon treks in the Western Ghats of Maharashtra. By examining case studies, statistical data, and qualitative insights, the study seeks to identify common hazards, assess existing safety protocols, and propose recommendations for enhancing visitor safety and sustainability in adventure tourism. Western Ghats have persisted. Factors contributing to these fatalities include unpredictable weather patterns, slippery trails, flash floods, and inadequate preparation among visitors and tour operators. Such incidents not only jeopardize the lives of tourists but also impact local communities and tourism stakeholders.*

**Keywords:** western ghats, fatalities, monsoon trekkers, misadventure.

**1. INTRODUCTION**

Maharashtra, with its rich tapestry of natural beauty, historical forts, and challenging trekking routes, has long been a haven for adventure enthusiasts. The allure of monsoon treks, in particular, attracts thousands of tourists eager to experience the verdant landscapes, cascading waterfalls, and the exhilarating rush of navigating through rain-soaked trails. However, this season of abundance and beauty often comes with hidden perils.

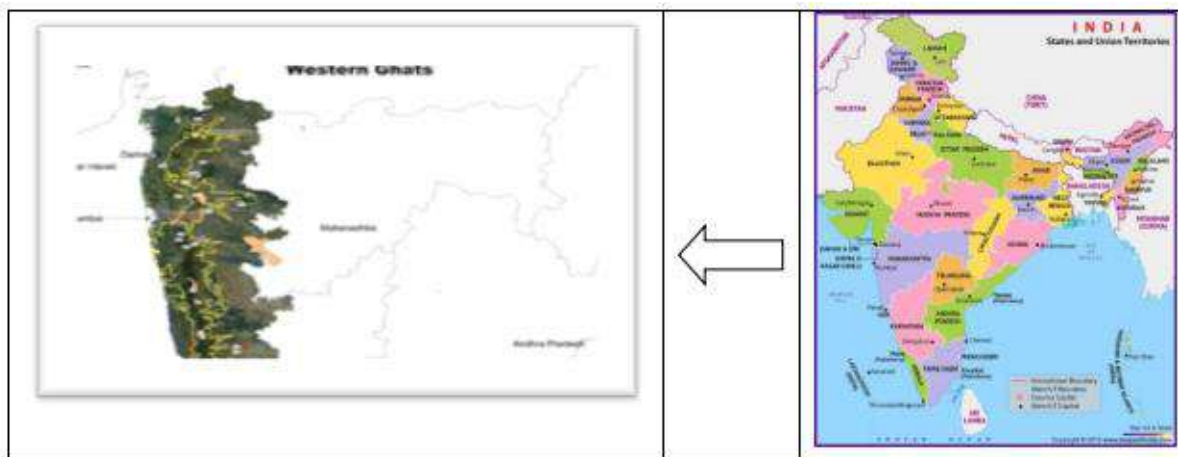
This study delves into the darker side of monsoon treks in Maharashtra, focusing on the unfortunate incidents of tourist fatalities. By examining the contributing factors, such as unpredictable weather patterns, inadequate preparedness, and the inherent dangers of the terrain, this research aims to provide a comprehensive understanding of the risks involved. Through a meticulous analysis of case studies and statistical data, we seek to uncover patterns and identify preventive measures that can enhance the safety of trekkers.

As we navigate through the monsoon mists and treacherous trails, it becomes imperative to balance the thrill of adventure with the utmost respect for nature's unpredictable temperament. This study serves as a crucial step towards fostering a safer trekking culture, ensuring that the spirit of exploration continues to thrive without compromising the well-being of those who seek it.

**2. STUDY AREA**

The Western Ghats (Case Study) The Sahyadri, a 1,600 km long mountain chain provides water, food and fodder for many millions of people livelihoods living along the west coast of India. It covers parts of the states Gujarat, Maharashtra, Goa Karnataka, Kerala and Tamil Nadu over a stretched area "160000 sqKM (3623940942) square miles. The range is not traditional Himalayan mountains, but hill glaciers and this makes it form almost a continuous chain of mountain barriers all along the western edge of Deccan Plateau right from Tapti River to the pannaikadu annaimalai river valley in kanyakumari district at southern tippeninsula Indian. The Western ghats converges with Eastern Ghats at Nilgiris before going a bit south.





### 3. RESEARCH METHODOLOGY

#### 3.1 Purpose of study

The study was intended to study the Tourist Fatalities During Western Ghats Monsoon Treks in Maharashtra

#### 3.2 Objectives of the study

- To study The specific challenges posed by monsoon trekking in Maharashtra.
- To perform analysis of past tourist fatalities including causes and contributing factors of monsoon trekking in Maharashtra.

#### 3.3 Method of data collection

The data was collected using secondary sources namely newspapers, journals, magazines, business articles, websites, government records, etc.

#### 3.4 Research Design

For the intention to complete the research study, the Research Design selected for the study was Exploratory.

#### 3.5 Scope of the study

The researcher limited the study to the Western Ghat area of Maharashtra State. Therefore, the scope of the study was predefined to these specific areas.

#### 3.6 Data Analysis

The data collected was analysed using content Analysis.

#### 3.7 Limitations of research

1. The research was based on secondary data which was assumed to be authentic
2. The information provided during the interview was assumed to be authentic
3. Time and cost were the major drawbacks of the study
4. The secondary information collected was restricted to the Western Ghat area of Maharashtra State.

### 4. ANALYSES OF FINDINGS

This chapter explores the link between challenges posed by monsoon trekking in Maharashtra and past tourist fatalities, including causes and contributing factors. It examines national statistics on tourism and economic development, as well as policies supporting tourism and sustainable practices in a tourism establishment in Maharashtra. Recommendations for existing tourism policies are made based on the findings, which are relevant to policymakers, tourism planners, and stakeholders in developing Treks in Sahyadri.

#### 4.1 specific challenges posed by monsoon trekking in Maharashtra:

Monsoon trekking in Maharashtra offers unique and exhilarating experiences but also comes with specific challenges that trekkers need to be aware of. Here are some detailed challenges posed by monsoon trekking in Maharashtra:

##### 4.1.1. Heavy Rainfall

- **Intensity and Frequency:** Monsoons in Maharashtra are characterized by heavy and continuous rainfall, which can make trekking routes slippery and muddy.



- 
- **Reduced Visibility:** Constant rain can reduce visibility, making navigation difficult and increasing the risk of getting lost.

#### 4.1.2. Slippery and Muddy Trails

- **Moss and Algae Growth:** Rocks and paths become covered with moss and algae, making them extremely slippery.
- **Mudslides and Landslides:** The soil can become waterlogged, leading to mudslides and landslides, which can be dangerous and block paths.

#### 4.1.3. Leeches and Insects

- **Leech Infestations:** The damp and humid environment is ideal for leeches, which can latch onto trekkers and cause discomfort.
- **Increased Insect Activity:** Mosquitoes and other insects are more active during the monsoon, posing risks of bites and diseases like dengue and malaria.

#### 4.1.4. Flash Floods

- **Sudden Water Surges:** Rivers and streams can swell rapidly, leading to flash floods that can sweep away paths and make river crossings dangerous.
- **Waterlogged Areas:** Low-lying areas can become waterlogged, creating challenges in traversing these sections.

#### 4.1.5. Strong Winds and Storms

- **Unpredictable Weather:** The weather can change suddenly, with strong winds and thunderstorms posing a risk to trekkers.
- **Falling Branches and Trees:** Strong winds can cause branches or entire trees to fall, creating hazards on the trails.

#### 4.1.6. Cold and Hypothermia

- **Temperature Drops:** The combination of rain and high altitudes can lead to significant drops in temperature, increasing the risk of hypothermia.
- **Wet Clothing:** Staying wet for prolonged periods can exacerbate cold conditions and discomfort.

#### 4.1.7. Navigational Challenges

- **Washed Away Markers:** Trail markers and signs can be washed away or obscured by the rain, making navigation difficult.
- **Fog and Mist:** Dense fog and mist can obscure the path and landmarks, making it easy to lose one's way.

#### 4.1.8. Health Risks

- **Waterborne Diseases:** Contaminated water sources due to runoff can lead to waterborne diseases.
- **Fatigue and Exhaustion:** The added physical effort required to trek through difficult conditions can lead to quicker fatigue and exhaustion.

#### 4.1.9. Limited Accessibility and Communication

- **Remote Locations:** Many trekking spots are in remote areas with limited access to medical facilities or help in case of emergencies.
- **Poor Network Connectivity:** Mobile network connectivity can be poor or non-existent, making it difficult to call for help if needed.

#### 4.1.10. Equipment and Gear

- **Waterproof Gear:** Ensuring that all gear is waterproof is crucial, but even the best gear can sometimes fail in prolonged wet conditions.
- **Footwear:** Choosing the right footwear that provides good grip and is waterproof is essential but can be challenging to find the perfect pair.



## 4.2 Contributing factors of tourist fatalities

### 4.2.1 Lack of Awareness:

- **Insufficient Knowledge of Risks:** Many trekkers are not fully aware of the risks associated with monsoon trekking.
- **Inadequate Safety Briefings:** Tour operators and guides may not provide comprehensive safety briefings.

### 4.2.2 Insufficient Infrastructure:

- **Lack of Safety Signage:** Inadequate warning signs and markers on trails.
- **Poor Trail Maintenance:** Trails may not be maintained regularly, leading to dangerous conditions.

### 4.2.3 Inadequate Training of Guides:

- **Untrained Guides:** Some guides may lack proper training in first aid, emergency response, and navigation.

### 4.2.3 Tourism Pressure:

- **Overcrowding:** Popular trekking spots may become overcrowded, leading to increased risk of accidents.
- **Environmental Degradation:** High foot traffic can degrade the environment, increasing the risk of landslides and other hazards.

## 5. CONCLUSION

In conclusion, this study has underscored the significant hazards faced by tourists during monsoon treks in the Western Ghats of Maharashtra. Through an analysis of reported fatalities, it became evident that factors such as weather unpredictability, inadequate preparation, and the challenging terrain contribute significantly to the risks encountered by trekkers. The findings emphasize the need for enhanced safety measures, including improved weather forecasting systems, better trekking regulations, and increased awareness among tourists and guides. By addressing these issues, stakeholders can mitigate the risks associated with monsoon trekking, thereby promoting safer and more enjoyable experiences for adventurers exploring this ecologically rich region.

## 6. RECOMMENDATIONS

To improve the safety of monsoon treks in Maharashtra, we need to focus on the following areas:

1. **Regular Trail Maintenance:** Ensure trails are regularly maintained and monitored.
2. **Enhanced Safety Briefings:** Provide comprehensive safety briefings to trekkers.
3. **Better Equipment and Preparation:** Encourage the use of proper gear and provide checklists for necessary supplies and equipment.
4. **Training and Certification:** Implement mandatory training and certification programs for guides, along with basic first aid training for guides and trekkers.
5. **Weather Monitoring and Communication:** Provide real-time weather updates and develop robust communication systems for remote areas.
6. **Regulating Tourism:** Implement permit systems to control the number of trekkers and conduct awareness campaigns about the risks of monsoon trekking.

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**COMPARATIVE ANALYSIS OF THE INDIAN PENAL CODE (IPC) 1860 AND THE BHARTIYA NYAYA SANHITA (BNS) 2023**

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**Neeta Rajani**

**ABSTRACT**

*The Indian Penal Code (IPC) of 1860, a colonial-era legal framework, has served as the cornerstone of India's criminal justice system for over 160 years. However, with the rapid evolution of Indian society and the emergence of new forms of crime, the necessity for an updated legal code became evident. The Bhartiya Nyaya Sanhita (BNS) was introduced in 2023 to address these demands, marking a significant shift in India's approach to criminal justice. This research paper delves into a detailed comparison of the IPC and BNS, focusing on key aspects such as structural changes, advancements in gender-specific provisions, incorporation of cyber and economic offenses, emphasis on environmental justice, and the shift towards restorative justice. By exploring these areas, this study underscores the transition from a punitive colonial-era framework to a modern, inclusive, and culturally relevant system.*

**Keywords:** *IPC, BNS, Critical Analysis*

**INTRODUCTION**

The Indian Penal Code (IPC), conceived and drafted by Lord Thomas Babington Macaulay in 1834 and implemented in 1860, was a milestone in the establishment of a unified criminal law framework for British India. Its primary objective was to impose a standardized set of laws across a diverse and fragmented colonial territory. While it succeeded in creating uniformity, the IPC was fundamentally designed to serve British administrative interests and did not adequately reflect India's indigenous cultural and social fabric. Despite its colonial origins, the IPC continued to operate post-independence, serving as the backbone of India's criminal justice system for over a century.

Over time, the IPC's limitations became apparent. It failed to address the evolving societal values, technological advancements, and complexities of modern crimes such as cybercrimes and financial fraud. Recognizing these deficiencies, the Government of India introduced the Bhartiya Nyaya Sanhita (BNS) in 2023. The BNS is a reimagined legal framework tailored to address contemporary challenges and to embody the principles of justice, fairness, and inclusivity. By integrating provisions for emerging offenses and adopting a progressive approach to justice, the BNS represents a transformative step in Indian criminal law. This paper provides a comprehensive analysis of the IPC and BNS, focusing on their historical context, structural and substantive differences, and implications for India's legal landscape.

The IPC was a product of its time, crafted to maintain order and support colonial governance. Its structure was well-organized for addressing the prevalent crimes of the 19th century, such as theft, murder, and public disorder. However, its rigid framework and lack of adaptability became apparent as Indian society evolved. The IPC's focus on punishment rather than rehabilitation and its neglect of cultural and societal diversity limited its effectiveness in an independent and progressive India.

The introduction of the BNS was driven by the need to modernize India's criminal law framework. The BNS not only updates archaic provisions but also introduces measures to address contemporary challenges, such as cybercrime, gender-based violence, environmental harm, and economic offenses. Its overarching goal is to create a legal system that is inclusive, fair, and reflective of India's socio-cultural realities, while aligning with global standards of justice.

The IPC comprises 23 chapters and 511 sections, categorizing crimes based on their nature and severity. While this structure was comprehensive for its time, it lacked the flexibility to incorporate new types of crimes that emerged in the 20th and 21st centuries. The BNS addresses these limitations by reorganizing its provisions to ensure clarity and efficiency. For instance, redundant sections are merged, and new categories are introduced to encompass modern offenses like digital fraud, environmental crimes, and financial misconduct. This restructured framework not only simplifies the legal process but also empowers law enforcement agencies to handle cases more effectively.

**METHODOLOGY**

The research methodology employed in this paper is rooted in a qualitative, comparative legal analysis approach. This multifaceted methodology ensures a comprehensive and nuanced understanding of the Indian Penal Code (IPC) and the Bhartiya Nyaya Sanhita (BNS). It begins with an in-depth examination of primary legislative documents, focusing on the text of the IPC and the BNS to identify structural, procedural, and



substantive differences. Official legislative documents, amendments, and explanatory notes are scrutinized to guarantee accuracy and thorough analysis.

Complementing this is an extensive review of secondary literature, including scholarly articles, expert commentaries, and judicial interpretations, which provide broader insights into how these legal frameworks are applied and perceived in practice.

To facilitate a structured comparison, the analysis is organized around thematic categories such as gender justice, digital crimes, economic offenses, environmental protection, restorative justice, and national security. These categories allow for a detailed exploration of advancements introduced by the BNS, highlighting areas of significant reform. Real-world case studies are incorporated to illustrate the practical application of both the IPC and BNS, offering tangible evidence of their respective strengths and limitations.

Stakeholder perspectives are also integral to this methodology, with insights drawn from legal practitioners, law enforcement officials, and social activists. These perspectives shed light on the practical implications of transitioning from the IPC to the BNS, particularly in terms of enforcement and societal impact. A comparative framework is developed to systematically evaluate the accessibility, clarity, adaptability, and alignment of the IPC and BNS with contemporary societal values.

Finally, the research contextualizes the reforms introduced by the BNS within global trends in criminal law. Comparative insights from other legal systems are utilized to assess the BNS's alignment with international best practices and its potential as a model for progressive legal reform. By synthesizing primary and secondary data, case studies, and stakeholder insights, this comprehensive methodology ensures a holistic analysis of the IPC and BNS, underscoring their implications for India's evolving justice system.

## **COMPARATIVE ANALYSIS**

### **Terminology and Structural Changes**

The transition from the IPC to the BNS is characterized by significant terminological and structural revisions aimed at modernizing the legal framework. One of the key changes involves the consolidation of redundant sections, such as Sections 68 and 69 of the IPC, into a streamlined format within the BNS. This consolidation not only reduces complexity but also enhances the accessibility of legal provisions for practitioners and the general public. The BNS adopts a simplified and precise language that prioritizes clarity and reduces ambiguities, reflecting a deliberate shift toward a user-friendly legal system.

In addition to merging overlapping provisions, the BNS introduces a restructured organization of offenses. This approach allows for a logical grouping of related crimes, making it easier to navigate the code. The reclassification also accommodates new categories of offenses that reflect contemporary societal challenges, such as cybercrimes, financial misconduct, and environmental violations. The shift from colonial-era terminology to modern legal language underscores the BNS's focus on creating an inclusive and culturally relevant framework. This deliberate effort to modernize terminology and structure aligns with the overarching goal of making the legal system more coherent, accessible, and adaptable to current and future challenges.

### **Gender-Specific Crimes**

The BNS marks a transformative step in addressing gender-specific crimes, introducing a progressive framework that emphasizes gender equality and inclusivity. Under the IPC, several provisions were criticized for perpetuating patriarchal norms and failing to adequately protect women and marginalized genders. For instance, the IPC's lack of recognition for marital rape left married women without legal recourse in cases of non-consensual sexual violence within marriage. The BNS addresses this critical gap by explicitly criminalizing marital rape, sending a strong message about the sanctity of consent and the inviolability of personal autonomy within marital relationships.

Beyond marital rape, the BNS strengthens penalties for crimes such as acid attacks, stalking, and domestic violence, reflecting a commitment to safeguarding individuals from targeted harm. The inclusion of gender-neutral language ensures that protections extend beyond binary gender constructs, fostering a more inclusive justice system. This shift not only aligns with global human rights standards but also challenges entrenched societal norms that trivialize gender-based violence. The BNS's approach to gender-specific crimes underscores a broader cultural shift toward recognizing and upholding the rights of all individuals, irrespective of their gender.

### **Cybercrimes**

In an era defined by digital transformation, the inclusion of comprehensive cybercrime provisions in the BNS represents a significant advancement over the IPC. The IPC, drafted in the 19th century, lacked the foresight to



address the complexities of modern digital offenses, necessitating reliance on supplementary legislation like the Information Technology Act. The BNS integrates cybercrime laws directly into the main criminal code, creating a unified framework to tackle offenses such as hacking, identity theft, cyberbullying, and online fraud.

This integration simplifies the prosecution of cybercrimes by providing clear definitions and streamlined procedures. For example, offenses related to phishing, ransomware attacks, and unauthorized data access are explicitly addressed, ensuring that the legal system is equipped to handle the rapidly evolving landscape of digital threats. By criminalizing activities like cyberstalking and online harassment, the BNS also addresses the psychological and emotional harm inflicted on victims in virtual spaces. The comprehensive nature of these provisions reflects a proactive approach to safeguarding individuals and institutions in the digital age. Moreover, the emphasis on adaptability ensures that the BNS remains relevant as technology continues to advance.

### **Economic Offenses**

The globalization of commerce and the rise of complex financial systems have given rise to sophisticated economic crimes that challenge traditional legal frameworks. The IPC's provisions for economic offenses, while foundational, were insufficient to address the intricacies of modern white-collar crimes such as corporate fraud, insider trading, and tax evasion. The BNS expands the scope of economic offenses, introducing detailed provisions to combat financial misconduct and promote accountability.

By emphasizing asset recovery and imposing stringent penalties, the BNS deters economic crimes that undermine public trust in financial systems. The inclusion of provisions targeting fraudulent corporate practices and embezzlement ensures that businesses operate with greater transparency and ethical responsibility. Additionally, the BNS equips law enforcement agencies with the tools necessary to trace and recover assets, providing restitution to victims and reinforcing the principles of justice. These reforms highlight the BNS's commitment to fostering a fair and transparent economic environment while addressing the evolving challenges of a globalized world.

### **Environmental Protection**

The environmental crisis of the 21st century has underscored the need for robust legal protections to preserve natural resources and combat ecological degradation. The IPC's limited provisions for environmental offenses failed to address the scope and severity of contemporary environmental challenges. The BNS fills this gap by introducing comprehensive laws that criminalize activities such as illegal mining, deforestation, industrial pollution, and wildlife trafficking.

These provisions align with global movements advocating for environmental sustainability and climate justice. For instance, penalties for deforestation under the BNS include mandatory reforestation efforts and financial restitution, ensuring accountability for ecological harm. The emphasis on corporate responsibility holds industries accountable for their environmental impact, fostering a culture of sustainability. By treating environmental offenses as standalone crimes, the BNS elevates the importance of ecological preservation within the legal framework. These reforms reflect India's commitment to addressing climate change and protecting its natural heritage for future generations.

### **Restorative Justice**

The BNS represents a paradigm shift from the retributive justice model of the IPC to a restorative approach that emphasizes rehabilitation and community reintegration. Under the IPC, the primary focus was on punitive measures, often leading to high recidivism rates and limited opportunities for offender reform. The BNS adopts restorative justice principles, prioritizing the repair of harm and the reintegration of offenders into society.

Provisions for community service, probation, and victim compensation highlight the BNS's holistic approach to justice. These measures acknowledge the needs of victims while providing offenders with opportunities for rehabilitation and accountability. For instance, offenders may be required to participate in community-based programs that promote reconciliation and social harmony. By fostering understanding and addressing the root causes of criminal behavior, the BNS aims to reduce repeat offenses and create a more inclusive and compassionate justice system.

### **National Security and Terrorism**

The threat of terrorism poses significant challenges to national security, necessitating clear and effective legal measures. While the IPC relied on supplementary acts such as the Unlawful Activities (Prevention) Act (UAPA) to address terrorism, the BNS integrates comprehensive provisions directly into its framework. This



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integration ensures a more cohesive approach to combating terrorism while maintaining procedural fairness and safeguarding individual rights.

The BNS defines terrorism in precise terms, encompassing activities that threaten national security, disrupt public order, or incite violence. Procedural safeguards, such as judicial oversight and adherence to due process, prevent the misuse of anti-terrorism laws and protect against wrongful accusations. By balancing the imperative of national security with the principles of justice and civil liberties, the BNS strengthens India's ability to respond to terrorism while upholding democratic values. This balanced approach reflects a commitment to both security and human rights, ensuring that anti-terrorism measures are effective and equitable.

### **Case Studies and Examples**

The criminalization of marital rape under the Bhartiya Nyaya Sanhita (BNS) represents a landmark advancement in the protection of women's rights and the recognition of individual autonomy within marital relationships. Under the IPC, marital rape was not acknowledged as an offense, perpetuating a regressive outlook on consent within marriage. This absence of legal protection left many victims of domestic violence without recourse to justice. By criminalizing marital rape, the BNS not only empowers victims but also establishes a legal precedent that underscores the importance of consent in all forms of relationships.

This development aligns India's criminal justice system with global standards, where many nations have already criminalized marital rape as a violation of fundamental human rights. By doing so, the BNS sends a powerful message about the inviolability of personal dignity and bodily autonomy. Beyond legal empowerment, this provision is expected to catalyze societal change by challenging entrenched patriarchal norms that trivialize or justify violence within marriage. However, its implementation demands robust awareness campaigns and sensitization of law enforcement officials to ensure effective enforcement and justice for victims.

### **Cybercrime Enforcement**

With the exponential rise of digital technology, cybercrime has emerged as a formidable challenge to legal systems worldwide. The Indian Penal Code (IPC), conceived in a pre-digital era, lacked provisions to effectively address crimes such as hacking, identity theft, online fraud, and cyberbullying. This legal vacuum often resulted in fragmented enforcement, relying heavily on supplementary legislation like the Information Technology Act. The Bhartiya Nyaya Sanhita (BNS) addresses this critical gap by integrating comprehensive cybercrime laws within its framework.

The inclusion of digital offenses such as cyber fraud, identity theft, and unauthorized access (hacking) ensures that the BNS is equipped to tackle contemporary challenges. For instance, cases of financial scams conducted through phishing and online fraud, which have caused significant losses to individuals and institutions, can now be prosecuted with greater clarity and efficiency. Similarly, the criminalization of cyberbullying and online harassment under the BNS provides much-needed legal protection to victims who face emotional and psychological harm in the virtual space.

Moreover, the codification of cyber laws within the BNS simplifies the legal process for law enforcement agencies, enabling them to investigate and prosecute offenses without ambiguity. This integrated approach not only enhances the efficiency of legal proceedings but also underscores the BNS's adaptability to technological advancements. By addressing cybercrimes comprehensively, the BNS ensures a safer digital environment and reinforces public trust in the justice system.

### **Environmental Prosecutions**

Environmental protection has become an imperative in the face of escalating ecological degradation and climate crises. The Indian Penal Code (IPC), designed in the 19th century, offered minimal provisions to address offenses against the environment, leaving critical gaps in legal enforcement. The Bhartiya Nyaya Sanhita (BNS) recognizes the urgency of these issues by introducing stringent penalties for environmental offenses as standalone crimes.

Deforestation, illegal mining, industrial pollution, and other environmentally destructive activities are explicitly criminalized under the BNS. For instance, the penalization of deforestation includes not only financial penalties but also the imposition of mandatory restoration efforts, such as reforestation and rehabilitation of affected areas. These provisions ensure accountability for corporations and individuals engaged in harmful practices.

The BNS's emphasis on environmental justice aligns with global movements advocating for sustainable development and climate action. By treating environmental crimes with the seriousness they warrant, the BNS reinforces India's commitment to safeguarding natural resources for future generations. Furthermore, these legal



provisions empower local communities by offering mechanisms to report and address ecological violations, fostering greater public participation in environmental governance.

The inclusion of environmental offenses in the main criminal code represents a progressive shift towards a more holistic and forward-looking justice system.

## **CONCLUSION**

The comparative analysis of the Indian Penal Code (IPC) 1860 and the Bhartiya Nyaya Sanhita (BNS) 2023 highlights a pivotal transition in India's legal history, signifying a departure from colonial-era penal traditions toward a more progressive and inclusive framework. The IPC, drafted to cater to the administrative needs of British India, served as the backbone of India's criminal justice system for over 160 years. However, it faced increasing criticism for its inability to address modern societal changes, technological advancements, and the diverse cultural fabric of contemporary India. The BNS, introduced in 2023, embodies a forward-looking legal framework designed to address these gaps and align with India's evolving societal and global commitments.

The BNS modernizes and simplifies the legal code by merging redundant sections, introducing clearer terminology, and reorganizing offenses into a more logical structure. This reform enhances accessibility for legal practitioners and citizens alike, ensuring that justice delivery is both efficient and transparent. Its integrated approach accommodates newly emerging crimes, such as cyber fraud and environmental violations, which were inadequately addressed or absent in the IPC.

The BNS demonstrates a progressive stance on gender-specific issues by criminalizing marital rape and adopting gender-neutral language to extend protections across diverse identities. This marks a significant step toward addressing systemic gender inequalities entrenched in the IPC, which often perpetuated patriarchal norms. Strengthened penalties for crimes such as domestic violence, stalking, and acid attacks reflect an enhanced commitment to protecting vulnerable individuals.

With the rise of cyber threats in the digital age, the BNS integrates comprehensive provisions for cybercrimes, including hacking, online harassment, identity theft, and phishing. These additions fill critical gaps in the IPC and provide law enforcement agencies with clearer guidelines for combating digital offenses. The emphasis on adaptability ensures the relevance of the BNS amidst rapid technological advancements.

Economic offenses under the BNS receive expanded attention, addressing corporate fraud, insider trading, and financial misconduct with stringent penalties. These reforms promote transparency and accountability in economic systems. Similarly, the BNS pioneers environmental justice by criminalizing activities such as deforestation, illegal mining, and industrial pollution. By mandating restoration efforts and imposing severe penalties, it demonstrates India's commitment to sustainable development and climate action.

One of the most transformative elements of the BNS is its adoption of restorative justice principles. Moving beyond punitive measures, it focuses on rehabilitation, community reintegration, and victim compensation. Provisions for community service and reconciliation programs underscore the BNS's holistic approach to addressing crime and its root causes, fostering social harmony.

Incorporating anti-terrorism provisions directly into its framework, the BNS balances national security concerns with procedural safeguards to protect civil liberties. By streamlining the legal processes for addressing terrorism, it ensures effective enforcement while adhering to democratic values and human rights principles.

Despite its forward-thinking provisions, the BNS's success hinges on effective implementation. Training for law enforcement and judiciary members, public awareness campaigns, and widespread dissemination of the code are crucial for its efficacy. Additionally, balancing societal acceptance with progressive reforms, particularly in addressing entrenched patriarchal norms, will require sustained efforts from both the government and civil society.

The Bhartiya Nyaya Sanhita marks a watershed moment in India's legal journey, replacing the colonial-era IPC with a framework tailored to the needs of a modern and diverse nation. By addressing contemporary challenges and integrating principles of justice, fairness, and inclusivity, the BNS positions itself as a transformative legal code. It not only reflects India's commitment to upholding the rule of law but also aligns with global standards, ensuring a more equitable and sustainable future for its citizens. This comparative analysis underscores that the BNS is not merely a legislative update but a bold reimagining of India's criminal justice system, paving the way for a more just society.

*Neeta Rajani*



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**A STUDY ON CYBER LAW LITERACY AND DATA PROTECTION PRACTICES AMONG STUDENTS IN INDIA**

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**ABSTRACT**

*The rapid digitalization of India has transformed how individuals interact, communicate and access information, making cyber law literacy and data protection increasingly critical. With one of the world's largest populations of internet users, India faces unique challenges in ensuring digital safety and legal awareness. Students, as frequent users of online platforms, are particularly vulnerable to cybercrimes such as identity theft, phishing and unauthorized data breaches. Despite advancements in cyber legislation, including the Information Technology Act of 2000 and the Digital Personal Data Protection Act of 2023, awareness and implementation of these regulations remain inconsistent, particularly among youth.*

*This research examines the current state of cyber law literacy and data protection practices among Indian students, analysing their knowledge of legal rights and personal data safeguards. Additionally, the research explores the sociocultural and technological factors influencing students' engagement with cyber laws and data protection, offering insights into the systemic barriers hindering progress.*

**Key words - Cyber law, cyber crime, awareness, data privacy.**

**INTRODUCTION**

The increasing dependence on technology in the digital era has made it more important than ever to secure personal information and be aware of cyber regulations. Strong cyber law literacy and efficient data protection procedures are vital in India, where internet usage has surged in recent years. As one of the largest populations of internet users globally, students' knowledge of cyber laws and their ability to safeguard personal information are crucial to mitigating risks associated with online interactions.

India's digital transformation has introduced both opportunities and challenges. While students benefit from enhanced access to knowledge, communication and innovation, they are also more vulnerable to cybercrimes such as identity theft, phishing attacks and data breaches. The importance of cyber law literacy cannot be overstated, as it serves as the foundation for understanding legal rights, responsibilities and protective mechanisms in cyberspace. This issue is particularly pronounced among students, who, despite being frequent users of digital platforms, often lack a comprehensive understanding of their rights and responsibilities in the virtual world. Such gaps in knowledge and practice leave them vulnerable to exploitation and legal challenges.

Existing studies highlight a disconnect between the rapid adoption of technology and the corresponding growth in cyber law awareness. While educational institutions have integrated technology into their curricula, the inclusion of digital safety and legal literacy remains inadequate. Students, therefore, rely heavily on informal sources of information, which may not always provide accurate or complete guidance on navigating digital spaces responsibly.

This research seeks to evaluate the degree of cyber law literacy and data protection practices among Indian students. By assessing their understanding of cyber laws and their ability to implement effective data protection measures, the study aims to identify critical gaps and propose strategies to bridge them. The findings will provide insights into the current state of awareness and the effectiveness of existing educational efforts, while also highlighting areas for improvement.

**OBJECTIVES OF THE STUDY**

1. To assess the level of awareness among Indian students regarding cyber laws
2. To examine students' data protection practices
3. To identify the factors contributing to low levels of cyber law literacy and data protection adherence among students.

**METHODOLOGY**

This study utilized a quantitative survey-based approach to assess the cyber law literacy and data protection practices among students in India. The methodology was designed to collect large-scale data systematically and efficiently, allowing for the identification of patterns, trends and gaps in students' knowledge and practices. By focusing exclusively on quantitative data, the research ensured statistical reliability and objectivity in analyzing the level of awareness and practices related to cyber laws and data protection.



A descriptive survey design was adopted to facilitate a structured exploration of the topic. The target population consisted of undergraduate and postgraduate students across various disciplines in India. To ensure a representative sample, a stratified random sampling technique was employed, stratifying participants based on factors such as geographical location, academic discipline (e.g., humanities, sciences, engineering and law) and educational level.

The primary data collection instrument was a structured questionnaire, designed to capture detailed information on students' demographic profiles, knowledge of cyber laws and data protection practices. The collected data were analyzed using statistical software. Descriptive statistics, including means, medians and standard deviations, were calculated to summarize the data and identify central tendencies.

In conclusion, the quantitative survey methodology provided a robust framework for assessing cyber law literacy and data protection practices among students in India. The structured approach ensured comprehensive data collection and analysis, offering valuable insights into students' knowledge and behaviors. The findings from this study are expected to inform the development of targeted educational programs and policy interventions to enhance digital safety and legal awareness among the youth.

## **LITERATURE REVIEW**

India's rapidly expanding digital landscape has necessitated a robust cyber law framework to address growing cybersecurity concerns. The Information Technology (IT) Act of 2000 remains the cornerstone of India's cyber legal system, addressing issues such as unauthorized access, cyberstalking and data breaches. Despite its relevance, the Act struggles to adapt to contemporary challenges posed by advanced cybercrimes like ransomware, online fraud and deepfake technology. Recent legislative initiatives, including the Personal Data Protection Bill, aim to establish a comprehensive framework for privacy and data security. However, enforcement inefficiencies due to limited technological capacity among law enforcement agencies hinder the full implementation of these laws, leaving students, a highly vulnerable demographic, exposed to cyber threats (Das & Mohan, 2019; Yadav & Sharma, 2022; Singh et al., 2021; Investigating Cyber Law and Cyber Ethics, n.d.).

Cybersecurity awareness among students in India remains inconsistent despite their extensive use of digital platforms. Studies conducted in India and abroad reveal that while students may have a general awareness of cybersecurity, this knowledge rarely translates into effective practices. A study on Nigerian universities found similar patterns where students understood basic cybersecurity principles but lacked the technical ability to apply them effectively. This trend underscores the global challenge of bridging the gap between theoretical knowledge and practical application. In the Indian context, this gap is exacerbated by the lack of structured cybersecurity training in educational institutions, particularly in rural areas where access to digital literacy resources is limited (Zwilling et al., 2021; Assessment of Cybersecurity Awareness among Students, 2021; Moallem, 2020).

The absence of a comprehensive legal framework for data protection further complicates cybersecurity literacy. Students often remain unaware of their digital rights and the avenues for legal recourse in the event of a breach. Moreover, the lack of awareness leads to underreporting of cybercrimes, which diminishes the overall effectiveness of cybersecurity initiatives. For example, cyber ethics, a critical aspect of responsible digital behavior, is often overlooked in discussions about cybersecurity, even though it plays a crucial role in preventing issues like online harassment and misinformation (Investigating Cyber Law and Cyber Ethics, n.d.; Aljeaid et al., 2021; Singh et al., 2021).

Educational initiatives can play a transformative role in addressing these challenges. Incorporating cybersecurity and data protection modules into academic curricula can significantly improve students' understanding of threats and their mitigation. Research highlights that hands-on workshops, simulated phishing exercises and real-time threat analysis can foster practical skills and awareness. Additionally, public-private partnerships can enhance access to cybersecurity resources for students in underserved areas, ensuring equitable digital education (Das & Mohan, 2019; Assessment of Cybersecurity Awareness among Students, 2021; Yadav & Sharma, 2022).

International comparisons provide valuable insights into enhancing cybersecurity literacy among students. For instance, programs in Turkey, Israel and Poland have demonstrated the efficacy of integrating cybersecurity awareness with behavioral training. Such models could inform similar initiatives in India, focusing on promoting ethical digital practices alongside technical skills. Furthermore, research suggests that peer-led cybersecurity awareness programs, where students are trained to educate their peers, can effectively disseminate knowledge in a relatable and impactful manner (Zwilling et al., 2021; Moallem, 2020; Singh et al., 2021).



In conclusion, addressing the gap in cyber law literacy and data protection practices among Indian students requires a multi-faceted approach. Strengthening legislative frameworks, enhancing enforcement capabilities and integrating cybersecurity education into academic curricula are critical steps forward. By drawing on international best practices and fostering collaboration among stakeholders, India can build a digitally secure environment for its student population, ensuring their active and informed participation in the digital economy (Das & Mohan, 2019; Singh et al., 2021; Investigating Cyber Law and Cyber Ethics, n.d.; Assessment of Cybersecurity Awareness among Students, 2021).

## HYPOTHESIS AND TESTING

**1.  $H_0$ :** There is no significant difference between level of awareness and experience of cyber crime

**$H_1$ :** There is a significant difference between level of awareness and experience of cyber crime

## CORRELATION ANALYSIS

	area of residence	Victim of cybercrime
area of residence	1	
awareness about cyber laws	-0.06828	1

### Interpretation:

According to the research, there is a weak negative correlation between the level of awareness about cyber laws and the experience of cyber crime.

## REGRESSION ANALYSIS

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.068281							
R Square	0.004662							
Adjusted R Square	-0.00539							
Standard Error	0.87799							
Observations	101							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	0.357478	0.357478	0.463735	0.497473			
Residual	99	76.31579	0.770867					
Total	100	76.67327						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	1.912281	0.305581	6.257849	1E-08	1.305941	2.51862	1.305941	2.51862
X Variable 1	-0.12281	0.180338	-0.68098	0.497473	-0.48064	0.235023	-0.48064	0.235023

**Decision criterion:** Reject  $H_0$  if and only if the p value is < the level of significance (0.05).

Here,  $0.497473 > 0.05$

Hence, we fail to reject  $H_0$

From the findings, while there is a slight negative relationship between awareness and experience of cybercrime, it is not statistically significant. Therefore, the conclusion is that awareness about cyber laws does not meaningfully impact the likelihood of being a victim of cybercrime. It implies that factors other than awareness, such as technological behaviors, privacy practices or systemic vulnerabilities, might play a larger role in determining cybercrime experiences.

**2.  $H_0$ :** There is no significant relationship between concern about data privacy and reading of privacy policies.

**$H_1$ :** There is a significant relationship between concern about data privacy and reading of privacy policies.



**CORRELATION ANALYSIS**

	area of residence	Concern about protecting data
area of residence	1	
Reading of the privacy policies of websites or apps	0.153085	1

**Interpretation**

According to the research, there is a strong positive correlation between reading of privacy policy and concern about data.

**REGRESSION ANALYSIS**

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.153085							
R Square	0.023435							
Adjusted R Square	0.013571							
Standard Error	0.849906							
Observations	101							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	1.716091	1.716091	2.37574	0.126424			
Residual	99	71.51163	0.72234					
Total	100	73.22772						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	2.246319	0.176525	12.72523	1.48E-22	1.896056	2.596583	1.896056	2.596583
X Variable 1	0.159747	0.103641	1.541344	0.126424	-0.0459	0.365393	-0.0459	0.365393

**Decision criterion: Reject H<sub>0</sub> if and only if the p value is < the level of significance (0.05).**

**Here, 0.126424 > 0.05**

**Hence, we fail to reject H<sub>0</sub>**

Although there is a weak positive relationship between concern about data privacy and the practice of reading privacy policies, it is not statistically significant. This suggests that concern for data privacy does not necessarily translate into behavioral practices such as thoroughly reading privacy policies. Other factors, such as the complexity and length of privacy policies, time constraints or trust in the service provider, could play a more significant role in influencing this behavior.

**RESULT**

The findings from the two hypotheses indicate weak correlations and nonsignificant regression results for both tested relationships. The weak negative relationship between awareness about cyber laws and the experience of cybercrime highlights a potential gap between knowledge and practical preventive measures. While awareness might provide individuals with the theoretical understanding of cyber laws and security practices, it does not necessarily equip them with the skills or tools to prevent cyberattacks. For example, individuals may know about the existence of anti-phishing measures but still fall victim due to sophisticated attacks. Additionally, systemic issues such as a lack of robust cybersecurity infrastructure or enforcement mechanisms could mitigate the impact of individual awareness.

The weak positive relationship between concern for data privacy and the practice of reading privacy policies may reflect behavioral and psychological barriers. Privacy policies are often lengthy, filled with legal jargon and perceived as tedious, which discourages individuals from engaging with them, even when they are concerned about their data. Moreover, individuals may rely on heuristics, such as trust in the reputation of a company, rather than closely scrutinizing privacy policies. This phenomenon, known as the "privacy paradox," highlights the disconnect between expressed privacy concerns and actual privacy-preserving behaviors.



Both findings suggest a need for more actionable interventions to address the gaps between awareness, concern and behavior. For instance, increasing awareness about cyber laws could be complemented by hands-on training on practical cybersecurity practices, such as recognizing phishing attempts, using strong passwords and avoiding insecure websites. Similarly, simplifying privacy policies and presenting them in user-friendly formats could encourage more individuals to engage with them. Policymakers and organizations could consider creating visual summaries or checklists that highlight the most critical aspects of privacy policies to bridge the gap between concern and behavior.

## **CONCLUSION**

The study on cyber law literacy and data protection practices among Indian students offers critical insights into the challenges and opportunities in fostering digital safety and legal awareness. The findings reveal a weak and nonsignificant relationship between students' awareness of cyber laws and their experiences with cybercrime, as well as between their concern for data privacy and the practice of reading privacy policies. This suggests that awareness and concern alone are insufficient to translate into preventive actions or secure behaviors.

Several factors may account for these findings. The weak negative correlation between awareness of cyber laws and cybercrime experiences highlights the gap between theoretical knowledge and practical application. While students may be aware of legal provisions, they often lack the technical expertise or resources to effectively implement cybersecurity measures. Similarly, the weak positive correlation between data privacy concerns and reading privacy policies underscores behavioral barriers, such as the complexity of privacy policies and reliance on heuristics like trust in service providers.

These results underscore the importance of targeted interventions to bridge the gap between awareness, concern and actionable behavior. Educational institutions must integrate comprehensive cybersecurity and digital literacy programs into their curricula, focusing on practical skills like recognizing phishing attempts, managing privacy settings and understanding legal rights. Simplifying privacy policies through concise summaries or visual aids could also encourage better engagement with data protection practices.

The findings further highlight systemic challenges, such as inadequate enforcement of cyber laws and limited access to digital literacy resources, particularly in rural areas. Addressing these gaps requires collaboration between policymakers, educators and technology providers to build a robust digital ecosystem that empowers students to navigate cyberspace safely and responsibly.

In conclusion, while the study identifies significant gaps in cyber law literacy and data protection practices among students, it also provides a roadmap for addressing these challenges through education, policy reform and technological innovation. By fostering a culture of proactive digital engagement, India can equip its youth with the tools to thrive in an increasingly interconnected world.

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**AN EXPLORATORY STUDY OF FACTORS AFFECTING THE CULTURE OF INNOVATION IN ENTREPRENEURSHIP IN THE CONTEXT OF SMALL AND MEDIUM ENTERPRISES**

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yogesh.kolhatkar@gnkhalsa.edu.in**ABSTRACT**

*This paper explores the entrepreneurial process as a dynamic and ongoing journey, beginning with opportunity discovery and evaluation, followed by planning, resource acquisition, and effective management. The entrepreneurial process involves critical stages such as assessing growth potential, making decisions on expansion or stabilization, and ensuring business sustainability. Innovation plays a pivotal role in helping small businesses adapt to rapidly changing markets, fostering customer engagement, problem-solving, operational efficiency, and teamwork. Disruptive innovation, in particular, reshapes industries by making previously exclusive products and services more affordable and accessible to a wider audience. Financing options, including public funding programs and venture capital, are crucial for entrepreneurs to secure the necessary capital to turn ideas into successful ventures. Entrepreneurial strategies like internal innovation, acquisitions, and market development enable businesses to build competitive advantages and navigate uncertainties. The integration of entrepreneurship and innovation is key to creating resilient businesses that not only survive but thrive. By aligning strategic, financial, and operational elements, entrepreneurs can achieve long-term success, driving meaningful change and growth within their industries while remaining adaptable to future challenges. This paper highlights the importance of innovation and strategic planning in ensuring long-term business success in a competitive and evolving marketplace.*

**Keywords:** Entrepreneurship, Innovation, Economic Growth, Market Trends, Product Development.

**1. INTRODUCTION**

Entrepreneurship plays a key role in driving economic growth by reallocating resources to more productive uses. Entrepreneurs innovate by creating new products, improving existing businesses, or developing new ventures, which fosters economic development and addresses market gaps. Innovation, essential for business survival, enables entrepreneurs to meet evolving demands, differentiate their brands, and stay competitive. By leveraging creative development, continuous improvement, and social media, innovation enhances productivity and helps businesses thrive, ensuring long-term growth and success.

**Entrepreneurship**

Entrepreneurs drive economic growth by reallocating resources from less productive to more productive uses [1]. They adopt functions such as "cost discovery," "gap filling," and "input-fulfilling," contributing to structural change. While entrepreneurial innovation is often overlooked in developing countries, entrepreneurs are crucial for introducing new products, technologies, and markets. Entrepreneurship involves identifying and capitalizing on opportunities, expanding wealth, and status, though not all opportunities benefit society. Entrepreneurs can innovate by improving existing businesses or creating new ventures, emphasizing dynamism and creativity. The lines between entrepreneurship and innovation are increasingly blurred.

**Innovation**

Innovation, particularly in technology, focuses on product, process, and organizational advancements. It involves creating new products, processes, supply sources, and markets. Innovation is not only about introducing new ideas but also spreading them among economic participants. It can be progressive or radical and is crucial for business survival and success. Companies innovate to solve problems or exploit new opportunities, adapting business models and practices. Innovation fosters competitiveness, and its successful implementation requires effective execution and a supportive culture. Commercializing innovations and testing their viability ensures long-term growth [2].

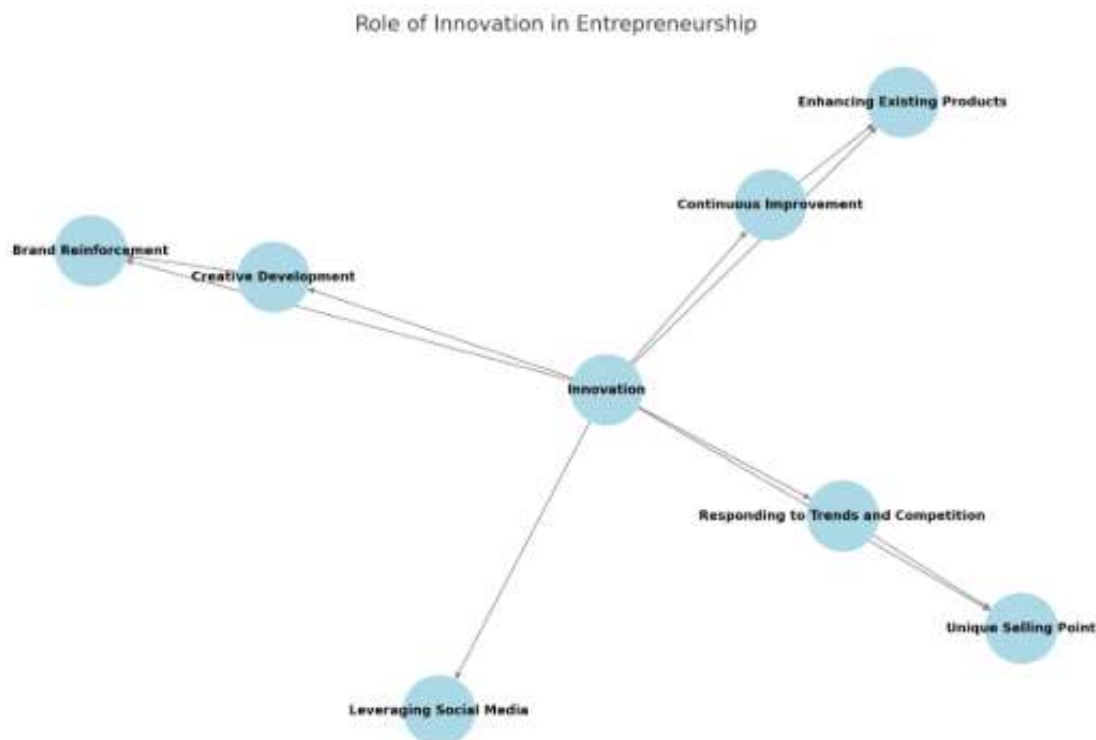
**ROLE OF INNOVATION IN ENTREPRENEURSHIP**

Innovation involves creating new products or services and allows businesses to capitalize on market changes. Entrepreneurs, by embracing innovation, can meet evolving market demands and trends. The role of innovation in entrepreneurship can be seen in several ways:

- **Creative Development:** Entrepreneurs can drive brand uniqueness and creativity through innovative ideas. By understanding the phases of creative thinking, new businesses can stay ahead of the competition.



- **Continuous Improvement:** Innovation fosters sustained business growth. Entrepreneurs who recognize the importance of continuous change can enhance business creativity and endurance.
- **Brand Reinforcement:** Entrepreneurs can strengthen their brand by innovating in ways that improve their market positioning, making creativity a key aspect of success.
- **Enhancing Existing Products:** A culture of innovation involves refining current products and introducing new ones. Enhancing existing offerings can increase productivity, profits, and overall business health [3].
- **Responding to Trends and Competition:** Innovation helps businesses stay responsive to market trends and anticipate future demands, fostering growth and adaptation.



**Fig. 1** Role of Innovation in Entrepreneurship

- **Unique Selling Point:** Entrepreneurial innovation helps differentiate a company's products from competitors, gaining attention and building a strong market presence.
- **Leveraging Social Media:** Social media offers a platform for generating ideas and connecting with customers, enabling businesses to meet their needs effectively. It also increases competition, making innovation essential for thriving in today's business environment. Without a novel concept or strong team, it can be challenging for entrepreneurs to succeed.

## 2. LITERATURE REVIEW

The relationship between entrepreneurship and innovation is pivotal in driving growth and competitiveness. Entrepreneurship involves identifying and capitalizing on opportunities, while innovation introduces novel solutions that enhance business models, processes, and products. In the context of commerce, entrepreneurship is not only about creating new ventures but also about innovating within existing markets to meet evolving consumer needs. This literature review explores the synergy between entrepreneurship and innovation, examining their roles in shaping business success, fostering economic development, and navigating the challenges of an ever-changing commercial landscape.



**SUMMARY OF LITERATURE REVIEW**

Author's	Work Done	Findings
Johnson, A. (2024)	Explores the impact of technology on entrepreneurship and innovation in the digital age.	Technology plays a key role in enhancing entrepreneurial innovation and reshaping commerce.
Chen, R. (2023)	Investigates the relationship between innovation and entrepreneurship in emerging markets.	Innovation in emerging markets leads to increased business growth and market adaptability.
Sharma, P. (2023)	Examines how innovation supports the growth of entrepreneurial ventures in India.	Innovation is crucial for scaling businesses, especially in the context of India's growing economy.
Brown, C. (2022)	Studies market disruption and the role of entrepreneurial innovation in e-commerce startups.	Disruptive innovation is vital for success in e-commerce, enabling businesses to stay competitive.
Verma, S. (2022)	Investigates the role of innovation in the commercialization of entrepreneurial ideas.	Successful commercialization of ideas depends heavily on continuous innovation and market research.
Kim, Y. (2021)	Analyzes how entrepreneurial innovation impacts market adaptability in a cross-cultural context.	Innovation helps businesses adapt quickly to changing markets and consumer preferences.
Joshi, M. (2021)	Explores the dynamics between innovation and entrepreneurship in the digital economy.	Digital transformation drives innovation, which in turn supports entrepreneurial growth and success.
Sengupta, N. (2020)	Investigates trends and implications at the intersection of innovation and entrepreneurship.	Innovation fosters business growth and strategic advantage, especially in fast-paced industries.
Reddy, S. (2020)	Analyzes the role of innovation in entrepreneurial success.	Continuous innovation leads to sustained growth and helps businesses overcome competitive barriers.
Sanchez, L. (2019)	Compares innovation strategies in small and medium enterprises (SMEs).	SMEs can thrive by adopting flexible and cost-effective innovation strategies to compete effectively.
Shah, V. (2018)	Investigates the role of technological innovation in entrepreneurial ventures.	Technological advancements are pivotal for entrepreneurial ventures to scale and maintain a competitive edge.
Liu, Q. (2018)	Provides a critical review of innovation and entrepreneurship in developing economies.	In developing economies, innovation is essential for overcoming resource limitations and fostering growth.
Torres, J. (2017)	Explores the relationship between innovation and entrepreneurship in small firms.	Small firms benefit greatly from innovation, which enables them to compete with larger enterprises.
Kumar, A. (2016)	Investigates the role of entrepreneurial innovation in business sustainability.	Innovation drives business sustainability by improving operational efficiency and adapting to market changes.

**RESEARCH GAP**

Despite the growing importance of entrepreneurship and innovation, several research gaps remain. First, while the role of innovation in driving business growth is well-documented, there is limited research on how developing countries can leverage entrepreneurial innovation to foster economic development. Second, the integration of continuous innovation and market adaptation in entrepreneurship, particularly in the context of small businesses, needs further exploration. Finally, the influence of social media on entrepreneurial innovation and its role in creating competitive advantages remains underexamined.

**3. METHODOLOGY**

Entrepreneurs embark on a continuous process to establish and grow businesses, starting with the discovery of opportunities through careful evaluation of potential demand, feasibility, and alignment with their own skills



[4]. Following opportunity identification, a detailed business plan is crafted, outlining key elements such as goals, mission, and capital requirements.

Securing necessary resources, including financing and human capital, is the next critical step, followed by effective management to meet operational goals and ensure the company's stability. Finally, the entrepreneur assesses the venture's growth potential, deciding whether to expand or stabilize. Innovation plays a pivotal role, particularly for small and medium enterprises, ensuring relevance and fostering long-term success. It enables businesses to adapt to changing markets, enhance customer relationships, and solve problems with fresh perspectives. Disruptive innovation further reshapes markets by offering more affordable alternatives to established products, relying on enabling technologies and innovative business models. For financing, entrepreneurs often seek external funds through options like public funding programs or venture capital, both of which provide necessary capital without requiring collateral but in exchange for a stake in the business [5]. Successful marketing strategies involve internal focus, acquisitions, and partnerships, emphasizing innovation, market development, and building a competitive edge in a rapidly changing environment.

#### 4. RESULT & DISCUSSION

##### Understanding the Entrepreneurial Processes

As an industrialist, the entrepreneur takes on the risk of starting a business with the aim of making a profit. Entrepreneurs possess a unique vision that enables them to recognize the potential demand for their products or services before others do. To successfully establish and grow new ventures, entrepreneurs must follow a continuous entrepreneurial process [6].



Fig. 2 Entrepreneurial Process

**Discovery:** The entrepreneurial process begins with identifying and evaluating business opportunities. Entrepreneurs gather information from a variety of sources such as employees, customers, partners, and experts to uncover the best potential opportunities. Once an opportunity is identified, the next step is evaluation. Entrepreneurs often assess the attractiveness, feasibility, competitive advantage, and risks of a potential business. A crucial factor to consider is whether the entrepreneur's skills and interests align with the opportunity.

**Developing a Business Plan:** Once an opportunity is discovered, the entrepreneur must create a detailed business plan [7]. This plan serves as a blueprint for the business, helping to track progress and measure success. Key elements of a business plan include a mission statement, vision statement, objectives, goals, capital requirements, and a description of the products or services offered.

**Resourcing:** Resourcing involves identifying the financial and human resources necessary for the venture. This stage includes securing investors and hiring employees who will contribute to the new business.

**Managing the Company:** Once the business is operational, the entrepreneur must focus on management to ensure the company meets its goals. This involves addressing operational challenges and establishing an effective organizational structure to support business activities.



**Harvesting:** The final stage of the entrepreneurial process is harvesting, where the entrepreneur evaluates the company's future growth potential [8]. This involves comparing actual growth with anticipated growth to determine whether to expand or stabilize the business. The entrepreneurial process is cyclical and must be repeated each time an entrepreneur embarks on a new venture.

**Importance of Innovation for Small and Medium Enterprises :** Innovation is a key factor in ensuring growth and long-term success. Without innovation, a business risks becoming irrelevant and may ultimately face greater challenges than if it had embraced change.

**Innovation Keeps Your Business Relevant:** In today's fast-paced technological environment, products and ideas can quickly become outdated. Staying aware of emerging trends and incorporating them into your business strategy helps you maintain relevance and profitability [9].

**Innovation Strengthens Customer Relationships:** Adapting and improving customer service through innovation can foster loyalty and generate word-of-mouth referrals. By better understanding your customers' needs, preferences, and communication habits, innovation can enhance your connection with them, benefiting both the business and the customers.

**Innovation Solves Problems:** Albert Einstein famously said that doing the same thing repeatedly and expecting different results is insanity. If you're facing challenges or declining revenues, innovation offers a fresh perspective to solve problems. By stepping back and reassessing, you can identify areas for change and anticipate future challenges.

**Innovation Increases Efficiency:** Inefficient processes and outdated rules can hinder productivity. Innovation allows businesses to streamline operations and find better, more effective ways to perform tasks. There is always a more efficient approach, and innovation helps uncover it [10].

**Innovation Strengthens Your Team:** When employees are involved in driving innovation, they feel valued and engaged. Encouraging team collaboration on new ideas fosters a sense of pride and ownership, which translates into stronger teamwork and better outcomes. Involving your team in the transformation process is often the most powerful form of innovation.

**Disruptive Innovation:** Disruptive innovation occurs when a high-end product or service, previously available only to a select group, is transformed into a more affordable alternative, shaking up the market and replacing established competitors [11].

## **KEY TAKEAWAYS**

- Disruptive innovations make expensive or complex services/products more accessible to a broader audience.
- It's not the technology itself being disrupted, but the way it's used.
- An example of disruptive innovation is Amazon, which started in the mid-1990s as an online bookstore and expanded into a global e-commerce leader.
- Disruptive innovation relies on innovative business models, disruptive technology, and a strong value network.
- "Sustained innovation" focuses on improving products and services for existing customers.

**Requirements for Disruptive Innovation:** To be successful, disruptive innovation requires access to untapped markets and advanced technologies. For it to truly disrupt, suppliers, contractors, and distributors must also benefit from the new business model. Key components include:

- **Enabling Technology:** This is technology that dramatically changes processes or how tasks are performed. In disruptive innovation, enabling technology makes a product affordable and widely accessible, driving market disruption. The pace of disruption depends on technological advancements and refinements [12].
- **Innovative Business Model:** This model targets lower-tier customers who cannot afford or use existing products. Though initially resisted by incumbents, it provides simpler, more affordable alternatives with low-profit margins, aiming to serve underserved markets.
- **Coherent Value Network:** A successful disruption involves a network of businesses—suppliers, distributors, and vendors—that must adapt to the new model. The value network is essential for the disruption's success; failure to align with the new approach can lead to inefficiencies and missed opportunities.



**Financing the Venture:** Most entrepreneurs do not have the necessary resources to provide initial capital on their own. If you are seeking outside funding, your business idea should capture the interest of potential investors and convince them of its long-term viability. Investors or lenders want to be assured that you have carefully thought through your business plan and are confident in your ability to repay their investment [13]. A well-prepared and feasible business strategy, along with accurate planning, can increase your chances of success. To succeed, you must have a clear and thoughtful financial plan.

**There are several financing options available beyond traditional bank loans:**

- Public Funding Programs
- Venture Capital (Private Equity) and Business Angels

**Public Funding Programs:** Public funding organizations offer a viable financing option for businesses in need of capital. When applying for these funds, your application is typically assessed from a banker's perspective. If you seek government financial support, you will need to apply through a bank of your choice, rather than directly through public funding organizations. It's important to submit your loan application before starting the financing project.

**Equity & Business Angels:** Venture capital is another option for financing small and medium-sized private businesses (private equity). Unlike debt financing, equity financing does not require collateral. However, private equity firms take a stake in the business's profits and gain influence over strategic and financial decisions in exchange for assuming the financial risk. The contribution of venture capitalists should not be underestimated, as their support can be pivotal to the success of your business.

## MARKETING ENTREPRENEURIAL STRATEGIES

- **Internally-Oriented Strategies:** Entrepreneurial and creative firms must adopt strategies that drive growth and foster innovation.
- **Acquisitions and Partnerships:** To achieve marketing and economic success, entrepreneurial firms need strategies focused on acquiring, merging, or partnering with other businesses.
- **Comprehensive Strategies:** These strategies must address a range of challenges—technical, financial, and human—and be aligned with the organization's long-term vision.
- **Linking Entrepreneurship and Innovation:** Given the close relationship between entrepreneurship and innovation, the strategy should include creative approaches for transforming existing services and products into something new that adds value.
- **Focus on Marketing and Market Development:** A successful business strategy must prioritize marketing and the exploration of new markets [14].
- **Building Competitive Advantage:** In a volatile marketing environment, developing organizational capacity to acquire, generate, and utilize information is key to establishing a competitive edge through innovation.
- **Execution and Training:** A well-executed strategy requires a well-trained workforce, diverse skills, a supportive management style, and a readiness to innovate and take risks.
- **Interdependence of Entrepreneurship and Innovation:** Entrepreneurship and innovation go hand in hand. A successful business requires a blend of both to ensure long-term success and adaptability in a constantly changing market.

## 5. CONCLUSION

In conclusion, the entrepreneurial process is a dynamic and continuous journey that begins with the discovery and evaluation of opportunities, followed by detailed planning and resource acquisition. The process involves critical steps such as managing the venture's operations, assessing growth potential, and making decisions on expansion or stabilization. Innovation plays a crucial role in ensuring that small businesses remain relevant and adaptable in the face of rapidly changing markets. It drives customer engagement, problem-solving, operational efficiency, and team collaboration, fostering long-term business success. Disruptive innovation, particularly, reshapes industries by offering affordable alternatives to existing products, making previously exclusive offerings accessible to a broader audience. Financing options, such as public funding programs and venture capital, are essential for entrepreneurs to secure the necessary capital to bring their ideas to life. Entrepreneurial strategies, including internal innovation, acquisitions, and market development, help businesses build competitive advantages and navigate market uncertainties.



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Ultimately, the fusion of entrepreneurship and innovation is vital for creating businesses that not only survive but thrive, ensuring sustainability, growth, and the ability to adapt to future challenges. By aligning strategic, financial, and operational elements, entrepreneurs can achieve long-term success and drive meaningful change in their industries.

**FUTURE SCOPE**

- Enhance education with emerging technologies to equip entrepreneurs for complex business environments.
- Explore how AI, blockchain, and IoT can drive entrepreneurial success in operations and market insights.
- Investigate how entrepreneurs can integrate eco-friendly practices for long-term growth.
- Study strategies for international market entry and overcoming cross-cultural challenges.

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**CULTURAL INFLUENCE ON SUSTAINABLE CONSUMERISM PRACTICES AMONGST TEACHERS: A CORRELATIONAL STUDY**

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**ABSTRACT**

*This study explores the cultural influences on sustainable consumerism practices among teachers, aiming to identify the correlations between cultural values, beliefs, and sustainable purchasing behaviours. As educators play a pivotal role in shaping the attitudes and behaviours of future generations, understanding their consumer practices is essential for promoting sustainability in educational settings. The researcher has used self-prepared tool to measure the cultural influence & sustainable consumerism practices amongst teachers. The total sample included 114 teachers pursuing in service and pre service teacher education programme. This study found no significant gender or marital differences in cultural influence or sustainable consumerism practices among teachers. Additionally, there were no significant differences based on the type of teacher training (pre-service vs. in-service) in both cultural influence and sustainable consumerism practices. The study revealed no significant relationship between cultural influence and sustainable consumerism practices among male, pre-service, in-service, married, and unmarried teachers. However, a significant relationship was found among female teachers and the total sample of teachers.*

**Key words:** Cultural Influence, Sustainable Consumerism Practices

**Aim:** To study the correlation between cultural influence on sustainable consumerism practices amongst teachers.

**OBJECTIVES****1. To ascertain the gender difference in the following variables**

- i) Cultural Influence
- ii) Sustainable consumerism practices

**2. To ascertain the difference in the following variables on the basis of type of teacher training programme (Pre-service & In-service)**

- i) Cultural Influence
- ii) Sustainable consumerism practices

**3. To ascertain the difference in the following variables on the basis of marital status (Married & Unmarried)**

- i) Cultural Influence
- ii) Sustainable consumerism Practices

**4) To ascertain the relationship of cultural influence & sustainable consumerism practices in case of**

- i) male teachers
- ii) female teachers
- iii) total sample of teachers

**5) To ascertain the relationship of cultural influence & sustainable consumerism practices in case of**

- i) Pre-service teachers
- ii) In-service teachers
- iii) total sample of teachers

**6) To ascertain the relationship of cultural influence & sustainable consumerism practices in case of**

- i) married teachers
- ii) unmarried teachers
- iii) total sample of teachers



**HYPOTHESIS****1) There is no significant gender difference in the following variables**

i) Cultural Influence

ii) Sustainable consumerism practices

**2) There is no significant difference in the following variables on the basis of type of teacher training programme (Pre-service & In-service)**

i) Cultural Influence

ii) Sustainable consumerism practices

**3) There is no significant difference in the following variables on the basis of type of marital status of teachers (Married teachers & Unmarried teachers)**

i) Cultural Influence

ii) Sustainable consumerism practices

**4) There is no significant relationship of cultural influence & sustainable consumerism practices in case of**

i) male teachers

ii) female teachers

iii) total sample of teachers

**5) There is no significant relationship of cultural influence & sustainable consumerism practices in case of**

i) Pre-service teachers

ii) In-service teachers

iii) total sample of teachers

**6) There is no significant relationship of cultural influence & sustainable consumerism practices in case of**

i) married teachers

ii) unmarried teachers

iii) total sample of teachers

**Scope and delimitations of the study:** This research investigates the relationship between cultural influences and sustainable consumerism practices. The study involves a total of 114 participants, comprising both male and female teachers, married and unmarried, who are undergoing in-service and pre-service teacher training in Mumbai and its suburban areas.

**Methodology of the Study:** This investigation aims to examine the relationship between cultural influences and sustainable consumerism practices among teachers. It employs a correlational study to explore how cultural factors relate to sustainable consumer practices in the teaching profession.

**Sample:** The study's sample consisted of 114 teachers participating in both pre-service and in-service teacher training programs from Mumbai and its suburbs, selected using random sampling techniques. This group included 63 female teachers and 51 male teachers, with 54 being married and 60 unmarried. Specifically, the sample comprised 68 pre-service teachers and 46 in-service teachers enrolled in teacher training courses.

**RELIABILITY OF THE TOOL USED BY THE RESEARCHER**

Name of the Tool	Cronbach alpha ( $\alpha$ )
Sustainable Consumerism Practices scale	0.72
Cultural Influence Scale	0.89

From the above table it is concluded that both the tool prepared by the researcher i.e. Sustainable Consumerism Practices scale & Cultural Influence Scale are reliable.

**TESTING HYPOTHESIS:-1**

There is no significant gender difference in the following variables



i) Cultural Influence

ii) Sustainable consumerism practices

The following table shows relevant statistics of cultural influence & sustainable consumerism practices scores on the basis of gender i.e. male, female sample of the study.

#### RELEVANT STATISTICS OF CULTURAL INFLUENCE & SUSTAINABLE CONSUMERISM PRACTICES BY GENDER

Variable	Group	N	Mean	t	l.o.s	100 $\omega^2$ estimate
<b>CI</b>	Male Teachers	51	38.96	1.48	N.S	--
	Female Teachers	63	40.47			
<b>SCP</b>	Male Teachers	51	37.68	1.47	N.S	--
	Female Teachers	63	39.07			

Tabulated 't' for df = 112

= 1.98 at 0.05 level of significance

= 2.61 at 0.01 level of significance

#### Interpretation of t:-

1. The obtained t- ratio for the difference on the basis of gender i.e. male & female in cultural influence is 1.48 which is not significant at 0.01 level of significance for 112 degree of freedom. Hence the null hypothesis is accepted for cultural influence.
2. The obtained t- ratio for the difference on the basis of gender i.e. male & female in sustainable consumerism practices is 1.47 which is not significant at 0.01 level of significance for 112 degree of freedom. Hence the null hypothesis is accepted for sustainable consumerism practices.

#### CONCLUSIONS

1. There is no significant gender difference in the cultural influence
2. There is no significant gender difference in the sustainable consumerism practices.

#### TESTING HYPOTHESIS:-2

There is no significant difference in the following variables on the basis of type of teacher training programme (Pre-service & In-service)

i) Cultural Influence

ii) Sustainable consumerism practices

The following table shows relevant statistics of cultural influence & sustainable consumerism practices scores on the basis of type of teacher training i.e. Pre-service & In-service training

#### RELEVANT STATISTICS OF CULTURAL INFLUENCE & SUSTAINABLE CONSUMERISM PRACTICES ON THE BASIS OF TYPE OF TEACHER TRAINING PROGRAMME

Variable	Group	N	Mean	t	l.o.s	100 $\omega^2$ estimate
<b>CI</b>	Pre-Service Teacher Training	68	36.04	1.82	N.S	--
	In-Service Teacher Training	46	40.91			
<b>SCP</b>	Pre-Service Teacher Training	68	38.05	1.02	N.S	--
	In-Service Teacher Training	46	39.03			

Tabulated 't' for df = 112

= 1.98 at 0.05 level of significance

= 2.61 at 0.01 level of significance

#### Interpretation of t:-



1. The obtained t- ratio for the difference on the basis type of teacher training i.e. pre-service teacher & in-service teacher training in cultural influence is 1.82 which is not significant at 0.01 level of significance for 112 degree of freedom. Hence the null hypothesis is accepted for cultural influence.
2. The obtained t- ratio for the difference on the basis type of teacher training i.e. pre-service teacher & in-service teacher training in sustainable consumerism practices is 1.02 which is not significant at 0.01 level of significance for 112 degree of freedom. Hence the null hypothesis is accepted for sustainable consumerism practices.

### CONCLUSIONS

1. There is no significant difference in the cultural influence on basis of type of type of teacher training i.e. pre service & in-service.
2. There is no significant difference in the sustainable consumerism practices on basis of type of type of teacher training i.e. pre service & in-service.

### TESTING HYPOTHESIS:-3

There is no significant marital difference in the following variables

i) Cultural Influence

ii) Sustainable consumerism practices

The following table shows relevant statistics of cultural influence & sustainable consumerism practices scores on the basis of marital status i.e. married and unmarried teachers.

### RELEVANT STATISTICS OF CULTURAL INFLUENCE & SUSTAINABLE CONSUMERISM PRACTICES BY MARITAL STATUS

Variable	Group	N	Mean	t	Lo.s	100 $\omega^2$ estimate
CI	Married Teachers	54	40.77	1.84	N.S	--
	Unmarried Teachers	60	38.91			
SCP	Married Teachers	54	38.62	0.34	N.S	--
	Unmarried Teachers	60	38.3			

Tabulated 't' for df = 112

= 1.98 at 0.05 level of significance

= 2.61 at 0.01 level of significance

### Interpretation of t:-

1. The obtained t- ratio for the difference on the basis of marital status i.e. married & unmarried in cultural influence is 1.84 which is not significant at 0.01 level of significance for 112 degree of freedom. Hence the null hypothesis is accepted for cultural influence.
2. The obtained t- ratio for the difference on the basis of marital status i.e. married & unmarried in sustainable consumerism practices is 0.34 which is not significant at 0.01 level of significance for 112 degree of freedom. Hence the null hypothesis is accepted for sustainable consumerism practices.

### CONCLUSIONS

1. There is no significant marital difference in the cultural influence
2. There is no significant marital difference in the sustainable consumerism practices.

### TESTING HYPOTHESIS: 4

There is no significant relationship of cultural influence & sustainable consumerism practices in case of

i) male teachers

ii) female teachers

iii) total sample of teachers

The following table shows the significance of 'r' between cultural influence & sustainable consumerism practices in case of male teachers, female teachers & total teacher sample under study.

Significance of 'r' between cultural influence & sustainable consumerism practices by gender



Group	N	df	r	L.O.S	100 r <sup>2</sup>
Male Teachers	51	49	0.01	N.S	--
Female Teachers	63	61	0.39	0.01	15.21 %
Total Sample of Teachers	114	112	0.16	0.01	2.56 %

Tabulated 'r' for df = 49

= 0.27 at 0.05 level of significance

= 0.23 at 0.01 level of significance

Tabulated 'r' for df = 61

= 0.23 at 0.05 level of significance

= 0.19 at 0.01 level of significance

Tabulated 'r' for df = 112

= 0.13 at 0.05 level of significance

= 0.11 at 0.01 level of significance

### Interpretation of "r"

1. The obtained value of 'r' = 0.01 for male teachers is less than the tabulated value of 'r' which is 0.23 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore not significant & hence the null hypothesis is accepted.
2. The obtained value of 'r' = 0.39 for female teachers is greater than the tabulated value of 'r' which is 0.19 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore significant, positive and low in magnitude & hence the null hypothesis is rejected.
3. The obtained value of 'r' = 0.16 for total sample of teachers is greater than the tabulated value of 'r' which is 0.11 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore significant, positive, and low in magnitude & hence the null hypothesis is rejected.

### CONCLUSIONS

1. There is no significant relationship of cultural influence & sustainable consumerism practices in case of male teachers of study.
2. There is significant relationship of cultural influence & sustainable consumerism practices in case of female teachers of study.
3. There is significant relationship of cultural influence & sustainable consumerism practices in case of total sample of teachers of study. 2.56 % of the variance in sustainable consumerism practices of total sample of teachers is due to cultural influence.

### TESTING HYPOTHESIS: 5

There is no significant relationship of cultural influence & sustainable consumerism practices in case of

i) Pre-service teachers

ii) In-service teachers

iii) total sample of teachers

The following table shows the significance of 'r' between cultural influence & sustainable consumerism practices on the basis of type of teacher training

**Significance of 'r' between cultural influence & sustainable consumerism practices on the basis of type of teacher training**

Group	N	df	r	L.O.S	100 r <sup>2</sup>
Pre-service	68	66	0.10	N.S.	--
In-Service	46	44	0.25	N.S.	--
Total sample of teachers	114	112	0.16	0.01	2.56%



Tabulated 'r' for df = 66

= 0.23 at 0.05 level of significance

= 0.19 at 0.01 level of significance

Tabulated 'r' for df = 44

= 0.31 at 0.05 level of significance

= 0.26 at 0.01 level of significance

Tabulated 'r' for df = 112

= 0.13 at 0.05 level of significance

= 0.11 at 0.01 level of significance

### Interpretation of "r"

1. The obtained value of 'r' = 0.10 for pre-service teachers is less than the tabulated value of 'r' which is 0.19 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore not significant & hence the null hypothesis is accepted.
2. The obtained value of 'r' = 0.25 for in-service teachers is less than the tabulated value of 'r' which is 0.26 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore not significant & hence the null hypothesis is accepted.
3. The obtained value of 'r' = 0.16 for total sample of teachers is greater than the tabulated value of 'r' which is 0.11 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore significant, positive and negligible in magnitude & hence the null hypothesis is rejected.

### CONCLUSIONS

1. There is no significant relationship of cultural influence & sustainable consumerism practices in case of Pre-service teachers.
2. There is no significant relationship of cultural influence & sustainable consumerism practices in case of In-service teachers.
3. There is significant positive relationship of cultural influence & sustainable consumerism practices in case total sample of teachers of study. 2.56 % of the variance in sustainable consumerism practices of total sample of teachers is due to cultural influence.

### TESTING HYPOTHESIS: 6

- 6) There is no significant relationship of cultural influence & sustainable consumerism practices in case of

i) married teachers

ii) unmarried teachers

iii) total sample of teachers

The following table shows the significance of 'r' between cultural influence & sustainable consumerism practices on the basis of marital status of teachers

**Significance of 'r' between cultural influence & sustainable consumerism practices on the basis of marital status of teachers**

Group	N	df	r	L.O.S	100 r <sup>2</sup>
Married Teachers	54	52	0.18	N.S.	--
Unmarried Teachers	60	58	0.15	N.S.	--
Total sample of teachers	114	112	0.16	0.01	2.56%

Tabulated 'r' for df = 52

= 0.25 at 0.05 level of significance

= 0.21 at 0.01 level of significance

Tabulated 'r' for df = 58

= 0.25 at 0.05 level of significance



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= 0.21 at 0.01 level of significance

Tabulated 'r' for df = 112

= 0.13 at 0.05 level of significance

= 0.11 at 0.01 level of significance

### **Interpretation of "r"**

1. The obtained value of 'r' = 0.18 for married teachers is less than the tabulated value of 'r' which is 0.21 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore not significant & hence the null hypothesis is accepted.
2. The obtained value of 'r' = 0.15 for unmarried teachers is less than the tabulated value of 'r' which is 0.21 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore not significant & hence the null hypothesis is accepted.
3. The obtained value of 'r' = 0.16 for total sample of teachers is greater than the tabulated value of 'r' which is 0.11 at 0.01 level of significance. The obtained value of 'r' at 0.01 level is therefore significant, positive and negligible in magnitude & hence the null hypothesis is rejected.

### **CONCLUSIONS**

1. There is no significant relationship of cultural influence & sustainable consumerism practices in case of married teachers
2. There is no significant relationship of cultural influence & sustainable consumerism practices in case of unmarried teachers.
3. There is significant positive relationship of cultural influence & sustainable consumerism practices in case total sample of teachers of study. 2.56 % of the variance in sustainable consumerism practices of total sample of teachers is due to cultural influence.

### **DISCUSSION**

The findings of this research reveal intriguing insights into the interplay between cultural influence and sustainable consumerism practices among teachers. The absence of significant gender differences suggests that both male and female teachers may share similar cultural values and consumer behaviours, potentially reflecting a broader societal shift towards sustainability that transcends gender norms. Additionally, the lack of variance based on marital status indicates that personal life circumstances may not significantly impact teachers' cultural perspectives or their commitment to sustainable practices.

The significant relationship observed among female teachers highlights the potential for gender-specific influences, where cultural factors may resonate more strongly with women, possibly due to socialization patterns that emphasize community and environmental stewardship. Conversely, the lack of significant relationships in male, pre-service, in-service, married, and unmarried groups suggests that these demographics may not be as influenced by cultural factors in their consumer behaviours, indicating a need for targeted interventions that address these specific groups.

The consistent finding that 2.56% of the variance in sustainable consumerism practices is attributed to cultural influence across various samples underscores the complexity of these relationships, suggesting that while cultural influence plays a role, other factors may also significantly contribute to sustainable behaviours. This calls for further exploration into the underlying motivations and barriers that shape teachers' engagement with sustainability, paving the way for more effective educational strategies and policies.

### **SUGGESTIONS**

On the basis of the above finding the researcher proposes the following suggestions for further study.

- 1) To conduct a study with a larger and more diverse sample of teachers from various regions and cultural backgrounds.
- 2) To carry out longitudinal research to monitor changes in cultural influences and sustainable consumerism practices over time.
- 3) To implement and evaluate educational interventions aimed at enhancing cultural awareness and sustainable consumerism among teachers.



- 4) To utilize qualitative methods to delve into the motivations and reasons behind teachers' sustainable consumerism practices.
- 5) To compare the sustainable practices of teachers with those of other professions to identify unique patterns and implications.

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**FACTORS INFLUENCING ACADEMIC PERFORMANCE: A MULTIDIMENSIONAL REVIEW**

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*Academic performance is a complex and multifaceted phenomenon influenced by various interrelated factors. This literature review synthesizes findings from twenty studies to examine determinants across social, emotional, cognitive, institutional, environmental, personal, and technological domains. The findings highlight that family support, socio-economic background, institutional resources like libraries and laboratories, emotional intelligence, and personal attributes like age and study habits all play significant roles in shaping academic success. Additionally, emerging trends such as blended learning and technological integration present new opportunities and challenges. This paper emphasizes the need for a comprehensive, multidimensional approach to understanding and enhancing academic performance.*

**Keywords:** *Academic Performance, Students' Performance, Factors of Academic performance*

**1. INTRODUCTION**

Academic performance is central to educational research as it serves as a key indicator of learning outcomes and overall student success. Broadly defined, it encompasses cognitive achievements, emotional engagement, and behavioral participation in educational activities. While several studies have explored the determinants of academic performance, the interplay between various influencing factors—social, emotional, cognitive, institutional, and environmental—remains insufficiently explored. Additionally, the increasing influence of technological advancements and personal attributes on academic success adds complexity to this topic. By reviewing recent studies, this paper seeks to identify and categorize key factors that influence academic performance, providing a comprehensive framework to support further research and interventions.

**2. OBJECTIVES**

- To outline various areas of students' activities assessed to gauge their academic performance
- To find out factors that influence students' academic performance.

**3. METHODOLOGY**

A thorough search of academic journals, conference proceedings, and educational repositories, through various electronic databases was done. The design ensured inclusivity while maintaining specificity to the targeted topic.

**3.1 Screening and Selection Process**

The full-length papers found through keyword search were subjected to a two-stage screening process comprising of title search followed by abstract reading. Of the 53 full-length papers screened, 20 have been included in the review.

**3.2 Inclusion & Exclusion Criteria****Inclusion Criteria**

For this review, peer-reviewed articles, conference proceedings, and relevant academic publications were selected regardless of publication date. Only publications in English were included, comprising primary studies, systematic reviews, and meta-analyses. No restrictions were imposed based on educational level, or geographical distribution of the population. *Exclusion Criteria*

The research, which did not explore factors influencing Academic Performance, or was reported in a language other than English, was rejected.

**3.3 Data Extraction and Synthesis**

Data extraction was conducted after thoroughly reading each paper, capturing key information from each selected study in an Excel sheet. This included details regarding study design, participant demographics, theoretical frameworks, and main findings related to Academic Performance.



3.4 Limitations and Considerations

Firstly, the inclusion criteria may have inadvertently excluded potentially relevant studies, particularly those published in languages other than English. Additionally, the dynamic nature of educational research means that some recent developments in the field may not be fully captured in this review.

Furthermore, the diverse methodologies employed in the selected studies, ranging from qualitative interviews to quantitative surveys, may introduce variability in the interpretation of results. Only papers with open access have been included in the review.

4. DISCUSSION

The concept of academic performance determinants is rooted in the understanding that student success is influenced by a multifaceted interplay of personal, social, emotional, cognitive, institutional, environmental, and technological factors. Social support from family, peers, and cooperative learning fosters engagement and smooths academic transitions (Yousuf Al Husaini et al., 2022; Lantajo and Tipolo, 2019), while socio-economic attributes like parental education, income, and occupation provide access to critical resources (Brew et al., 2021). Emotional well-being, including factors like performance anxiety, emotional intelligence, and self-esteem, significantly impacts motivation and engagement (Acosta-Gonzaga, 2023; Liem, 2019), complemented by cognitive attributes such as intellectual ability and problem-solving skills (Garzón-Agudelo et al., 2020). Institutional resources, such as libraries, laboratories, and teacher methodologies, alongside environmental conditions like health, housing, and nutritional habits, shape the framework for learning (Brew et al., 2021; Husaini & Shukor, 2022). Personal traits, including age, gender, prior performance, and study habits, further influence outcomes (Quílez-Robres et al., 2023; Jiang, 2021), while technology and social media play dual roles as tools for engagement and potential distractions (Hussain et al., 2024; Ngo et al., 2019). This holistic framework underscores that academic success emerges from the dynamic interaction of these diverse factors, highlighting the need for integrated support systems to address the varied challenges students face.

Table 1: Factors of Academic Performance

Author(s)	Year	Research Method	Factors
Brew et al.	2021	Qualitative, Narrative Review	Truancy, Parents' level of education, Parents' income, textbooks, libraries, laboratories, meals provision at school, teachers
Husaini & Shukor	2022	Qualitative, Systematic Review	Low entry grades, program type, family support, Accommodation, student gender, Students' internal assessment grades and GPA
Suleiman et al.	2024	Quantitative Research - survey	study hours, previous scores, past questions studies, and extracurricular activities stand
Gregory Arief D. Liem	2019	Qualitative, article	Cognitive, psychological attributes, socio-cultural context, academic resourcefulness, performance anxiety,
Á. Kocsis and G. Molnár	2024	Meta-analysis	Students' e-learning activity, students' environment (Class type, semester duration, type of program), Students' demographics (Age, Nationality, Gender, SES), Prior academic achievement, Psychological (Self-regulation, Stress/Anxiety, Motivation, Student interest)
Al-Tameemi et al.	2023	Systematic Literature Review	Academic (academic disengagement, caliber, attitude and perspective of instructors, classroom climate, classroom climate, lack of motivation, learning styles congruent to teaching methods and assessment, medium of instruction, study strategy, use of academic campus services, impact of interventions), Personal (Health issues Emotional/self-



			regulation, and help behavior, Adequate support system, including family support, personality attribute), social (cultural identification, linguistic isolation, Relations with faculty and peers, parental involvement), and demographic factors (Gender, race, ethnicity and SES)
Rincon et al	2020	Quantitative Methodology	Self-belief about performance
Elizabeth Acosta-Gonzaga	2023	Quantitative Methodology	Academic Engagement, self-esteem and motivation
Hussain et al.	2024	Review article	Inclusion of Technology in imparting instructions
Hipol et. al.	2020	Mixed Methodology	Blended learning
Bottomley et. al	2022	Quantitative Methodology	Sense of Belonging
Ngo et. al,	2019	Quantitative Methodology	Social Media usage
Igcasama et al	2019	Quantitative Methodology	Social Media usage
Garzón-Agudelo et al.	2020	Quantitative Methodology	Factors categorized as Individual, social, academic, and institutional environment viz., type of learning style, type of intelligence, repetition rate, thematic content, training content, teacher and teacher's methodology, personal, and social demographic aspects.
Hernández et al	2019	Quantitative Methodology	Multiple Intelligences, with almost non-existent association with academic performance. Males showed a greater development of the intelligences other than naturalistic intelligence
Beredo and Aubrey Acheron	2019	Mixed Methodology	Nutrition - weight, health condition, eating habits, parents' source of livelihood, educational attainments of parents
Peijie Jiang	2021	Quantitative Methodology	Role of Gender with better performance by female students
Lantajo and Tipolo	2019	Mixed Methodology	cooperative learning and inquiry-based approach as teaching-learning methodologies
Santiago-Carrillo et al.	2019	Quantitative Methodology	Mathematical Clinic as a pedagogical approach
Quílez-Robres et al.	2022	Systematic review and Meta-analysis	Emotional Intelligence

## 1. SOCIAL SUPPORT AND COOPERATIVE LEARNING

Social support forms the backbone of a student's academic journey. Yousuf Al Husaini et al. (2022) emphasize the critical role of family support in a student's academic transition, particularly attributes like parental education, occupation, and income. Family involvement not only facilitates access to resources but also ensures emotional stability, aiding students in their academic pursuits. Students living away from their families often face challenges due to a lack of immediate support, which can affect their performance.

Cooperative learning strategies also enhance academic outcomes. Justina T. Lantajo and Roderick L. Tipolo (2019) demonstrated through an experimental study that cooperative learning approaches such as the STAD method (Student Teams Achievement Divisions) positively impact comprehension, application, and analytical



skills. Such strategies encourage collaborative problem-solving and deeper understanding, resulting in improved academic performance.

## **2. SOCIO-ECONOMIC BACKGROUND**

Socio-economic factors exert a significant influence on academic outcomes. Parental education plays a dual role: enabling parents to provide academic assistance and fostering an environment conducive to learning (Brew et al., 2021). Higher-income families are better positioned to afford resources such as private tutors, technological tools, and study materials, all of which contribute to academic success.

However, financial instability can be detrimental. Beredo and Acheron (2019) highlighted a direct relationship between the source of livelihood and student performance. Students from families with precarious incomes often experience stress, affecting focus and productivity. Similarly, high rental expenses and unstable housing conditions negatively correlate with academic achievement (Husaini & Shukor, 2022).

## **3. EMOTIONAL FACTORS**

Emotional attributes significantly shape students' academic performance. Performance anxiety is one such factor, often arising from high academic expectations or fear of failure. Liem (2019) found that test anxiety adversely impacts performance, particularly in subjects like mathematics, where anxiety affects analytical reasoning. Moreover, students experiencing emotional disengagement, such as boredom and frustration, are less likely to succeed (Acosta-Gonzaga, 2023).

Emotional intelligence (EI) serves as a mitigating factor against emotional distress. Acosta-Gonzaga (2023) demonstrated that students with higher EI exhibit better emotional regulation and are more likely to engage actively in their studies. Furthermore, self-esteem—a critical component of emotional well-being—is positively associated with academic achievement. Students who perceive themselves as capable are more motivated and resilient, thereby achieving better outcomes (Quílez-Robres et al., 2023).

## **4. COGNITIVE FACTORS**

Cognitive abilities, including intellectual capacity and the type of intelligence, directly influence academic performance. Brew et al. (2021) and Garzón-Agudelo et al. (2020) highlight that students with higher cognitive abilities tend to grasp concepts more effectively and adapt to complex tasks. These cognitive skills interact with emotional and environmental factors, creating a nuanced framework for academic success.

## **5. INSTITUTIONAL RESOURCES**

Institutional factors play a critical role in shaping the academic environment. Libraries and laboratories are fundamental resources that facilitate effective learning. Brew et al. (2021) emphasized the importance of school libraries as significant teaching assets. Laboratories, on the other hand, provide hands-on learning experiences, enabling students to internalize theoretical knowledge through practical application.

Teacher quality and methodology also influence academic outcomes. A well-trained teacher using student-centered methodologies fosters active engagement and deeper understanding (Husaini & Shukor, 2022). Additionally, the student-teacher ratio impacts learning effectiveness. Overcrowded classrooms often lead to reduced individual attention, affecting academic performance (Evans et al., 2021).

## **6. ENVIRONMENTAL AND PERSONAL FACTORS**

Environmental conditions, including health and housing stability, are crucial determinants. Husaini & Shukor (2022) and Beredo and Acheron (2019) observed that poor health and inadequate housing negatively affect students' focus and productivity. Body weight, often linked to nutritional habits, further impacts cognitive abilities and energy levels.

Personal attributes like gender, age, and previous academic records also influence outcomes. Studies have shown that female students are generally more consistent in their academic performance, while males are more prone to drop out (Jiang, 2021). Additionally, age-related emotional and cognitive development plays a role in learning adaptability (Quílez-Robres et al., 2023).

## **7. INCLUSION OF TECHNOLOGY**

Technological advancements have transformed education, offering both opportunities and challenges. Blended learning models, which combine traditional teaching with digital tools, have been shown to enhance engagement and flexibility (Hussain et al., 2024; Hipol et al., 2020). Participation in online activities such as quizzes and assignments positively correlates with academic performance. However, excessive use of social media can be detrimental, often diverting students' attention from academic goals (Ngo et al., 2019; Igcasama et al., 2019).



## 8. CONTEXTUAL AND NUTRITIONAL FACTORS

Task difficulty and thematic content shape academic engagement. Liem (2019) observed that challenging yet achievable tasks motivate students, fostering cognitive growth. Nutrition, too, plays a vital role. Brew et al. (2021) highlighted that regular meals, particularly breakfast, significantly improve focus and analytical skills, especially in subjects like mathematics.

## 5. CONCLUSION

Academic performance emerges from the dynamic interplay of diverse factors across social, emotional, cognitive, institutional, environmental, and technological domains. Social support and cooperative learning strategies foster engagement and resilience, while socio-economic stability provides access to essential resources. Emotional well-being, particularly through emotional intelligence and self-esteem, enables students to navigate academic challenges effectively. Institutional resources like libraries and laboratories, coupled with skilled teaching methodologies, create conducive learning environments. Personal and environmental factors further shape individual outcomes, while technology serves as both a facilitator and a potential distraction.

This comprehensive understanding underscores the need for integrated strategies in educational policies and practices, ensuring that interventions address these multifaceted influences holistically.

## 6. FUTURE SCOPE

Future research should adopt longitudinal and cross-sectional studies to explore the evolving impact of these factors over time. The integration of advanced technologies such as artificial intelligence and adaptive learning platforms warrants investigation to optimize academic outcomes. Furthermore, there is a need to study the interplay between socio-economic and emotional variables, particularly in diverse cultural contexts. These insights can guide tailored interventions to support at-risk students and promote equitable academic success.

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**RETIREMENT PLANNING IN URBAN INDIA: EXPLORING FINANCIAL PREPAREDNESS, RISK TOLERANCE, AND BEHAVIOURAL FACTORS**

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*This paper examines the dynamics of retirement planning among urban Indian residents, focusing on financial preparedness, risk tolerance, and behavioural influences. With rising life expectancy, declining traditional pensions, and changing socioeconomic landscapes, urban dwellers face unique challenges, including high living costs and inadequate financial literacy. The research investigates the impact of demographic factors (age, marital status, and location) on retirement strategies, emphasising the importance of financial literacy and behavioural biases in investment decisions.*

*The results indicate major positive correlations between demographic factors and retirement planning, indicating health expenditure preparedness, inflationary concerns, and adequacy in the retirement corpus. Statistical findings point towards the fact that behavioural biases and financial acumen both have an effect on portfolio diversification and income stability. Some other crucial areas of concern are gender-related biases, a lack of financial resources among single retirees, and regional variations in accessing money.*

*Keywords: Retirement Planning, Financial Preparedness, Risk Tolerance, Behavioural Factors*

**INTRODUCTION**

Retirement planning has emerged as an important financial priority for India due to the ageing population and increased life expectancy. For the urban population, issues arise in terms of high costs of living, expectations of a modern lifestyle, and changing economic conditions. Factors determining retirement planning in urban India will be analysed based on preparedness in terms of finance, risk tolerance, and behaviour. While traditional pensions are on the decline and personal savings have become a necessity, though expectations are high, Indians in urban areas are not adequately prepared and are misinformed about creating an adequate retirement corpus. Challenges such as inflation, healthcare costs, and longevity further complicate planning. Behavioural factors such as financial literacy, biases, and decision-making patterns also play a vital role. The study addresses the research gaps in the understanding of such dynamics. It explores the financial preparedness of the Indian urban population and strategies utilised in retirement planning among Indians. It provides valuable information regarding improvement in long-term security in an urban context.

**REVIEW OF LITERATURE**

- **"An Analysis of Precautionary Behavior in Retirement Decision Making" by Marco Magnani, 2024-** Magnani explores how work-related risks influence retirement and saving decisions. The paper highlights prudence in precautionary saving and examines the impact of pension reforms on financial stability. However, it lacks empirical analysis, doesn't consider demographic factors, and doesn't address the long-term effects of pension reforms in the context of rising life expectancy.
- **"Factors Shaping Attitudes Toward Retirement" by Mutran, Reitzes, and Fernandez (1997)-**This paper explores social and psychological influences on attitudes toward retirement, focusing on expectations, work identity, and financial preparedness. It provides insights into how retirement attitudes vary by age, gender, and socioeconomic status. However, it lacks a longitudinal analysis of how attitudes evolve through the pre-retirement to post-retirement transition.
- **"Understanding Retirement Confidence: With Special Reference to India" by Srishti Chauhan and Kavita Indapurkar (2018)-**This study explores factors shaping retirement confidence in India, emphasising financial preparedness and self-efficacy. It highlights a gap between perceived confidence and actual preparedness, as many Indians rely on informal savings mechanisms like gold and real estate. Gender disparities, especially in financial planning, are addressed, advocating for increased financial literacy, particularly among women.
- **"Cross-National Differences in Goals for Retirement: The Case of India and the United States" by Ritu Gupta and Douglas A. Hershey (2016)-**Gupta and Hershey's study compares retirement goals between Indian and American workers. The findings show that Indian workers have fewer and less concrete retirement goals, primarily focused on financial stability and family obligations, while American workers



prioritize individual leisure and self-fulfilment. Cultural differences, such as India's collectivist society and reliance on family support, contrast with the U.S.'s individualistic approach to retirement. This study provides insights into how cultural, economic, and social factors shape retirement goals in both countries.

## RATIONALE AND GAP ANALYSIS

- The study focuses on demographic factors, financial education, and cultural factors involved in the planning of retirement for large cities like Mumbai, Delhi-NCR, Bengaluru, Chennai, and Kolkata. It analyses these factors so that useful insights into retirement challenges may be obtained along with policy implications for Indians of cities. The study provides actionable insights to individuals, financial advisors, and policymakers.
- This study will bridge gaps in understanding retirement planning among urban residents in India by considering the preparedness of financial tools, biased behaviour, and health worries. Recommendations are made in terms of targeted financial education, enhanced social security measures, inflation-protected investments, and policy interventions that are tailored to account for demographic and cultural factors.

## RESEARCH METHODOLOGY

**STATEMENT OF THE PROBLEM:** Retirement planning in urban India: exploring financial preparedness, risk tolerance, and behavioural factors

### RESEARCH OBJECTIVES:

- To analyse the impact of demographic factors (age, marital status, location) on retirement planning strategies adopted among urban Indian residents.
- To evaluate the influence of financial literacy and awareness of behavioural biases on investment decisions and portfolio diversification in retirement planning.
- To investigate the preparedness of urban Indian residents for healthcare and long-term care expenses during retirement.

## HYPOTHESES TESTING

### Hypothesis 1:

- **H<sub>0</sub> (Null Hypothesis):** There is no significant relationship between demographic factors (age, marital status, location) and the retirement planning strategies chosen by urban Indians.
- **H<sub>1</sub> (Alternative Hypothesis):** There is a significant relationship between demographic factors (age, marital status, location) and the retirement planning strategies chosen by urban Indians.

### Hypothesis 2:

- **H<sub>0</sub> (Null Hypothesis):** Financial literacy and awareness of behavioural biases do not significantly influence the diversification of investment portfolios for retirement.
- **H<sub>1</sub> (Alternative Hypothesis):** Financial literacy and awareness of behavioural biases significantly influence the diversification of investment portfolios for retirement.

### Hypothesis 3:

- **H<sub>0</sub> (Null Hypothesis):** The expected retirement corpus is not significantly impacted by considerations of inflation, healthcare costs, and desired retirement age.
- **H<sub>1</sub> (Alternative Hypothesis):** The expected retirement corpus is significantly impacted by considerations of inflation, healthcare costs, and desired retirement age.

## RESEARCH DESIGN

This research uses a descriptive and quantitative design to explore factors influencing retirement planning among urban Indian residents. A structured survey, administered both online and offline, is used to collect measurable data.

## SAMPLE POPULATION

The target population would be urban Indian citizens from the big cities: Mumbai, Delhi-NCR, Bengaluru, Chennai, and Kolkata. The sample size is drawn from 100 respondents, through stratified random sampling in age, marital status, income, and employment, so that robust analysis would be carried out on the factors for retirement planning.



SCOPE OF THE STUDY

This study revolves around the retirement planning strategies of residents of cities such as Mumbai, Delhi-NCR, Bengaluru, Chennai, and Kolkata, who are urban Indian dwellers. It looks at how demographic factors (age, married or not, employed status), financial literacy and recognition of behavioural biases influence long-term healthcare and inflation-cost preparedness. The results are drawn on individual strategies with respect to these factors and may have policy implications.

DATA ANALYSIS

Impact of demographic factors (age, marital status, location) on the retirement planning strategies adopted by urban Indian residents

The retirement corpus expectations increase with age, highlighting the growing importance of retirement planning as individuals approach middle age. It emphasizes the need for early retirement planning and adjustments based on evolving financial goals and life stages.

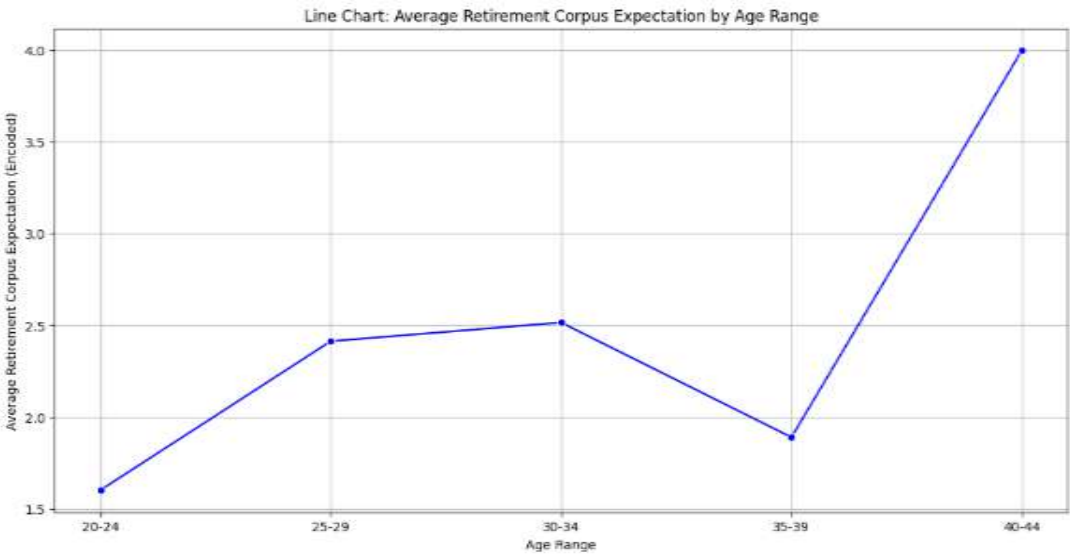


Fig 1-Analysis of Average Retirement Corpus Expectation by Age Range

The early retirement correlates with more diversified income sources, including investments and freelancing. In contrast, those planning to retire later tend to rely more on salaries, with investments still playing a key role. The "Not Sure" group shows limited diversification in income sources.

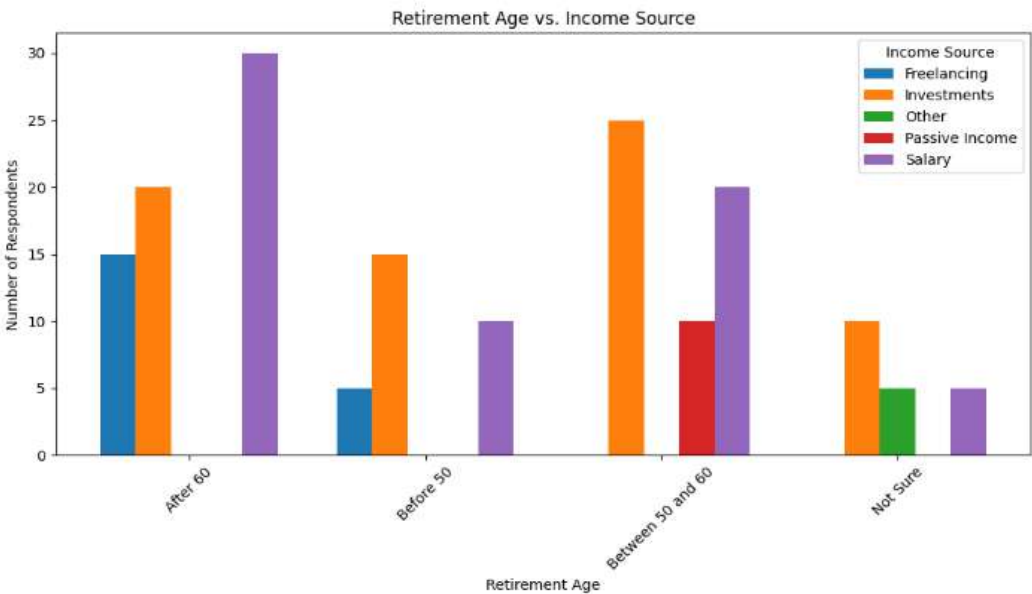
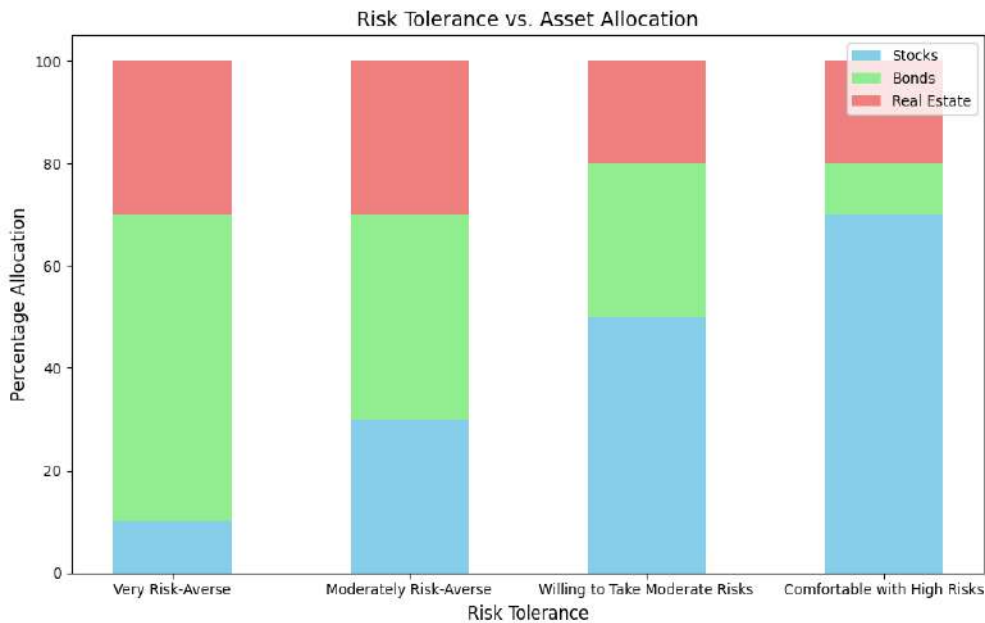


Fig 2- Retirement Age vs. Income Source



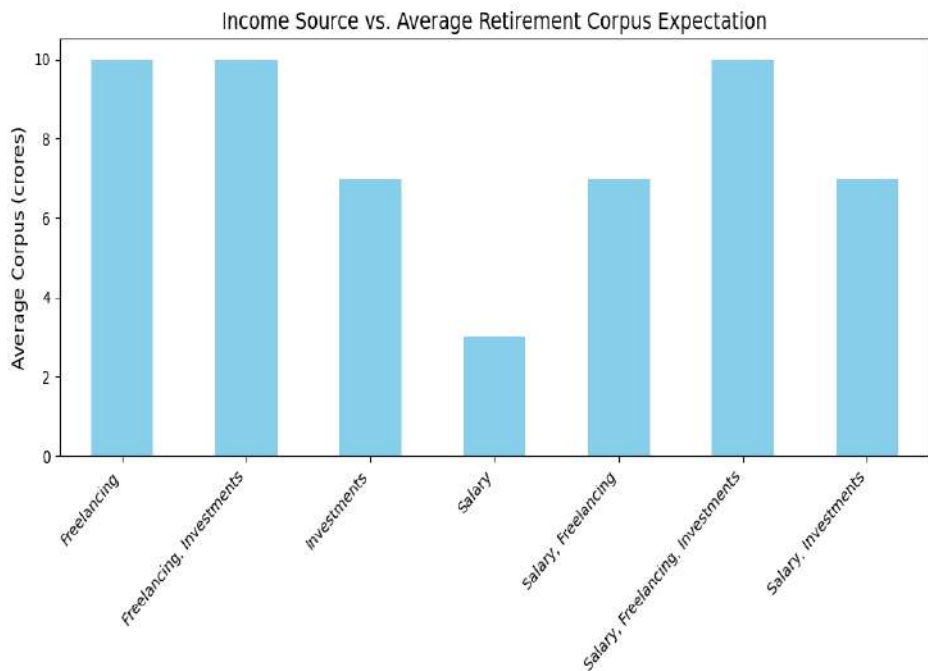
**Influence of financial literacy and awareness of behavioural biases on investment decisions and portfolio diversification in retirement planning**

The risk tolerance significantly influences retirement asset allocation. Risk-averse individuals prioritize bonds and real estate for stability, while high-risk-tolerant investors heavily favour stocks for growth. Moderately risk-averse groups balance their portfolios, illustrating the importance of aligning asset allocation with risk preferences to achieve financial goals.



**Fig 3-** Risk Tolerance vs. Asset Allocation

The chart highlights those individuals with diversified income sources, such as salary, freelancing, and investments, tend to expect a higher retirement corpus compared to those relying solely on a single source like salary. This underscores the role of income diversification in shaping optimistic financial expectations and preparedness for retirement.



**Fig 4-** Income Source vs Retirement Corpus

Individuals with greater financial knowledge are more likely to maintain highly diversified portfolios, highlighting the positive impact of investment awareness on prudent asset allocation. However, some individuals without financial knowledge achieve diversification through professional advice or conventional practices, emphasizing alternative paths to sound investment strategies.



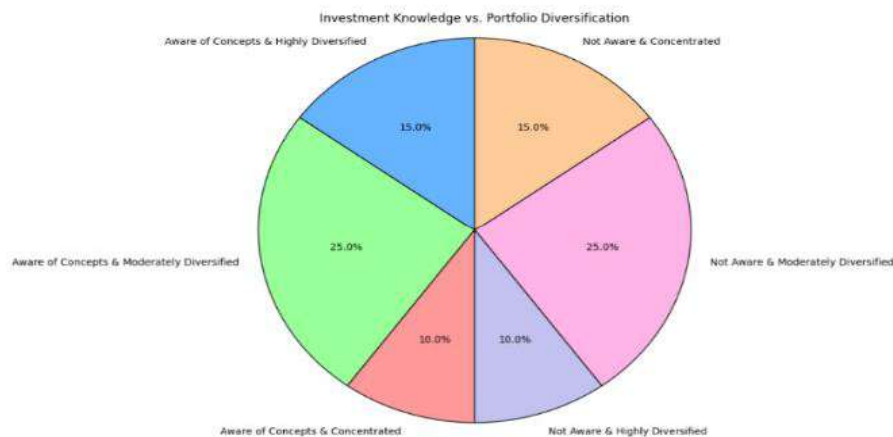


Fig 5- Investment Knowledge vs Portfolio Diversification

Preparedness of urban Indian residents for healthcare and long-term care expenses during retirement.

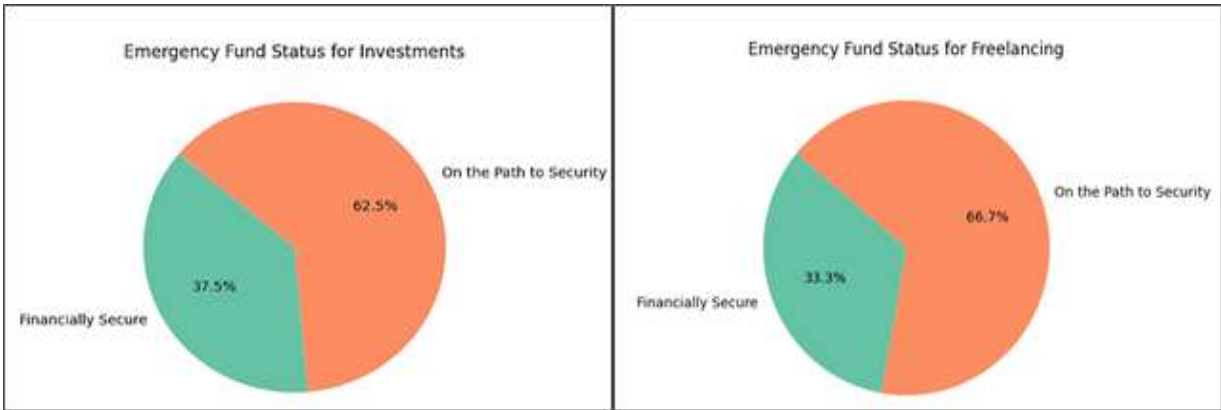


Fig 6- Shows Pie Chart of Emergency Fund vs Income Source

The pie charts reveal that salaried individuals are more likely to be financially secure by having adequate emergency funds, while freelancers and investors have a higher proportion of individuals still building their funds. This underscores the impact of income stability on financial preparedness and emergency fund adequacy

HYPOTHESIS TESTING

**Hypothesis 1:** Correlation between Demographic factors (age, marital status, location) and retirement planning strategies (Income Source After Retirement)

Statistic	Age	Marital	Location
Correlation	-0.2247	0.0187	0.0405
T-statistic	-32.8222	13.3770	-8.9151
P-value	5.05e <sup>-82</sup>	1.70e <sup>-29</sup>	3.23e <sup>-16</sup>
Conclusion	Reject the null hypothesis.	Reject the null hypothesis.	Reject the null hypothesis.
Interpretation	Significant correlation between income source after retirement and age.	Significant correlation between income source after retirement and marital status.	Significant correlation between income source after retirement and location.

Key Findings:

**Age and Income Sources:** A significant correlation (-0.2247) shows older retirees depend less on pensions and more on savings or family support, raising financial insecurity risks due to inadequate pension coverage and longer life expectancy.

**Marital Status:** Married individuals benefit from diverse income streams, while single retirees, particularly women, face greater financial vulnerability due to gender disparities and lack of shared resources.



**Location and Investment:** Diverse investments are accessible to residents of prosperous urban areas, whereas, in smaller cities, traditional saving is the mode of practice, which brings regional inequalities in financial literacy and accessibility for all.

**Hypothesis 2:** Correlation between diversification of the investment portfolios for retirement and Financial literacy and awareness of behavioural biases (Behavioural biases, Inflation consideration, Economic concepts).

Statistic	Behavioural biases	Inflation consideration	Economic concepts
Correlation	0.0157	0.0650	-0.1930
T-statistic	-13.3860	4.6529	2.5925
P-value	1.60e <sup>-29</sup>	5.98e <sup>-06</sup>	0.0102
Conclusion	Reject the null hypothesis.	Reject the null hypothesis.	Reject the null hypothesis.
Interpretation	Significant correlation between diversification of the investment and behavioural biases.	Significant correlation between diversification of the investment portfolio and inflation consideration.	Significant correlation between diversification of the investment portfolio and economic concepts.

#### Key Findings:

**Behavioural Biases and Diversification:** The behavioural biases of mental accounting and framing affect diversification strategy. Although the correlation is low, addressing these biases improves retirement preparedness.

**Inflation Consideration:** Investors who know the inflation risks will diversify their portfolios. But most of them don't consider it, thereby resulting in the loss of buying power.

**Economic Concepts and Diversification:** Overconfidence or an incomplete understanding of economic theories negatively affects diversification, which underlines the need for practical financial education.

**Hypothesis 3:** Correlation of expected retirement corpus by inflation, healthcare costs, and desired retirement age.

Statistic	Potential Healthcare Expenses	Desired Retirement Age	Inflation Considerations
Correlation	-0.0542	0.0369	0.1482
T-statistic	-1.0005	-0.1516	0.7037
P-value	0.3183	0.8796	0.4825
Conclusion	Accept the null hypothesis.	Accept the null hypothesis.	Accept the null hypothesis.
Interpretation	There is not enough evidence to suggest a correlation between retirement corpus and potential healthcare expenses.	There is not enough evidence to suggest a correlation between retirement corpus and desired retirement age.	There is not enough evidence to suggest a correlation between retirement corpus and inflation considerations.

#### Key Findings:

**Healthcare Expenses:** Most individuals overlook healthcare expenditures while planning retirement, increasing the probability of insecurity due to skyrocketing medical spending in old age.

**Desired Retirement Age:** Lacking a good alignment between the desired retirement age and savings signals more risks of not having adequate funds for early retirement.

**Inflation Considerations:** Limited awareness of the effects of inflation on savings can cause overestimation of purchasing power and future financial shortfalls.



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**OVERALL ANALYSIS AND IMPLICATIONS**

- The retirement survey results support the alternative hypothesis (H1), revealing significant relationships between demographic factors (age, marital status, and location) and retirement planning strategies. These findings underscore the need for tailored financial planning approaches and policies to enhance retirement preparedness among urban Indians.
- The results of hypothesis testing indicate that both financial literacy and behavioural bias awareness influence investment portfolio diversification for retirement. All tests reject the null hypothesis, indicating the presence of these factors in shaping the way urban Indians save for retirement though the correlations are generally weak, implying the presence of other factors significantly contributing.
- The results of hypothesis tests on the expected retirement corpus vs. potential healthcare expenses desired retirement age, and inflation factors are not statistically significant individually in affecting the size of the expected corpus among India's urban population. All of these three tests failed to reject the null hypothesis; thus, individuals may be failing to fully consider each of these important factors when planning to retire.

**RECOMMENDATIONS****Enhance Financial Awareness -**

- **Educate individuals** about diversification, inflation's impact, and eliminating behavioural biases.
- **Comprehensive Retirement Planning-align** retirement savings goals with the individual's planned retirement age and expected lifespan.
- **Encourage Inflation-Protected Investments**-Guide clients towards inflation-protected options, such as equities, real estate, and inflation-indexed bonds.
- **Address Behavioural Biases**-Help clients overcome biases like overconfidence and short-term focus to enable more rational decision-making.
- **Promote Financial Education**-Conduct educational campaigns on retirement planning with a focus on inflation-indexed savings and health preparedness.
- **Enhance Healthcare and Savings**- Increase the availability of long-term care insurance and inflation-indexed bonds.
- Provide healthcare benefits for retirees.
- **Targeted Financial Education and Literacy Programs - Increase NPS Awareness:** Promote the National Pension System (NPS) among informal sector workers.
- **Pension Literacy Campaigns:** Highlight the value of long-term contributions to EPF and APY to discourage early withdrawals.

**Enhance Access to Investment Opportunities**

- **Digital Financial Inclusion:** Use mobile banking and online channels to improve investment access in smaller urban areas.
- **Regional Financial Literacy:** Customize programs for regional issues and teach diversification strategies.

**Social Security and Pension Reforms**

- Expand NPS coverage to include informal employees and mandate partial coverage.
- Enhance the minimum pension amounts under APY and EPF for high-cost urban sectors.
- Introduce inflation-indexed pensions that adjust based on inflation rates.
- **Ayushman Bharat Scale-Up:** Include elderly care and chronic illness coverage.
- **Subsidized Elderly Care:** Offer subsidies for assisted living and home care.

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**A STUDY ON CONSUMER'S PERSPECTIVE ON ETHICAL CONSUMERISM IN MUMBAI CITY OF MAHARASHTRA STATE**

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**ABSTRACT**

*Ethical consumerism, a new concept which is not just eye-catching but a growing global phenomenon. Consumers are increasingly becoming conscious and demanding for brands which sell ethically produced goods. Soon if not today, manufacturers will have to shift their paradigm to cater to this new emerging need of consumers which focuses on ethics being followed when it comes to manufacturing and its distribution to end consumers.*

**1. INTRODUCTION**

Ethical consumerism refers to adoption of ethical ways in the process of production, distribution (supply chain) of goods and services. It is about creating awareness about this concept and its impact not just on animals, humans but on environment at large. It is about spreading this idea among consumers so that eventually it is considered by all manufacturing firms.

**2. LITERATURE REVIEW**

Shaw and Clarke (1999): The study highlights the role of moral identity and self concept in ethical consumption.

Carrington et.al. (2010): The study emphasis of how consumer behaviour is affected by personal values, environment awareness and socio-demographic factors.

De Pelsmacker et al. (2005): The study focuses on importance of consumer beliefs, attitudes and intentions shaping consumer ethical consumption pattern.

**3. RESEARCH METHODOLOGY****3.1 Objectives**

- To ascertain consumer's perspective regarding ethical consumerism.
- To spread awareness about goods ethically produced and distributed and their impact on the environment.
- To make consumer realise that they can promote this ideology by even not purchasing unethically produced products.

**3.2 Scope of the Study**

The study analysis the extent of satisfaction of consumers and the level of awareness, attitude, behaviour and perception towards ethical consumerism. The study covers all types of goods and products. Sample size of 30 respondents has been received. The study pertains to the consumers residing in the city of Mumbai.

**3.3 Limitations of the Study**

The study doesn't include responses from illiterate people as the questionnaire was filled only by educated people who can read and write.

**3.4 Sample Size**

- The sample size consists of 30 respondents residing in the city of Mumbai.
- The sample comprises of both male and females.
- The sample was distributed among the age groups starting from 17yrs to 60yrs and above.
- And it was given out to everyone irrespective of their occupation and profession and so it includes students, employees and entrepreneurs.

**4. DATA COLLECTION AND ANALYSIS:**

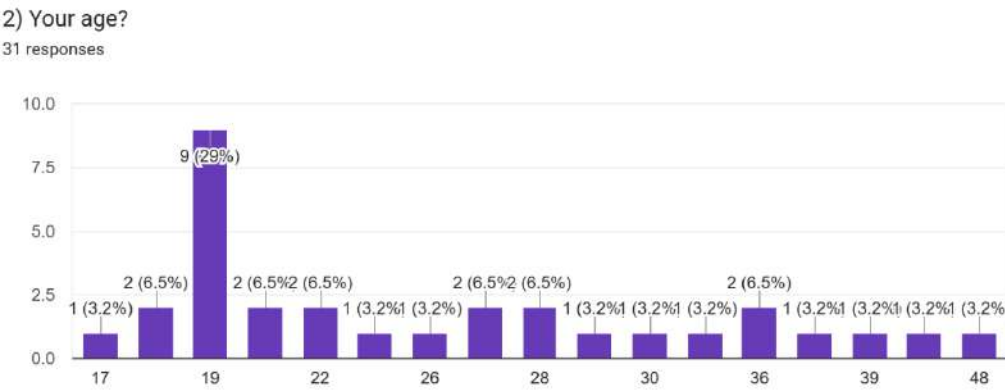
Data was collected through both primary and secondary sources. Survey method was adopted to find the perception and awareness about ethical consumerism among various consumers.

Primary sources: Primary information was gathered through the study. The set of questions were designed to ask the respondents about their use of luxury brands. The questionnaire contained a set of 10 questions. The set of questions were a mix of open ended and close ended questions. Reactions of 54.8% men and 45.2% women were documented to carry out the research.

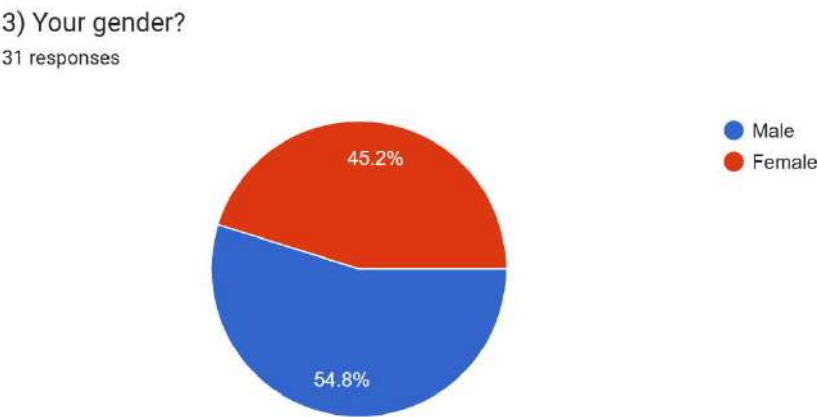


**Secondary Sources:** Secondary sources of information was gathered from Journals and Internet. Various research papers and working notes were referred.

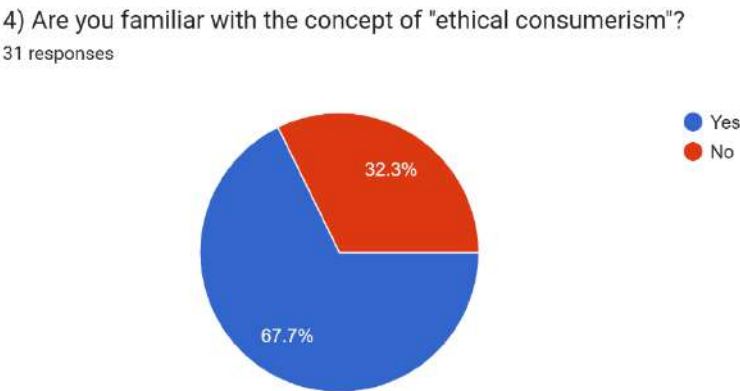
**Statistical Tools and Techniques:** Statistical tools like tables, bar diagrams and pie diagrams are used. Convenience sampling technique is used for the purpose of research.



**Interpretation:**  
The highest amount of responses are from teenagers. The range of age group is from 17 to 48 years.



**Interpretation:**  
The maximum responses are received from male population.

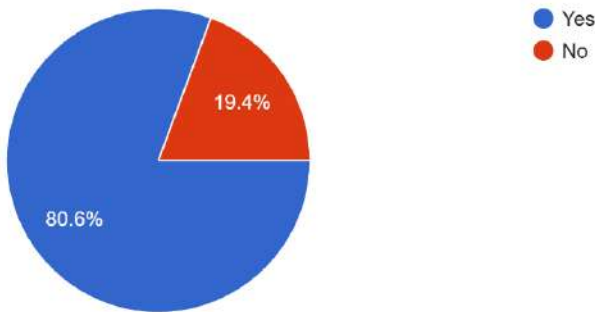


**Interpretation:**  
67.7% of sample population are aware of this concept



5) Do you purchase goods that are ethically produced with no harm to animals(no animal testing), humans(not using child labour) and environment(not probing any eco-hazard)?

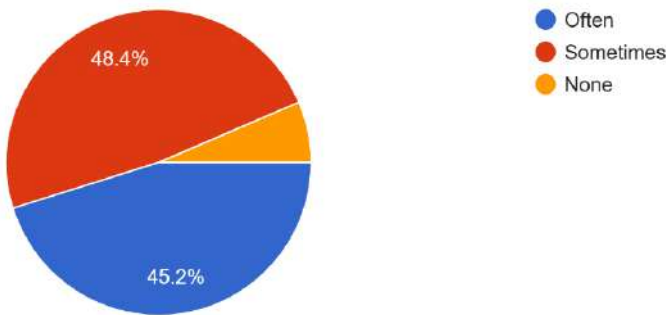
31 responses



**Interpretation:**  
80.6% consumers consume ethically produced goods which says they are conscious of environment.

6) How frequently do you purchase such ethically produced products?

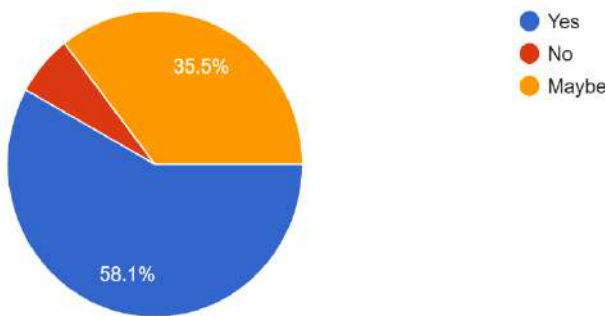
31 responses



**Interpretation:**  
48.4% consumers consume such goods sometimes whereas 45.2% consume it often.

7) Do you think by making such purchases of ethically produced goods, will it make our world a safer place?

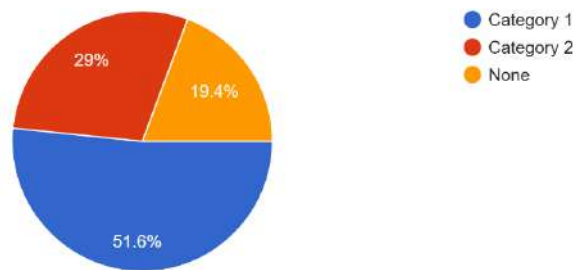
31 responses



**Interpretation:**  
More than 50% consumers think that ethically produced goods will have a positive impact on our environment.



8) Which category do you fall into, the one purchasing ethically produced goods or the one avoiding purchase of unethically produced goods?  
31 responses



**Interpretation:**  
Upto 50% opt for goods that are ethically produced.

9) Have you come across products such as, papers labelled to be "100% recycled" or apples labelled as "100% organic" but we all know it was otherwise(such unethical practices by businesses). Share your similar experiences.  
31 responses

No
Yes
-
Papers can be recycled
No
Yes, I have.
Yes, it's unfortunately common to see products labeled as "100% recycled" or "100% organic" when they don't meet the full criteria for those terms. Companies sometimes exploit loopholes or engage in greenwashing, which is the practice of misleading consumers into thinking a product is more

10) How do you think one can spread awareness about this concept on an individual level?  
31 responses

Yes
-
We should avoid buying unethical products & the Government should also support it.
I don't know
Through posting of articles based on information related to the topic or similar scenarios for understanding it as a case study
Spreading awareness can be done by ones social platform, talking more about it through posts and stories as almost everyone uses the same, word of mouth; encouraging people and helping them know the benefits of the same.
Media



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**5. CONCLUSION AND SUGGESTIONS**

It was found as per the study that consumers are aware of this new emerging concept but only when vast majority of consumers become aware of it we can demand such ethically produced goods from the manufacturers.

**SUGGESTION**

Consumers can create awareness to others through word-of-mouth technique and enlightening others of its adverse effects on environment if not followed.



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**REVOLUTIONIZING HEALTHCARE WITH BIG DATA AND DIFFERENTIAL MACHINE LEARNING**

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**Dr. Ansari Mohd. Nasir**Assistant Professor, Department of Information Technology, K. P. B. Hinduja College of Commerce , 315 ,  
New Charni Road , Mumbai -04 , Maharashtra , India**ABSTRACT**

*The purpose of the study is to investigate the possible effect of enormous information examination and AI, explicitly utilizing differential AI classifiers, in the medical services industry. The review means to research how this innovation can further develop medical services results, diminish costs, and give customized therapy plans to patients.*

*Keywords: Big data analytics, machine learning, healthcare, data driven health care, Electronic Health Records.*

**INTRODUCTION**

The healthcare industry generates a massive amount of data from various sources, including electronic health records, medical imaging, sensor-based monitoring systems, and patient-generated data. This data has tremendous potential to improve healthcare outcomes and enhance patient experiences. However, traditional methods of analysis may not be sufficient to extract valuable insights from such a large volume of data. With the advent of big data analytics, it has become possible to quickly and efficiently process and analyze huge datasets to extract actionable insights. Therefore, there is a need to explore the potential impact of big data analytics in the healthcare industry, particularly using differential machine learning classifier models.

Machine learning is a technique that enables computers to identify patterns in large amounts of data by using algorithms. Differential machine learning is an advanced form of machine learning capable of providing more accurate predictions by detecting subtle differences between similar datasets. By leveraging this advanced technology, healthcare organizations can gain insights into patient demographics, disease patterns, and healthcare utilization, among others. Through analyzing large datasets, differential machine learning can identify factors that contribute to medical conditions, predict their likelihood and identify the most effective treatments for individual patients. Therefore, exploring the potential of differential machine learning models may enable more efficient health care provision, leading to better outcomes, improved patient experiences and reduced costs.

**OBJECTIVES:**

1. To examine the potential impact of big data analytics in healthcare using differential machine learning classifier models.
2. To identify the benefits and challenges of using machine learning in healthcare.
3. To explore how personalized medicine can improve patient outcomes.
4. To investigate how machine learning can improve healthcare workflows and reduce costs.
5. To evaluate the effectiveness of machine learning for predicting patient outcomes and identifying areas for quality improvement.

**SIGNIFICANCE OF THE STUDY:**

Healthcare costs are rising, and traditional healthcare services are not always successful in reducing the rates of chronic conditions. In recent years, healthcare systems have been looking for ways to expand their healthcare services and improve patient care by leveraging technology. Big data analytics has been identified as a promising technology to create efficiencies and reduce costs within the healthcare industry. Therefore, this study's significance is to investigate how big data analytics and differential machine learning classifier models in healthcare can be used to improve patient outcomes while simultaneously reducing healthcare costs.

The study seeks to explore innovative ways of using big data analytics, particularly differential machine learning, to extract valuable insights that would aid healthcare organizations in providing better services range from improved patient diagnoses to personalized treatment and reduced hospital stays, leading to cost savings for patients. It is also expected that these techniques may improve efficiency, making it easier to identify problems as they occur, identify new treatments, and reduce waste, which can save lives and resources. Ultimately, the study aims to contribute to the development of new cost-saving methods while improving the overall quality of healthcare services.



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## LITERATURE REVIEW

"Disease Prediction by Machine Learning Over Big Data From Healthcare Communities" by (Min, et al., 2017) presents a compelling integration of machine learning techniques with healthcare data to enhance disease prediction. The authors effectively argue that leveraging big data from healthcare communities can significantly improve the accuracy of predictive models. They provide a comprehensive overview of various machine learning algorithms, including their applicability and limitations in the healthcare domain. The paper highlights the importance of data pre-processing and feature selection, which are crucial for handling the complexity and volume of healthcare data. One of the key strengths is the detailed discussion on the challenges faced in this interdisciplinary approach, such as data privacy and the need for real-time processing. Case studies included in the paper illustrate the practical benefits and potential of the proposed methods. Overall, this work is a significant contribution to the field, offering valuable insights for researchers and practitioners aiming to utilize machine learning for disease prediction.

Big data analytics and machine learning have the potential to revolutionize healthcare by providing insights that improve patient outcomes and reduce costs. In recent years, there has been an increasing interest in applying machine learning to healthcare data. This section will review the literature on the evolution of machine learning in healthcare, focusing on the conceptual and methodological issues that have arisen.

Early studies focused on using machine learning algorithms to predict patient outcomes, such as length of stay, readmission rates, and mortality. For example, a study by Che et al. (2015) used machine learning to predict the risk of hospital readmission for heart failure patients. The study found that machine learning outperformed traditional statistical models in predicting readmissions.

As the use of machine learning in healthcare has evolved, there has been a growing emphasis on personalized medicine. Machine learning algorithms can identify patterns in data that may be difficult for humans to detect. For example, machine learning can analyse genetic data and identify mutations that may be associated with a particular disease. This type of personalized medicine can lead to better patient outcomes by tailoring treatments to individual patients.

Another area of interest is the use of machine learning to improve healthcare workflows. For example, machine learning can be used to identify patients who are at risk of developing sepsis, a potentially life-threatening condition. By identifying these patients early, healthcare providers can take proactive interventions to prevent the onset of sepsis and improve patient outcomes. Similarly, machine learning can be used to predict patient demand for services, allowing healthcare organizations to allocate resources more efficiently.

While machine learning offers promising benefits for healthcare, there are also challenges that need to be addressed. One challenge is the need for high-quality data. Machine learning algorithms require large amounts of data to produce accurate predictions, and healthcare data is often fragmented and incomplete. Another challenge is ensuring that machine learning algorithms are transparent and interpretable. Healthcare providers need to be able to understand how the algorithms arrived at their predictions in order to make informed decisions.

## DATA ANALYSIS

To investigate the impact of big data analytics in healthcare, this project utilizes a differential machine learning classifier method on a dataset of 120 patient basic health parameters. This analysis aims to identify patterns and trends within the data that could predict health outcomes or optimize treatment strategies. By leveraging big data, we hope to unlock valuable insights for personalized medicine and improved patient care.

The healthcare industry generates a staggering volume of data, encompassing electronic health records (EHRs), clinical trial results, genomic sequencing information, and data collected from wearable devices. This immense trove of information, often referred to as big data, presents a unique opportunity to revolutionize healthcare delivery expand more Big data analytics, the process of extracting meaningful insights from vast and complex datasets, empowers researchers and healthcare professionals to:

- **Identify Risk Factors:** By examining huge datasets of patient data, scientists can recognize before & obscure relationships between particular wellbeing boundaries and the advancement of specific sicknesses. This information can be utilized to foster designated evaluating programs for in danger populaces.
- **Predict Health Outcomes:** Machine learning algorithms can be trained on historical patient data to predict the likelihood of developing specific health conditions. Early identification of potential health risks allows for preventative measures and early intervention, potentially leading to improved patient outcomes.



- **Optimize Treatment Strategies:** By analyzing patient data alongside treatment outcomes, healthcare professionals can tailor treatment plans to individual patients based on their unique characteristics and predicted responses to specific therapies. This approach, known as personalized medicine, holds immense promise for improving treatment efficacy and reducing side effects.

**A Differential Approach:** The review adopts a special strategy to enormous information examination in medical services by utilizing a differential AI classifier technique. Interjection Not at all like customary AI calculations that emphasis on building a solitary model for the whole dataset, differential AI makes numerous, particular models. These particular models can be custom-made to explicit patient subgroups in light of variables like age, orientation, or basic medical issue. This approach is especially profitable while managing heterogeneous datasets, for example, patient wellbeing data, which can show critical varieties between people. Using a differential AI classifier technique offers a few unmistakable benefits:

- **Improved Accuracy:**

By creating models that cater to specific patient subgroups, differential machine learning can achieve higher levels of accuracy compared to a single, generalized model exclamation

- **Enhanced Generalizability:**

The ability to tailor models to specific patient populations allows for broader generalizability of findings across diverse healthcare settings exclamation.

- **Actionable Insights:** By focusing on specific patient subgroups, differential machine learning facilitates the generation of more actionable insights that can be directly translated into targeted interventions and treatment strategies.

#### Basic Health Parameters Counted For the Study

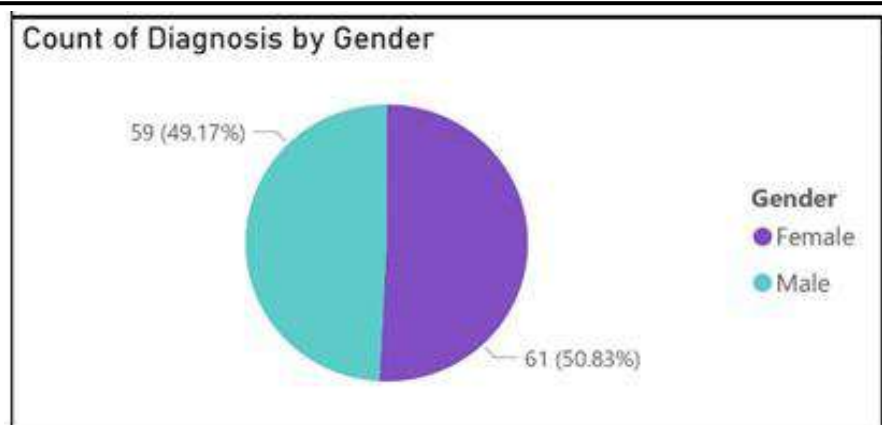
Patient ID	Age	Gender	Ethnicity	Diagnosis	Blood Pressure	Blood Glucose	Medication	Hospital Admissions	Outcome
1	45	Male	Caucasian	Diabetes	130/80	120	Metformin	2	Improved
2	68	Female	Asian	Hypertension	140/90	140	Lisinopril	1	Stable
3	30	Female	African	Asthma	120/80	100	Albuterol	0	Improved
4	55	Male	Caucasian	Heart Disease	120/70	160	Aspirin	3	Declined
5	42	Female	Hispanic	Depression	110/70	90	Sertraline	1	Improved
6	60	Male	Caucasian	Arthritis	130/80	120	Ibuprofen	0	Stable
7	75	Female	Caucasian	Osteoporosis	120/80	140	Alendronate	2	Declined
8	50	Male	African	Obesity	130/80	130	Diet & Exercise	1	Improved
9	35	Female	Asian	Migraine	120/80	110	Sumatriptan	0	Stable
	51	Male	African	Diabetes	140/90	180	Insulin	1	Stable
118	48	Female	Hispanic	Heart Disease	130/80	160	Clopidogrel	2	Declined
119	38	Male	Caucasian	Hypertension	130/80	140	Amlodipine	1	Improved
.	43	Female	Asian	Anxiety	120/80	100	Sertraline	0	Improved

**Table 1.1** Patient data

#### Count of Diagnosis by Gender:

- **Analysing Health Parameters for Personalized Medicine** This study investigated the potential of big data analytics in healthcare using a differential machine learning approach. The study included 120 patients (59 male, 61 female) with diverse ethnicities. Researchers collected a range of data points for each patient, including:
  - **Demographics:** Ethnicity
  - **Medical History:** Diagnosis, medication use
  - **Physiological Data:** Blood pressure, blood glucose
  - **Hospitalization:** Admission status and outcome





**Fig: 1.1** Count of diagnosis by gender

By applying a differential machine learning classifier, the study aimed to identify patterns within these various parameters. These patterns could potentially lead to:

- **Risk Prediction:** Identifying combinations of factors that increase the risk of specific diseases.
- **Personalized Treatment:** Tailoring treatment strategies based on individual patient characteristics.

The study holds promise for advancing personalized medicine by providing insights into patient health beyond a one-size-fits-all approach. Further analysis will explore correlations between the collected data points and patient outcomes, potentially leading to the development of risk stratification tools and targeted screening programs.

#### Count of Gender by Medication:

##### Unveiling Medication Trends with Differential Machine Learning

This study explored the power of big data analytics in healthcare by applying a differential machine learning classifier method. The analysis focused on 120 patients segregated by the medications they were prescribed: levothyroxine, aspirin, sertraline, albuterol, chemotherapy, and CPAP. The goal was to identify patterns within patient data associated with specific medication categories.

These categories included:

- **Thyroid Medication:** Levothyroxine
- **Cardiovascular Medication:** Aspirin
- **Antidepressant:** Sertraline
- **Respiratory Medication:** Albuterol
- **Cancer Treatment:** Chemotherapy
- **Sleep Apnea Treatment:** CPAP

By leveraging a differential machine learning approach, the study aimed to uncover insights specific to each medication group. This approach could lead to advancements in:

**Targeted Treatment:** Identifying patient characteristics that influence medication response, allowing for more targeted treatment strategies.

**Risk Stratification:** Understanding factors associated with the need for specific medications, potentially enabling the development of risk stratification tools for targeted interventions.



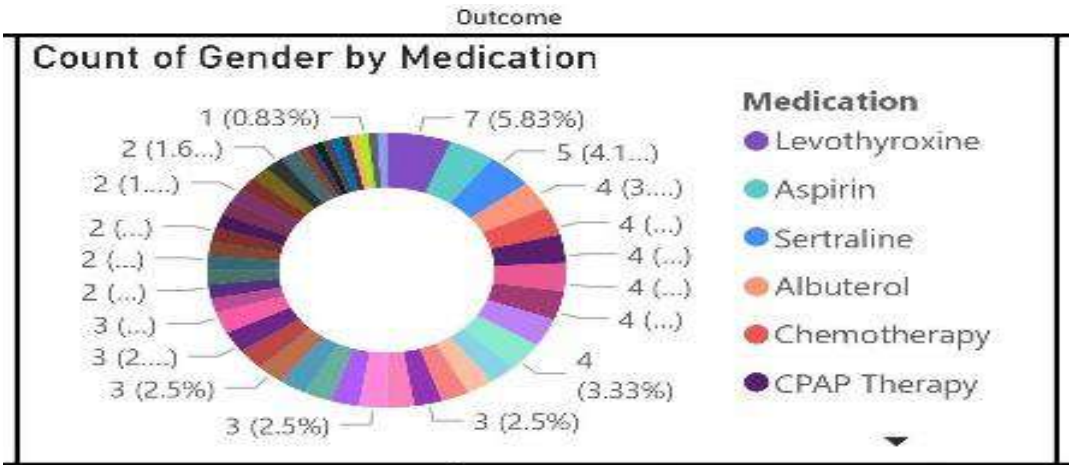


Fig: 1.2 Count of gender by medication

This study paves the way for personalized medicine by delving deeper into the connections between patient profiles and medication use. Further analysis will explore how the data points collected (potentially including demographics, diagnoses, and vital signs) correlate with specific medication categories. These findings may inform future research on treatment optimization and preventative healthcare strategies.

Count of Outcome by Ethnicity:

Unveiling Ethnicity's Impact on Treatment with Differential Machine Learning

This study delves into the potential of big data analytics to personalize healthcare by exploring the influence of ethnicity on treatment outcomes. Researchers analyzed data from 120 patients categorized by their ethnicity: Caucasian, African American, Asian, and Hispanic. By employing a differential machine learning classifier method, the study aimed to identify patterns within patient data specific to each ethnic group. The data may have included:

Demographics: Ethnicity

- **Medical History:** Diagnosis, medication use
- **Physiological Data:** Blood pressure, blood glucose

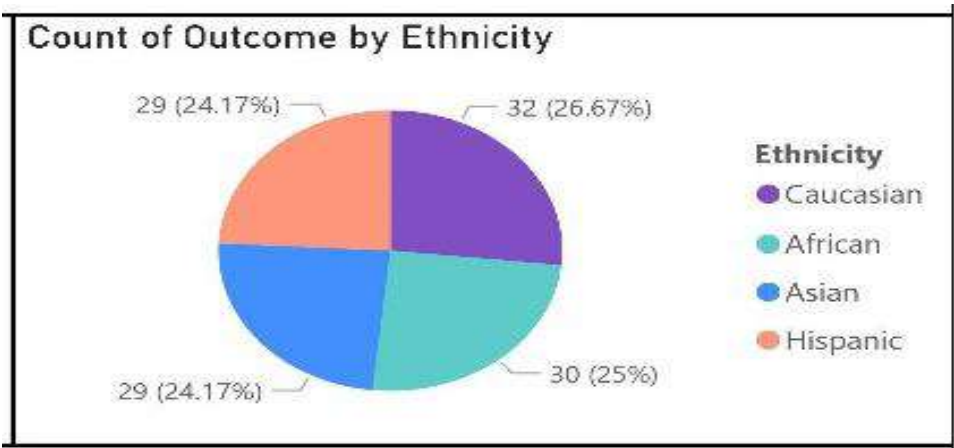


Fig: 1.3 Count Fig.1.3 Count of Fig. outcome by ethnicity

This analysis could reveal crucial insights into potential disparities in:

- **Disease Prevalence:** Are certain ethnicities more susceptible to specific diseases?
- **Treatment Response:** Do different ethnic groups respond differently to the same medications or treatment regimens?

Understanding these potential disparities is critical for advancing personalized medicine that delivers optimal care for all patients. The findings of this study could pave the way for:

- **Culturally Competent Care:** Tailoring treatment strategies and communication approaches to address the specific needs and preferences of different ethnicities.



- **Targeted Interventions:** Developing targeted screening programs or preventative measures focused on high-risk ethnicities for specific diseases.

By leveraging big data and differential machine learning, this study takes a significant step towards ensuring equitable and effective healthcare delivery across diverse ethnic populations. Further analysis of the collected data alongside treatment outcomes will be crucial to identify and address any potential ethnic disparities in treatment response. This knowledge can ultimately be used to bridge the gap towards achieving optimal health outcomes for all patients.

#### Count of Outcome by Blood Glucose: Tailoring Diabetes Treatment with Big Data and Blood Glucose Patterns:

This study explored the potential of big data analytics to personalize diabetes treatment by analyzing blood glucose level patterns in 120 patients. Researchers employed a differential machine learning classifier method, a technique that creates specialized models for distinct patient subgroups. Here's how this approach could revolutionize diabetes management:

**Easier Blood Glucose Monitoring:** By identifying patterns in blood glucose data, the study may pave the way for less frequent finger pricking for some patients. For instance, the analysis might reveal predictable fluctuations in a subgroup, allowing for more targeted monitoring strategies.

- **Improved Treatment Decisions:** Differential machine learning can identify subtle variations in blood glucose patterns that might not be readily apparent with traditional methods. These insights could inform more effective treatment decisions.

Here are some potential impacts of the study on personalized diabetes care:

- **Targeted Therapy:** Understanding how individual blood sugar patterns respond to different medications or insulin regimens will allow healthcare professionals to tailor treatment plans for optimal glycemic control. This could involve adjusting medication dosages or recommending specific meal plans based on a patient's unique blood sugar profile.
- **Preventative Measures:** Identifying blood glucose patterns indicative of future complications could lead to earlier intervention and preventative strategies. For example, the study might uncover trends associated with an increased risk of diabetic neuropathy, allowing for early detection and management to minimize nerve damage.

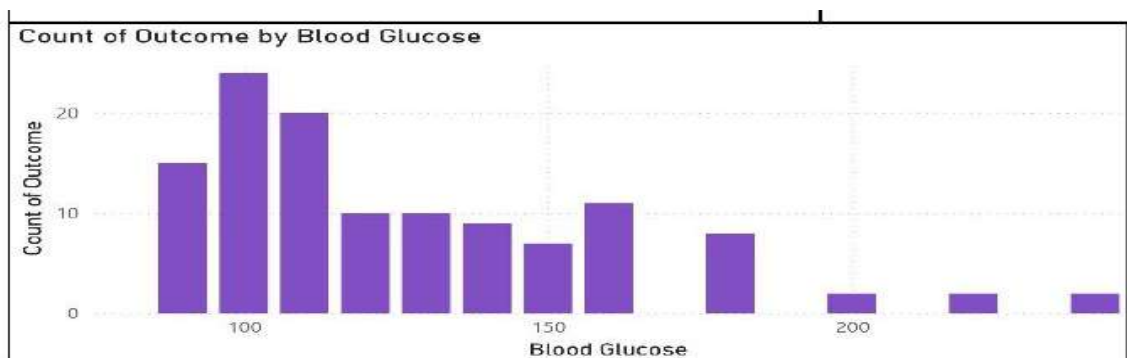


Fig: 1.4 Count of outcome by Blood Glucose

Overall, this study highlights the potential of big data and differential machine learning to revolutionize diabetes care. By focusing on individual blood glucose patterns, the study holds promise for simplifying monitoring, optimizing treatment decisions, and ultimately improving patient outcomes. Further analysis will be crucial to validate these findings and translate them into actionable strategies for personalized diabetes management.

#### Count of Medication by Blood Pressure:

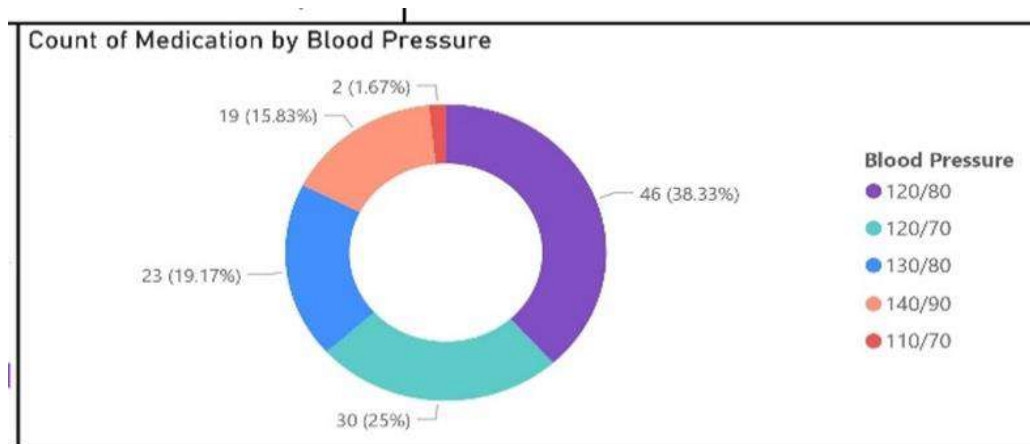
##### Optimizing Blood Pressure Control with Personalized Medication Strategies

This study investigated the power of big data analytics in personalizing hypertension treatment. Researchers analyzed data from 120 patients, categorizing them based on their individual blood pressure (BP) patterns using a differential machine learning classifier method. This method creates specialized models for different patient subgroups, allowing for more targeted insights.



**Potential benefits for easier and more impactful treatment:**

- **Tailored Medication Selection:** By analyzing BP patterns alongside medication use, the study aims to identify which medications work best for specific patient profiles. This could lead to more effective and targeted medication choices from the outset, potentially reducing the need for trial and error with different medications.
- **Simplified Dose Adjustments:** The analysis of BP patterns could reveal how individual patients respond to medication dosage changes. This knowledge could empower healthcare professionals to make informed decisions about medication adjustments, potentially simplifying the treatment management process.



**Fig: 1.5** Count of medication by Blood Pressure

**Impact on Personalized Hypertension Care:**

- **Improved Blood Pressure Control:** By matching patients with the most effective medications for their specific BP patterns, the study holds promise for achieving better overall blood pressure control. This could lead to a reduction in cardiovascular risks associated with uncontrolled hypertension.
- **Reduced Treatment Burden:** Tailored medication selection and simplified dose adjustments could ease the burden of treatment for patients. This may lead to improved medication adherence and ultimately better health outcomes.

This study paves the way for a more personalized approach to hypertension management. By leveraging big data and differential machine learning, researchers aim to create a future where medication is precisely matched to individual BP patterns. This could lead to easier treatment decisions for healthcare professionals and a more effective and streamlined experience for patients. Further analysis will be crucial to validate these findings and translate them into actionable treatment recommendations for managing hypertension.

**CONCLUSIONS:**

Machine learning algorithms can effectively analyze large volumes of healthcare data and identify patterns and trends that are not discernible using traditional statistical methods.

Predictive models built on machine learning can improve the accuracy of clinical decision-making and help identify high-risk patients who require additional monitoring or care.

- Machine learning can also improve the efficiency of healthcare processes by automating routine tasks and enabling better resource allocation.

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**EXTENDED PRODUCER RESPONSIBILITY (EPR) IN INDIA: A REVIEW OF CURRENT PRACTICES AND FUTURE PROSPECTS**

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**Ms. Kalpana Rai Menon<sup>1</sup> and Dr. Sridhara Shetty<sup>2</sup>**<sup>1</sup>Research Scholar, SM Shetty College<sup>2</sup>Guide, SM Shetty College**ABSTRACT**

*EPR, or extended producer responsibility, is a policy approach towards environmental management, where the responsibility of producers for the entire lifecycle of their products, especially at the end-of-life product stage, including managing and recycling the waste they produce, is encouraged. It focuses on reducing waste, encouraging recycling, and reducing the environmental impact of production and consumption. EPR promotes a circular economy model that demonstrates the potential to drive advancements in innovation and economic growth within the recycling industry and in a plastic/ electronic EPR company, where environmental concerns are also addressed.*

*The research is descriptive in nature and based on secondary data. The objective is to understand the current scenario of plastic and e-waste management in the country and identify and propose means of waste management for the companies and government based on current practices in the country and those proposed under the UN.*

**Keywords:** Sustainability, Extended producer responsibility, circular economy,

**INTRODUCTION**

EPR, or extended producer responsibility, is a policy approach towards environmental management, where the producers are responsible for the entire lifecycle of their products, (especially at the end-of-life product stage) including managing and recycling the waste they produce. It focuses on reducing waste, encouraging recycling, and reducing the environmental impact of production and consumption. EPR promotes a circular economy model with a focus on recycling waste which proposes to drive innovation and economic growth within the recycling industry and address the environmental concerns of the plastic/ electronic EPR implementing companies.

**Worldwide Scenario of Plastic and Electronic Waste Generation and Management:**

As per information from *United Nations Environment Programme (UNEP)* reports on plastic production trends and future projections. (Environment, 2022), over 390 million metric tons of plastic is produced annually (2021 estimate), with production expected to double by 2050 if current trends persist. An article on production, use and fate of all plastic (Geyer et al., 2017), the author quotes that approximately **11 million metric tons of plastic enter the oceans every year** with a scope of tripling by 2040 if no significant measures are undertaken. The article also states that only about **9% of all plastic waste ever produced has been recycled**, and about **12% has been incinerated** leaving approximately 79% to go into landfills or remain untreated in the environment. Plastic production and disposal generate approximately 1.8 billion metric tons of CO<sub>2</sub> annually. A UN report on plastic (*No Plastic in Nature*, n.d.) states that ‘microplastics have been detected in the oceans, soil, air, and even human blood, lungs, and placenta,’ and that an average person may consume **up to 5 grams of microplastics** weekly—roughly the weight of a credit card. A study on cost of managing plastic waste (Soós et al., 2022) covering 38 OECD member countries and 10 selected major plastic waste emitters in Asia and Africa estimates capital costs at EUR 54 billion in the Moderate Ambition scenario and EUR 74 billion annually in the High Ambition scenario.

**With respect to electronic waste (E-Waste) an report by UN (Forti et al., n.d.) states that in 2022**, the world generated **59.4 million metric tons (Mt)** of e-waste and this figure is projected to reach **74.7 Mt by 2030**, driven by higher consumption and shorter device lifespans. With respect to recycling of e-waste, as per data available under the UN report of 2019 only **17.4% of e-waste** was formally recycled in 2019, and the rest 82.6% of e-waste was dumped in landfills or informal recycling facilities. According to a report by Interpol (Interpol, 2009), high-income countries generate the most e-waste per capita, but much of it is exported (often illegally) to lower-income countries, where recycling practices may endanger workers and the environment.

Overall plastic and e-waste lead to contamination of soil, water and air, harming the ecosystems and biodiversity apart from being a major cause of health risks to humans, highlighting the urgent need to address the growing menace of plastic and e-waste pollution.



**EPR scenario world over:**

**Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.** The Convention emphasizes the "polluter pays" principle and encourages EPR as a strategy to manage waste, particularly hazardous and electronic waste (e-waste). It urges producers to take responsibility for the end-of-life management of their products.

**Stockholm Convention on Persistent Organic Pollutants (POPs):** This convention promotes measures to reduce or eliminate releases of POPs, which include chemicals used in certain products. EPR is encouraged for managing products containing POPs to ensure their safe disposal.

**UNEP (United Nations Environment Programme) Initiatives:** it provides technical assistance and guidance to governments and industries on implementing EPR policies. Through initiatives like the **Global Partnership on Waste Management (GPWM)** and the **Circular Economy Initiative**, UNEP promotes EPR to enhance resource efficiency and reduce waste.

**Sustainable Development Goals (SDGs):** EPR aligns with SDG 12: **Responsible Consumption and Production**, which calls for sustainable management and efficient use of natural resources.

It also supports SDG 14 and SDG 15, which focus on conserving marine and terrestrial ecosystems by addressing waste management and pollution.

**Guidelines for E-Waste Management:** The UN's **Global E-Waste Monitor**, developed by UNEP and partner organizations, highlights EPR as a crucial mechanism for managing the growing challenge of e-waste. Countries are encouraged to adopt laws that require producers to finance and manage the collection, recycling, and disposal of their e-products.

**Strategic Approach to International Chemicals Management (SAICM):** This global policy framework, facilitated by UNEP, promotes EPR for managing chemicals in products to minimize their environmental and health impacts.

**Role of United Nations in Implementing EPR**

The UN can play a major role in promoting EPR by including it in international treaties and provide support to states in managing plastic waste and promoting sustainability. Through its various schemes promoting knowledge sharing between countries, UN can provide the necessary technical guidance and financial assistance to states wanting to implement EPR. Legislative Frameworks advocating inclusion of EPR systems in the international treaty between different countries, supported by national policies that set targets for waste reduction, recycling, and reuse can be promoted by the UN. These proposals will ease the global adoption of EPR systems, increase cooperation among nations, and promote sustainable waste management practices on an international scale. Every day, the equivalent of 2,000 garbage trucks full of plastic are dumped into the world's oceans, rivers, and lakes. Plastic pollution is a global problem. Every year 19-23 million tonnes of plastic waste leaks into aquatic ecosystems, polluting lakes, rivers and seas. Plastic pollution can alter habitats and natural processes, reducing ecosystems' ability to adapt to climate change, directly affecting millions of people's livelihoods, food production capabilities and social well-being. UNEP's body of work demonstrates that the problem of plastic pollution doesn't exist in a vacuum. The environmental, social, economic and health risks of plastics need to be assessed alongside other environmental stressors, like climate change, ecosystem degradation and resource use.

**Status of EPR Implementation in India:**

As per a report on EPR in India ("A Detailed Explanation of the EPR Responsibility Policy in India," 2022) the concept of **EPR** responsibility is based on three foundation principles that are "Pollution prevention approach", "life cycle thinking", and "Polluter pay principle".

In the context of India, EPR has become highly relevant because the country with a population of Two Billion and an increase in living standards there is an increase in consumption levels and therefore increase in plastic and electronic pollution. There is a dire need to address rising waste management issues, especially plastic waste and e-waste. (*Ministry of Environment, Forest and Climate Change, n.d.*)

**Legislative Provisions of Implementing EPR in India:****Plastic Waste Management (PWM) Rules (2016) & Amendments**

Plastic Waste Management Rules from India, makes the producers, the importer, and the brand owner be accountable for collecting, recycling, and disposing of waste in a proper manner. This rule was introduced in



response to the Swachh Bharat Abhiyan, or "Clean India Mission", which was launched in 2014. The rules replaced the PWMH Rules, 2011. (Plastic Waste Management Rules Revised, n.d.)

The government focussed on requiring producers to enlist with the Central Pollution Control Board (CPCB) and be responsible for the collection of plastic packaging for recycling.

Companies have to ensure that the plastic produced is either recycled or reused through a defined system, thereby enforcing the implementation of EPR for plastic packaging.

### **E-Waste (Management) Rules (2016)**

These rules, along with their amendments, were one of the earliest examples of EPR in India. Producers of electronic products are responsible for collecting and managing e-waste either by setting up collection centres or partnering with authorized recyclers. Implementation also includes developing take-back systems and setting targets for recycling and safe disposal.

EPR is a critical part of India's environmental and waste management policies, especially with a focus on reducing plastic and e-waste. Listed below are some notable examples of Indian companies and industries taking action on EPR:

1. Hindustan Unilever Limited (HUL), has been working on various sustainability initiatives, including waste management and plastic recycling. The company has committed to reducing plastic packaging and increasing its recycling efforts, aligning with EPR norms set by the Indian government. HUL is part of the India Plastics Pact, which encourages producers to adopt circular economy principles, ensuring that plastic waste is recycled and reused efficiently.
2. ITC Limited, has committed to sustainable packaging and waste management. As part of their EPR initiatives, they are focusing on the collection and recycling of post-consumer packaging waste, and they work with authorized waste management agencies to fulfil their EPR obligations. They have also made efforts to use recyclable and biodegradable packaging for their products.
3. Nestlé India has set targets for reducing plastic waste through its EPR commitments. The company collaborates with various waste management partners to collect and recycle plastic packaging. They are also working on increasing the recycled content in their packaging and promoting the use of recyclable materials.
4. Dell India has established programs for the collection, recycling, and proper disposal of e-waste, in compliance with India's E-Waste (Management) Rules. It provides consumers with take-back services and partners with certified e-waste recyclers across the country.
5. Samsung India has implemented EPR for managing the lifecycle of electronic products. The company runs e-waste collection programs where consumers can return their old devices, and they ensure these are recycled through authorized channels. Samsung also focuses on the safe disposal of hazardous e-waste and ensures that its operations comply with Indian regulations.
6. Coca-Cola India has committed to implementing EPR for plastic packaging, ensuring that used plastic bottles are collected and recycled. They have been working on a "World Without Waste" initiative, which aims to recover and recycle a bottle or can for every one sold by 2030. The company collaborates with various waste management agencies to collect post-consumer waste.
7. Tata Motors is focusing on the recycling of automotive products, including batteries and plastic components, through EPR mechanisms. They have worked on reducing waste in vehicle manufacturing and improving the lifecycle management of their products.
8. ReNew Power while primarily focused on renewable energy, has taken steps towards EPR implementation with a focus on sustainability. They address plastic and packaging waste management through collaborations and have set up a framework for managing waste effectively.
9. Patanjali Ayurved has committed to EPR for plastic packaging and has joined initiatives aimed at reducing plastic waste through recycling. The company also focuses on reducing the overall use of plastics in their products.
10. Amul (GCMMF) has implemented EPR policies by collaborating with recyclers and waste management agencies to ensure that the plastic and packaging waste from its products is properly managed and recycled, adhering to government regulations.



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According to a report ‘Understanding EPR in E-waste management’ (Yerramsetti, 2024) Industry-Specific Initiatives in India include:

**Plastic Industry:** Many companies in the plastic manufacturing sector, such as Reliance Industries and Manjushree Techno-pack, are investing in recycling infrastructure to meet EPR targets. They focus on reprocessing plastic waste into useful products.

**E-Waste Management Companies:** Companies such as Attero Recycling and Ecoreco specialize in e-waste recycling and collaborate with producers to implement EPR for electronic goods.

### Challenges in EPR Implementation

The main challenge for India is to get the producers compliant and monitored under the EPR framework. Big companies are found to be complying with requirements, while smaller-sized producers in the country may struggle to comply with regulations. (CPCB / Central Pollution Control Board, n.d.)

Enforcing effective regulatory frameworks to support EPR is a mammoth task that includes setting clear guidelines, targets, and penalties for non-compliance, which may require substantial political will and resources.

Standardization and implementation of EPR systems across different regions is challenging due to diversity in economic, social and environmental factors. Stakeholders include producers, consumers, collectors, recyclers, and government authorities and they all need to cooperate at various levels and share a common goal for the EPR to work successfully. When there are conflicting interest or lack of engagement by the members involved, EPR implementation becomes a task.

The financial liability on the producer may act as a deterrent or lead to whitewashing as documented in the television documentary on over consumption (*Watch Buy Now*, n.d.)

Informal waste management sector in India plays a huge role in managing waste. Integrating them into formal sector is a challenging task.

Management of accurate data on product life cycles, waste generation, and recycling rates is a challenge that is crucial for the success of the EPR is the. It is very challenging to create reliable data collection and monitoring mechanisms, especially in developing countries with scarce resources. When the recycled material cannot compete with the virgin material on price or demand then the entire effort is not lucrative for a business to pursue.

Another important factor for waste management is infrastructure for waste collection and recycling. Inadequate infrastructure for collection, recycling, and safe disposal of waste in certain regions of India pose a challenge. There are many parts of the country facing inefficient waste management systems. In rural or semi-rural regions the waste management system is way below the average systems designed in bigger cities for waste management.

Consumers' involvement in recycling and waste management processes is the key to sustainable waste management system. Public awareness about basic facts like waste segregation and proper disposal is lagging. The public is not aptly aware of EPR mechanisms and producers liabilities, neither is the EPR highlighted enough by the companies. Lack of awareness usually leads to low involvement and ineffective systems.

### Recent Developments

- The Indian government is continuously updating and strengthening the EPR regulations. For example, the Plastic Waste Management Amendment Rules (2022) emphasize stringent guidelines on the collection and recycling of plastics by producers, especially for single-use plastics.
- There are also efforts to introduce deposit refund schemes for certain products to ensure their proper collection and recycling.

### Government's Role

- The Ministry of Environment, Forest and Climate Change (MoEFCC) and the CPCB (Central Pollution Control Board) play key roles in monitoring the implementation of EPR policies in India. They oversee the registration, reporting, and enforcement mechanisms for producers and waste management agencies.

EPR in India is in a nascent stage, with an evolving regulatory framework aimed at reducing the environmental impact of waste. However, challenges related to infrastructure, enforcement, and awareness persist, requiring continuous improvements and active participation from all stakeholders—government, industry, and consumers.



### Suggestions and the way forward for EPR

Producers will need to ensure the product is recyclable. Producers have to take into account the environmental implications of their products from the design stage. This is done by adopting eco-design principles that reduce waste and enhance recyclability to minimize the use of virgin materials and maximize the use of recycled materials.

There should be an EPR fee levied on producers to place their products in the market and this can be calculated on the basis of environmental impact of the product, its life span cost and cost of packaging. This will encourage environment friendly product and packaging design.

Infrastructure needs to be enhanced for collecting and recycling post-use products. Producers must financially contribute to the cost of collecting, sorting, and recycling their products, thereby ensuring continuous support for the activities. EPR has scope for incorporating informal waste workers into the formal waste management system, thereby improving their working conditions and livelihoods.

EPR works well when the stakeholders collaborate and share knowledge. Different stakeholder groups, including governments, industries, and consumers. This collaboration will result in best practices and knowledge-sharing channels that help countries establish efficient EPR models.

Involving consumers in the recycling process by rewarding their effort can strengthen the system.

There is usually a legislative and political framework supporting the success of EPR implementation. There can be national policies that set clear objectives of waste reduction, recycling, and the circular economy.

Political will and legislative support that encourages the development of EPR systems which consider national biodiversity roadmaps and waste reduction targets will be imperative.

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**THE POWER OF MACHINE LEARNING (ML) AND AI**

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**ABSTRACT**

*This research paper delves into the perceptions and understanding of machine learning (ML) and artificial intelligence (AI) among a sample of 101 individuals. A comprehensive questionnaire was administered to gauge respondents' knowledge and attitudes toward these technologies. The findings reveal a nuanced understanding of ML and AI, with respondents recognizing their transformative potential across various sectors. However, concerns about job displacement, ethical implications, and potential biases were also prevalent. The study emphasizes the need for responsible AI development and deployment, advocating for transparency, accountability, and ethical guidelines.<sup>1</sup> By understanding the public's perception of ML and AI, policymakers, researchers, and industry leaders can work collaboratively to shape a future where these technologies benefit society as a whole.*

**Keywords:** Machine Learning, Artificial Intelligence, Public Perception, Ethical AI, Job Displacement, Bias, Future of Technology

**INTRODUCTION**

Machine learning (ML) and artificial intelligence (AI) have emerged as powerful tools with the potential to revolutionize various industries and aspects of human life.<sup>2</sup> From healthcare to finance, transportation to entertainment, these technologies are reshaping the world around us.<sup>3</sup> However, as these technologies advance, it is crucial to understand public perceptions and concerns regarding their implications. This research paper aims to explore the knowledge, attitudes, and expectations of individuals regarding ML and AI.

By analyzing the responses to a comprehensive questionnaire administered to a sample of 101 individuals, this study seeks to shed light on the following key questions:

1. What is the level of understanding of ML and AI among the general public?
2. How do individuals perceive the potential benefits and risks associated with these technologies?
3. What are the primary concerns regarding the ethical implications of ML and AI?
4. How do individuals envision the future of work and society in the age of AI?

**RESEARCH METHODOLOGY:**

A structured questionnaire was developed to assess participants' knowledge, attitudes, and concerns regarding ML and AI. The questionnaire comprised ten multiple-choice questions covering a range of topics, including:

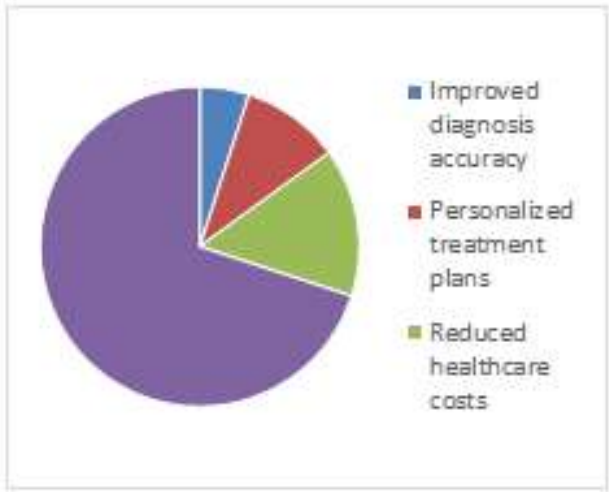
- Basic understanding of ML and AI
- Applications of ML and AI
- Ethical implications
- Job market impact
- Future of technology

A convenience sampling technique was employed to recruit participants. The sample consisted of 101 individuals from diverse backgrounds, including students, professionals, and individuals from various industries. The questionnaire was administered online, and responses were collected and analysed using statistical software.

**Analysis and Interpretation of data:**

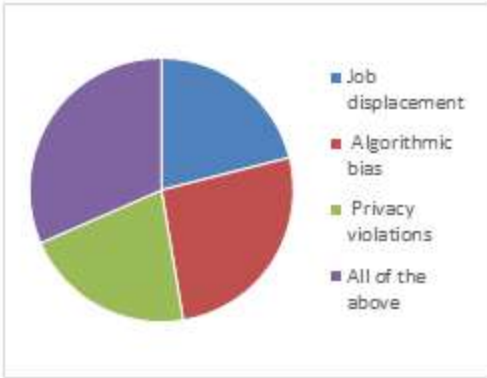
Machine learning can help doctors diagnose illnesses more accurately, create personalized treatment plans, and reduce healthcare costs. However, it does not necessarily improve patient privacy. In fact, using machine learning often involves collecting and analyzing large amounts of patient data, which can raise privacy concerns. So, while machine learning is a powerful tool in healthcare, protecting patient privacy remains a crucial challenge.





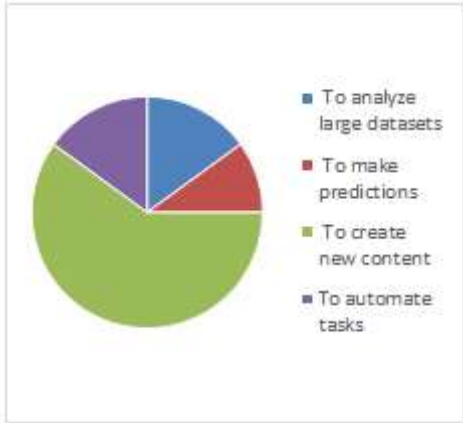
**Chart no.1:** Machine learning in healthcare:  
*Source:* Primary data

While all the options (a, b, and c) are valid ethical concerns related to AI, the option "All of the above" (d) often encompasses the broader implications of AI's impact on society. This includes potential job displacement due to automation, biases in AI algorithms leading to unfair treatment, and privacy violations as AI systems collect and analyze vast amounts of personal data. Therefore, it's likely that a significant portion of respondents would choose option (d) as the most comprehensive answer.



**Chart no.2:** A potential ethical concern related to AI  
*Source:* Primary data

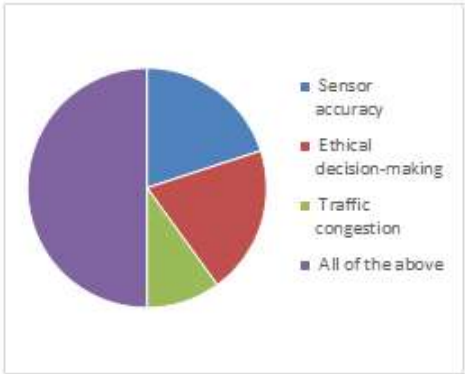
Generative AI is specifically designed to create new content, such as text, images, music, and code. This ability to generate novel content distinguishes it from other AI techniques. While AI can also be used for analysis, prediction, and automation, its core strength lies in its creative potential. Therefore, a higher percentage of respondents would likely choose option (c) as the primary function of generative AI.



**Chart no.3:** The primary function of generative AI  
*Source:* Primary data

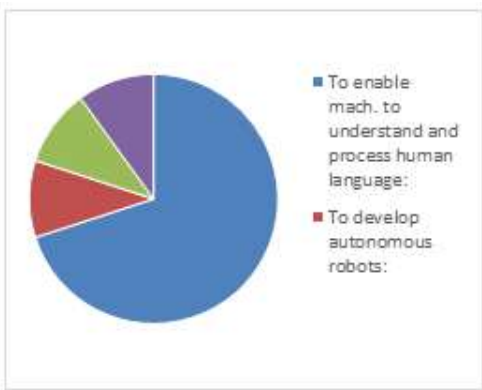


Developing autonomous vehicles presents a multifaceted challenge, encompassing technical, ethical, and infrastructural considerations. Sensor accuracy is crucial for reliable perception of the environment, ethical decision-making is necessary to navigate complex scenarios, and traffic congestion can impact the overall performance of autonomous vehicles. Given the interconnected nature of these challenges, many respondents would likely select option (d) as the most comprehensive answer.



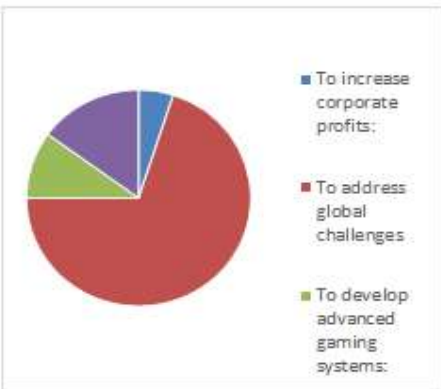
**Chart no.4:** key challenge in developing autonomous vehicles  
*Source:* Primary data

Natural Language Processing (NLP) is a field of AI specifically focused on enabling machines to understand, interpret, and generate human language. This capability is crucial for various AI applications, including chatbots, language translation, sentiment analysis, and information retrieval.



**Chart no.5:** The role of natural language processing (NLP) in AI  
*Source:* Primary data

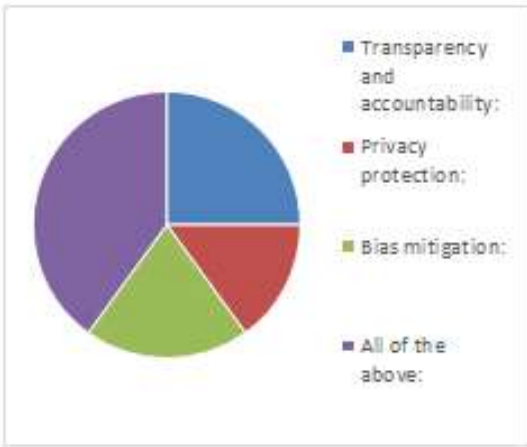
AI for social good aims to leverage AI technologies to address pressing global issues and improve human lives. This includes tackling climate change, reducing poverty, enhancing healthcare, and promoting sustainable development. While AI can be used for various purposes, its potential to address societal challenges is a significant driver for its development and deployment.



**Chart no.6:** The primary goal of AI for social good  
*Source:* Primary data



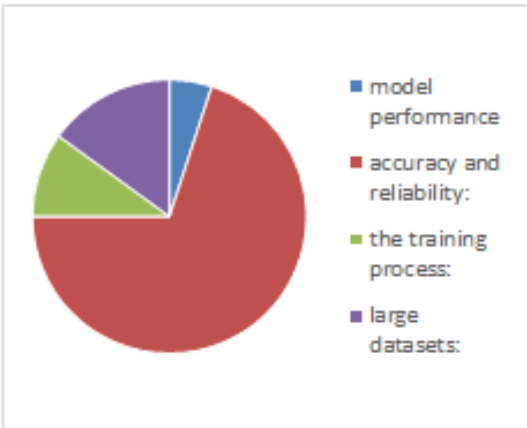
Ethical AI development requires a multifaceted approach that addresses transparency, privacy, and bias. Transparency ensures that AI systems are understandable and accountable, privacy protection safeguards sensitive information, and bias mitigation prevents discriminatory outcomes.



**Chart no.7:** A key factor in ensuring the ethical development

*Source:* Primary data

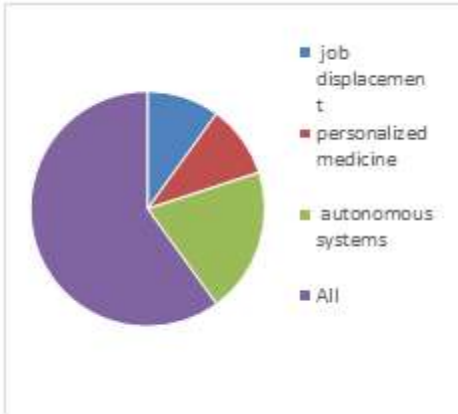
Data quality is a critical factor in machine learning. High-quality data leads to more accurate and reliable models. Poor quality data, on the other hand, can lead to biased, inaccurate, and unreliable models.



**Chart no.8:** The role of data quality in machine learning

*Source:* Primary data

The future of AI is likely to involve a combination of increased automation, advancements in healthcare, and the development of more intelligent systems. While each of these areas will experience significant growth, the overall impact of AI will be multifaceted.



**Chart no.9:** The future of AI likely to hold

*Source:* Primary data



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**CONCLUSION**

This research paper has shed light on the diverse perceptions and concerns regarding ML and AI. While these technologies offer immense potential for positive impact, it is crucial to address the ethical challenges and societal implications associated with their development and deployment.

To ensure a future where AI benefits humanity, it is imperative to:

- Promote transparency and accountability in AI development and deployment.
- Develop robust ethical guidelines to govern the use of AI.
- Invest in education and training to equip individuals with the skills needed to thrive in the AI era.
- Foster collaboration between policymakers, researchers, and industry leaders to shape responsible AI policies.

By addressing these issues, we can harness the power of ML and AI to create a better future for all.

**LIMITATIONS AND FUTURE RESEARCH:**

This study is subject to certain limitations, including the relatively small sample size and the convenience sampling method. Future research could explore these issues in greater depth by employing a larger and more diverse sample. Additionally, longitudinal studies could track changes in public perception over time.

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**SHORES OF OPPORTUNITY: UNLOCKING THE FUTURE POTENTIAL OF BLUE FINANCE IN INDIA**

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**ABSTRACT**

*India's coastline holds vast potential, with the blue economy leading the way for sustainable progress. This makes blue finance the most important tool in unlocking India's marine wealth. The paper looks at blue finance in India and why it matters. The paper provides a background to blue finance, its global evolution and relevance to India. It draws on examples from foreign countries to show a variety of applications of blue finance. The paper aims to explore how investors, governments, and nations gain from interventions made through blue finance and the future of blue finance in India. In this study author uses the method literature review sourced from journals, reports from related ministries, books, & news from national/international media. Through an analysis of existing conditions, this paper shall give an expansive view of Indian initiatives on Blue Finance.*

*In addition, looking forward, the paper is concerned with what can be done with blue finances in India by considering economic growth, environmental sustainability and social equity. It concludes by making recommendations on how sustainable development agenda can be pushed through various initiatives including Blue Finance for achieving these goals.*

**Keywords:** Blue Finance, Blue bond, sustainable development, fisheries, aquaculture, ocean, blue economy, technological diversity, Blue.

**1. INTRODUCTION****1.1 About Indian Coastline:**

India has 7,516 kilometres long coastline which incorporates 5,422 kilometres of coastline in mainland and 2,094 kilometres of coastline bordering around 1382 islands. It is a significant asset that offers immense potential for economic growth and sustainable development. The peninsular coastline of India is sculpted by Bay of Bengal in east, Indian Ocean in south and Arabian Sea in west and is spread over nine states and four union territories viz Maharashtra, Daman and Diu, Gujarat, Goa, Karnataka, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal along with two island groups viz. Lakshadweep and Minicoy in Arabian Sea and Andaman and Nicobar in Bay of Bengal. Indian coastline consists of diverse range of topography such as creeks, small bays, backwaters, rivulets, lagoons, estuaries, swamps, mudflats, as well as hills, rocky outcrops, sandbars, beaches and small islands.

Fishing continues to be the primary source of livelihood for people residing in the coastal area. India ranks as the world's 7th largest fishing nation, with its coasts home to around 4 million fishermen residing in 3,288 marine fishing villages. Besides fishing there are other major industrial activities carried out such as shipbuilding, manufacturing, oil exploration and refining etc. Indian coasts also includes a large number of centers which acts as a base for industrial and economic active- ties. There are numerous scientific research centers, nuclear power stations, energy infrastructure, shipyards located in coastal regions which are of utmost importance for India. India's coastline hosts 13 major ports and 147 intermediate and minor ports that support extensive sea trade, offering the most cost-effective transportation method. Approximately 90% of the country's foreign trade by volume and nearly 70% by value are conducted via maritime routes.

**1.2 About Blue Economy & blue finance**

The conception of blue economy is targeted towards the sustainable & use of ocean resources for economic growth, improving livelihoods and creation of jobs while preserving the most favorable health of ocean ecosystems. It has emerged as an important sector for national progress. Blue economy is correlated with blue finance, its a specialized financial strategy which is aimed at funding sustainable ocean-related activities and through this paper we are going to investigate the latent, its importance and application of blue finance in India, to unlock the country's marine wealth thereby providing the solution to the existing concerns.

Blue finance involves mobilizing financial resources to support projects that contribute to the sustainable use of ocean resources, which encompasses a range of activities, including sustainable fisheries, aquaculture, renewable energy, and marine conservation. Blue finance stands out as a critical tool to drive investment in these areas of Blue Economy.



With blue finance has evolving significantly, various countries implementing innovative financial mechanisms to support their blue economies. For example, countries like Seychelles and Indonesia have successfully launched blue bonds to fund marine conservation and sustainable fisheries projects. By probing this examples, this paper aims to highlight the diverse applications of blue finance and their relevance to India.

The paper also inspects the roles of various participants, including investors, governments, and international organizations, in promoting blue finance. Investors are increasingly recognizing the value of sustainable investments, and blue finance presents a unique opening to achieve both financial returns and positive environmental impact. Governments play a important role in creating an enabling environment for blue finance through policies, regulations, and incentives.

In terms of methodology, this study conducts a comprehensive literature review, drawing on a wide range of sources such as academic journals, government reports, books, and news articles from both national and international media. This approach ensures a thorough understanding of the current state of blue finance, its applications, and its potential in India. By analyzing current conditions and initiatives, the paper provides a detailed overview of the growth made so far and identifies areas for further development.

Looking forward, the paper discusses the future of blue finance in India, considering the three pillars of sustainable development of blue finance in India: economic growth, environmental sustainability, and social equity. It examines how blue finance can add to achieving these goals by funding projects that promote sustainable economic undertakings, protect marine ecosystems, and enhance the livelihoods of coastal communities. The paper concludes with recommendations on how to strengthen blue finance initiatives in India, highlighting the need for collaborative efforts among stakeholders to push the sustainable development plan forward.

Blue finance represents a promising avenue for solving the future potential of India's blue economy. By leveraging financial resources to sustain sustainable ocean-related activities, India can achieve substantial economic, environmental, and social benefits. This paper aims to provide a comprehensive understanding of blue finance, its relevance to India, and the steps needed to realize its full potential. Through strategic investments and coordinated efforts, blue finance can play a crucial role in carrying out sustainable development and securing a wealthy future for India's coastal and marine regions.

### **1.3 Origin of Blue Economy in India:**

The concept of the blue economy is not new to India; it is a concept dating back to the launching of the Blue Revolution during the 7th Five Year Plan (1985-1990). This marked the beginning of a concerted effort at enhancing the country's fisheries sector. In the 8th Five Year Plan, an Intensive Marine Fisheries Programme was introduced in 1992-1997; hence, huge fishing harbors were established at Vishakhapatnam, Kochi, Tuticorin, Porbandar, and Port Blair. The Nili Kranti Mission aimed further at improving India's economic condition by increasing fisheries production for food and nutritional security. The Neel Kranti Mission worked toward the sustainable use of water resources for fisheries sector development, which guaranteed long-term benefits to the economy and the environment alike.

### **1.4 Current Blue Finance Scenario in India:**

The blue finance sector in India is developing at the moment, as the government has initiated a variety of projects that harness the potential of its huge marine resources. Although only at its nascent stage, quite a few activities are being instituted to promote investments for sustainability relating to the ocean. The developments related to it are as follows:

#### **1.4.1 The India-Norway Task Force on Blue Economy for Sustainable Development 2020**

The India-Norway Task Force on Blue Economy for Sustainable Development, established in 2020, is a combining effort en masse between India and Norway in fast-tracking sustainable development through the blue economy. It treats very important issues of marine pollution, ocean governance, and the sustainable use of marine resources. One of the key goals of the task force will be to end marine pollution, with strategies aimed at reducing plastic wastes and other pollutants into the ocean. This will, therefore, involve developing and promoting sustainable waste management practices and innovation in technologies for the cleanup of the ocean. The partnership also notes the sustainable use of marine resources, entailing those activities associated with the growth of blue economy sectors in aquaculture, renewable energy, and maritime transport. The cooperation will allow India and Norway to build capacities toward finding solutions to global environmental challenges and the sustainable use of ocean resources for present and future generations.



**1.4.2 Deep Ocean Mission 2021:**

The Deep Ocean Mission of India is a national program started in 2021, whose prime objectives are exploration and exploitation of marine resources existing in the deep oceans of the country. It has multiple objectives related to deep-sea mining, exploration of marine biodiversity, development of underwater technologies, and studying climate change impacts on the ocean. The Deep Ocean Mission will contribute much towards enhancing scientific knowledge and technological know-how in opening up the deep sea for sustainable development and economic growth.

**1.4.3 Interim Budget 2024-25 & Its stance On Blue Economy:**

The Interim Budget for 2024-25 has made a huge commitment. The financial outlay of 'Blue Revolution' increased from Rs 2,025 crore in the fiscal year 2023-24 to Rs 2,352 crore for the current fiscal year. The Minister of Finance, Nirmala Sitharaman, announced that there would be an intensification in the implementation of the Pradhan Mantri Matsya Sampada Yojana for increasing aquaculture productivity and exports by two-fold, with more employment generation. Noting that Blue Economy 2.0 would promote climate-resilient activities, she said, "For effective restoration and adaptation measures, a scheme would be launched. Coastal aquaculture and mariculture, with an integrated and multi-sectoral approach for the first time, will be launched." Besides, she said five integrated aquaparks would be established.

However, ocean scientists have warned against unbridled aquaculture—the same over-production has brought in an economic downturn in Southeast Asia and Norway earlier, where salmon aquaculture crashed the price and rendered fishermen bankrupt. Whether regulatory institutions are adequate to stave off such a situation in India is not yet clear. Sitharaman's speech on the Blue Economy did not once touch upon the issues of mitigation of hardships of fisherfolk or their rights.

**1.5 Potential Applications of Blue Finance:****Renewable Energy**

Blue finance can be used to promote the development of offshore wind and tidal energy projects. Some of the initiatives in this sector include the proposed wind farms off Gujarat and Tamil Nadu coasts. This would help contribute to India's renewable energy goals and lessen dependence on fossil fuels to promote environment-friendly sustainable development.

**Coastal and Marine Tourism:**

Blue finance has huge potential to make a difference toward sustainable coastal and marine tourism. Places like Goa and Andaman & Nicobar Islands can be promoted as ideal destinations where tourism can be developed in an environmentally friendly way, thus supporting local economies while also protecting natural habitats.

**Mangrove Restoration:**

They play a very significant role in coastal defence and biodiversity. Current mangrove restoration efforts can be scaled up and financed with blue finance to aid in building resilience to the impacts of climate change in coastal communities and preserve marine biodiversity.

**1.6 Challenges and Opportunities:****Regulatory and Policy Framework:**

An analysis of the existing regulatory and policy framework in India related to the blue economy indicates several gaps that are to be addressed. Simplification of the policies and regulations may facilitate the growth of blue finance. Recommendations comprise easing the regulatory process and increasing coordination among the different government agencies.

**Private-Public Partnerships:**

Public-private partnerships are very important in blue finance projects. Successful collaboration can be seen in examples related to infrastructure development or even conservation projects of an environmental nature. This can be invested in the future through areas like sustainable fisheries, coastal tourism, and renewable energy.

**Capacity Building and Awareness:**

A linkage in the form of capacity building cum awareness programs is needed to familiarize all stakeholders with the benefits and mechanism of blue finance. Organizations like NIOT and INCOIS can play an important role in such initiatives.

**2. AREA OF STUDY**

The scope of this research is to take a look at the implementation, development and impact of blue finance in India. This study will probe into the financial mechanisms of blue finance and analyze its potential to contribute to



sustainable development and economic growth. By examining the case studies from neighbouring and foreign nations, the research aims to provide practicable insights and recommendations for the Indian context.

### **3. OBJECTIVES**

1. To explain the concept of blue finance and its connection to achieve sustainable development.
2. To review the development and application of blue finance across the globe
3. To analyse the ongoing scenario of blue finance in India which includes existing initiatives, regulations, and challenges.
4. To assess the available opportunities and possible barriers for the growth of blue finance in India.

### **4. METHODOLOGY**

This research will resort to qualitative approach, comprising of comprehensive literature review along with in-depth analysis of case study. Data will be collected from reports, academic articles, policy documents, and case studies. The analysis will be focused on identifying best practices, challenges, and following the blueprint of other countries which can act as a guide for India.

### **5. LIMITATIONS**

While this research aims to provide a clear picture of blue finance there are limitations on the availability of data and the scope of existing studies. The primary focus will be on secondary data sources. Furthermore, the ever-changing nature of financial markets and regulatory framework means that some findings may evolve over time.

### **6. REVIEW OF LITERATURE**

Even though the ocean and freshwater financing holds immense importance with respect to the overall development of a nation the current available literature on blue bonds and blue finance is limited due to low exposure and stringent legal framework of different nations. Majority of the papers only highlight limited case studies which again restricts the availability of information. However if we look at the historical background of blue finance one of the key event was when the first sovereign blue bond was issued by Seychelles in the year 2018 which proved to be a significant advancement in blue finance. Other global initiatives for example United Nations' Sustainable Development Goal 14 (Life Below Water), have provided frameworks for the growth of blue finance. Moving forward some studies have attempted to decipher the entire blue bond market but their insights can be limited by the small number of issued blue bonds they draw from.

#### **Case Studies from Neighboring and Foreign Nations**

##### **6.1 Indonesia: sovereign Blue Bond**

**Overview:** In May 2023 Indonesia became the first nation to publicly offer the sovereign blue bonds aligned with International Capital Market Association (ICMA) principles in the Japanese debt capital market, raising JPY 20.7 billion (US\$ 150 million). It was issued with the maturity period being 7 and 10 years bearing a coupon rate of 1.2 & 1.43% respectively. The proceeds from blue bond issuance will provide a significant boost to the Indonesian blue economy. The major objective if this issuance is to achieve coastal protection, marine biodiversity conservation, sustainable management of fisheries and aquaculture, mangrove rehabilitation. The Indonesian government is planning to develop its blue economy to manage its marine and coastal ecosystem thereby creating economic opportunities and promoting sustainable livelihoods. This sovereign blue bond and expected issuance in future may help to bridge the financing gap for sustainable development growth which is estimated to reach US\$1 trillion by 2030.

**Outcome:** The issuance of sovereign blue bonds raised a capital of (JPY 20.7 billion) which will be utilized for coastal protection, marine biodiversity, sustainable fisheries, and mangrove rehabilitation, boosting the blue economy.

**Lessons Learnt:** This unique initiative taken by Indonesia throws light on the effectiveness of sovereign blue bonds which can potentially attract investment for sustainable marine projects and at the same time it showcases the potential of such financial instruments which can bridge funding gaps in sustainable development.

##### **6.2 China: Blue bond 2020**

**Overview:** The opportunities for blue finance in China are vast. China's mainland coastline measures approximately 18,000 km which includes many harbours and docks and majority of them are ice-free which can be used throughout the year. The Chinese mainland has a total maritime area of 4.73 million square kilometres, according to official Chinese data. In addition, it has more than 1,500 rivers flowing throughout the nation. In



the year 2020 the Bank of China issued Asia's first blue bond, which helped them in raising almost \$1 billion. proceeds of these blue bonds were used to give an upper hand in the expansion of sustainable blue economy through marine-related green projects and wastewater treatment across various domestic and overseas markets.

**Outcome:** The issuance of Asia's first blue bond by the Bank of China in 2020 was a significant milestone. It helped them in successfully raising nearly \$1 billion. This initiative helped to enhance marine ecosystems, improved water quality, and increased economic growth in coastal regions. Furthermore, it acted as a catalyst in spreading awareness and creating interest about blue finance, thereby encouraging other financial institutions and regions to delve into similar sustainable financing options. The bond also had an impact on policy and regulatory frameworks, supporting blue finance and sustainable maritime activities.

**Lesson Learnt:** The blue bond issuance by one of the biggest economies in the world demonstrated that the market is gearing up for innovative financial instruments which aims at sustainability. Clearly defined objectives and transparency in the use of funds raised were crucial for gaining investor trust and ensuring the bond's success. Timely monitoring and reporting mechanisms ensured that the project is on track. Finally, the project highlighted the scalability and replicability of blue bonds as a tool for sustainable development, aligning economic strategies with environmental sustainability goals.

### 6.3 Asia & Pacific: Asian Development Bank Blue bonds for ocean investments.

**Overview:** In 2021, the Asian Development Bank issued its inaugural blue bonds, a landmark transaction helping to support sustainable ocean projects in the Asia-Pacific region. The issuance was part of the ADB Action Plan for Healthy Oceans and Sustainable Blue Economies, which targets at least US\$5 billion in ocean projects by 2024. The blue bonds raised approximately A\$208 million and NZ\$217 million from some of the largest life insurance companies.

**Outcome:** The proceeds from these blue bonds must be applied for projects focused on system restoration, including those for sustainable fisheries and aquaculture, reduction of coastal pollution, circular economy projects, marine renewable energy, and green port development. These are activities that contribute to the attainment of Sustainable Development Goal 14, dealing with the conservation and sustainable use of oceans, seas, and marine resources.

**Lessons Learnt :** The Asian Development Bank's issuance of blue bonds in 2021 has furnished valuable lessons. Innovative financial instruments, like blue bonds, are able to attract a pool of investors that is both diversified and substantially raises capital flows towards projects supporting the environment. In particular, the success of these bonds has underlined the importance of a long-term financial commitment that will, at times, reach tenors as long as 15 years to match the needs of the initiatives promoting sustainable ocean health. The replicability and scalability of ADB's blue bond framework provided a workable model whereby any project could be similarly financed by any other country. Finally, investments made in the protection and restoration of ocean ecosystems contribute to attaining sustainable economic growth and job creation, hence putting a clear case of dual benefits between environmental sustainability and economic development.

### 6.4 Sustainable Ocean Investments:

**Overview:** A Johnson and Torres, 2022 study is done to understand how investments in sustainable ocean activities contribute to climate resilience globally. The research outlines the growing importance of financial mechanisms such as blue bonds and their role in funding renewable ocean energy projects, marine biodiversity protection, and sustainable fisheries. By studying successful cases of the Caribbean and Pacific regions, the research study emphasizes how such mechanisms can be adapted for developing countries, such as India, to fulfill the funding gap in blue economy.

#### **Outcome:**

Johnson and Torres (2022) highlight that sustainable ocean investments have strengthened climate resilience by funding renewable energy, marine biodiversity protection, and sustainable fisheries. The success of these projects in the Caribbean and Pacific regions shows promising environmental and financial returns, suggesting that India could adopt similar strategies to address its marine challenges.

#### **Lessons Learnt:**

The study emphasizes the importance of innovative financial mechanisms like blue bonds and the need for transparent financial structures to foster investor confidence. It also highlights that involving local communities and ensuring effective monitoring are key for the long-term success of blue finance projects. India can benefit from integrating these approaches for a sustainable blue economy.



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### 6.5 Blue Economy and SDGs:

**Overview:** Kumar and Sharma (2021) explore the linkages between the blue economy and SDGs, especially the 14th SDG, which deals with 'life below water'. The study highlights the scope for blue finance to achieve India's sustainability goals while promoting economic growth. The authors argue that strategies for the blue economy should involve policy reforms, adoption of technology, and public-private partnerships to sustainably achieve success. According to their findings, such designed initiatives could greatly benefit the coastal regions of India.

**Outcome:**

Kumar and Sharma (2021) demonstrate that blue finance is pivotal for achieving India's SDG 14, focusing on life below water. Their study reveals that blue finance can help finance sustainable ocean projects, promoting the sustainable use of marine resources while contributing to economic growth, particularly in India's coastal areas.

**Lessons Learnt:**

The study highlights that blue finance policies must align with SDGs for successful implementation. Public-private sector cooperation, along with regulatory reforms and technology adoption, is essential. India can accelerate progress toward SDG 14 by integrating blue finance into its national development strategy with a focus on sustainability and inclusive growth.

### 6.6 Blue Bonds for Marine Conservation

**Overview:** Smith and Green (2020) discuss the role of blue bonds in financing marine conservation projects. Their research focuses on case studies from Seychelles and Indonesia, where the bonds were used to finance initiatives such as coral reef restoration and sustainable aquaculture. The study also identifies the challenges that arise during implementation, such as regulatory bottlenecks and investor skepticism, providing recommendations that can guide India in developing its blue bond framework for similar conservation goals.

**Outcome:**

Smith and Green (2020) show that blue bonds successfully funded marine conservation projects in Seychelles and Indonesia, including coral reef restoration and sustainable aquaculture. These bonds have contributed to marine health improvements and have shown potential for broader adoption in other countries, including India.

**Lessons Learnt:**

The study stresses the importance of clear objectives, transparency, and regulatory frameworks for the success of blue bonds. Effective monitoring and investor confidence are crucial. For India, blue bonds could be a viable tool for marine conservation if there is a supportive regulatory environment and projects with measurable environmental impacts.

### 6.7 Public-Private Partnerships in Blue Finance:

**Overview:** Thakur et al. (2023) explore the role of PPPs in promoting blue finance, with a focus on emerging economies. The author's study identifies successful models of collaboration in coastal tourism, renewable marine energy and sustainable fisheries. Drawing some lessons from examples in southeast Asia and Latin America the authors suggest that India too can replicate such models to strengthen its Blue Economy. The paper offers that crucial success factors include policy coherence, financial incentives, and robust stakeholder engagement.

**Outcome:**

Thakur et al. (2023) found that public-private partnerships (PPPs) have been crucial in advancing blue finance, especially in sectors like coastal tourism, renewable marine energy, and sustainable fisheries. Their study highlights successful models from Southeast Asia and Latin America, suggesting that India can adopt similar strategies to strengthen its blue economy by involving both public and private sectors.

**Lessons Learnt:**

The study emphasizes that effective PPPs require clear policy frameworks, financial incentives, and robust stakeholder engagement. Successful collaborations also depend on the alignment of long-term goals between governments and private enterprises. For India, fostering such partnerships could help bridge the funding gap in blue finance and ensure the sustainability.



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## 7. RECOMMENDATIONS:

### **Establish a Task Force on Blue Finance:**

This can also be done through the establishment of a taskforce composed of government agencies, financial institutions, and environmental organizations aimed at coordinating and advancing blue finance initiatives. The task force shall develop strategic plans, pinpoint priority projects, and work on facilitating investments.

### **Innovative Financial Instruments:**

Innovating financial instruments specific to the Indian scenario, such as blue bonds and marine conservation credits, is imperatively needed. These can, in turn, be designed for investments from both domestic and international investors to gain the funds needed for sustainable marine-based projects.

### **Policy Incentives:**

Announce policy incentives for the investors in blue finance in the form of tax breaks, subsidies, and guarantees against risks, and that shall stimulate investment. These can be adapted from successful models in other countries, modified to suit the uniqueness of the needs and conditions of India.

### **Global Partnership:**

The international collaboration on blue finance and sharing of knowledge need to be encouraged. Such partnerships will bring in technical expertise, funding, and best practices from organizations such as the World Bank, the Asian Development Bank, and the United Nations to drive the blue economy in India.

## 8. CONCLUSION

The concept of the blue economy is surely related to the strategic application of blue finance in such a way that it creates an opportunity that is unique for India to responsibly and sustainably exploit this potential. The global evolution of blue finance and its possible relevance for India underlines the need for innovative financial mechanisms that could fund sustainable ocean-related activities. The government of India has indeed taken a few initiatives on the blue economy, including the Deep Ocean Mission and the Indo-Norway Task Force on Blue Economy for Sustainable Development. If anything at all, what the Interim Budget of 2024-25 does is strengthen this commitment through increased allocations to the Blue Revolution and new schemes for enhancing productivity in aquaculture and promoting activities that are resilient to climate change. Even though India is working to improve blue economy the fact that this concept is still in its nascent stage and need much more structured approach in order to iron out the current challenges and unleash its full potential cannot be denied. Taking lessons from the case studies of successful examples, such as the sovereign blue bonds issued by Indonesia and China, India can develop a framework for blue finance that aligns with its unique needs and conditions. The Indian blue financing frontier ranges from the development of renewable energy and coastal and marine tourism to the restoration of mangroves and the management of sustainable fisheries. Doing all this will require attention to regulatory and policy gaps, strengthening public-private linkages, and building stakeholder capacity and awareness.

Through such strategies, India will be creating an enabling environment for sustainable investments that would promote economic growth in a manner securing environmental sustainability and social equity. This new source of capital has huge potential to help push the sustainable development of the blue economy in India. Strategic investments and collaborative actions can create enormous economic, environmental, and social returns for India by giving its coastal and marine regions a prosperous future. The paper presents an overview of blue finance, its relevance to India, and the steps that can be taken to unlock the full potential of the same toward the sustainable development agenda for the nation.

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**EMPLOYER HIRING PREFERENCES - A STUDY ON ONLINE & AI DRIVEN VS IN-PERSON INTERVIEWS IN DOMESTIC AND INTERNATIONAL MARKETS**

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**Dr Rakhi Sharma<sup>1</sup> and Mr Usman Gheewala<sup>2</sup>**<sup>1</sup> Director, Jai Hind College, Mumbai, India,<sup>2</sup> Student Research Scholar, Jai Hind College, Mumbai, India**ABSTRACT**

*This research delves into the preferences and mindsets of employers regarding two primary forms of interviews in person and online – in the context of talent acquisition within both domestic and international markets. It investigates employers' perceptions of these two modes, explores how their selection varies across diverse factors, and examines the impact of the COVID-19 pandemic on the surge of online interviews. Factors influencing the choice of interview mode, such as cost-effectiveness, urgency, job roles, and company values, are analyzed comprehensively. Through rigorous studies and evaluations, this thesis offers valuable insights and recommendations to various stakeholders, aid employers in optimizing their interview processes and enhancing talent acquisition strategies in an evolving global landscape. In conclusion, while online and AI-driven interview methods offer efficiency and accessibility, the study underscores the enduring importance of face-to-face interactions in the hiring process. Despite technological advancements, traditional interviewing remains essential, as it allows for the nuanced assessment of instincts and body language cues critical for evaluating candidate suitability which is not possible through online mode of conducting interviews. This suggests a preference for using a hybrid approach while conducting hiring interviews among employers.*

*Keywords: Hiring, Interviews, Recruitments, job role, employee, human resource*

**1. INTRODUCTION**

In today's rapidly evolving job market, traditional methods of conducting interviews are being reshaped by advancements in technology. Employers now have access to a variety of interview formats, including AI-driven and online interviews, alongside the traditional in-person approach. Understanding the preferences of employers regarding these different interview modes is crucial for both job seekers and recruitment professionals. Hiring the right employees is vital for the success of any business. Companies that prioritize finding the right fit for their organization often find themselves in a better position to achieve long-term growth and profitability. In today's competitive business landscape, having the right employees is crucial for a company's growth and ensures businesses can stay competitive in their industry and continually improve their products, services, and processes. Building a strong team with the right skills, motivation, and alignment with your company's values lays the groundwork for long-term success. The right employees contribute to a thriving organizational culture, increased productivity, enhanced customer satisfaction, and foster innovation and growth. The hiring process is an investment in the future of an organization, and recruiting the right talent is an essential component. The hiring and recruitment process, though very distinct across various fields, industries, and job roles, in general, refer to the process of reviewing applications, selecting the right candidates to interview, testing candidates, choosing between candidates to make the hiring decision, and performing various tests. The hiring process is a critical part of the entire recruitment strategy. Online Interviews are also referred to as virtual interviews. They take place remotely, sometimes over the phone, but often using technology like video conferencing and other online communication platforms. After covid there has been notable change in how companies recruit and onboard new talent. It's observed that there's a significant rise of remote working, geographically dispersed teams, virtual interviews, improved collaboration tools and technology, increased employee demands around work/life balance, and evolution in HR policies. Though some of these changes have gone back to the way it was after normalcy restored post pandemic, the virtual interview processes have become the norm. According to a study conducted 9 in 10 organisations still prefer conducting virtual interviews, the study conducted by interview solution provider InCruiter sheds light on the impact of virtual interviews on the modern hiring landscape. The study encompassed insights from 150+ organisations across various industries like IT, e-commerce, healthcare, startups, etc. providing data on the shift to virtual interviews in response to the Covid-19 pandemic and the subsequent evolution of hiring practices. Pre-pandemic, face-to-face interviews dominated the first round of hiring processes, accounting for over 75% of interviews. However, post-pandemic, the paradigm has shifted drastically, with 90% of organisations now conducting virtual interviews in the initial stages. This 93% increase in the use of virtual interviews demonstrates the rapid adoption and acceptance of virtual hiring methods. On average, HR managers reported saving up to 14 hours a week through the adoption of virtual interviews. This increase in efficiency has also positively impacted the quality of hires for many companies. Access to a global talent pool and streamlined hiring processes have resulted in improved talent acquisition,



leading to a substantial 93% of employers continuing to use virtual interviews. The decision of conducting online or offline interview is dependent on various factors, including the job role complexity, hiring timeline and urgency, cost considerations, geographical reach, communication and interpersonal skills assessment, technical proficiency evaluation, cultural fit and company values alignment, candidate experience and perception, and the preferences of the employer and the applicant. Both types of interviews have their advantages and disadvantages, and the choice between the two depends on what works best for the specific hiring situation. This research aims to study the preference of employers and their mindset towards the two major forms of interviews i.e. offline and online while hiring talent in the domestic and international market. It studies the employers' perception towards the two modes, how the choice differs based on various factors and how the COVID-19 pandemic has led to an increase in online mode of interviews. The thesis discusses some key factors that create an impact on the choice of mode of interviews selected such as cost effectiveness, urgency, job role, company values, etc. Upon conducting studies, evaluation is performed and recommendations are put forth.

## 2. RESEARCH METHODOLOGY

**2.1 Research Question** The study aims to investigate the predominant preferences of employers for conducting interviews, comparing online & AI Driven methods with traditional in-person approaches, in Domestic & International Market.

### 2.2 Research Objective

1. To evaluate key factors and investigate the current trends and preferences among employers for conducting interviews, focusing on online vs in person methods.
2. To identify factors that influence employer's hiring preferences when interviewing in domestic and international markets.
3. To explore specific challenges associated with online and in-person recruitment methods for employers.
4. To understand the relevance & effectiveness of traditional in-person interviews in the rapidly evolving technological landscape.

### 2.3 Data Collection

Primary form of research has been carried out by conducting surveys with the help of an online questionnaire. The interviews have been conducted among different groups of people from different sectors including Business Owners, CEO and Hiring Managers. Secondary data consists of various articles, journals & review of literature that were read through to gain in-depth knowledge.

### 2.4 Research Design

The researcher has employed research design to systematically gather information from the target audience, i.e. various employers of renowned companies with the help of surveys. With descriptive research could gauge employer's hiring preferences towards online vs in person modes of interviewing by analysing factors and understanding respondents' characteristics like designation to identify trends and relationships between variables. **Sampling Method used is** Convenience sampling **with Sampling Size of** 47 Responses and 5 Personal Interviews. The **Statistical Tools Used are** Bar Graph, Line Graph, Pie Charts, Column Graph & Mode

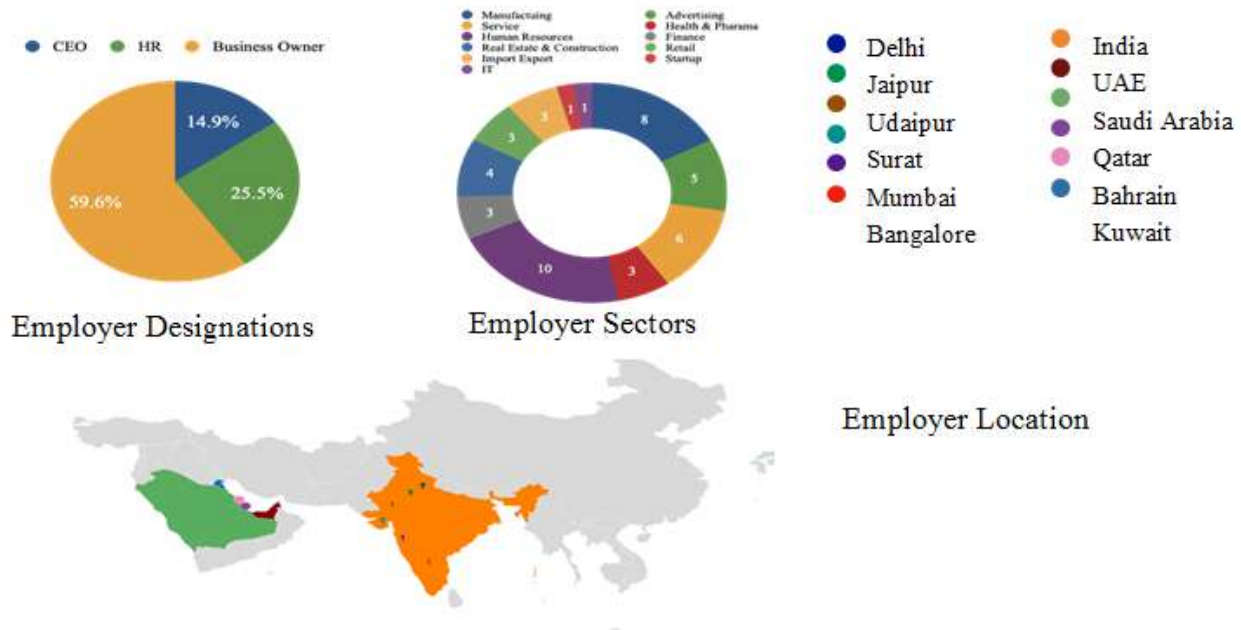
### 2.5 Limitations

- A. The research's duration and resources may restrict to go deep into extensive analysis and data collection.
- B. External factors such as economic conditions, cultural trends and competition may also affect employer's preferences which is not fully accounted for in this study.
- C. The small sample size, particularly in the CEO and HR categories, may limit the generalisability of findings due to limited access to employers and business professionals.
- D. The majority of respondents being from India may introduce regional biases that could affect the applicability of findings to other regions or countries.



### 3. DATA ANALYSIS & INTERPRETATION

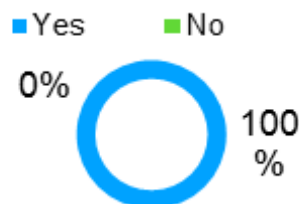
#### 3.1 Demographic Profile



The data reveals that out of the total sample, 60% of respondent are **business owners**, 26% are **HR professionals** including HR Managers, talent acquisition recruiters , HR generalist etc & only 15% are employers are **CEO's** of their respective companies. Respondent are from various sectors including Manufacturing, Human Resources, Advertising, Retail , Finance , Real estate etc. Out of the total sample , 85% of respondent are from the Indian subcontinent & 15% are from the GCC belt including countries like Qatar, Bahrain, UAE, Kuwait & Saudi Arabia.

#### 3.2 Individualistic Analysis

QI - Are you involved in the hiring process of new employees ?



Interpretation-**All the respondents** of the survey are involved in the hiring process of the new employees for their respective organisations, suggesting that the respondents are either decision maker or involved in the hiring process of employees.

QII Which of the following best describes your company's interview process ?

	Business Owner	HR	CEO
One-on-one in-person interview with the hiring manager	13	2	1
Phone screening followed by an in-person interview with the hiring manager and team	4	0	2
Multiple rounds of interviews which may include a combination of online video conferencing, phone screenings, and in-person assessments	4	10	3
Only online assessments & interviews	0	0	0
Only in-person assessments & interviews	7	0	1



### Interpretation

- a. Business Owners-**Among the surveyed business owners, the interview process used at their respective organisations varied widely. The most preferred method with 46% responses is the one-on-one, in-person interview with the hiring manager, indicating a preference for direct interaction and assessment. Additionally, a significant portion of respondents with 25% responses opt for solely in-person assessments and interviews, showing the importance of face-to-face evaluation. 29% respondents prefer a multi-step approach, including phone screenings followed by in-person interviews with both the hiring manager and team, suggesting a desire for comprehensive candidate assessment. None of the respondents reported utilizing solely online assessments and interviews, indicating a lack of preference for virtual methods in the hiring process.
- b. HR-**Among HR professionals, the survey reveals varied preferences in interview processes. Notably, 16% of respondents show a small preference for one-on-one, in-person interviews with the hiring manager, the predominant choice is multiple rounds of interviews with 84% of respondents selecting that option. There are no reported preferences for screenings followed by in-person interviews, nor for exclusively online or in-person assessments and interviews. This data implies that HR professional's prefer multi-faceted interview evaluations process including both online and offline modes of conducting interview.
- c. CEO-**Among CEOs, there is a relatively balanced distribution of interview process preferences, with 14 % responses for one-on-one in-person interviews, 28% responses for phone screening followed by in-person interviews with the team, and 14% responses for only in-person assessments and interviews. 43% responses reported employing multiple rounds of interviews, potentially including a mix of online, phone, and in-person assessments. None of the CEOs indicated a preference for exclusively online assessments and interviews.

QIII What is your primary role in hiring process?

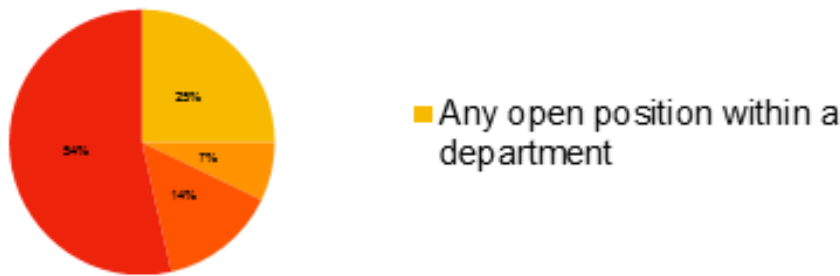
	Business Owner	HR	CEO
Conduct the initial screening interview to shortlist candidates	0	2	-
Evaluate shortlisted candidates and make the final hiring decision	15	-	6
Conduct the technical evaluation round during the interview process	3	-	-
All of the above	10	10	1

### Interpretation

- a. Business Owners-**Among business owners surveyed, the majority, 53% are primarily responsible for evaluating shortlisted candidates and making the final hiring decision. 11% respondents conduct the technical evaluation round during the interview process, indicating a hands-on involvement in assessing candidates' skills and qualifications. 36% respondents reported being involved in all aspects of the interview process, from initial screening to final decision-making. None of the respondents indicated solely conducting the initial screening interview to shortlist candidates.
- b. HR-**Among HR professionals surveyed, 83% respondents indicated that they conduct all stages of the interview process, including initial screening, evaluating shortlisted candidates, and making the final hiring decision. 17% respondents reported conducting only the initial screening interview to shortlist candidates.
- c. CEO-**Among CEOs surveyed, 86% selected that they are responsible for evaluating shortlisted candidates and making the final hiring decision. Additionally, 14% of CEO's reported being involved in all aspects of the interview process, including conducting the initial screening interview to shortlist candidates, evaluating shortlisted candidates, and making the final hiring decision. This suggests a significant level of involvement from CEOs in the final stages of the hiring process, indicating their direct influence on candidate selection and decision-making.

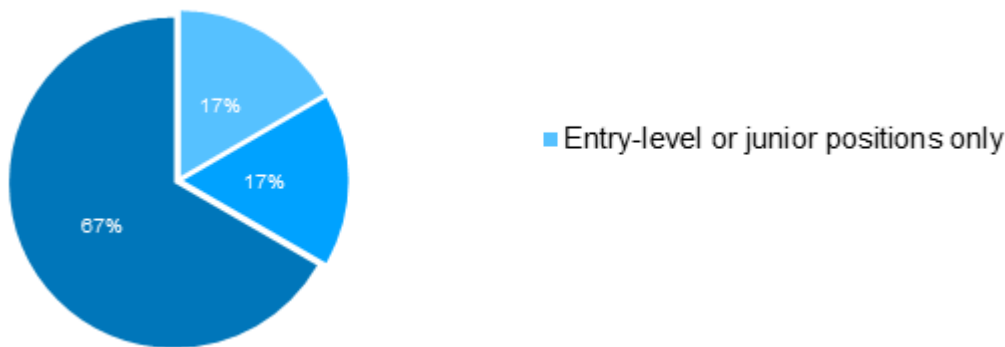


QIV Which of the following job roles do you typically conduct interviews for ?



Among business owners surveyed, the majority 54% reported conducting interviews for all positions within the company, regardless of level. 25% respondents indicated conducting interviews for any open position within a department, further indicating a broad scope of involvement in the hiring process. 14% & 7% respondents reported conducting interviews for senior leadership positions only and entry level positions only respectively. Overall, the data suggests that business owners are actively engaged in interviewing candidates across all levels within their organisations.

b. HR



Among HR professionals surveyed, the majority 66% indicated that they typically conduct interviews for all positions within the company, regardless of level. This suggests a comprehensive involvement in the hiring process, potentially involving both entry-level and senior leadership positions. Additionally, 17% HR professionals reported conducting interviews exclusively for entry-level or junior positions, while another 17% reported focusing solely on senior leadership positions.

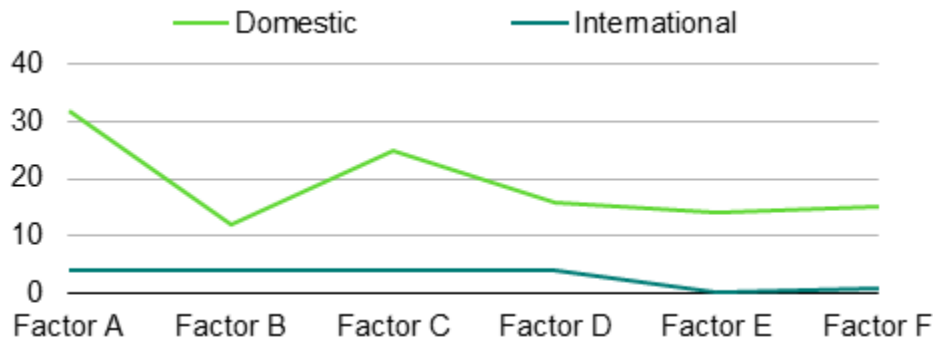
c. CEO



Among the CEO’s surveyed, 57% conduct interview for all positions within their organisation regardless of their level. 14% respondent conducts interview for only entry level positions where as 29% respondents conduct interviews for only senior level positions.

QV Please select the factors that influence your decision to conduct **In-person interviews**

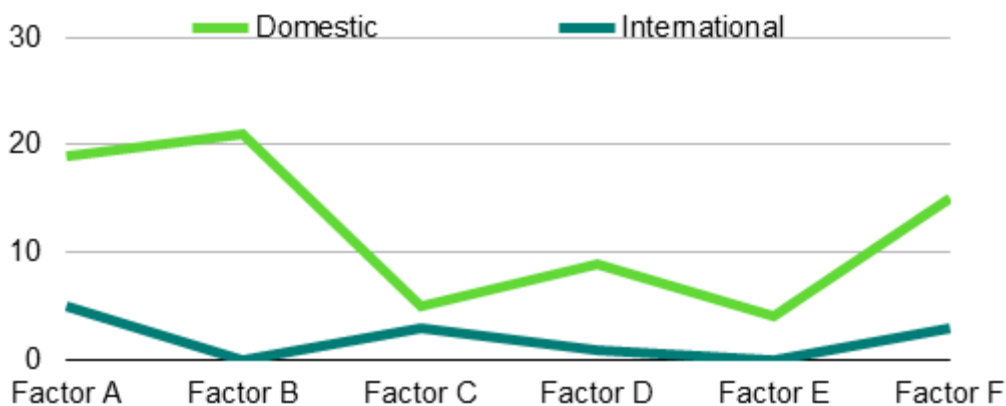




Label	Factors	Domestic	International
A	Candidates' body language and non-verbal cues	32	4
B	For final round of interviews	12	4
C	Candidates' interpersonal skills in face-to-face setting	25	4
D	Candidates' presentation skills	16	4
E	To showcase the company's workplace culture and environment to candidates	14	0
F	To build rapport and establish a connection with candidates more effectively	15	1

Interpretation-In domestic markets , 78% of the respondents have selected candidates body language & 60% have selected candidates interpersonal skills in face-to-face setting indicating these factors strongly influence the decision of conducting the interview in person. Conversely, in the international market none of the respondents have selected showcasing companies workplace culture suggesting its not an influencing factor.

QVI Please select the factors that influence your decision to conduct **Online interviews**



Label	Factors	Domestic	International
A	To hire urgently	19	5
B	To accommodate candidates located remotely	21	0
C	To reduce logistical complexities and costs associated with in-person interviews	5	3
D	To streamline the interview process by leveraging technology	9	1
E	To make use of various digital tools for assessment and evaluation	4	0
F	To efficiently screen a large pool of candidates	15	3

Interpretation-In the domestic market, factors such as urgency to hire, accommodating remote candidates, and efficiently screening a large pool of candidates strongly influence the decision to conduct online interviews. Conversely, in the international market, urgency to hire, reducing logistical complexities and efficiency to screen larger pool of candidates are primary factors influencing the choice of conducting online interviews.

QVII Challenges faced while conducting **In Person Interviews**



**Business Owners**

	Challenges	Responses
Business Owners	Risk of candidate no-shows leading to wasted resources	20
	Limited access to diverse talent pools	9
	Inconvenience for candidates who have to take time off work for interviews	12
	<b>Mode</b>	<b>20</b>

**Interpretation-** This suggest for business owners risk of candidate no-shows leading to wasted resources is the most commonly challenge faced with highest frequency of 20 respondent out of 28.

**b. HR**

	Challenges	HR
HR	Risk of candidate no-shows leading to wasted resources	5
	Limited access to diverse talent pools	4
	Inconvenience for candidates who have to take time off work for interviews	8
	<b>Mode</b>	<b>8</b>

**c. CEO**

	Challenges	CEO
CEO	Risk of candidate no-shows leading to wasted resources	6
	Limited access to diverse talent pools	3
	Inconvenience for candidates who have to take time off work for interviews	3
	<b>Mode</b>	<b>6</b>

This suggest for CEO's risk of candidate no-shows leading to wasted resources is the most common challenge faced with highest frequency of 6 out of 7 .

**QVIII Challenges faced while conducting Online Interviews****a. Business Owner**

	Challenges	Responses
Business Owners	Lack of Personal Connection	18
	Limited Body Language Cues	20
	Difficulty Assessing Soft Skills	15
	Technical Issues	8
	<b>Mode</b>	<b>20</b>

Among business owners surveyed, several challenges are identified while conducting online interviews. The most commonly cited challenge include limited body language cues with highest frequency of 20 respondents.

**b. HR**

	Challenges	Responses
HR	Lack of Personal Connection	8
	Limited Body Language Cues	7
	Difficulty Assessing Soft Skills	6
	Technical Issues	5
	<b>Mode</b>	<b>8</b>

This suggest for HR professional, lack of personal connection is the most commonly faced challenge while conducting interviews online.

**c. CEO**

	Challenges	Responses
CEO	Lack of Personal Connection	5
	Limited Body Language Cues	5

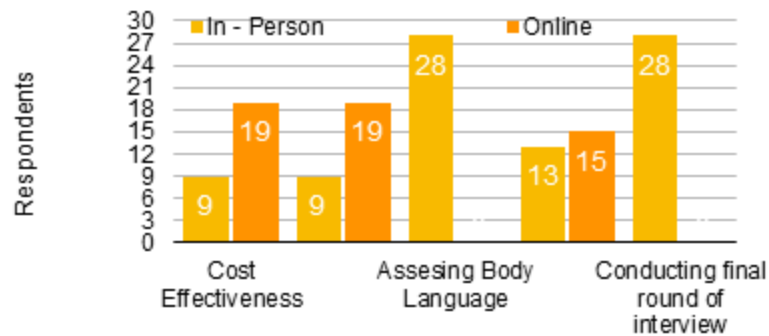


	Difficulty Assessing Soft Skills	4
	Technical Issues	1
	<b>Mode</b>	<b>5</b>

This suggest for CEO's , lack of personal connection & limited body language cues is the most common & major challenge faced while conducting interviews online .

### 3.3 Comparative Analysis

QI Choose your preference for the mode of interviews based on these factor.



#### Business Owners

**Cost Effectiveness:**32% prefer in-person interviews, while 68% prefer online interviews. The higher preference for online interviews suggests that business owners perceive online interviews as more cost-effective compared to in-person interviews.

**Urgency to Hire:**68% business owners prefer online interviews for urgency to hire, while only 32% prefer in-person interviews. This indicates a stronger association between urgency and the preference for online interviews.

**Assessing Body Language and Soft Skills:**All business owners prefer in-person interviews for assessing body language and soft skills, while none prefer online interviews. This indicates a clear preference for in-person interviews when it comes to assessing these aspects.

**Accessibility and Convenience:**46% prefer in-person interviews, while 54% prefer online interviews. The relatively balanced preference suggests that accessibility and convenience may not strongly influence the choice between in-person and online interviews for business owners.

**Conducting Final Round of Interview:** Similar to assessing body language and soft skills, all business owners prefer in-person interviews for conducting the final round, while none prefer online interviews. This reinforces the preference for in-person interviews for critical stages of the hiring process.

#### b. HR



**Cost Effectiveness:** 25% prefer in-person interviews, while 75% prefer online interviews. The higher preference for online interviews suggests that HR professionals perceive them as more cost-effective compared to in-person interviews.



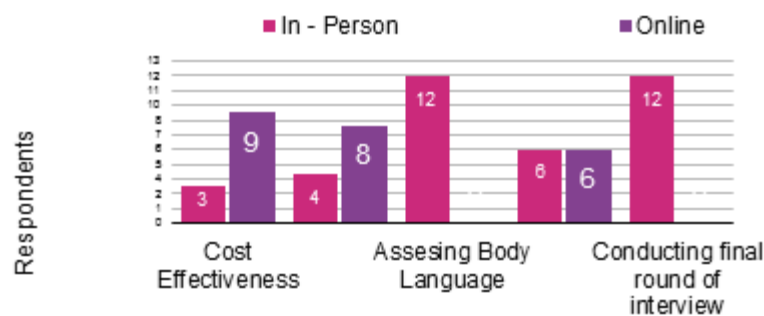
**Urgency to Hire:** 33% professionals prefer in-person interviews, while 67% prefer online interviews. The higher preference for online interviews suggests that urgency to hire may drive HR professionals towards online interviews.

**Assessing Body Language and Soft Skills:** All HR professionals prefer in-person interviews for assessing body language and soft skills, indicating a strong preference for in-person interactions in this aspect.

**Accessibility and Convenience:** Both modes are relatively evenly preferred by HR professionals for accessibility and convenience, indicating that this factor may not strongly influence their choice between in-person and online interviews.

**Conducting Final Round of Interview:** Similar to assessing body language and soft skills, all HR professionals prefer in-person interviews for conducting the final round, emphasizing the importance of in-person interactions for critical stages of the hiring process.

### c. CEO



**Cost Effectiveness:** 29% prefer in-person interviews, while 71% prefer online interviews. Suggesting more CEOs prefer online interviews for cost-effectiveness.

**Urgency to Hire:** 14% CEO prefers in-person interviews, while 86% prefer online interviews. The higher preference for online interviews suggests that urgency to hire may drive CEOs towards online interviews.

**Assessing Body Language and Soft Skills:** All CEOs prefer in-person interviews for assessing body language and soft skills, indicating a strong preference for in-person interactions in this aspect.

**Accessibility and Convenience:** Both modes are relatively evenly preferred by CEOs for accessibility and convenience, indicating that this factor may not strongly influence their choice between in-person and online interviews.

**Conducting Final Round of Interview:** Similar to assessing body language and soft skills, all CEOs prefer in-person interviews for conducting the final round, emphasizing the importance of in-person interactions for critical stages of the hiring process.

QII In your opinion which is the most effective way of conducting interviews?

### a. Business Owners

	Job Roles	Online	In - Person	Hybrid
Business Owners	Any open position within a department	1	2	4
	Entry-level or junior positions only	1	1	-
	Senior leadership positions only	-	2	2
	All positions within the company, regardless of level	2	-	13

### b. HR

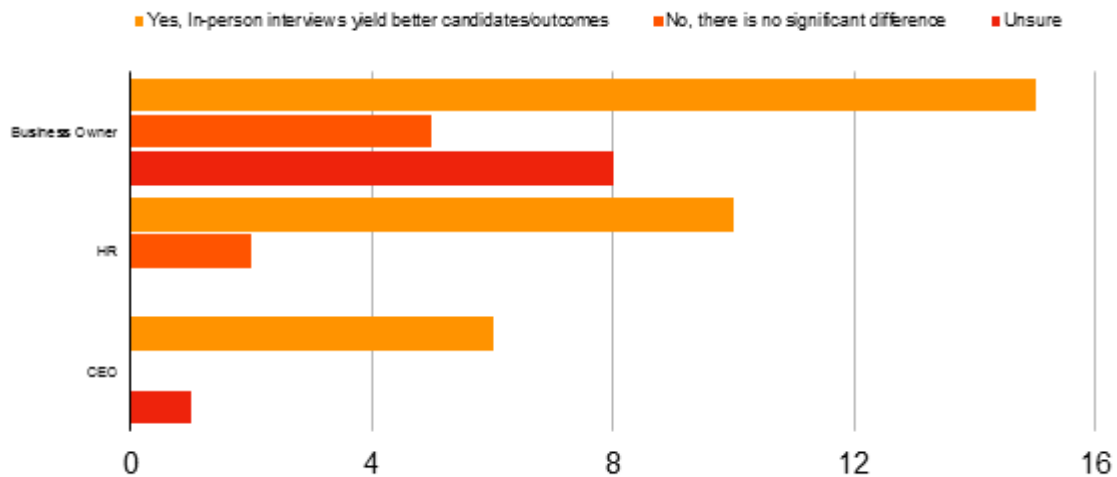
	Job Roles	Online	In - Person	Hybrid
HR	Any open position within a department	-	-	-
	Entry-level or junior positions only	-	1	1
	Senior leadership positions only	-	-	2
	All positions within the company, regardless of level	-	-	8



c. CEO

	Job Roles	Online	In - Person	Hybrid
CEO	Any open position within a department	-	-	-
	Entry-level or junior positions only	-	1	-
	Senior leadership positions only	-	1	1
	All positions within the company, regardless of level	-	-	4

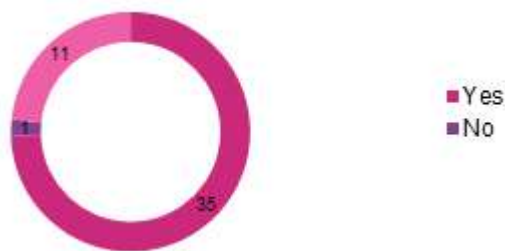
QIII Have you observed any differences in the quality of candidates or outcomes based on the interview method used?



There is a consistent trend among business owners, HR professionals, and CEOs towards perceiving in-person interviews as yielding better candidates or outcomes compared to online interviews.

### 3.4. Trend Analysis

QI - Do you think post the **COVID 19** pandemic there has been a shift towards online ?



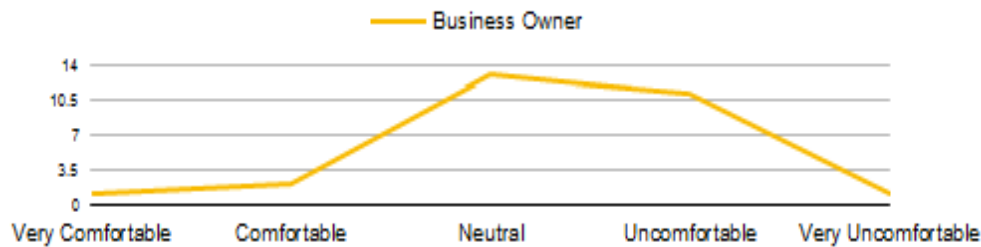
Based on the responses provided, the majority 74% respondents believe that there has been a shift towards online interviews post the COVID-19 pandemic, while only 2% respondents disagree, and 23% respondents are unsure.

QII Have you utilized AI-powered recruiting platforms/ AI tools to conduct interviews before ?

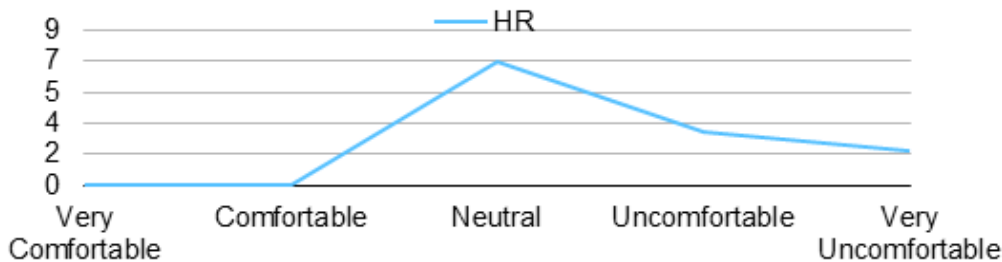




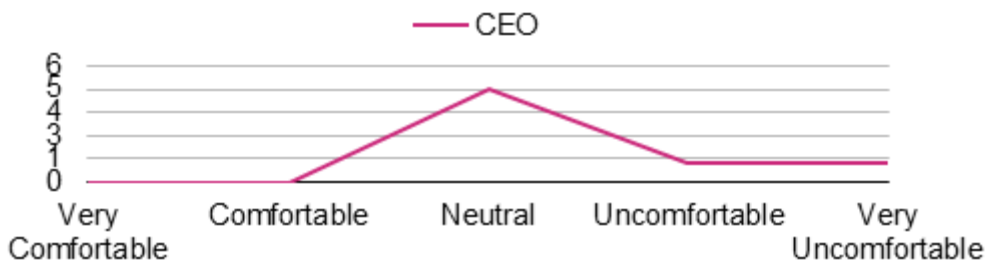
III How comfortable are you with the idea of replacing in-person interviews entirely with Online/AI-driven interviews?



HR



. CEO



#### 4. FINDINGS & SUGGESTIONS

**4.1 Survey Findings** -Based on the analysis of the data collected from the survey on employer hiring preferences regarding online and in-person interviews, several key findings can be identified:

- A. **Demographics** - All the 47 respondents are employers involved in the hiring process of employees and representing diverse sectors of businesses spread across India and a few from the GCC belt.
- B. **Interview Process** - None of the respondents reported utilizing solely online interviewing & assessment method suggesting a reliance on the traditional face to face interviewing as a part of the interviewing process or in some cases as the only mode of conducting interviews in their respective organisations.
- C. **Factors for Online Interviews** - In both , International and domestic market factors such as urgency to hire and efficiency in interviewing large pool of candidates are primary factors to conduct interview online . However in International markets, reducing logistical complexities and costs is also considered
- D. **Factors for in Person Interviews** - In both , International and domestic market factors such as candidates body language and interpersonal skills in face-to-face setting are primary factors to conduct interview in person. However in International markets, showcasing companies workplace culture is not an influencing factor.
- E. **Leveraging AI** - There is a minimal adoption of AI-powered recruiting platforms or AI tools for conducting interviews among the surveyed population, implying a reliance on traditional methods or a lack of awareness to AI-driven solutions.
- F. **Factors Affecting Mode of Interviews** - These are the comprehensive findings with respect to Business owner, HR & CEO.



Factors	Online	In Person
Cost Effectiveness	✓	
Urgency To Hire	✓	
Assessing Body Language		✓
Accessibly & Convenience	✓	✓
Conducting Final Round of Interviews		✓

Business Owner	
Challenge faced while conducting interviews <b>In Person</b>	Most common challenge reported is the risk of candidate no shows leading to wasted resources
Challenge faced while conducting interviews <b>Online</b>	Most common challenge is limited body language cues
Differences in the quality of candidates or outcomes based on the interview method	Majority of respondents believe in person interviews yield better candidates
Most effective way of conducting interviews	Majority of respondents believe hybrid mode is the most effective way of conducting interviews

HR	
Challenge faced while conducting interviews <b>In Person</b>	Most common challenge reported is the inconvenience for candidates to take time off work for interviews
Challenge faced while conducting interviews <b>Online</b>	Most common challenge is lack of personal connection
Differences in the quality of candidates or outcomes based on the interview method	Majority of respondents believe in person interviews yield better candidates
Most effective way of conducting interviews	Majority of respondents believe hybrid mode is the most effective way of conducting interviews

CEO	
Challenge faced while conducting interviews <b>In Person</b>	Most common challenge reported is the risk of candidate no shows leading to wasted resources
Challenge faced while conducting interviews <b>Online</b>	Most common challenges are limited body language cues & lack of personal connection
Differences in the quality of candidates or outcomes based on the interview method	Majority of respondents believe in person interviews yield better candidates
Most effective way of conducting interviews	Majority of respondents believe hybrid mode is the most effective way of conducting interviews

#### 4.2 Interview Findings

For the three interviews conducted in the domestic market, all participants reported primarily conducting in-person interviews, emphasizing the importance of assessing candidates' body language and interpersonal skills. While some aspects of the recruitment process, such as initial screenings, are conducted online for efficiency, the bulk of the interviews are held face-to-face to ensure a comprehensive evaluation. The decision to conduct interviews online or in person is influenced by factors like urgency to hire and efficiency in screening a large pool of candidates. Challenges associated with online interviews include difficulty in establishing rapport and capturing non-verbal cues, while benefits include wider candidate reach and reduced logistical complexities.

One of the employer stated “One wrong employee will ruin my company culture completely so I rather do offline or multiple rounds of interview”. In-person interviews are generally perceived as the most effective way of evaluating candidates due to the personal connection established and it takes into account **instinct that cannot be considered while using online means**, although hybrid approaches are also considered for their flexibility. Conversely, for the two interviews conducted in the international market, the decision to conduct interviews online or in person is influenced by similar factors as in the domestic market, such as urgency to hire and efficiency in screening candidates. Recruitment processes are primarily conducted in-house, with minimal leveraging of artificial intelligence tools. A **clear apprehension in adapting AI was observed since the employers feared data leaks that could possibly happen as AI capabilities are yet unknown.**



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**4.3 Suggestions to stakeholders****HR & Recruitment Agencies**

- A. Given the preference for both online and in-person interviews among employers, recruitment agencies should offer hybrid solutions that combine the benefits of both modes.
- B. To counter the most common challenge of conducting interviews offline, which is candidates' no-show, recruitment agencies must ensure that a series of confirmation calls and messages are sent to the candidate to ensure their presence for the interview. Additionally, they should source additional candidates as backups for last-minute dropouts.

**Candidates**

- A. Since most of the employers prefer in-person interviews for assessing candidates' body language and interpersonal skills. Ensure interviewee must demonstrate confidence, professionalism, and strong communication skills during face-to-face interactions.

**Applicant Tracking System Developers**

- A. Develop customizable interview modules within the ATS that cater to both online and in-person interview processes. This flexibility will allow organizations to adapt their interview methods based on their specific hiring needs and preferences.

**Employers**

- A. Since post pandemic there has been a shift in trend towards online mode of interviews, employers can implement small-scale pilot programs to test the effectiveness of AI solutions in their hiring processes. This allows them to assess the impact on efficiency, cost savings, and candidate experience before fully committing to AI adoption.

**5. CONCLUSION**

The research work on "Employer Hiring Preferences: A Study on Online & AI Driven vs. In-person Interviews in Domestic and International Markets" reveals intriguing insights into the evolving landscape of recruitment practices. Across diverse sectors and geographical regions, a majority of employers still prioritize in-person interviews, citing the importance of assessing candidates' body language and interpersonal skills firsthand. It is evident from the data that while there is openness towards integrating online and AI-driven solutions into the hiring process, particularly for addressing factors such as urgency and efficiency, there remains a strong attachment to the traditional interviewing format. This sentiment is particularly pronounced among CEOs, who generally express uncertainty or discomfort regarding the complete replacement of in-person interviews. This reluctance could stem from concerns surrounding the potential limitations of accurately assessing cultural fit within an organization. While online and AI-driven interviews offer efficiency and convenience, they fall short in establishing personal connections and capturing nuanced non-verbal cues, particularly evident in the challenges reported by HR professionals and business owners. The data also highlights a cautious attitude towards completely replacing traditional interviews with online or AI-driven alternatives, with a significant proportion expressing discomfort or skepticism. In conclusion, while online and AI-driven interview methods offer undeniable advantages in terms of efficiency and scalability, the traditional in-person interview continues to hold sway due to its ability to capture nuanced interpersonal interactions and assess candidates' non-verbal cues. Suggesting a preference for using a hybrid approach while conducting hiring interviews among employers.

**6. FUTURE SCOPE OF STUDY**

- A. Expand the study to include a broader range of countries and regions to explore cultural influences on hiring practices and preferences.
- B. Conduct industry-specific studies to identify unique challenges and opportunities associated with adopting online and AI-driven vs in person interview methods across different sectors.
- C. Compare the accuracy of online skills assessments against traditional interview methods.
- D. Analyze how interview format preferences differ based on the job type (e.g., technical vs. soft skills-heavy roles), including specific job categories in the future study.
- E. The perspectives of job seekers and other stakeholders involved in the hiring process can be taken into account.



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## UNDERSTANDING ASTROLOGY/JYOTISH – FROM A LAYMAN'S PERSPECTIVES

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**ABSTRACT**

*From the Vedas and Upanishads to Ayurveda, Yoga and Tantra, Vedic Mathematics and Astrology, Medicine, Philosophy along with Astronomy including Geography, Politics and Administration and so on and in many more such fields India has a powerful tradition, rich and diverse knowledge system that was taught and disseminated under India's knowledge system. These ancient Indian texts, though many of them are lost today, are the foundation pillar of the Indian civilisation and the Sanatani way of life. They were not only taught but were and are practised even today in every household as a daily ritual and a code of conduct. Astrology or Jyotisha is one such knowledge system that influenced the mind, heart, soul, and psyche of the ancient Indian including the contemporary one. Without understanding the Jyotish, it is difficult to understand and imagine the Sanatani way of life, thought process, culture and cultural ethos.*

**Keywords:** Ancient, Indian, Knowledge System, Astrology, Jyotish etc.

**INTRODUCTION**

*Jyotish* is one of the parts of the *Vedas* called *Vedangas*. It is believed to be the combination of two words called *Jyoti* + *ish* = *Jyotish* meaning "Light of God or Light from God".

**Genesis of Jyotish**

Our scriptures recorded across time and traditions based on traditional *Jyotish* knowledge system believes and propagates that *Jyotish* flows from straight from **Lord Shiva** himself who is also known as *trikaldarshi* meaning the one who can see the three phases of time – past, present and future, to his *Sapta Rishis*/ 07 sages one of them being **Sage Vasistha** to his son **Parasar**, and from **Parasara** to his son **Ved Vyas** and from **Ved Vyasa** to his disciple called **Sage Jaimini** and so on. Apart from these Sages there have been various ancient Indian scholars like Rishi Jaimini who is also referred as Acharya Jaimini, Vrahmihira, Arya Bhatta, Mantreswar, Markandya Bhatt, Acharya Vaidhnath, Bhatokpal, Kalyan Verma and in the modern contemporary context the scholars like –B.V. Raman, K.N. Rao, K.S. Krishnamurthy, Bimari Rao Krishnamurthy and many more.

**Why Should One Study Things that Belong to a Sanatani Faith?**

The answer is, it does not belong to Hindus or Sanatani alone. As Maxmuller says, "vedic knowledge is beyond age and time as it is eternal and universal." Vedas were written (1000 to 3000 BC) at a time when no other religion in the world existed. The world was one that believed in: *Bahujan hitaya Bahujan sukhaya* meaning let all be happy, let all be delighted

**Relation between Veda and Jyotish**

*Jyotish* is considered one of the anga/part of Ved hence *Vedanga*. It is compared with the eyes of *Veda Purusa* that enhances one to peep into the future through the mathematical calculation of heavenly objects and their movements.

**Relevance of Jyotish today**

Though most people are sceptical about *Jyotish* and some even go to the extent of dismissing it as a superstition, in reality, it functions as a Life Management Sutra that guides as a mentor through thick and thin times. It develops a negative capability in us, enabling us to see beauty in ugliness and ugliness in beauty. It introduces us to our six core enemies or sins known as *Sad Ripu* (six defects/sins or enemies).

**Sad Ripu or Six Enemies**

These six enemies or sin are –

1. Kama or Desire/Lust,
2. Krodha or Anger,
3. Lobha or Greed,
4. Mada or Ego,
5. Moha or Attachment and



6. Matsarya or Jealousy and sometimes even our laziness.

### Application of Jyotisha with their types

**Parasari or Vedic Jyotish** is based on the principles and formula given by Sage Parasar

**Jaimini Jyotish** is based on the principles of Sage Jaimini that focuses on the degree of planets and their houses

**BNN or Bhrigu Nandi Nadi** is based on the principles of Bhrigu Rishi one of the *Sapta Rishis* who is believed to hear it from Lord Shiva himself directly.

### KP Jyotish or Krishnamurthy Paddhati

It is based on the combinations of principles and formulas developed by Prof. K.S. Krishnamurthy that calculates based on *rasi, bhava and nakshatra*

### Surya Siddhant Jyotish

It is based on the principles of the oldest Indian astronomical text called *Surya Siddhant* dated back to 4<sup>th</sup> and 5<sup>th</sup> centuries that combines astronomy and astrology for prediction. Varahamihira and Arya Bhatta are the two ancient established scholars/mathematicians who predicted the happenings of the world in their contemporary time based on their knowledge of astronomy and the solar system. The Solar path around which the planets move is 360 degrees that is further divided into 12 houses called zodiac signs or rasi. These Zodiac signs or rasis are as given below along with their dispositors and attributes:

#### 1. MESHA/ARIES

##### Dispositor: Mars or Mangal

Short or small stature, blunt, Willpower, headstrong, martial, impulsive, aggressive irrational, stubborn, fighter and does not care about the consequences

#### 2. VRISHAVA / TAURUS

##### Dispositor: Shukra or Venus

Big stature

Focused

Reliable

Persistent

Patient

Loyal etc.

#### 3. GEMINI OR MITHUNA

##### Dispositor: Mercury or Budha

Witty

Curious

Charming

Conversation

Look younger than their actual age

#### 4. KARKA OR CANCER

##### Dispositor: Moon or Chandrama

Emotional

Indecisive

Care

Food

Protective



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Home and family oriented

Water

**5. SINGHA /LEO**

**Dispositor: Sun/Surya**

Confidence

Natural Leader

Generous

Desire for attention

Ego

**6. KANYA/VIRGO**

**Dispositor: Mercury or Budha**

Analytical

Dedicated

Perfectionist

Less sound more action

Organized

Problem solver

**7. LIBRA OR TULA**

**Dispositor: Venus/ Shukra**

Charming smile

Peacemaker

Balance

Harmony

Fairness

**8. SCORPIO/ VRISCHIKA**

**Dispositor: Mars/Mangal or Kuja**

Passionate

Resourceful

Secretive

Ambitious

Unpredictable

Fiercely loyal to loved ones

**9. SAGITTARIUS OR DHANU**

**Dispositor: Jupiter/Guru or Brihaspati**

Adventurer

Freedom lover

Enthusiastic

Philosophical

Alert



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Warrior

Restless

Overpromise

**10. CAPRICORN/MAKARA****Dispositor: Saturn/Sani**

Discipline

Practical

Hard worker

Reliable

Ambitious

Camouflage

**11. ACQUIRES/KUMBHA****Dispositor: Saturn/Sani**

Forward thinking

Humanitarian

Independent

Unconventional

Freedom lover

Dedicated to intellectual and social cause

**12. MEENA OR PICES****Dispositor: Jupiter/Guru or Brihaspati**

Artistic

Creative

Spiritual

Dreamer

Idealistic

Compassionate

**Quality and Nature of Planets**

The qualities and attributes of the planets are listed in the following tables. The first table talks about the attributes of the planets while the second table talks about the attributes of the *bhavas or sthanas/ placement*:

**TABLE -01:**

SRL NO.	PLANET'S NAME	PLANET'S ATTRIBUTES/QUALITIES
01	SUN	Honey-coloured eyes, good height, less hair or bald, acidic body, good height etc
02	MOON	Soft speaker, intelligent, positive, good vision, sensitive, cough and gas in the body.
03	MERCURY	Sweet speaker, witty, humorous, charming, smiley face, cough, gas and acid in the body.
04	MARS	Cruel, youthful, action-oriented, generous, impatient, thin waist
05	JUPITER	Huge body, honey-coloured body, hair and eyes, wise, contented, happy and visionary.
06	VENUS	Beautiful, good-looking, sensible, attractive, curly, and beautiful hair, luxurious, sensuous.
07	SATURN	Lazy, tall but thin, dark complexion, slow, old or aged, thick and ugly teeth, too much of gas in the body, depression and melancholy etc.



08	RAHU	North node of the moon it influences our mind. It is the cause of desire. It is an imaginary planet called <i>chaya graha</i> , bodyless. It has a head but not a body hence incomplete in itself. There are 52 attributes of Rahu and Ketu
09	KETU	Ketu is the south node of the moon like Rahu. It is a body without a head hence, it cannot see but can only sense and feel. It influences our mind and stands for detachment and salvation or moksha. It is Rahu's counterpart and possesses 52 attributes or shades of meaning. It is always opposite to Rahu with 180 degrees in any native's horoscope

TABLE -02:

SRL NO.	PLACEMENT OR BHAVA/STHANA	ATTRIBUTES/QUALITIES OF THE HOUSE/ BHAVA
01	1 <sup>st</sup> Bhava	Self, Personality, Intelligence
02	2 <sup>nd</sup> Bhava	Wealth, Family, Communications, Language, food
03	3 <sup>rd</sup> Bhava	Siblings, Courage, Neighbours, Short journey
04	4 <sup>th</sup> Bhava	Home, Mother, Happiness, Peace of mind, Security, Comforts of life and even School Education
05	5 <sup>th</sup> Bhava	Love affairs, Creativity, Offspring, Good deeds of previous life and College Education
06	6 <sup>th</sup> Bhava	Disease, Health, Loan, Service and <i>Sad Ripu</i> or 06 enemies within us
07	7 <sup>th</sup> Bhava	Marriage, Partnership, Public, Spouse, Relationship, Public image
08	8 <sup>th</sup> Bhava	Hidden Enemies, Research, Occult, Spouse family, Uncertainties and mysteries of life, Transformation
09	9 <sup>th</sup> Bhava	Fortune, Luck, Father, Our past life or karma, Spiritual life, Long journey, Boss, Authority etc.
10	10 <sup>th</sup> Bhava	Career, Profession, Reputation, Promotions, Ambitions, Workplace, Workplace politics and how the world looks at us in our workplace.
11	11 <sup>th</sup> Bhava	Gain, Friendship, Happiness, Hope, Dreams, Social Circle, Fulfilment and Elder brother
12	12 <sup>th</sup> Bhava	Subconscious mind, Isolation, Loss, Expenditure, Hospital, Jail, Asylum, the realm of the unknown and even our final journey etc.

## CONCLUSION

Though many a time this knowledge system is dismissed as mere superstition or a subject and a knowledge that is not scientific in nature, the actual reason for its degradation is its practice by the people who lack thorough study and knowledge while the other reason is its commercialization.

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**A STUDY OF ETHICAL CONCERNS IN AI: PERSPECTIVES FROM ACADEMICS**

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**ABSTRACT**

*This study examines ethical issues in Artificial Intelligence (AI) as regarded by academia in Mumbai, highlighting significant hurdles in AI's incorporation into educational environments. The study used a descriptive research design to identify patterns and priorities through a structured questionnaire distributed to 157 participants. The tool evaluated demographic information, knowledge of AI, and rankings on eight ethical issues, including Hallucination, Privacy Violations, and Autonomous Decision-Making. Convenience sampling facilitated diversified representation across fields, augmenting the study's comprehensiveness. Data analysis utilizing the Friedman Test indicated statistically significant variations ( $p=0.018$ ) in the priority of ethical issues. The findings underscore Hallucination and Autonomous Decision-Making as the foremost challenges, indicating apprehensions around the production of deceptive information and hazards associated with autonomous AI capabilities. This research enhances the discourse on AI ethics in academia, providing practical insights for educators, policymakers, and AI developers to tackle significant ethical concerns and foster responsible AI use in education.*

**Keywords:** Artificial Intelligence, Ethics.

**INTRODUCTION**

The research used a descriptive design to thoroughly investigate the ethical issues in AI as regarded by scholars in Mumbai. This method is suitable for identifying and articulating patterns, goals, and perspectives on a subject when organized data is still developing. The integration of AI in education is widely acknowledged for its capacity to transform teaching and learning settings (Chatterjee & Bhattacharjee, 2020). This change also presents ethical hurdles, including privacy issues, accountability, and biases in AI systems (Almaiah et al., 2022; Hooda et al., 2022).

A structured questionnaire was utilized as the major tool for data gathering, facilitating both quantitative and qualitative examination of respondents' viewpoints. The design corresponds with the increasing studies supporting systematic approaches to analyze AI's impact on higher education (Roy et al., 2022; Alam, 2020). The questionnaire comprised sections on demographic information (including gender, age, academic qualifications, and area of expertise), familiarity with AI, and a prioritization of eight significant ethical issues in AI, such as Hallucination, Privacy Violations, Autonomous Decision-Making, and Unreliable Content. These domains illustrate fundamental issues emphasized in the literature about AI's incorporation in educational settings (Chen et al., 2020; Khalid, 2020).

The study employed a sample of 157 respondents, chosen by convenience sampling to facilitate data collection while preserving diversity among academic specialties. Comparable methodologies have been utilized in research investigating AI's function in schooling, facilitating extensive discoveries from interdisciplinary viewpoints (Paek & Kim, 2021; Rahman, 2022). The gathered data was examined utilizing the Friedman Test, a strong non-parametric statistical technique appropriate for assessing ordinal rankings among many groups. This methodology has demonstrated efficacy in discerning variations in priority, as evidenced by current AI research (Tanveer et al., 2020; Sahai et al., 2021).

The study offers an in-depth insight into the perceptions of academics in Mumbai regarding ethical dilemmas in AI, enhancing the ongoing discussion on reconciling AI's advantages with its ethical consequences in education (Malik et al., 2023). The findings are significant for policymakers, educators, and AI developers, highlighting the necessity of addressing ethical concerns to guarantee safe AI inclusion in academia.

**OBJECTIVES**

- 1) To identify and prioritize ethical concerns in Artificial Intelligence (AI) as perceived by academics in Mumbai, with a focus on challenges such as Hallucination, Privacy Violations, and Autonomous Decision-Making.
- 2) To analyze patterns and variations in the prioritization of ethical issues in AI using a structured questionnaire and statistical methods, including the Friedman Test.
- 3) To provide actionable insights for educators, policymakers, and AI developers to address significant ethical challenges and promote responsible AI integration in educational environments.



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**HYPOTHESES**

1)H<sub>1</sub>: There are statistically significant differences in the prioritization of ethical concerns in Artificial Intelligence (AI), such as Hallucination, Privacy Violations, and Autonomous Decision-Making, as perceived by academics in Mumbai.

2)H<sub>2</sub>: Hallucination and Autonomous Decision-Making are perceived as the most critical ethical concerns in AI compared to other issues, reflecting their higher prioritization by academics.

**REVIEW OF LITERATURE**

Integration of Artificial Intelligence in Educational Settings Chatterjee and Bhattacharjee (2020) performed a quantitative investigation of the integration of AI in higher education, highlighting its potential to improve learning outcomes and optimize administrative procedures. Chen et al. (2020) similarly emphasized the significance of AI in Education 4.0, concentrating on performance analysis to customize learning experiences. Notwithstanding its advantages, the study emphasized the necessity for strong ethical frameworks to tackle rising difficulties.

**Student Perspectives and Challenges**

Almaiah et al. (2022) investigated students' perceptions of AI in e-learning, indicating that although AI alleviates social and computer anxiety, apprehensions about data privacy and algorithmic transparency remain. Malik et al. (2023) examined students' perspectives on AI in academic writings, highlighting concerns over intellectual property and the dependability of AI-generated content.

**Ethical Issues in Artificial Intelligence**

Roy et al. (2022) assessed the willingness to implement AI-based robots in academic institutions and highlighted ethical issues such as responsibility and bias in decision-making. Hooda et al. (2022) similarly examined the application of AI in delivering feedback and assessments, highlighting issues related to fairness and bias in automated evaluations. These findings correspond with Sahai et al. (2021), who examined how AI may mitigate learning obstacles in India while simultaneously warning against its potential misuse in educational contexts.

**Policy and Regulation**

Research has highlighted the significance of policies in directing the integration of AI. Tanveer et al. (2020) analyzed the congruence of academic policies with sustainability and artificial intelligence implementation, promoting the establishment of systematic ethical principles. Paek and Kim (2021) examined global trends in AI research and advocated for a cohesive regulatory framework to tackle cross-border issues.

**Cultural and Regional Viewpoints**

Alam (2020) examined the opportunities and obstacles of AI implementation in India's educational sector, highlighting cultural and infrastructural impediments. Rahman (2022) assessed the effectiveness of AI-driven online proctored tests during COVID-19, presenting evidence from Assam, India, which underscored issues related to privacy and surveillance.

**Prospective Trajectories**

Khalid (2020) examined the correlation between AI learning and entrepreneurial performance in university students, highlighting AI's capacity to drive innovation. Furthermore, Chen et al. (2020) and Malik et al. (2023) pinpointed domains where AI can mitigate deficiencies in education, contingent upon the proper resolution of ethical issues.

**Friedman Test Statistics**

The research utilizes the Friedman Test, a robust non-parametric statistical technique established by Friedman (1937), to examine the disparities in ranks of ethical issues in AI. This approach is especially appropriate for ordinal data and circumvents the normalcy assumption characteristic of parametric tests, hence ensuring the dependability of results across several interconnected groups.

**Research Design**

The study adopts a descriptive research design to systematically explore the ethical concerns in AI as perceived by academics in Mumbai. This approach is appropriate for capturing and describing patterns, priorities, and opinions on a topic where limited structured data exists.

A structured questionnaire served as the primary instrument for data collection, designed to gather quantitative and qualitative insights. The questionnaire included sections on respondents' demographic details (such as gender, age group, academic qualifications, and field of expertise), their familiarity with AI, and a ranking of



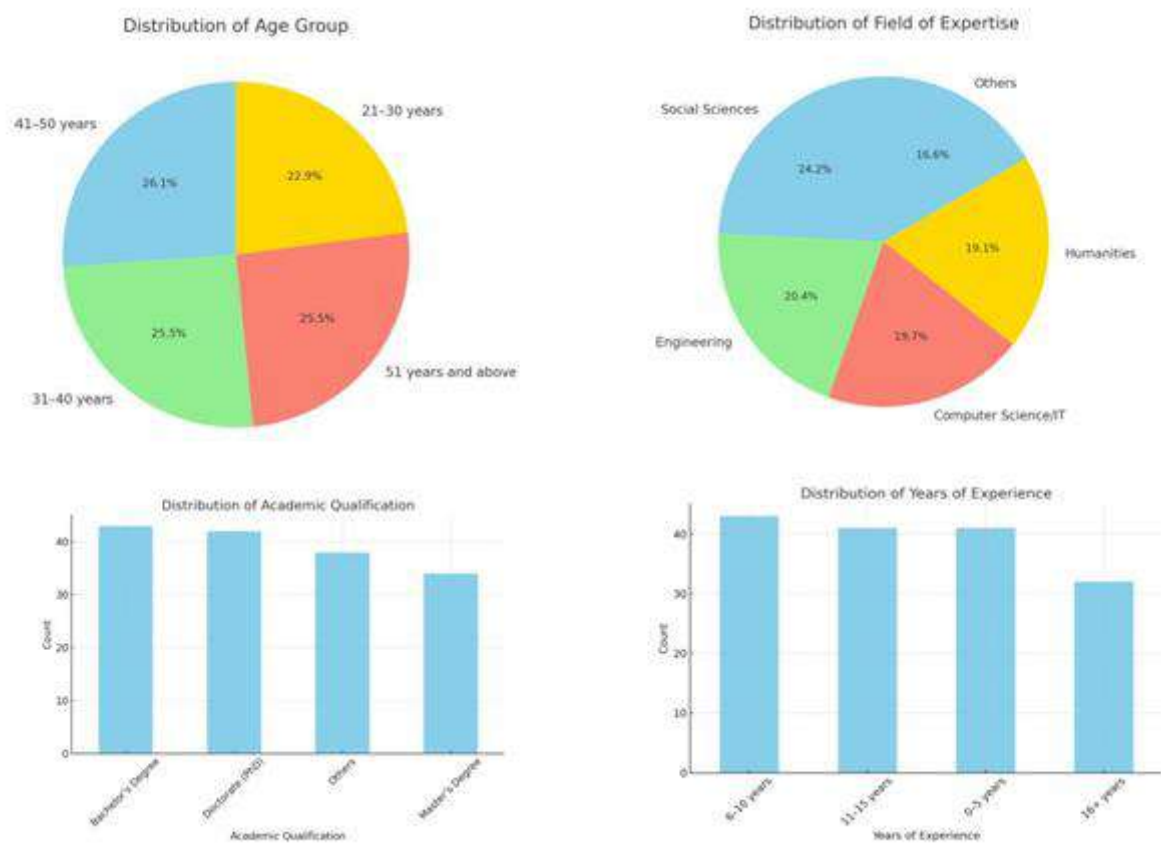
eight ethical concerns in AI, including Hallucination, Privacy Violations, Autonomous Decision-Making, and Unreliable Content.

The study utilized a sample size of 157 respondents, selected through convenience sampling. This technique allowed for ease of data collection while ensuring diverse representation from various academic disciplines, including social sciences, computer science, engineering, and humanities. Such diversity provided a holistic view of perceptions on AI ethics within academia.

The collected data was analyzed using the Friedman Test, a robust non-parametric statistical method. This test was chosen for its suitability in evaluating differences in ordinal rankings across multiple groups, without assuming a normal distribution of the data. The Friedman Test enabled the identification of statistically significant differences in the prioritization of ethical concerns by the respondents.

This combination of a descriptive research design, structured data collection, and rigorous statistical analysis provides a comprehensive and reliable methodology. It ensures a nuanced understanding of how academics in Mumbai prioritize ethical challenges in AI, offering insights that are valuable for educators, policymakers, and AI practitioners.

DESCRIPTIVE ANALYSIS



The study surveyed 157 respondents, with a balanced gender distribution comprising 38.2% Male, 33.1% Female, and 28.7% identifying as Other. The largest age group was 51 years and above (26.8%), followed by 41–50 years (26.1%), 31–40 years (22.3%), and 21–30 years (24.8%). Academic qualifications were diverse, with 27.4% holding Master’s Degrees, 26.1% Bachelor’s Degrees, and 24.2% Doctorates. Respondents primarily came from Social Sciences (24.2%), Computer Science/IT (22.9%), and Engineering (19.1%). Most were affiliated with Private institutions (38.2%), followed by Public (35%) and Autonomous institutions (26.8%). Experience ranged from 16+ years (31.8%) to 0–5 years (18.5%). Regarding familiarity with AI, 32.5% were Very Familiar, 41.4% Somewhat Familiar, and 26.1% Not Familiar. On whether ethical concerns are adequately addressed, 37.6% said Yes, 33.1% No, and 29.3% were Unsure. These findings offer a comprehensive overview of respondents’ demographics and perspectives on AI ethics.



**RESULTS & FINDINGS**

Ethical Concern	Mean Rank	Friedman Test Statistic	P-value
Hallucination	4.10	16.84	0.018
Autonomous Decision-Making	4.23	16.84	0.018
Privacy Violations	4.33	16.84	0.018
Accountability in AI Applications	4.42	16.84	0.018
Unreliable Content	4.49	16.84	0.018

**Interpretation of Results**

The rankings of ethical concerns in AI, based on their mean ranks, indicate that respondents prioritize some concerns over others. The Friedman Test Statistic (16.84) with a p-value of

0.018 reveals that there are statistically significant differences among the rankings ( $p < 0.05$ ). This implies that respondents perceive certain ethical concerns as more critical than others.

**Key Findings Supporting the Hypotheses:****1)H<sub>1</sub> Validation:**

The Friedman Test ( $p = 0.018$ ) confirmed statistically significant differences in the rankings of ethical concerns in AI, validating that academics prioritize certain ethical challenges differently. This supports the hypothesis that perceptions of ethical concerns vary significantly. 2)H<sub>2</sub> Validation:

Hallucination ranked as the most critical concern with the lowest mean rank of 4.10, indicating significant apprehension about AI systems generating false or misleading information.

Autonomous Decision-Making, with a mean rank of 4.23, was identified as the second most critical concern, emphasizing risks related to accountability and control in AI decision-making.

These findings align with the hypothesis that these two issues are prioritized higher than others, such as Privacy Violations (mean rank: 4.33), Accountability in AI Applications (mean rank: 4.42), and Unreliable Content (mean rank: 4.49).

**CONCLUSION**

This study provides a comprehensive analysis of ethical concerns in Artificial Intelligence (AI) as perceived by academics in Mumbai. Through a descriptive research design and the application of the Friedman Test, the study highlights significant differences in the prioritization of ethical challenges. Hallucination emerged as the most critical concern, reflecting apprehensions about AI systems generating false or misleading information, followed by Autonomous Decision-Making, which raises issues of accountability and control in AI functionalities. Other concerns, such as Privacy Violations, Accountability in AI Applications, and Unreliable Content, were also deemed important, emphasizing the multifaceted nature of ethical challenges in AI. The findings underscore the need for a comprehensive approach to address these challenges. Policymakers, educators, and AI developers must prioritize creating robust ethical frameworks, ensuring transparency, accountability, and fairness in AI applications. This research contributes to the ongoing discourse on AI ethics, providing valuable insights that can guide future studies and practical interventions to promote the responsible integration of AI in education and beyond.

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**HUMAN RIGHTS AND CONSTITUTION OF INDIA: AN ANALYSIS**

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**ABSTRACT**

*“All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.” - Universal Declaration of Human Rights* According to the history of human civilization, human rights - in one name or the other has existed from time immemorial. Being indispensable for the holistic development of an individual, human rights have to be inevitably guaranteed and protected. Human rights are the core of a meaningful life, and it is the duty of the State to protect and preserve human rights. Human rights are universally recognized moral principles or norms that establish standards of human behaviour and are protected by national and international laws. It includes a wide range of civil, political, economic, social and cultural rights such as the right to life and liberty, protection from slavery and torture, freedom from discrimination, freedom of opinion and expression, the right to work and education and many more rights. The concept of human rights was widely known among the political thinkers and philosophers in India. The Constitution of India, being the supreme law of the country provides the framework for its governance, detailing the rights and duties of citizens. It establishes India as a sovereign, socialist, secular, democratic republic, ensuring justice, liberty, equality, and fraternity for its citizens. The Constitution of India ensures that basic human rights of its citizens are protected and promoted.

*Keywords: Human rights, Constitution*

**INTRODUCTION**

"To deny people their human rights is to challenge their very humanity." – Nelson Mandela

Human rights can be defined as “rights inherent to all human beings, whatever our nationality, place of residence, sex, national or ethnic origin, colour, religion, language, or any other status. It means the rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the International Covenants and enforceable by courts in India. We are all equally entitled to our human rights without discrimination. They are essential and fundamental, as they guarantee all a life of equality, dignity, respect, freedom and justice and a life free from discrimination. It pervades national and international spheres.

The notion of human rights is incorporated in the Constitution of India, with remedies to address its violations. The makers of the Constitution have ensured that maximum all possible human rights are guaranteed by the Constitution.

**LITERATURE REVIEW**

An overview of the books and articles identified and selected for the study of this topic is articulated as follows:

According to **Jani Neepa** (2013) the right to life is based on the principle that all human beings are born equal with dignity. In any organized society, right to live as a human being is not ensured by meeting only the animal needs of man. It is secured only when he is assured of all facilities to develop himself and is freed from restrictions which inhibit his growth. All human rights are designed to achieve this object. Right to live guaranteed in any civilized society implies the right to food, water, decent environment, education, medical care and shelter.

**Dhruba Hazarika** (2011) emphasizes the need that each and every citizen should be careful and responsible to promote the equal status for women in modern Indian society.

**Hamid Iqbal, Saima Afzal, & Mavara Inayat** (2012) identifies that for the progress and prosperity of a country, the discriminatory attitude of the society towards the women has to be eliminated. Multiple ways to improve gender balance in the country have to be devised, which will reduce gender discrimination.

**Harish Chandra** (2012) discusses about the international practices in human rights and the relevant provisions in the Constitution of India, citing various articles in the Constitution in relation to provisions of International treaties.

**Milind Ubale** (2016) highlights that the Constitution of India is a living document which brings the equality by the rule of law in this nation.



**K. S. Jayakumar** (2016) analysed the principle of gender equality as enshrined in the Constitution of India in its Preamble, Fundamental Rights and Duties, Directive Principles of State Policy and under the other provisions.

### **OBJECTIVES**

The objectives of this paper are to examine:

- The concept and nature of human rights
- The constitutional provisions protecting human rights in India

### **SCOPE**

The scope of this paper lies in the ever encompassing nature of human rights: inherent, universal, inalienable, interdependent, indivisible, interrelated and non-discriminatory. The Constitution of India is lauded as the most right based constitutions all around the world. Framed around Universal Declaration of Human Rights of 1948, it is an epitome of human rights, which is manifested in the Preamble, the Fundamental Rights and the Directive Principles of State Policy.

### **METHODOLOGY**

This paper is descriptive in nature, which is based on secondary data collected in the light of the objectives of the paper, from various secondary sources like websites, reports, books, magazines, newspapers, research articles etc.

### **LIMITATIONS OF THE STUDY**

Based on secondary sources of information, the researcher is of the opinion that it is not completely flawless and may not include all possible aspects. However, maximum effort has been invested to make it comprehensive.

### **FINDINGS**

#### **Universal Declaration of Human Rights**

In the Atlantic Charter of 1941 and the Declaration of the United Nations of 1942, the notion of an international framework for the protection of human rights and fundamental liberties were discussed. In the meeting of the United Nations at San Francisco Conference in 1945, the introduction of an international bill on human rights was discussed. However, the disinterest on the part of super powers to chart out specific legal obligations hindered this initiative and culminated in a Charter which contained unclear provisions for the promotion and protection of human rights and fundamental freedoms. At this juncture, the Economic and Social Council officially recommended the need for the declaration and implementation of an International Bill of Rights, to fulfil the objective of the United Nations. To accomplish this vision, it was decided to draft an International Bill on Human Rights. The Commission on Human Rights, aspiring to set up an all-inclusive system for the promotion and protection of human rights, appointed the Drafting Committee in 1947 for framing the draft of the International Bill of Rights. The Union Nations General Assembly adopted the Universal Declaration of Human Rights (UDHR) on 10th December 1948 in Paris. Drafted by representatives from various legal and cultural backgrounds from all regions of the world, this declaration was the first international effort to draft a comprehensive framework of rights that puts obligations on the member countries to protect human rights by setting a global standard for human dignity, freedom, and justice. The UDHR has been the source for various international treaties and national laws to promote and safeguard human rights globally. India was a signatory to the Universal Declaration of Human Rights.

The Universal Declaration of Human Rights consists of 30 Articles: Article - 1: Right to equality; Article - 2: Freedom from discrimination; Article - 3: Right to life, liberty and personal security; Article - 4: Freedom from slavery; Article - 5: Freedom from torture and degrading treatment; Article - 6: Right to recognition as a person before the law; Article - 7: Right to equality before the law; Article - 8: Right to remedy by competent Tribunal; Article - 9: Freedom from arbitrary arrest and exile; Article - 10: Right to fair public hearing; Article - 11: Right to be considered innocent until proven guilty; Article - 12: Freedom from interference with privacy, family, home and correspondence; Article - 13: Right to free movement in and out of the country; Article - 14: Right to asylum in other countries from prosecution; Article - 15: Right to a nationality and a freedom to change it; Article - 16: Right to marriage and family; Article - 17: Right to own property; Article - 18: Freedom of belief and religion; Article - 19: Freedom of opinion and information; Article - 20: Right to peaceful assembly and association; Article - 21: Right to participate in government and in free election; Article - 22: Right to social security; Article - 23: Right to desirable work and to join trade unions; Article - 24: Right to rest and leisure;



Article - 25: Right to adequate living standard; Article - 26: Right to education; Article - 27: Right to participate in the cultural life of community; Article - 28: Right to social and international order articulated under this document; Article - 29: Community duties essential to free and full development; Article - 30: Freedom from State or personal interference in the above rights.

Two international covenants were adopted in 1966 to codify the rights charted in the Universal Declaration of Human Rights. The International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR) came into force in 1976. Afterwards, the General Assembly also adopted two optional protocols to the International Covenant on Civil and Political Rights and one optional protocol to the International Covenant on Economic, Social and Cultural Rights. The optional protocols are: i) Optional protocol to the International Covenant on Civil and Political Rights in 1966, ii) Second optional protocol to the International Covenant on Civil and Political Rights Aiming at the Abolition of the Death penalty in 1989, and iii) Optional protocol to the International Covenant on Economic, Social and Cultural Rights in 2008. The two International Covenants along with the Universal Declaration of Human Rights and the optional protocols comprise the International Bill on Human Rights. These documents have laid the fundamental framework from which other treaties and declarations have been evolved.

### **Human Rights under the Constitution of India**

The Constitution of India which came into force on 26<sup>th</sup> January 1950 is one of the lengthiest constitutions of the world. The Constitution of India was drafted when the deliberations for the UDHR were in progress, and the framers of the Constitution were influenced by the concept of human rights. In India, the Sapru Committee of 1945 headed by Sir Tej Bahadur Sapru consequently stressed the need for a written code of fundamental rights in the Constitution of India. It suggested two categories of individual rights, justiciable and non-justiciable. The fundamental rights, which are justiciable and the Directive Principles of State Policy, which are non-justiciable are incorporated in the Constitution of India. India was a signatory to the Universal Declaration of Human Rights. The fundamental rights guaranteed to the individuals in Part III and the obligations on the State under Directive Principles of State Policy in Part IV of the Constitution of India are related to the provisions of the Universal Declaration of Human Rights.

The Preamble to the Constitution of India declares India to be a Sovereign, Socialist, Secular, Democratic and Republic. It is enshrined as “WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.”

Fundamental rights are the basic rights, recognised and guaranteed as the natural rights and enshrined in Part III of the Constitution of India. They are primarily the civil and political rights. These rights are not absolute, and are subject to reasonable restrictions. Fundamental rights can also be suspended during proclamation of a national emergency, in accordance with the provisions of the Constitution of India.

Articles 12 to 35 contained in Part III of the Constitution deal with fundamental rights. The fundamental rights recognized by the Indian constitution are:

Right to equality: This includes equality before law, prohibition of discrimination on grounds of religion, race, caste, gender or place of birth, and equality of opportunity in matters of employment, abolition of untouchability and abolition of titles.

Right to freedom: This includes freedom of speech and expression, assembly, association or union, movement, residence, and right to practice any profession or occupation, subject to security of the State, friendly relations with foreign countries, public order, decency or morality, right to life and liberty, protection in respect to conviction in offences and protection against arrest and detention in certain cases.



Right against exploitation: This prohibits all forms of forced labour, child labour and traffic of human beings.

Right to freedom of religion: This includes freedom of conscience and freedom to profess, practice, and propagates religion of one's choice, freedom to manage religious affairs, freedom from certain taxes and freedom from religious instructions in certain educational institutes.

Cultural and educational rights: This includes the right to preserve the right of any section of citizens to conserve their culture, language or script, and right of minorities to establish and administer educational institutions of their choice.

Right to constitutional remedies: This includes the right of the High Courts or Supreme Court to issue writs, in case of violation of fundamental rights.

The Directive Principles of State Policy as enshrined in Part IV of the Constitution of India lays down certain obligations on the State, to promote the welfare of people by securing and protecting a social order, in which social, economic and political justice prevails. It encompasses the principles of the Constitution, which paves the way for social and economic transformation and the preservation of individual liberties.

## **CONCLUSION**

Human rights are basic rights which are vital for the development of a human being, without which person cannot live a life with dignity. Being one of the ancient civilizations of the world, India has acknowledged and recognized certain basic rights of individuals. The Constitution of India is regarded as a document abundant in human rights jurisprudence and a detailed charter of human rights. The Preamble itself highlights the fundamental freedoms and the protection of the dignity of the individual, which the Constitution of India intends to achieve – the vision and goals of the framers of the Constitution. Part III of the Constitution of India which contains the Fundamental Rights may be identified as the Magna Carta of India. Part IV of the Constitution which contains Directive Principles of State Policy is drafted in lines with the Universal Declaration of Human Rights. Along with these Constitutional provisions, the Judiciary also plays a vital role in the protection of human rights. The traditional rule of locus standi has been relaxed by the Indian Courts to address the issues of violation of human rights, thus developing the concept of public interest litigations. Considering the indisputable fact that human rights are the shield that every person should possess for their overall development, its protection and promotion should be appreciated and acknowledged.

*"The rights of every man are diminished when the rights of one man are threatened."* - John F. Kennedy

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ETERNAL LEADERSHIP LESSONS FROM THE BHAGAVAD GITA

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ABSTRACT

*Bhagavad Gita transforms a lazy person into a high spirited one. Bhagavad Gita transforms an impatient person into a person with patience. Bhagavad Gita transforms a person with despondency into a person filled with bliss within. Bhagavad Gita transforms a person with attachment into a person without attachment. Bhagavad Gita transforms an ignorant person into an enlightened one. Bhagavad Gita transforms a person without the sense of discrimination (discriminate the right and wrong path) into a person with the sense of discrimination (discriminate the right and wrong path). Bhagavad Gita transforms jiv to Shiv. Bhagavad Gita transforms a sinner to a virtuous, a virtuous to a devotee. Bhagavad Gita transforms a devotee to ISHWAR through Divine Knowledge.*

Sanjay said in Bhagavad Gita Chapter 18, Verse 78:

यत्र योगेश्वरः कृष्णो यत्र पार्थो धनुर्धरः ।  
तत्र श्रीर्विजयो भूतिधुवा नीतिर्मतिर्मम ॥ 78॥

Victory was declared before the ending of the *yudh* because Bhagwan Shri Krishna was with Arjuna.



The topic of this research study was selected as the researcher felt the necessity to understand and present the inevitability of walking on a spiritual path for solution to any and every problem. The present study underlines the Eternal Leadership Lessons from The BHAGAVAD GITA.

**Keywords:** *Bhagavad Gita, Eternal Leadership Lessons*

1. INTRODUCTION

Bhagavad Gita is the treasure house of spiritual knowledge that can transform a leader finding difficulty in managing human resources in the organisation into a leader finding managing human resources in the organisation a Divine Game.

Table 1: Impact of Bhagavad Gita

Arjuna BEFORE listening to Bhagavad Gita	Arjuna AFTER listening to Bhagavad Gita
Bhagavad Gita 1.28, 29, 30  Arjuna stated that his limbs were giving way and his mouth was getting parched, shiver was running through his body, his bow, Gandiva was slipping from his hand, his skin was burning all over, his mind was whirling and he could not hold himself steady on seeing his kinsmen on the battlefield to fight with.	Bhagavad Gita 18.73  अर्जुन उवाच । नष्टो मोहः स्मृतिर्लब्धा त्वत्प्रसादान्मयाच्युत । स्थितोऽस्मि गतसन्देहः करिष्ये वचनं तव ॥ 73॥ Arjuna said: Shri Krishna, by Your grace my delusion has been destroyed and I have gained wisdom. I am free of all doubt. I will do your bidding.

Source- Self-Compiled from the Bhagavad Gita



## 2. LITERATURE REVIEW

**Lord Shri Krishna declares in Bhagavad Gita:**

Chapter 13, Verse 17

ज्योतिषामपि तज्ज्योतिस्तमसः परमुच्यते ।

ज्ञानं ज्ञेयं ज्ञानगम्यं हृदि सर्वस्य विष्ठितम् ॥

That supreme Brahma is said to be the light of all lights and entirely beyond *maya*. That Godhead is knowledge Itself, worth knowing, and worth attaining through real wisdom, and is particularly seated in the hearts of all.

**Lord Shri Krishna says in Bhagavad Gita:**

Chapter 3, Verse 21

यद्यदाचरति श्रेष्ठस्तत्तदेवेतरो जनः ।

स यत्प्रमाणं कुरुते लोकस्तदनुवर्तते ॥

For whatever a great man does, that very thing other men also do; whatever standard he sets up, the generality of men follow the same.

**Lord Shri Krishna says in Bhagavad Gita:**

Chapter 4, Verse 17

कर्मणो ह्यपि बोद्धव्यं बोद्धव्यं च विकर्मणः ।

अकर्मणश्च बोद्धव्यं गहना कर्मणो गतिः ॥

The truth about action must be known and the truth of inaction also must be known; even so the truth about prohibited action must be known. For mysterious are the ways of action.

## 3. RESEARCH OBJECTIVES:

1. To study the Eternal Leadership Lessons from The BHAGAVAD GITA.
2. To present the Eternal Leadership Lessons from The BHAGAVAD GITA.
3. To come up with suggestions regarding the application of Eternal Leadership Lessons from The BHAGAVAD GITA

## 4. LIMITATIONS OF THE STUDY:

The study is based on secondary data. However, data being collected from the Divine Song: The Bhagavad Gita and Discourses heard on Bhagavad Gita (*Jnanayajna*) ensures achieving of research objectives and thereby solves the purpose of the study.

## 5. RESEARCH METHODOLOGY

The study depends on the secondary data collected. The required data has been obtained from the Divine Song: The Bhagavad Gita and Discourses heard of Shri Ajitbhai D. Sodha (Weekly Discourses): Pravachan on Bhagavad Gita (*Jnanayajna*).

## 6. FINDINGS

Bhagwan Shri Krishna says in Bhagavad Gita (4.17):

कर्मणो ह्यपि बोद्धव्यं बोद्धव्यं च विकर्मणः ।

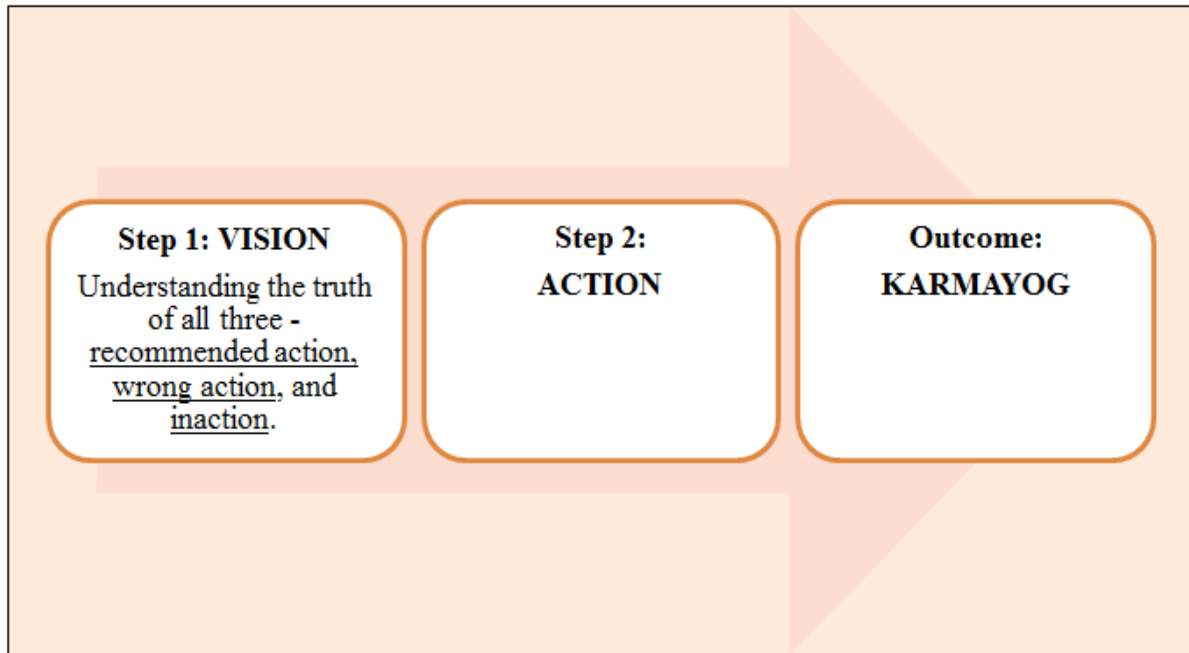
अकर्मणश्च बोद्धव्यं गहना कर्मणो गतिः ॥

You must understand the truth of all three - recommended action (karma), wrong/ prohibited action (vikarma), and inaction (akarma). For, mysterious are the ways of action.

Working Style of a leader following the instructions of Bhagawan Shri Krishna will be of gaining Divine Vision first and then performing action. Outcome of such an action will be *Karmayog*.

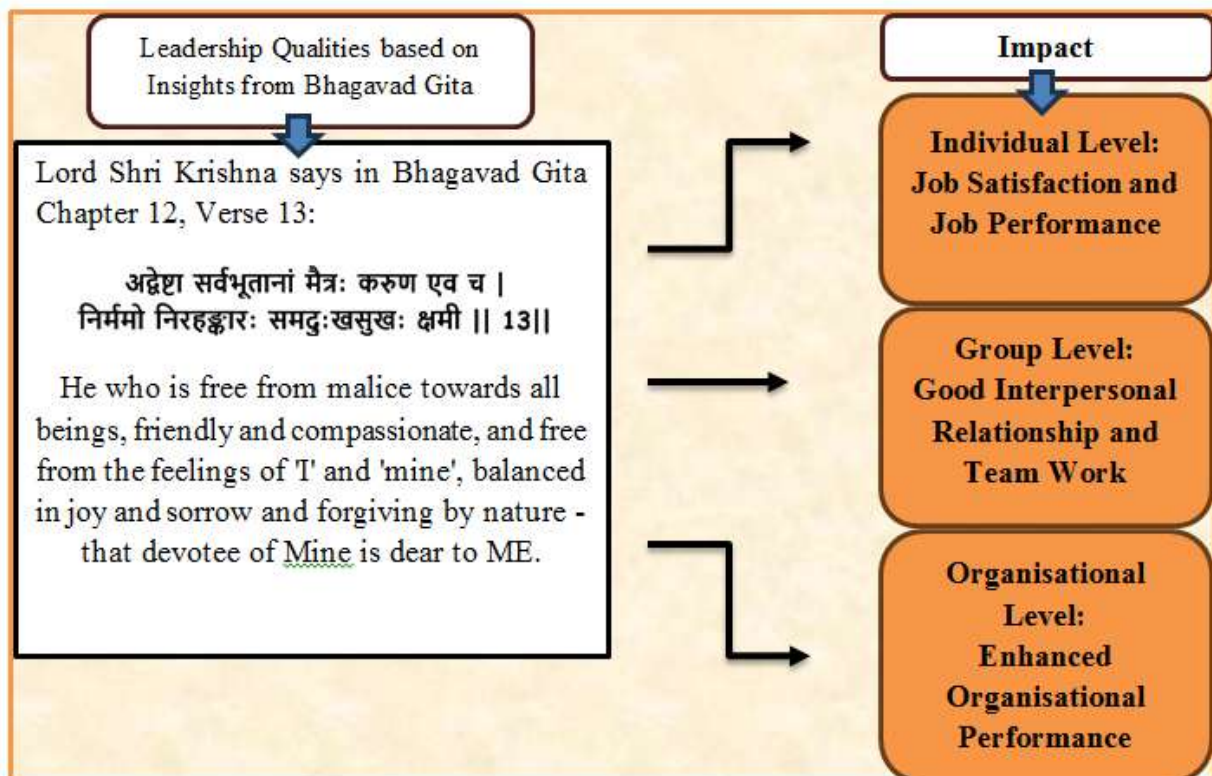


**Figure 1:** Bhagavad Gita Based Working Style of a Leader and its Outcome



*Source-* Self-Compiled from the Bhagavad Gita

**Figure 2:** Impact of Leadership Qualities based on Insights from Bhagavad Gita

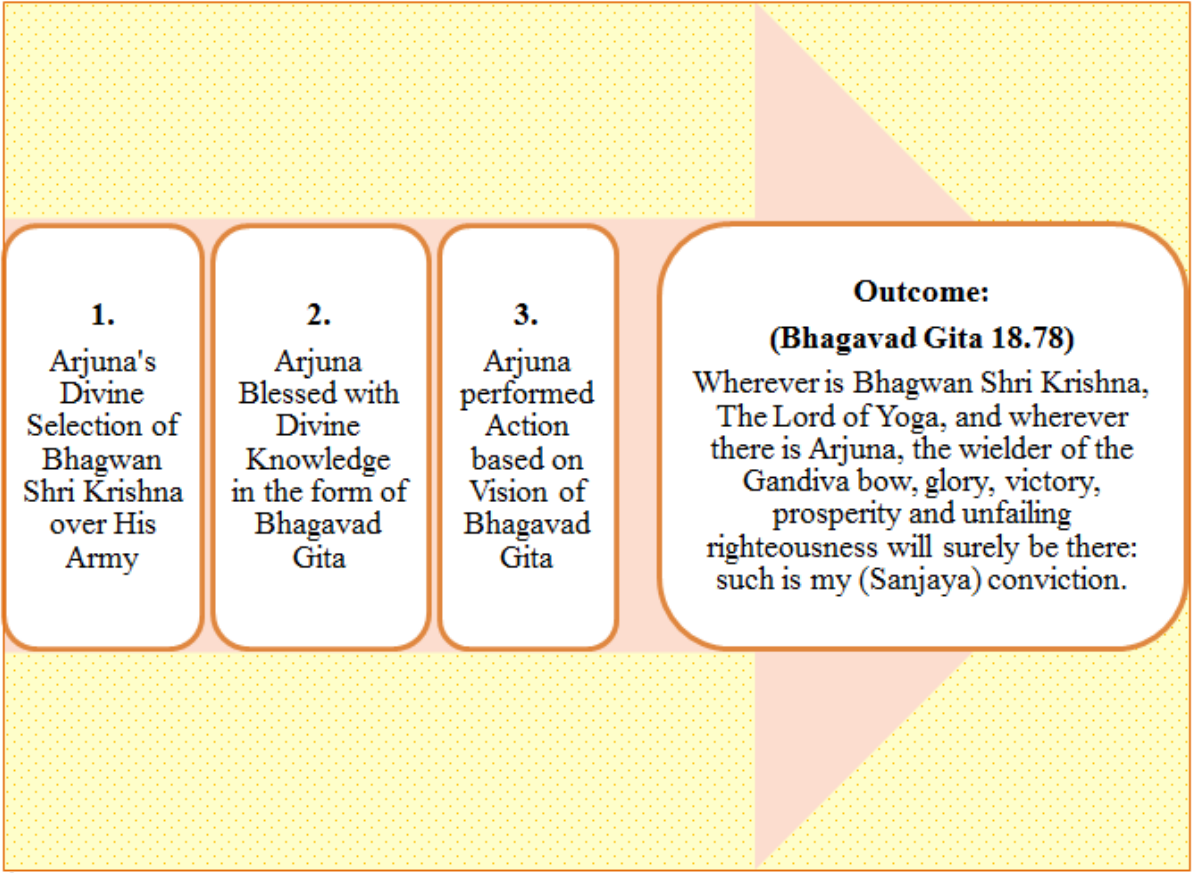


*Source:* Self-Compiled from the Bhagavad Gita



7. CONCLUSION

Figure 3: Outcome of Divine Selection and Divine Knowledge



Source: Self-Compiled (on the basis of Discourses heard of Shri Ajitbhai Dhirajlal Sodha (Weekly Discourses): Pravachan on Bhagavad Gita)

Figure 4: Outcome of Divine Leadership in the Organisation



Source: Self-Compiled

RECOMMENDATIONS

Parents

- ❖ The parents must make sure that their children are imparted not only material knowledge (knowledge of the creation) but also The Metaphysical Knowledge (Knowledge of the Creator).

Educational System

- ❖ This research study recommends designing the syllabus that covers Eternal Leadership Lessons from The BHAGAVAD GITA



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**Company**

- ❖ The study suggests organizing of workshops, conferences, seminars and sessions on the topic ‘Eternal Leadership Lessons from The BHAGAVAD GITA’ by the companies/ institutions.
- ❖ Having Bhagavad Gita in the library in the organisation and allowing reading/ meditation breaks to the leaders and employees will be considered to be a treasured undertaking by the organisation.

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**A STUDY ON THE IMPACT OF TRADITIONAL APPROACHES, MODERN FRAMEWORKS, AND EMERGING RISKS ON FINANCIAL RISK MANAGEMENT DEVELOPMENT: EVIDENCE FROM THE INDIAN BANKING SECTOR**

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**ABSTRACT**

*The Indian banking sector has faced significant challenges over the past two decades, including the non-performing asset (NPA) crisis, economic volatility, and emerging risks such as cyber threats and regulatory changes. This study critically evaluates the transition from traditional to modern financial risk management approaches and their relevance in mitigating emerging risks. Secondary data from regulatory reports, peer-reviewed journals, and empirical studies are analyzed to highlight how Basel III norms, AI-based predictive tools, and stress testing strategies contribute to risk resilience. The findings indicate that integrating traditional practices with modern frameworks enhances financial stability, particularly in private sector banks. This study provides critical policy recommendations to strengthen the risk management ecosystem in Indian banking.*

**Keywords:** Financial Risk Management, Basel III, Emerging Risks, Cybersecurity, Indian Banking Sector, Predictive Analytics, Stress Testing.

**1. INTRODUCTION****1.1 Background**

Risk management is a fundamental pillar of banking systems globally. The Indian banking sector, particularly private sector banks, has evolved considerably from traditional risk practices to adopting modern frameworks such as Basel III. This evolution became critical post the NPA crisis (2008–2014), when outdated methods failed to predict systemic risks.

**1.2 Problem Statement**

Despite advancements in modern risk tools, the emergence of new risks—cybersecurity, regulatory complexity, and economic volatility—has exposed limitations in existing frameworks.

**1.3 Research Objectives**

- ✓ To analyze the effectiveness of traditional financial risk management approaches.
- ✓ To examine the adoption of modern frameworks such as Basel III and AI-driven risk management.
- ✓ To explore the impact of emerging risks in Indian private banks post-2014.
- ✓ To propose an integrated framework for risk resilience.

**2. LITERATURE REVIEW****2.1 Theoretical Underpinning**

- ✓ Risk Management Theory (Holton, 2004): Combines uncertainty and exposure to define financial risk.
- ✓ Basel III Framework: Introduced to improve capital adequacy, leverage ratios, and liquidity coverage.
- ✓ Technology Adoption Model (TAM): Explains the integration of AI and machine learning in risk mitigation.

**2.2 Traditional Approaches to Risk Management**

- ✓ Manual assessment tools for credit, market, and operational risks.
- ✓ Limitations: Ineffective prediction of systemic risks due to static, reactive processes.

**2.3 Modern Approaches in Risk Management**

- ✓ Basel III Norms: Adoption of advanced capital buffers and liquidity management tools.
- ✓ Stress Testing: Enhances banks' capacity to simulate economic shocks.
- ✓ AI and Machine Learning: Tools for predictive analysis, real-time dashboards, and credit scoring.

**2.4 Emerging Risks Post-2014**

- ✓ Cybersecurity Risks: Rise of digital frauds due to increased online transactions.
- ✓ Macroeconomic Volatility: Currency fluctuations, GDP slowdowns, and inflationary pressures.
- ✓ Regulatory Changes: Stringent RBI norms for NPAs and asset classification.



### 3. RESEARCH METHODOLOGY

- **Nature of Study:** Analytical and exploratory using secondary data.
- **Data Sources:**
  - Reports from the Reserve Bank of India (RBI), IMF, World Bank.
  - Basel Committee publications.
  - Peer-reviewed journals from *ScienceDirect*, *Springer*, and *JSTOR*.
  - Industry case studies of Indian private sector banks (ICICI Bank, HDFC Bank).
- **Tools Used:** Comparative analysis, thematic review, and trend analysis.

### 4. RESULTS AND DISCUSSION

#### 4.1 Traditional Risk Management: Pre-NPA Crisis

- Heavy reliance on manual methods failed to mitigate operational and systemic risks.
- Evidence from RBI reports suggests credit defaults rose due to reactive measures.

#### 4.2 Modern Risk Management Post-NPA Crisis

- Adoption of Basel III improved capital adequacy ratios:
  - ICICI Bank's Capital Adequacy Ratio (CAR) increased from 14.2% in 2016 to 18.04% in 2021.
- AI-based credit scoring models reduced loan defaults by improving predictive accuracy.

#### 4.3 Emerging Risks and Challenges Post-2014

- Cybersecurity Risks: A 250% increase in digital fraud cases (RBI, 2023).
- Economic Volatility: Impact of COVID-19 led to a GDP contraction of -7.3% (World Bank, 2020).
- Regulatory Challenges: RBI's 2019 asset classification norms increased compliance burdens.

#### 4.4 Integrated Framework for Risk Resilience

Combining traditional insights, modern AI tools, and stringent regulatory compliance offers a holistic risk management framework to mitigate emerging risks.

### 5. CONCLUSION AND POLICY IMPLICATIONS

#### 5.1 Conclusion

This study highlights the limitations of traditional risk management approaches while showcasing the strengths of modern tools and frameworks like Basel III and AI-driven models. Emerging risks necessitate dynamic frameworks to achieve financial resilience.

#### 5.2 Policy Recommendations

- ✓ Accelerate adoption of AI and machine learning tools for predictive analysis.
- ✓ Strengthen cybersecurity protocols to prevent systemic digital frauds.
- ✓ Conduct scenario-based stress testing for macroeconomic shocks.
- ✓ Encourage compliance with Basel III norms across all private sector banks.

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**A STUDY ON EVOLUTION OF MARKETING TRENDS IN THE CONTEMPORARY  
COMPETITIVE LANDSCAPE**

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**ABSTRACT**

*This research examines the evolution of marketing trends in the current competitive landscape, emphasizing the shift in consumer behavior, technological advancements, and the necessity for businesses to adapt quickly to stay relevant. As industries transform through digitalization, the competitive scenario requires innovative strategies to understand consumer preferences, develop tailored products, and engage through diverse marketing channels. The paper identifies significant trends such as social media dominance, data-driven marketing, and the rise of sustainable practices, providing insights into their impact on marketing strategies and business success.*

**1. INTRODUCTION**

The marketing landscape is continuously evolving, driven by technological advancements, changing consumer behavior, and global competition. Organizations must recognize the shifts in market trends to remain competitive and responsive to consumer expectations. With the rapid pace of change in consumer preferences, businesses must adopt new strategies that align with the dynamic nature of the current market environment. This research aims to explore the marketing trends that are reshaping the competitive scenario today.

**2. LITERATURE REVIEW**

Marketing trends are influenced by various factors such as technological innovations, socio-economic changes, and global market dynamics. For instance, social media has emerged as a dominant tool for brand promotion and reputation management, with businesses leveraging these platforms to create consumer engagement and loyalty (Singla, Shalender, & Sharma, 2025). Moreover, shifts in consumer behavior—such as increased demand for personalized and sustainable products—have driven companies to rethink their product offerings and marketing strategies (Rahi & Abd. Ghani, 2019).

According to studies, digital platforms have revolutionized the way businesses interact with consumers, creating new opportunities for marketing through data analytics and mobile platforms (Lee, 2009). However, there is limited research on understanding the user resistance to technology adoption, especially in sectors like internet banking (Xue et al., 2011).

**3. OBJECTIVES OF THE STUDY**

The primary objectives of this research are:

1. To identify the emerging marketing trends in the current competitive environment.
2. To analyze how businesses are leveraging these trends as opportunities for growth and innovation.

**4. RESEARCH METHODOLOGY**

This study adopts a secondary research approach, gathering data from journals, textbooks, market reports, and industry magazines. The research methodology involves analyzing existing literature and case studies of businesses implementing innovative marketing strategies in response to evolving market trends.

**5. KEY MARKETING TRENDS IN THE COMPETITIVE LANDSCAPE**

The following marketing trends are critical for businesses in the current competitive market:

**5.1 Social Media Dominance**

Social media platforms have become essential for brands to engage with consumers. Companies are increasingly using social media for content distribution, reputation management, and customer interaction. As of 2024, approximately 85% of marketers utilize social media for brand promotion and customer engagement, indicating its growing importance in marketing strategies.

**5.2 Mobile-First Strategy**

With the rise of mobile devices, businesses are prioritizing "mobile-first" marketing. Mobile applications, responsive websites, and optimized content for smartphones and tablets are crucial for reaching on-the-go consumers. The shift from desktop-based to mobile-centric marketing strategies has forced organizations to adapt their marketing approaches to fit mobile platforms.



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**5.3 Sustainable Marketing and Green washing**

The demand for sustainable products has surged, and businesses are focusing on eco-friendly practices. However, green washing—the act of misleading consumers about the environmental benefits of products—has emerged as a significant issue. Consumers are increasingly discerning, and brands that genuinely invest in sustainability are more likely to build trust and long-term loyalty.

**5.4 Artificial Intelligence (AI) and Data Analytics**

AI-driven tools and data analytics are playing an integral role in marketing strategies. Marketers are utilizing AI for consumer behavior prediction, personalized content delivery, and automation of customer service functions through chatbots. This trend allows businesses to create more targeted and efficient campaigns.

**5.5 Experience-Centric Marketing**

Consumers are no longer solely interested in products; they seek experiences that align with their values and preferences. Experience-centric marketing focuses on creating memorable experiences for customers, particularly in retail and hospitality industries. This trend has led businesses to explore immersive technologies like augmented reality (AR) and virtual reality (VR) to enhance customer engagement.

**5.6 Personalization and Customization**

Consumers increasingly expect personalized products and services. Companies are using data-driven insights to create tailored experiences and solutions for customers, offering everything from custom-built products to personalized recommendations on digital platforms.

**5.7 Influencer Marketing**

Influencer marketing continues to grow, with brands partnering with social media influencers to promote products. This trend leverages the trust and credibility influencers have with their audiences, which can lead to increased brand visibility and sales.

**5.8 Consumer Privacy and Ethical Marketing**

As consumer concerns about data privacy grow, ethical marketing practices are becoming a priority. Brands that prioritize transparency and consumer data protection are gaining consumer trust. Marketers are focusing on building ethical relationships with consumers by being clear about data collection and usage.

**6. Research Findings**

The study indicates that businesses that align their strategies with current marketing trends are better positioned to thrive in today's competitive environment. Some key findings include:

1. Companies that leverage mobile-first strategies have experienced a significant boost in customer engagement.
2. Ethical marketing practices and transparency are becoming increasingly important, as consumers demand more responsibility from brands.
3. The pharmaceutical industry in India has seen robust growth by adopting international standards and innovation, demonstrating the importance of staying competitive through research and development.
4. The automotive industry is embracing new product lines and customer-centric approaches, offering affordable models and innovative financing options to capture a wider customer base.

**7. CONCLUSION**

The contemporary competitive marketing landscape is shaped by rapid technological advancements and evolving consumer preferences. Companies that understand and adapt to these changes can seize opportunities for growth. By adopting innovative marketing strategies, focusing on customer experience, and embracing sustainability, businesses can enhance their competitive edge. The future of marketing lies in personalization, data analytics, and the ability to foster genuine consumer relationships.

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**INNOVATIVE STRATEGIES TO CREATE AWARENESS ABOUT THE RIGHT TO FREEDOM OF SPEECH GRANTED BY THE INDIAN CONSTITUTION AMONG UNDER - GRADUATE COLLEGE STUDENTS IN THE CITY OF MUMBAI.**

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**ABSTRACT**

*Freedom of speech is an important right enshrined in Article 19 (1) (a) in the Constitution of India. This right implies that all citizens have the right to express their views and opinions freely. This includes not only words of mouth, but also a speech by way of writings, pictures, movies, banners. Due to lack of awareness the citizen's often face backlash from many government officials and local politicians abuse laws and harass individuals who express their views and thoughts freely. This paper will study the awareness about the Right to Freedom of Speech among the undergraduate college students in the city of Mumbai. Students are the backbone of society and need to be aware of their rights. This paper will assess the level of awareness among students regarding the Right to Freedom of Speech among under graduate college students in the city of Mumbai and also suggest innovative strategies that can be adopted to increase the awareness. The researcher will be collecting the data through questionnaire from a sample of 100 undergraduate students in the city of Mumbai to get primary data. The researcher would also be using secondary data to draw conclusions.*

**Keywords:**

Freedom of Speech.

Constitution

Under Graduate.

**INTRODUCTION**

The constitution of India has given a number of Fundamental Rights to the citizens of India. Article 19 outlines the 6 Fundamental Rights granted to Indian Citizens. There are six fundamental rights guaranteed under by the Indian Constitution. They are as follows:

1. Right to Equality
2. Right to freedom
3. Right against exploitation
4. Right to freedom of Religion
5. Cultural and Educational Rights
6. Right to constitutional Remedies

Article 19 (1) (a) pertains to Freedom of Speech. This right includes Protection of certain rights regarding freedom of speech, etc.

- This implies that all citizens have the right to express their views and opinions freely.
- This includes not only words of mouth, but also a speech by way of writings, pictures, movies, banners, etc.
- The right to speech also includes the right not to speak.
- This right also includes the right to access information because this right is meaningless when others are prevented from knowing/listening. It is according to this interpretation that the **Right to Information (RTI)** is a fundamental right.

These rights include right to advertise, Right to voice your opinion. This right to freedom of speech is inalienable right and an integral part of article 21 also which Right to life. It is this right which makes India a true Democracy. This right can be seen in most of the constitutions across the world. This right gives an opportunity to all citizens to participate in discussions, presentation in political, social and cultural walk of life.

This right is important as citizens can express their beliefs and can actively participate in democracy. However this right is not totally unrestricted. The constitution has imposed reasonable restrictions on the Right to Freedom of Speech. This right can be restricted under the following circumstances



1. Security
2. Sovereignty and integrity of the country
3. Friendly relations with foreign countries
4. Public order
5. Decency or morality
6. Hate speech
7. Defamation
8. Contempt of court

This right should be used judiciously and with responsibility. Using it to defame others, or deliver hate speech, or spoiling the relationship with friendly foreign nation is gross misuse of the right.

It is often seen that people misuse the Right to Freedom of Speech to spread rumours, mis - information, hurt the sentiments of others, stir hatred and show the social and cultural values in negative light.

It is often seen that many government officials and local politicians abuse laws and harass individuals who express their views and thoughts freely. People are victims of violent attacks by extremists groups for expressing their opinions. Many filmmakers, artists, authors face backlash and attacks for expressing their creativity. There is a need to develop innovative strategy to create awareness about the Right to Freedom of Speech.

## LITERATURE REVIEW

### Tejaswini Kaushal:

*"A Birds' Eye View of the Right to Freedom of Speech and Expression in India"* (Manupatra, February 16, 2023)

This article likely provides a comprehensive overview of the historical and constitutional foundations of the Right to Freedom of Speech in India. It includes key cases and legal interpretations that shape this fundamental right.. The author has outlined the need and importance of the Right to Freedom of Speech. The author has cited in this context examples of landmark cases,. The author has mentioned about the Menaka Gandhi v/s Union of India case. Justice Bhagwati, in *Maneka Gandhi v. Union of India*<sup>16</sup>, underlined the importance of free speech, saying that a democratic society stands fundamentally upon unfettered debate, discussion, and open dialogue, as it acts as the sole "corrective of government action" keeping in view the democratic setting. The author has also cited *State of Uttar Pradesh v. Raj Narain*<sup>8</sup>, the Supreme Court concluded that Article 19(1)(a) of the Constitution bestows upon every citizen the right to indulge in free speech, as well as the right to receive and spread information on topics of public importance. The author has critically analysed the need and importance of this right and called it the mother of all rights.

### 1. Tushar Sharma:

*"The Changing Face of Free Speech: A Study of Article 19 in the Digital Age in India"* (International Journal of Law and Social Science, Volume 9, Issue 1, 2023)

This study focuses on how the digital age has influenced and transformed the application and challenges of Article 19. It is expected to discuss issues like social media, online censorship, and the impact of technology on free speech. The author has articulated how in the dynamic era of digital age the social media has emerged as an important avenue for expressing thoughts and ideas and have contributed to the Right to freedom of speech. The author has emphasized the need for maintaining a balance to mitigate unrestricted flow of opinion and dangers of misinformation. The author reiterates that there should be self-censorship. The author has said that without checks, digital media can cultivate not just constitutional morality but constitutional immorality. The author has stated that misinformation has fuelled communal violence, eroding the very democratic fabric these platforms aim to uphold. The author has concluded that in our country.

### 2. Mukesh Kumar & Pragya Shakya:

*"The Right to Freedom of Speech is a Pillar of Democracy: An Analytical Study"* (Krishna Law Review, Krishna Institute of Law E-Journals, Vol. 01, Issue 01, 2023)

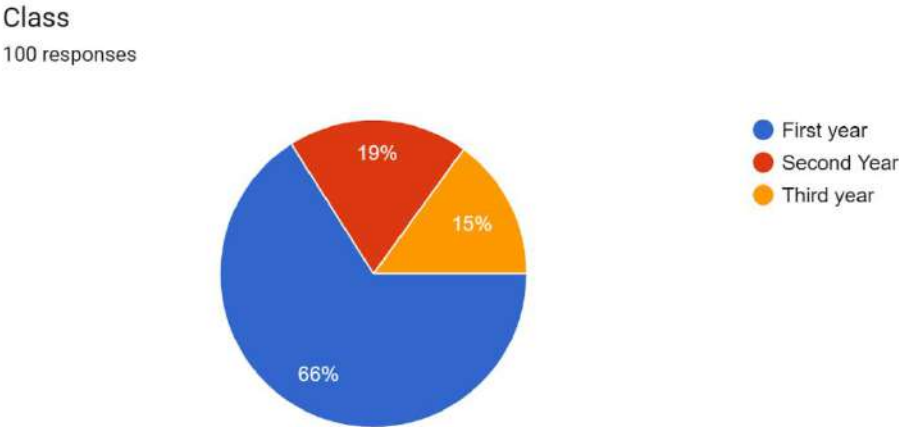


The author says that in a democracy, the freedom of speech and expression is one of the prime liberties granted to the citizens. It forms a foundation for other rights granted to citizens such as freedom of the press. Freedom of the press, in turn helps in inculcating a better-informed public and electorate. The author has thrown light on the freedom of press as an important aspect of right of Freedom of speech. The author has cited a number of case laws to drive home her point. She has cited the case Romesh Thapar vs. The State of Madras, In this case, the Supreme Court considered the freedom of the press cannot be sacrificed as it is an integral part of our fundamental right. Indian Express Newspaper vs. Union of India, 9 In this case, it was described that the press plays a very important part in the modern democratic system. Thus every government should try to give liberty to press so that they can expose burning matters to the society without any fear. This analytical study emphasizes the role of Freedom of Speech as a cornerstone of democratic systems. It likely examines its significance in fostering dialogue, accountability, and participation within democratic governance.

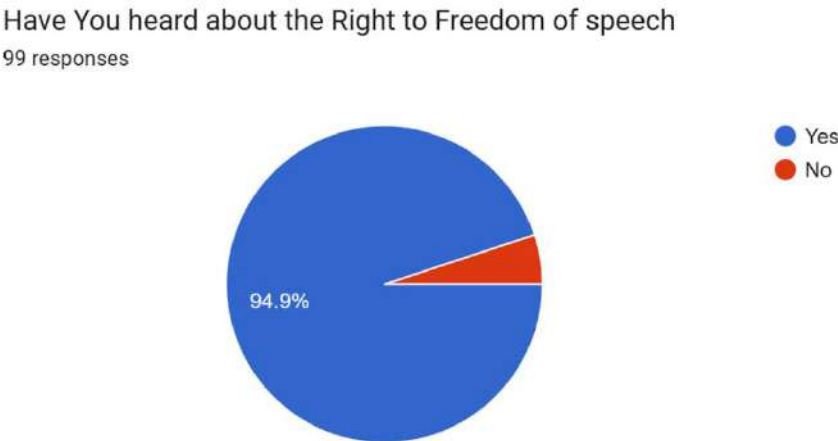
METHODOLOGY

The researcher selected a sample of 100 under graduate college students from the city of Mumbai. Primary Data was collected from the respondents through questionnaire.

DATA ANALYSIS



Among the respondents 66% respondents were from First Year, 19% were from second year and 15% were from third year under Graduate Courses.

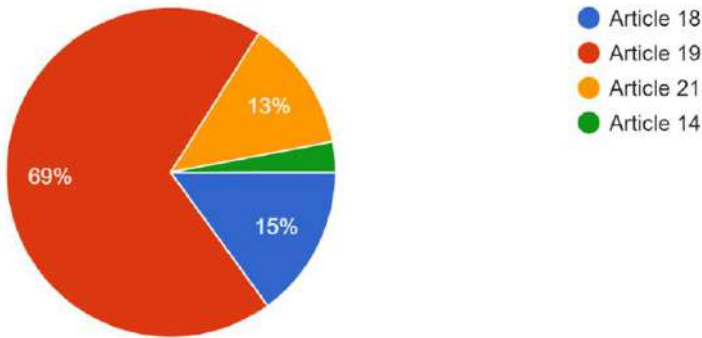


It is evident from the responses that 94.9% of the respondents are aware about the Right to Freedom of Speech.



Under which Article is the Right to Freedom of Speech in the Indian Constitution

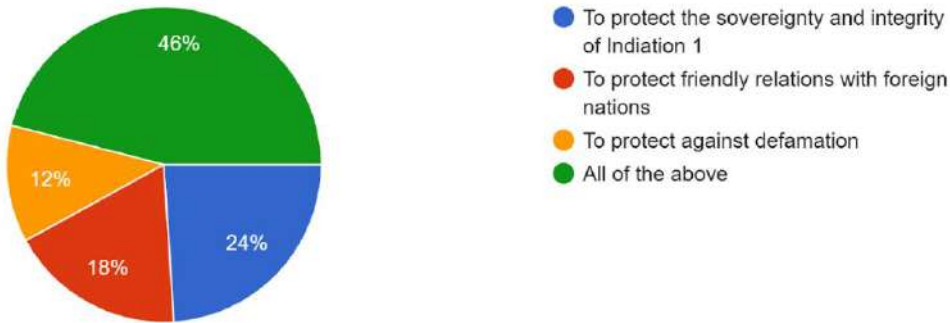
100 responses



To this question 69% of the respondents gave the correct answer stating that The Right to Freedom of Speech is in Article 19.

The Right to Freedom of Speech can be restricted under the following circumstances

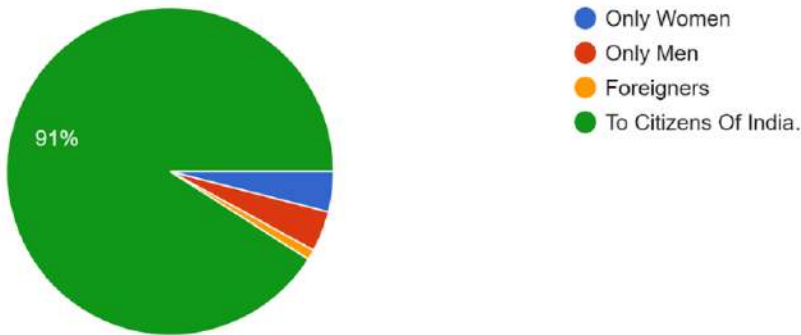
100 responses



Only 46% of the respondents gave the correct answer being the option all of the above. 54% of the respondents were unable to give the correct answer.

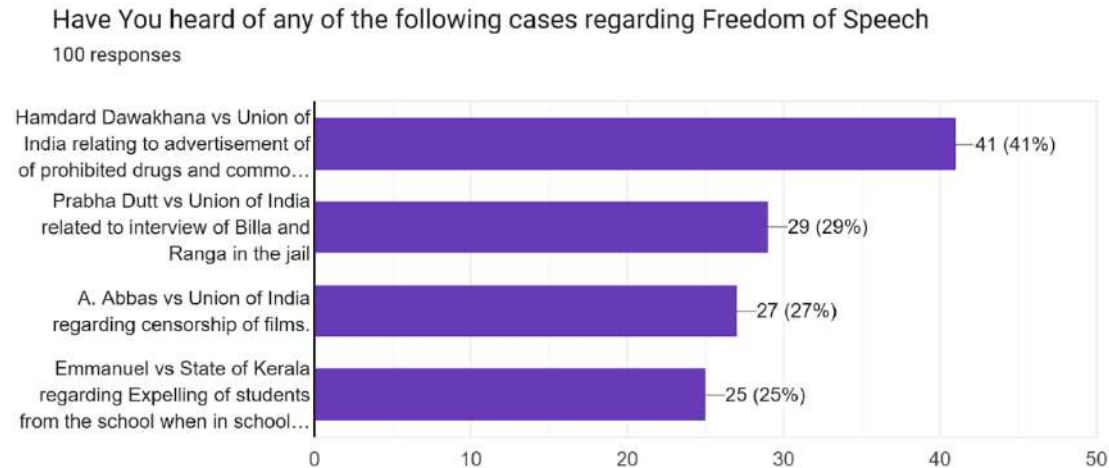
The right to freedom of Speech is available to the following

100 responses



97% of the respondents were aware that the Right to Freedom of Speech is available to all citizens of India.



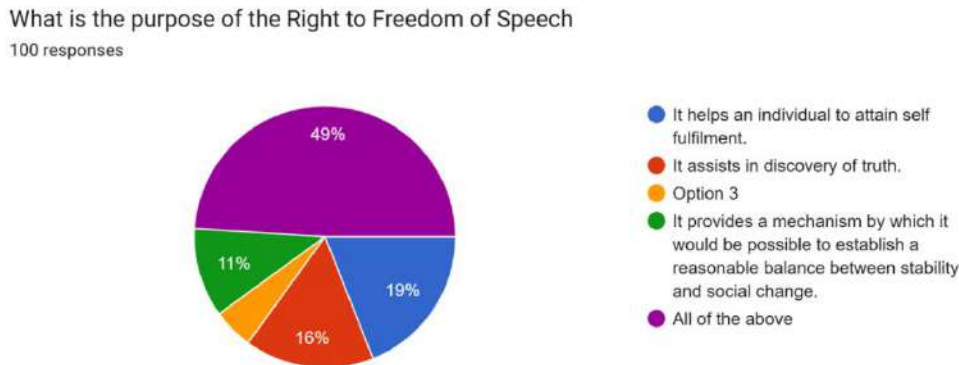


This bar chart represents the responses of 100 participants who were asked whether they had heard of specific landmark cases related to Freedom of Speech in India. Here's an analysis of the data:

- Hamdard Dawakhana vs Union of India:**
  - This case, related to the advertisement of prohibited drugs and commodities, is the most recognized among respondents.
  - 41 individuals (41%) reported being aware of this case, making it the most familiar case in the survey.
- Prabha Dutt vs Union of India:**
  - Related to the right of journalists to interview prisoners (Billa and Ranga in jail), this case was known to 29 respondents (29%).
  - It ranks second in terms of recognition, indicating moderate awareness among participants.
- A. Abbas vs Union of India:** This case concerns the censorship of films and is known to 27 respondents (27%).
  - The level of awareness is slightly lower than the Prabha Dutt case, suggesting lesser engagement with issues surrounding film censorship.
- Emmanuel vs State of Kerala:**
  - This case involved the expulsion of students for not participating in the national anthem due to religious beliefs.
  - It is the least recognized case, with 25 respondents (25%) aware of it.

Observations:

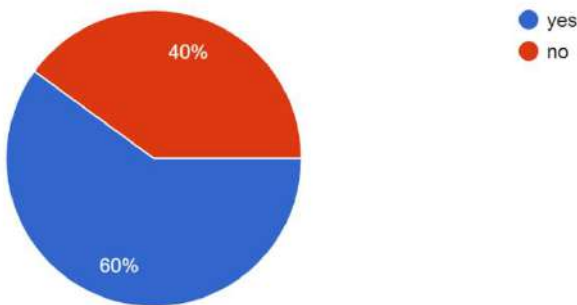
- There is a relatively low overall awareness of landmark Freedom of Speech cases among participants, with no case surpassing 50% recognition.



Only 49% of the respondents were able to answer correctly about the purpose of the Right to Freedom of Speech and selected the option All of the above.

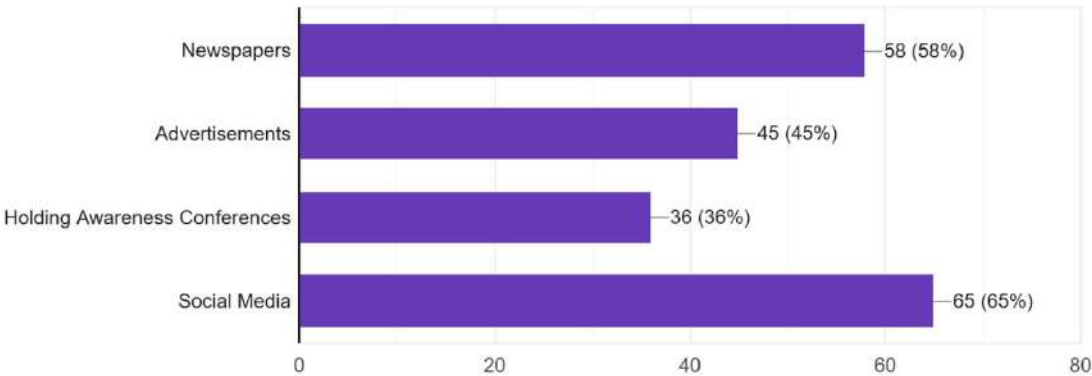


Are there restrictions on expressing thoughts and ideas in films under freedom of speech.  
100 responses



60% of the respondents were aware that the Right to Freedom of Speech has some restrictions.

How do you think the awareness for right to Freedom speech can be created among the citizens of India.  
100 responses



The respondents gave various suggestions about strategies to create awareness about the Right of Freedom to Speech as evident from the diagram.

- With 60 responses (60%), social media is the most preferred medium for spreading awareness about the Right to Freedom of Speech. newspapers are chosen by 59 respondents (59%) as an effective tool. Advertisements are selected by 44 respondents (44%), making them the third-most preferred medium. Conferences are the least favoured, with only 38 responses (38%) opting for conferences.

CONCLUSION.

From the data analysis it is evident that around 94.5% under graduate college students have heard about the Right to Freedom of Speech. However less than 50% of the respondents are aware of the purpose of the Right to Freedom of Speech. Only around 60% respondents knew about the restrictions imposed on the Right to Freedom of Speech. Awareness of Land mark cases was not very widespread. There is surely a need to use innovative strategies to create awareness about the Right to Freedom of Speech not merely that it exists, but in its true essence as to the purpose and use of Right to freedom of Speech.

Following are a few suggestions to improve awareness and knowledge of purpose about the Right to Freedom of Speech among undergraduate students in Mumbai.

Strategies for Raising Awareness

1. **Interactive Workshops and Seminars:**  
Colleges should invite legal experts and hold workshops and talks to share the information about the Right to Freedom of Speech and high light the landmark cases.
2. **Inclusion in Curriculum:**  
The Right to Freedom of Speech should be integrated in the curriculum.



**3. Leveraging Social Media:**

As college students use social media to a large extent, social media platforms like Instagram, face book can be used extensively to improve awareness. Videos, reels, expert opinion and infographics can be used to spread awareness.

**4. Street Plays and Campaigns:**

College students can build stories, dramas and street plays around this right and spread awareness among peer group.

**5. Awareness Drives Through Media:**

Colleges can encourage students to write articles in magazines, have radio podcast and use college internal media to spread awareness.

**6. Mock Trials and Debates:**

Colleges can organize events where students simulate court trials or debate learning how to exercise their rights responsibly.

**7. Collaborations with NGOs and Legal Aid Clinics:**

Colleges can work in collaboration with NGOs and Legal Aid Clinics where the students can actively participate and learn about the purpose of Right to Speech.

**8. Information Posters and Brochures:**

Distribute creative pamphlets summarizing Article 19 (1)(a) and its restrictions, emphasizing the balance between freedom and responsibility.

**9. Digital Literacy Programs:**

Colleges can hold online sessions about the use of Right to Freedom of Speech.

**10. Awareness of Legal Recourse:**

Students can be made aware as to what are the legal recourse available to them in matters pertaining to Right to Freedom of Speech.

These suggestions can be implemented to create a greater awareness about the true essence and purpose of the Right to Freedom of Speech. The students can learn about how to use this right responsibly and effectively and

By implementing these strategies, awareness about the Right to Freedom of Speech and its responsible exercise can significantly improve among undergraduate students, fostering a well-informed and participative democratic society.

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## A STUDY ON IMPACT OF STATISTICAL SIGNIFICANCE ON POLICY DECISIONS: A CASE STUDY

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Ms. Famida Sheikh

### ABSTRACT

*Statistical significance plays a crucial role in the formulation of public policies across various sectors, from healthcare to economics. By determining whether an observed effect is likely due to chance, statistical significance helps policymakers make informed decisions. This paper examines the impact of statistical significance on policy decisions using secondary data sources, including case studies from public health, economics, and education. Through this analysis, the paper sheds light on how the interpretation of statistical results influences policy-making and public welfare.*

### 1. INTRODUCTION

Statistical significance is a central concept in statistics, particularly in hypothesis testing, where it helps determine whether a result is likely due to chance or represents a real effect. In the context of policymaking, decisions often rely on data-driven evidence, and understanding whether a result is statistically significant is crucial in shaping effective and evidence-based policies. The use of statistical significance in policy decisions spans various fields, including healthcare, education, economics, and social policy.

This paper explores the impact of statistical significance on policy decisions through case studies in different sectors. By analyzing secondary data sources, it aims to understand how statistical results guide or sometimes mislead policymaking, affecting outcomes that impact society as a whole.

### 2. OBJECTIVES OF THE STUDY

This research aims to:

1. Investigate how statistical significance is interpreted and used in policy decision-making.
2. Analyze the role of statistical significance in different policy sectors, including healthcare, education, and economics.
3. Explore the potential consequences of over-relying on statistical significance in policy formulation.
4. Provide case studies where statistical significance played a pivotal role in influencing public policy.

### 3. LITERATURE REVIEW

Statistical significance has long been used in policy decision-making, particularly in the evaluation of public programs and interventions. However, the role of statistical significance in policy decisions is often contested. According to Gelman & Loken (2014), policymakers sometimes overemphasize the role of statistical significance while ignoring practical significance or context. This can lead to poor decision-making, especially when p-values are interpreted without considering the broader context or effect size.

In healthcare policy, a study by Jones et al. (2017) highlighted how statistical significance influenced decisions regarding the allocation of public health resources. When evaluating the efficacy of new drugs or treatments, the emphasis on achieving statistically significant results can sometimes overshadow real-world effectiveness. Similarly, in economics, statistical significance has been crucial in decisions regarding unemployment benefits and tax reforms (Piketty, 2014).

In the education sector, statistical significance is often used to assess the effectiveness of different teaching strategies. According to Jansen & Schommer (2018), educational policymakers frequently rely on p-values to determine whether an intervention is effective, but such decisions often fail to consider other factors, such as the practical implementation challenges of these interventions.

### 4. RESEARCH METHODOLOGY

This research paper is based on secondary data analysis and draws upon a wide range of sources, including:

1. **Government Reports:** Data from public policy agencies, such as the Centers for Disease Control and Prevention (CDC) for healthcare and the Ministry of Education for educational policies.
2. **Case Studies:** Published reports and analyses of real-world policy decisions, such as economic reforms and public health interventions.



3. **Academic Journals:** Articles from journals like the *American Journal of Public Health*, *The Quarterly Journal of Economics*, and *Educational Evaluation and Policy Analysis*.
4. **Policy Documents:** White papers, policy briefs, and reports that discuss the role of statistical significance in decision-making processes.

The case study approach is used to examine specific instances where statistical significance has had a direct impact on policy outcomes.

## 5. ANALYSIS AND DISCUSSION

### 5.1 Statistical Significance in Healthcare Policy

In healthcare policy, statistical significance plays a vital role in determining the effectiveness of medical treatments and public health interventions. A notable example is the approval process for new pharmaceuticals. According to the *FDA (2019)*, the U.S. Food and Drug Administration (FDA) heavily relies on statistically significant results from clinical trials to approve drugs. However, the overemphasis on p-values (usually 0.05 or lower) can sometimes ignore the practical significance of a treatment's effect.

For example, a drug may be statistically significant in a clinical trial, but its effect may be so small that it has little impact on patient outcomes. The case of the antidepressant Prozac, for instance, demonstrated a statistically significant effect in clinical trials, but the magnitude of the effect was questioned by some critics who argued that the benefits were minimal compared to the side effects (Moncrieff, 2013). This case highlights the importance of looking beyond statistical significance and considering the real-world implications of policy decisions in healthcare.

### 5.2 Statistical Significance in Economic Policy

In the field of economics, statistical significance has been crucial in determining the effectiveness of fiscal policies, such as tax reforms or unemployment benefits. A well-known example is the 2008 U.S. financial crisis, where econometric models were used to assess the effectiveness of stimulus packages. According to the Congressional Budget Office (2009), the success of the stimulus was evaluated based on the statistical significance of the economic variables involved, such as GDP growth and employment rates.

However, the focus on statistical significance sometimes overlooks the practical effects of policy measures. For example, while some studies showed statistically significant improvements in economic indicators, the distribution of these benefits was not uniform, leading to increased inequality. As Piketty (2014) noted, relying solely on statistical significance can sometimes lead to policies that benefit only certain segments of society.

### 5.3 Statistical Significance in Education Policy

In education policy, statistical significance is used to determine the success of teaching methods and educational interventions. One example is the evaluation of early childhood education programs. According to the National Institute for Early Education Research (NIEER, 2018), policymakers often rely on statistical significance to justify investments in pre-K programs. However, while p-values may indicate statistically significant results, these interventions often require contextual adjustments, such as teacher quality, funding, and parental involvement, to achieve meaningful outcomes.

A case study of the Head Start program, which provides early childhood education to low-income children in the U.S., demonstrates how statistical significance can influence funding and support. Although evaluations showed statistically significant improvements in test scores, long-term benefits were less clear, prompting debates about the program's overall effectiveness (Barton, 2009). These cases illustrate the need for policymakers to weigh statistical significance with other factors like feasibility, cost, and long-term impacts.

## 6. CONCLUSION

The impact of statistical significance on policy decisions is profound, yet it presents challenges for policymakers who must navigate between statistical rigor and practical significance. While statistical significance can provide insights into the effectiveness of programs, it should not be the sole criterion for policy decisions. Real-world outcomes, such as cost-effectiveness, equity, and long-term sustainability, must also be considered to ensure that policies have a meaningful and positive impact on society.

In healthcare, economics, and education, statistical significance has shaped many critical decisions. However, the over-reliance on statistical tests, without considering the broader implications and context of the findings, can lead to misguided policies. As such, policymakers must be equipped to interpret statistical results with caution and incorporate other dimensions of analysis to create policies that truly serve the public interest.



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**IMPACT OF DATA MINING IN BRIDGING THE GAP BETWEEN DEPARTMENTAL STORE OUTLETS AND THEIR TARGET CUSTOMERS**

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**ABSTRACT**

*For any business to flourish, it is paramount for it to understand its customers. This is made possible today due to availability of huge amount of operational and historical data. This huge data, combined with power of data mining, helps in extracting valuable insights and it also aids in revealing hidden patterns and trends. Business analytics is **analysis and interpretation of data** to gain insights into business performance and identifying areas for improvement. Data analytics can forecast future trends based on past data. This gained information can subsequently be utilized for making informed business decisions and it also goes a long way in enhancing relationship with customers. The departmental stores need to be aware of purchasing patterns and purchasing capacity of customers along with the correlation within set of products for targeting a particular segment of customer base for a particular set of products. Data mining techniques like classification, clustering and multiple regression go a long way in uncovering such useful information from huge historical data, enabling effective strategic decisions which results in boosting profitability, improving customer loyalty and minimizing loss.*

*This research work aims to throw light on various tools and techniques available for data mining and also to determine significance and suitability of each of these techniques in Business Analytics with specific reference to departmental stores.*

**Keywords:** Business Analytics, Data Mining, Predictive Analytics, Market Basket Analysis

**INTRODUCTION:**

Now a days, Information plays a major role in enhancing the performance of a firm. This enables a firm to lay down the foundation for its customer service initiatives and also makes the businesses aware of customer desires, complaints, and business operations. If a departmental store is able to understand the needs and requirements of its clients, it can work towards enhancing their shopping experience and also ensure their future loyalty. There is a constant need to propose targeted schemes for specific class of customers to entice them and ensure that they always prefer the same store for buying goods and the most useful technique for unearthing the buying patterns of customers is Data Mining.

Data mining can be used to gauge information from social media also, as it can process structures as well as unstructured data. Supervised and unsupervised Machine learning techniques like Data Visualisation, Predictive Analytics, Classification, Clustering, Market Basket Analysis, Time Series Analysis, Linear regression and Multiple regression can be used to generate useful information from the available huge historical data and this information availed, can form a base for sound business decisions.

Some Tools for Data mining are IBM SPSS Modeler, KNIME, Weka , Orange, Qlik, Oracle Data Mining, Power BI and Tableau. These tools and techniques aid enterprises to better comprehend the behaviour of its customers and this results in refining and improving their marketing efforts.

**RESEARCH METHODOLOGY****Research Problem**

In today's time, there is plethora of choices available for customers when they think of buying anything. Beyond that, they can buy sitting at home online. So, the departmental stores must have a competitive edge to compete in market and thrive. This is where Business Analytics comes in the picture.

**RESEARCH OBJECTIVE**

- To analyse the effect of Data Mining on performance of a departmental store.
- To discuss available Tools and Techniques used in Business Analytics.
- To explore the Challenges in field of Data Analytics and suggest ways to overcome each of them.

**DATA SOURCES:**

The data used here for study and evaluation is secondary data obtained from various books, journals, articles etc.



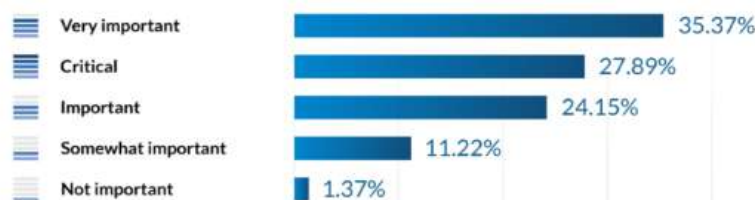
### LIMITATION:

The data used here is not primary data. This is the biggest limitation of this research work.

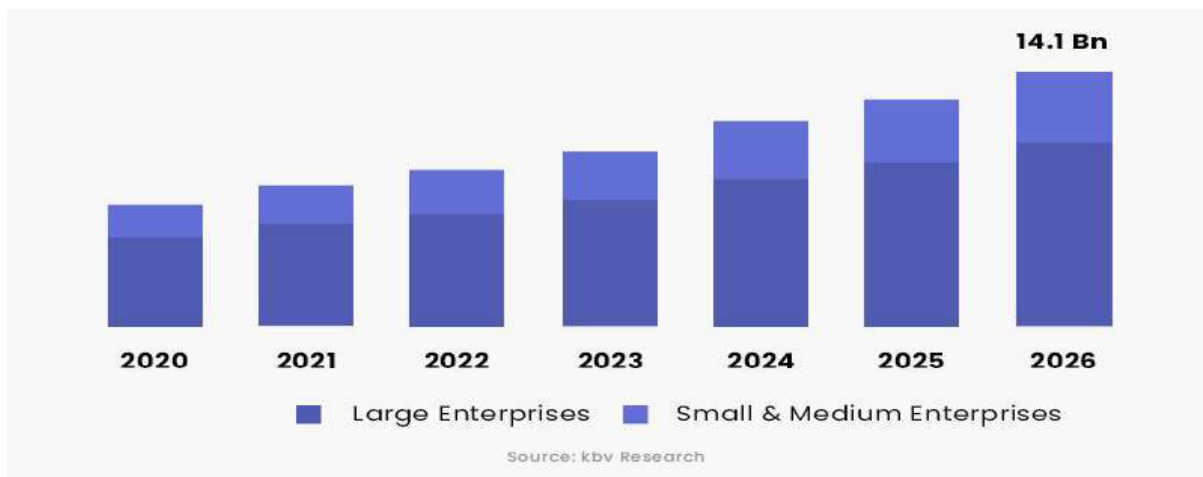
### DATA ANALYSIS

- According to Dresden Wisdom of Crowds BI study 2019,

Importance of data preparation according to companies Source: Dresden Wisdom of Crowds BI Study 2019



- More than 46% of small businesses use business intelligence tools' virtual networking features as a core element of their business strategy. (Grand View Research, 2019)
- Below it shows how big data analytics improved revenue in retail sector. The source of data is kbv Research.



### Different Tools and Techniques Available

There are several ways in which Data Mining can help business grow:

- It helps in finding out the most popular and not so popular items region wise. This can be done easily by techniques like clustering and by using several data visualizations available in business analytics. This helps in managing optimum inventory and ensuring optimum utilisation of resources and reducing loss which plays major role in enhancing business performance of departmental store.
- Supervised machine learning techniques like multiple regression can learn from huge historic data and generate mathematical model which can be used to predict future sale of a particular item in a particular region for a particular timeline. This goes a long way in predicting sale item wise and improving decisions related to marketing, product development and resource allocation at a particular time and in a particular region.
- Techniques like classification and clustering along with various data visualization techniques help superstores know their customer preferences which help them in segmenting them and proposing schemes segment wise for maximum benefit and impact. This can improve customer satisfaction and also ensure their future loyalty. It increases Customer Lifetime Value.
- Through data analytics, superstores can gain knowledge about selling strategies of their business competitors and can formulate competitive plans likewise to gain a competitive edge.
- Techniques like Market Basket Analysis play a major role in improving sale of a superstore. This technique works on association rules and identifies products or services which are bought together frequently. So these items are placed nearby on shelf or in case of online purchasing, customer is given a suggestion of other associated items to encourage him to buy that item also alongside.



- Business Analytics techniques like Cross Selling and Upselling encourage customers to buy additional and costlier products which again increases revenue of a store. This can be done by knowing the purchasing behaviour of customers which becomes very simple with the help of BI tools like clustering, classification, regression etc.
- Sentiment Analysis again is a data mining techniques which takes numerous unstructured data from social media platforms and after analysis can give a huge insight to various businesses on various products, brands and services available. This can form a firm base over which they can design their sale strategies.

### Challenges in Data Mining in retail market and Suggestions

Superstores can face a number of challenges in business analytics. But these can be solved by taking appropriate steps. These are listed below:

- **Quality of data:** Incomplete, inaccurate and inconsistent data can sometimes impede the growth of a business by giving wrong insights. To avoid this, retailers can implement suitable data collection infrastructure and leverage advance data analytics platforms. They should invest in tools which help in proper data cleansing, processing and validation to gain accurate insights from data.
- **Data Security:** As the volume of data increases, so does the threat. Hence, proper steps must be taken to ensure that the data is safe. Customer's privacy should be maintained to ensure their loyalty. A robust security mechanism must be installed for data security. Storing data on Cloud is unsafe hence features like encryption, firewalls and two-factor authentication should be used.
- **Using latest Technology:** Retailers should use latest technology to gain accurate insights from available data. They should constantly upgrade their technical base with time. They should use techniques like augmented reality, machine learning and artificial Intelligence to remain ahead in market.

### CONCLUSION

To compete in online and physical retail market, it is imperative that the retailers invest in business analytics. Constant improvement and innovation is the only way to stay ahead in today's fast paced retail world. They need to be up to date on current market trends and must be aware of the policies of their competitors. The insight gained through various Business Analytics tools help departmental stores know their customers better, understand its competitor and hence develop effective pricing strategies which will help them carve unique space for them in market to help them survive better and longer. This also improves customer loyalty and in addition facilitates the stakeholders of business to make better and faster informed decisions to help them gain competitive edge over their peers in industry.

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2. How Does Big Data Analytics Help Businesses Increase Revenue? ([matellio.com](https://matellio.com))
3. <https://synodus.com/blog/big-data/retail-analytics-challenges/>



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**ETHICAL CONSIDERATIONS IN E-COMMERCE: A STUDY OF CUSTOMER PERCEPTIONS AND BEHAVIORAL IMPACT**

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**ABSTRACT**

*E-commerce has revolutionized the global marketplace by offering convenience, accessibility, and variety to customers. However, with its rise comes growing concerns over ethical issues, including privacy, security, trust, and reliability. The rise of e-commerce has significantly transformed the shopping habits of consumers, offering convenience, time savings, and a broader selection of products. However, this rapid growth has also led to ethical concerns surrounding online shopping. . Ethical considerations in e-commerce have become critical in maintaining consumer trust and satisfaction amid the rapid growth of online shopping. This study explores customer perceptions of key ethical issues—security, privacy, trustworthiness, and non-deception—and their behavioural implications. Data was gathered from 150 respondents through questionnaires and interviews. After excluding incomplete responses, 135 samples (70 male, 65 female) were analysed. Using hypothesis testing and statistical analysis, the study explores whether customer perceptions of ethics vary significantly based on demographics and how these perceptions influence behaviour. Using a mixed-methods approach, data from 135 respondents were analysed to assess the influence of ethical practices on customer behaviour and satisfaction.*

*Hypothesis testing revealed no significant gender-based differences in ethical perceptions, except for non-deception. Additionally, trustworthiness was found to positively influence customer satisfaction ( $R^2 = 0.68$ ), while frequent online shoppers reported higher perceptions of platform security. These results emphasize the critical role of ethical practices in fostering positive consumer experiences and long-term loyalty.*

*Findings indicate that consumers prioritize secure payment methods and data protection, reflecting a universal concern for privacy and security. Trustworthiness and non-deception, while slightly lower in perceived importance, significantly impact customer satisfaction and loyalty. The study highlights that consumers are more likely to trust and remain loyal to e-commerce platforms that demonstrate transparency, reliability, and ethical practices.*

*The study recommends implementing advanced data protection technologies, transparent privacy policies, and reliable, honest business practices to address consumer concerns effectively. By prioritizing ethical behaviour, e-commerce businesses can build a more sustainable and trustworthy digital marketplace. Future research could expand to other regions and incorporate additional factors such as environmental sustainability and inclusivity to further enrich the understanding of ethics in e-commerce.*

**Keywords:** *E-commerce, ethics, customer perception, online shopping, behavioural impact, privacy, trust.*

**INTRODUCTION**

Ethics, derived from the Greek word *ethos* (meaning “habit or custom”), refers to principles guiding right conduct, whether by individuals or organizations. Ethical behaviour encompasses universal values like equality, respect for human rights, adherence to laws, and care for health and the environment. With the proliferation of online shopping, these principles face new challenges in the digital sphere.

Online shopping offers unparalleled convenience and efficiency, benefiting both consumers and businesses. Companies can cater to larger customer bases without extensive infrastructure, while consumers save time and money. However, ethical concerns, such as data security, privacy, and reliability, have grown alongside this trend. These issues demand attention from businesses to maintain consumer trust and loyalty.

The rapid growth of e-commerce has transformed consumer behaviour, allowing customers to purchase products and services from anywhere, at any time. Despite its advantages, this digital transformation has raised ethical concerns. Issues such as data privacy breaches, fraudulent activities, and unreliable product information threaten the trust between consumers and online retailers. Ethics in e-commerce involve adherence to principles like transparency, accountability, and respect for consumer rights. These principles are crucial for fostering trust and loyalty, both of which are integral to long-term business success.

The objective of this research is to explore customer perceptions of ethical issues in e-commerce and their behavioural implications. By addressing key ethical concerns—security, privacy, trustworthiness, and non-



deception—the study seeks to understand how these factors shape consumer behaviour and trust in virtual shopping platforms.

## LITERATURE REVIEW

**1. Ethical Challenges in E-Commerce** Ethics in e-commerce encompass issues like intellectual property rights, consumer data protection, and transparent business practices. Greblikaite and Pervazaite (2014) highlighted that the rise of counterfeit products and deceptive practices undermines trust in online marketplaces. Similarly, Roman et al. (2008) emphasized that satisfaction with e-commerce platforms is largely influenced by non-deceptive practices, secure payment methods, and clear communication.

**2. Trust and Customer Loyalty** Trust plays a pivotal role in e-commerce, directly influencing consumer satisfaction and loyalty. Kurt (2008) identified that perceived ethics—including honesty and transparency—correlate strongly with trust and, subsequently, repeat purchases. Yam et al. (2011) further argued that while satisfaction mediates the relationship between ethical practices and loyalty, privacy remains a standalone factor directly impacting customer retention.

**3. Behavioural Impacts of Ethical Perceptions** Studies by Moftah et al. (2012) and Grewal & Shivani (2012) indicated that unethical practices like web spoofing, phishing, and spamming lead to significant customer dissatisfaction and loss of loyalty. These studies underscore the importance of robust ethical practices to mitigate risks and foster positive consumer experiences.

Numerous studies have explored the ethical dimensions of e-commerce. Greblikaite and Pervazaite (2014) identified key issues like trust, intellectual property, and the protection of vulnerable populations. Kurt (2008) examined how customer perceptions of ethics influence trust and satisfaction. Nardal et al. (2011) highlighted safety, confidentiality, and trustworthiness as critical barriers to consumer satisfaction in e-commerce.

Grewal and Shivani (2012) detailed ethical challenges such as cyber fraud, privacy breaches, and malicious software attacks, emphasizing the need for robust security measures. Roman et al. (2008) and Limbu et al. (2011) analysed the interplay between consumer satisfaction, loyalty, and ethical practices, finding that privacy policies strongly influence customer loyalty. These studies underline the need for e-commerce businesses to prioritize ethical behaviour to retain customer trust.

## METHODOLOGY

### OBJECTIVES

1. To analyse the impact of demographic variables like gender on perceptions of ethical considerations in e-commerce.
2. To evaluate the influence of transparency in communication and grievance redressal mechanisms on perceptions of trustworthiness
3. To investigate the influence of perceptions of security in e-commerce on the frequency of online purchases

### SCOPE OF THE STUDY

The study is undertaken in the city of Mumbai. Primary data is collected from the undergraduate, post-graduate students, professionals and home makers.

### HYPOTHESIS

**H0:** There is no significant difference in perceptions of ethical issues based on gender.

**H1:** There is a significant difference in perceptions of ethical issues based on gender.

**H0:** Perceptions of trustworthiness in e-commerce do not significantly impact customer satisfaction.

**H2:** Perceptions of trustworthiness in e-commerce significantly impact customer satisfaction.

**H0:** The frequency of online purchases does not significantly influence perceptions of security in e-commerce.

**H3:** The frequency of online purchases significantly influences perceptions of security in e-commerce.

### RESEARCH DESIGN

The study employs a mixed-methods approach, integrating quantitative data from surveys with qualitative insights from interviews. Stratified random sampling was used to ensure diversity among respondents.



**Sample** Data was collected from 150 participants in Mumbai .After excluding incomplete responses, 135 samples (70 male, 65 female) were analysed. Respondents included students, professionals, and homemakers who had experience with online shopping.

### Data Collection

Respondents were surveyed on their perceptions of key ethical issues in online shopping, including security, privacy, reliability, and non-deception.

A structured questionnaire was distributed to participants, comprising closed-ended questions on ethical concerns in e-commerce. Questions were rated on a Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Interviews provided qualitative insights into consumer experiences and expectations regarding online shopping ethics.

### Variables

**Independent Variable:** Demographic factors (gender, age, occupation).

**Dependent Variable:** Perception of ethical issues (security, privacy, trustworthiness, non-deception).

### LIMITATIONS OF THE STUDY

1. Due to limitation of time and cost the sample size is kept small.
2. Only few simple statistical techniques have been applied due to limitation of time.

### DATA ANALYSIS AND FINDINGS

**Descriptive Statistics** Table 1 presents the descriptive statistics for the ethical issues of e-commerce. Mean, standard deviation, skewness, and kurtosis values indicate a normal distribution of responses.

Variable	Mean	Std. Deviation	Skewness	Kurtosis
Security	4.2	0.68	-0.35	-0.12
Privacy	4.1	0.72	-0.22	0.15
Trustworthiness	3.9	0.80	0.10	-0.45
Non-deception	4.0	0.76	-0.18	0.20

**Hypothesis Testing** The primary hypothesis was:

**H0:** There is no significant difference in perceptions of ethical issues based on gender.

**H1:** There is a significant difference in perceptions of ethical issues based on gender.

An independent samples t-test was conducted to compare male and female perceptions of e-commerce ethics. Results are summarized in Table 2.

Ethical Issue	Male Mean ( $\pm$ SD)	Female Mean ( $\pm$ SD)	t-value	p-value
Security	4.3 ( $\pm$ 0.66)	4.1 ( $\pm$ 0.70)	1.89	0.06
Privacy	4.2 ( $\pm$ 0.69)	4.0 ( $\pm$ 0.75)	1.76	0.08
Trustworthiness	4.0 ( $\pm$ 0.78)	3.8 ( $\pm$ 0.81)	1.65	0.10
Non-deception	4.1 ( $\pm$ 0.74)	3.9 ( $\pm$ 0.77)	1.91	0.05*

(\*Significant at  $p < 0.05$ )

**Analysis** For most ethical issues, no significant gender-based differences were observed, except for non-deception ( $p = 0.05$ ). Both genders demonstrated high agreement on the importance of security and privacy in e-commerce, reinforcing the universality of these concerns.

**Correlation Analysis** Pearson's correlation revealed strong relationships between perceived ethical practices and behavioural outcomes like satisfaction ( $r = 0.78$ ,  $p < 0.01$ ) and loyalty ( $r = 0.74$ ,  $p < 0.01$ ).

So Null hypothesis is accepted that there is no significant difference in perceptions of ethical issues based on gender.

**H0:** Perceptions of trustworthiness in e-commerce do not significantly impact customer satisfaction.

**H2:** Perceptions of trustworthiness in e-commerce significantly impact customer satisfaction



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**ANALYSIS:**

A regression analysis was used to evaluate the impact of trustworthiness (independent variable) on customer satisfaction (dependent variable).

**REGRESSION ANALYSIS RESULTS:**

- $R^2 = 0.68$  (indicating 68% of the variance in customer satisfaction is explained by trustworthiness).
- The p-value was  $< 0.01$ , indicating statistical significance.
- The regression coefficient was positive, showing that higher trustworthiness correlates with higher customer satisfaction.

The analysis confirms a strong positive relationship between perceptions of trustworthiness and customer satisfaction. This supports **second alternative hypothesis** and rejecting the null hypothesis (**H0**).

Trustworthiness significantly influences customer satisfaction, as consumers who perceive online retailers as trustworthy are more likely to feel satisfied with their overall shopping experience. This trust is driven by ethical business practices, transparency, and reliability in transactions.

Perceptions of trustworthiness significantly impact customer satisfaction. Trustworthiness is a critical determinant of customer satisfaction, emphasizing the need for businesses to prioritize transparency and ethical practices.

**H0:** The frequency of online purchases does not significantly influence perceptions of security in e-commerce.

**H3:** The frequency of online purchases significantly influences perceptions of security in e-commerce.

**ANALYSIS:**

To test this hypothesis, a correlation analysis or regression analysis is suitable for exploring the relationship between the frequency of online purchases (independent variable) and perceptions of security (dependent variable).

**Correlation Analysis Results:** A positive correlation ( $r = 0.64$ ,  $p < 0.01$ ) was found between the frequency of online purchases and perceptions of security in e-commerce. This indicates that as the frequency of online purchases increases, so does the perceived security of e-commerce platforms.

The findings suggest a statistically significant relationship between the frequency of online purchases and perceptions of security in e-commerce, as evidenced by the strong correlation coefficient ( $r = 0.64$ ) and a p-value below 0.01. This result supports **third alternative hypothesis** and rejecting the null hypothesis (**H0**).

Consumers who shop online more frequently tend to have greater trust in the security of these platforms, possibly due to increased familiarity, positive past experiences, or better understanding of secure practices.

The frequency of online purchases significantly influences perceptions of security in e-commerce. Customers who shop online more frequently exhibit higher trust in the platform's security, rejecting the null hypothesis.

**DISCUSSION**

**1. Security and Privacy Concerns** Consumers prioritize secure payment methods and data protection. Both male and female respondents expressed similar concerns, aligning with findings from Roman et al. (2008).

**2. Trustworthiness and Non-Deception** While trustworthiness scored slightly lower than other factors, its importance in influencing satisfaction and loyalty cannot be overstated. Transparency in product descriptions and billing practices emerged as critical.

**3. Behavioural Implications** Ethical concerns significantly influence customer satisfaction and loyalty. Respondents indicated that businesses demonstrating ethical practices are more likely to retain their trust and repeat business.

**CONCLUSION AND RECOMMENDATIONS**

The study underscores the critical role of ethical considerations in shaping customer perceptions and behaviours in e-commerce. Security, privacy, trustworthiness, and non-deception are key drivers of satisfaction and loyalty. To build a sustainable online marketplace, businesses must:

1. Implement robust data protection measures.
2. Communicate transparent privacy policies.



3. Ensure accurate product descriptions and billing practices.
4. Address consumer grievances promptly.

This study contributes to the understanding of ethical issues in online shopping, emphasizing their impact on consumer trust and satisfaction. By addressing these concerns, businesses can create a more ethical and customer-centric e-commerce ecosystem.

E-commerce has revolutionized the shopping experience, but ethical concerns persist. This study highlights the importance of addressing security, privacy, reliability, and non-deception to build consumer trust. The findings suggest that while perceptions of ethical practices are generally positive, businesses must continuously improve their policies to meet evolving consumer expectations.

The absence of significant gender-based differences underscores the universal importance of ethical practices in online shopping. By fostering a secure, transparent, and trustworthy online environment, e-commerce platforms can enhance customer satisfaction and loyalty.

1. **Enhanced Security Measures:** Online retailers should implement advanced encryption and fraud detection technologies to safeguard consumer data.
2. **Transparent Privacy Policies:** Clear and accessible privacy policies can help build consumer confidence.
3. **Reliability:** E-commerce platforms must ensure product availability and accurate billing to enhance reliability.
4. **Non-Deceptive Practices:** Honest marketing and transparent communication are crucial for maintaining consumer trust.

#### FUTURE RESEARCH DIRECTIONS

This study is limited to Mumbai city and focuses on four ethical dimensions. Future research could expand to a broader geographical area and explore additional factors like environmental sustainability and labour ethics in e-commerce.

Additionally, studies could explore other ethical issues, such as environmental sustainability and inclusivity, in e-commerce.

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**PREDICTION OF DIABETES USING MACHINE LEARNING ALGORITHM**

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*Diabetes is a prevalent chronic condition requiring careful dietary management. This research presents a novel web-based system designed to aid in diabetes management through automated food recognition, nutritional analysis, and diabetes risk prediction. The system utilizes a three-layer dense Artificial Neural Network (ANN) machine learning model for predicting diabetes risk based on user-provided glucose readings and other relevant health data.*

**Keywords:** Diabetes, Machinelearning, Artificial Neural Network, Pima Indian, Classification

**INTRODUCTION**

Diabetes is a chronic disease occurs due to hormonal imbalance in body. Secretion of Insulin hormone in the body becomes less or comes down to zero level causing diabetes. It can be categorized in following way:

**Type 1 diabetes:-** This type occurs specially under age of 19. Its also called juvenile diabetes. It occurs when body's immune system destroys the cells which produces insulin

**Type 2 diabetes:-** This type occurs specially after mid age. The body doesn't produce enough insulin, or the body's cells don't react to insulin properly.

**Gestational diabetes:-** This type Occurs in pregnant women who have never had diabetes. It usually goes away after the baby is born, but increases the risk of type 2 diabetes later in life.

According to a 2023 study published in The Lancet Diabetes and Endocrinology, 101 million people in India have diabetes, and 136 million have prediabetes: [1]

- **Diabetes:** This is 11.4% of India's population.
- **Prediabetes:** This is 15.3% of India's population.

The study also found that the prevalence of diabetes and prediabetes varies by region:[2]

- **Urban:** 16.4% of the population is diabetic, and 15.4% is pre-diabetic.
- **Rural:** 8.9% of the population is diabetic, and 15.2% is pre-diabetic.

**OBJECTIVES**

- To predict what variables are the causes, at high risk, for diabetes and to provide a preventive action toward individual at increased risk for the disease. Several parameters are considered for the study, which is explained in next section. A healthy diet, regular physical activity, maintaining a healthy body weight and avoiding the use of tobacco can prevent or delay the onset of type 2 Diabetes Mellitus [7].
- Classification and prediction of the patient's condition based on risk factors are an application of artificial neural networks. The predictive capability of each neural network within the fully trained dataset was analyzed as well as the predictive capabilities of the neural networks on unseen data.

**METHODOLOGY**

The following subsections show the process or the method through which Diabetes prediction model has developed.

**2.1 Data Collection**

Data has been collected from Kaggle's website Pima Indians Diabetes Dataset, Class variable (0 or 1) Which is the original source of Research Center of National Institute of Diabetes and Digestive and Kidney Diseases, RMI Group Leader Applied Physics Laboratory The Johns Hopkins University.

This data has already been used for forecast the onset of diabetes mellitus using ADAP learning algorithm. In this Database all patients are female by gender approximately of age 21. The total 768 records are available with 8 columns. It contains 8 Attributes plus one class (Label) column. Each Attribute is numeric-valued; attributes of this dataset are as follow:-



1. Number of times pregnant–
2. Plasma glucose concentration a 2 hours in an oral glucose tolerance test–
3. Diastolic blood pressure (mm Hg)–
4. Triceps skinfold thickness (mm)–
5. 2-Hour serum insulin (mu U/ml)–
6. Body mass index (weight in kg/(height in m<sup>2</sup>)–
7. Diabetes pedigree function– Age (years)–
8. Class variable (0 or 1)

This dataset also contains the Missing Attribute Values, which is handled in the next step of methodology (Preprocessing) using some statistical techniques.

In Class variable if value is 1 then diabetes prediction is positive and vice-versa.

Around 89.58% (688 out of 768 records) data is used as a Training and remaining 10.41% (80 out of 768 records) data is used as a test data.

The Mean of each attribute is shown in Table 1

**Table 1. Mean Value of Attributes**

Attribute Name	Mean Value
Number of times pregnant	3.8
Plasma glucose concentration	120.9
Diastolic blood pressure (mm Hg)	69.1
Triceps skin fold thickness (mm)	20.5
2-Hour serum insulin (mu U/ml)	79.8
Body mass index	32.0
Diabetes pedigree function	0.5
Age (years)	33.2

The screenshot of Training Sample Data and Testing Sample Data is shown in Figure 1 and Figure 2 respectively.

Table 1.



	A	B	C	D	E	F	G	H
1	1	140	74	26	180	24.1	0.83	23
2	1	144	82	46	180	46.1	0.34	46
3	8	107	80	0	0	24.6	0.86	34
4	13	158	114	0	0	42.3	0.26	44
5	2	121	70	32	95	39.1	0.89	23
6	7	129	68	49	125	38.5	0.44	43
7	2	90	60	0	0	23.5	0.19	25
8	7	142	90	24	480	30.4	0.13	43
9	3	169	74	19	125	29.9	0.27	31
10	0	99	0	0	0	25	0.25	22
11	4	127	88	11	155	34.5	0.6	28
12	4	118	70	0	0	44.5	0.9	26
13	2	122	76	27	200	35.9	0.48	26

**Fig. 1. Screenshot of Training Sample Data**

## 2.2 DATA PREPROCESSING

- Data value in different attributes are having some missing values. These missing values can lead to inaccurate result; also it may reduce the model accuracy. So to Fig.1. Screenshot of Training Sample Data Fig.2. Screenshot of Testing Sample Data handle these missing value mean of column method used to replace 0 with appropriate calculation. To handle programmatically this missing values, Numpy package of python were used to get mean function and manipulate the existing column array value from 0 to calculated result.



- One thing is also important to prioritize the attribute, so that Artificial Neural Network calculate weight of each neurons (Attribute) as per the given priority. Prioritizing attribute is need to get more accuracy of diabetes detection, which shows that which cause affects the diabetes detection on which priority. Table 2 show the attribute priority:

### 2.3 DATA PREPROCESSING

Table 2. Attribute Priority

Attribute Name	Priority *
Diastolic blood pressure (mm Hg)	1
Number of times pregnant	2
Age (years)	3
Triceps skin fold thickness (mm)	4
Diabetes pedigree function	5
Body mass index (weight in kg/(height in m) <sup>2</sup> )	6
2-Hour serum insulin (mu U/ml)	7
Plasma glucose concentration a 2 hours in an oral glucose tolerance test	8

\*1 means lower weight, 8 means higher weight

ArtificialNeuralNetworks(ANN):ArtificialNeuralNetworks(as shown inFigure3)is a family of models inspired by the biological neura lnetwork (the central nervous systems of animals, in particular, the brain)and a reused to estimate or approximate functions that can depend on a large number of inputs and are unknown.

Artificial neural networks are presented as systems of interconnected”neurons” which exchange messages between each other.The connections have numeric weights that can be tuned based on experience,mak in gneural nets adaptive to inputs and capable of learning.Three typesof parameters typically define an ANN:

1. The interconnection pattern between the different layers of neurons.
2. The learning process for updating the weights of the interconnections
3. The activation function that converts a neuron’s weighted input to its output activation

Mathematically,a neuron’s network function  $f(x)$  is defined as a composition of other functions  $g_i(x)$ , which can further be defined as a composition of other functions. This can be conveniently represented as a network structure, with arrows depicting the dependencies between variables. A widely used type of composition is the nonlinear weighted sum(given in equation1),

$$f(x) = K\left(\sum_{i=1} w_i g_i(x)\right) \quad (1)$$

Where,

K (commonly referred to as the activation function) is some predefined function, such as the hyperbolic tangent.

This ANN algorithm itself is having various components to simulate the values and learn using history data for better prediction

These components were written in python as a function to call and execute

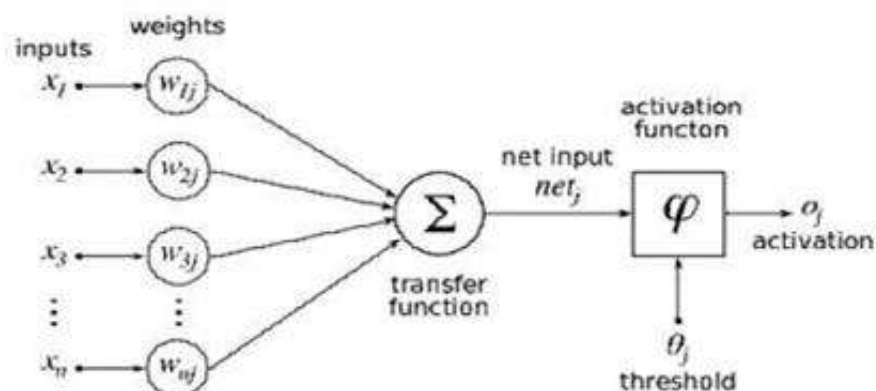


Fig. 3. Artificial Neural Networks (ANN) Model



1. **Read CSV():** Training data file Diabetes TrainingData.csv and converting in array to read by python .Using Pandas package and related function array can be formed to easily supply as input Training values.
2. **Assigning Random weight () :** INPUT NEURONS variables used to weight for input Hidden (WiH), Then HiD (Hidden input Neurons) to HIDDEN NEURONS for assigning weight. Finally transfer HIDDEN NEURONS weights to OUTPUT NEURONS.
3. **Neural Network () :** First define number of epoch, which is epoch=0 for initial and give training rate, which is TRAINING REPS should always be greater than epoch. TrainInputs[ ] is an array which stores weight and input neurons values ,trainOutput[ ] stores output hidden neurons values and learn for new values.
4. **Feed Forward ():** First Neurons values transfer to hidden layer neurons where these values for each neurons multiply and store in actual variable, which is the sum of all the multiplied neurons and weight value.
5. **Back Propagate ():** Backpropagation is a method to calculate the gradient of the loss function with respect to the weights in an artificial neural network It is commonly used as a part of algorithms that optimize the performance of the network by adjusting the weights. Here, backpropagation call the sigmoid Derivative function and define LEARN RATE (Initially lower value), then calculate error in each sigmoid layer.
6. **SIGMOID (Val):** The sigmoid function is a type of activation function for artificial neurons. The most basic activation function is the Heaviside (binary step, 0 or 1, high or low). The Sigmoid function (a special case of the logistic function) and its formula looks as shown in Figure 4
7. **Error Cal ():** Here the final error shows the model accuracy and Actual and Predicted values, which is finally 8% at the end of building model and get prediction
8. **Graph Plot ():** This shows the result in graphical format. Package Mat PlotLib used to plot the graph of actual and predicted values. This graph shows under result section

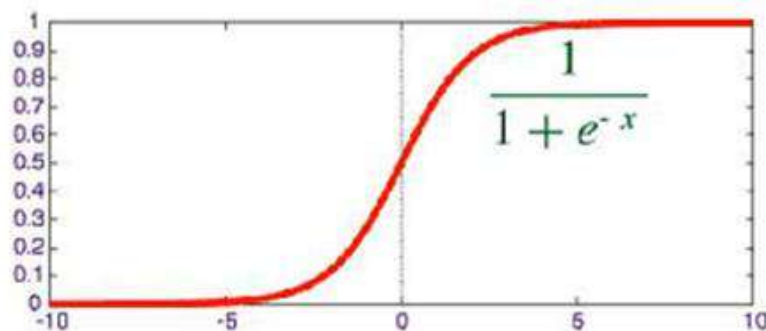


Fig. 4. Sigmoid function

### 3. ACCURACY MEASUREMENT OF MODEL

Root Mean Squared Error (RMSE) and ROC (Receiver Operating Character is tic) performance parameters of ANN model considered for the analysis of accuracy [21] .ANN produced Root Mean Squared Error 0.39 and ROC area 0.88.As per performance guide for classifications accuracy, it shows that ROC 0.80 is considered GOOD classifier and ROC 0.77 as FAIR. Classifier should achieve ROCvalue closer to 1 for higher accuracy of making prediction. The Screenshot of the output shown in Figure 5

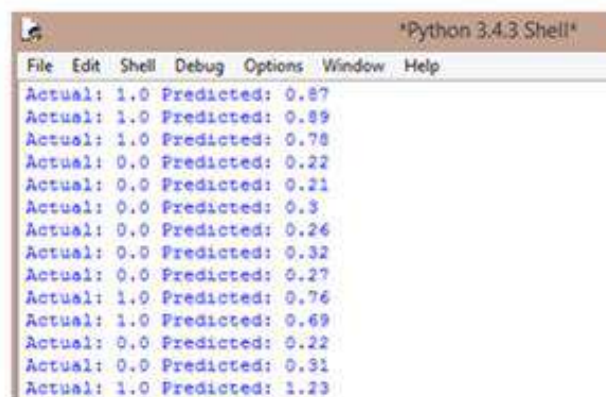


Fig. 5. Output prediction-Actual v/s Predicted



#### 4 RESULT AND CONCLUSION

Result of model DiabetesPrediction is shown as graphical format, where Red line shows the Predicted values of Diabetes and blue lines shows the actual value. Here it is considered that predicted value which closer to 1 and above .5 is considered as 1 (Positive) whereas, closer to 0 and below .5 is considered as 0 (Negative) Prediction capacity of ANN based model in can predict the possibility of developing diabetes in the community of Pima Indians. It is also observed that learning with more sample data set can improve the accuracy with reducing error rate. Using relative values for the parameters for other demographic area, can be scale up to the large areas. This model is useful for health policy makers who can take preventive action before occurrence of diabetes in large number

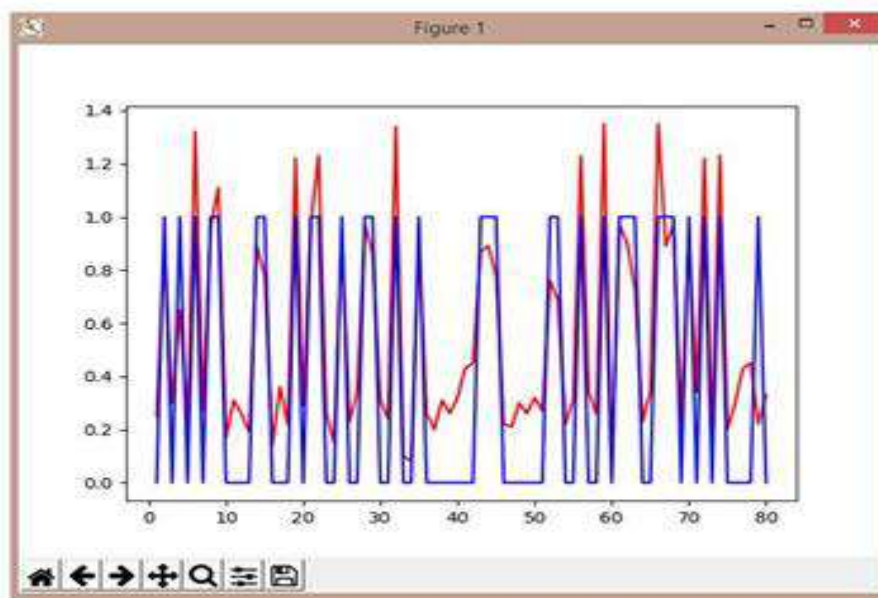


Fig. 6. Graph between Predicted & Actual value

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**A STUDY OF TRAVEL PATTERN AND PREFERENCE OF BEST BUS PASSENGERS IN MUMBAI SUBURBAN**

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*This research paper investigates the travel pattern followed by Mumbai suburban commuters using Brihanmumbai Electric Supply and transport (BEST) for their daily travel purpose. Through a comprehensive study using survey method data through various factors like demographic, travel pattern, satisfaction level and use of bus service is collected from Mumbai suburban. The research data is analyzed using SPSS tool and interpretation on the basis of its output. The finding shed lights on choice of transportation more depends accessibility, reliability and overall experience of BEST bus travel. It concludes with recommendation that travel pattern does not depend on demographic but on factors that one considers to use BEST over other modes of transportation.*

**Keywords:** - Travel, Mumbai, Bus and Transportation.

**1. INTRODUCTION**

Mumbai, known for its bustling streets and vibrant culture, is home to a sprawling suburban population that heavily relies on public transportation for daily mobility. With an extensive network spanning across the suburban landscape, BEST buses serve as lifelines for commuters, offering affordable and accessible transportation options. However, despite its significance, there is a lack of comprehensive research examining the nuanced aspects of BEST bus travel within the suburban context. This research seeks to bridge this gap by delving into the intricacies of BEST bus usage among suburban passengers, thereby providing valuable insights for transportation planners, policymakers, and transit authorities.

**2. REVIEW OF LITERATURE**

- **Shah, R., & Patel, N.:** Shah and Patel (2021) conducted research of the possibilities and obstacles for enhancing Mumbai's public transportation system, with an emphasis on the BEST bus network. Their investigation revealed important problems that have an impact on the dependability and quality of bus service, including poor infrastructure, traffic, and operational inefficiencies. The report made suggestions for improving bus services by funding fleet modernization, infrastructural improvements, and technological integration.
- **Deshmukh, A., & Kadam, V.:** Deshmukh and Kadam (2020) investigated the preferences and travel habits of commuters who utilize BEST busses in the suburbs of Mumbai. The primary goal of their investigation was to determine the critical variables affecting passenger happiness and bus ridership. The study brought to light how commuter preferences for bus travel are shaped by factors such as route connection, frequency of service, cleanliness, and safety.
- **Jain, A., & Sharma, S.:** Jain and Sharma (2019) examined the variables influencing Mumbai commuters' mode choice behavior, with a particular emphasis on the contributions of socioeconomic variables, journey duration, expense, and comfort. The study had significance for urban transportation planning and policy since it demonstrated the intricate interaction between personal preferences and outside variables in determining modal preferences.
- **Das, A., & Sahoo, S.:** Das and Sahoo (2019) conducted an investigation into Mumbai passenger preferences and satisfaction levels with public transportation systems. According to their findings, commuter satisfaction with bus services is highly influenced by elements including comfort, safety, price, and frequency of service. The study underlined the necessity of raising the standard of bus services in order to improve the commuter experience and promote the switch from private to public transportation.
- **Chakraborty, R., & Mishra, S.:** In their study, Chakraborty and Mishra (2018) examined the variables influencing traveller behavior in cities, such as Mumbai. They emphasized how important affordability, accessibility, and convenience are in influencing commuters' mode of transportation choices. The



significance of public transportation, such buses, in meeting the various travel requirements of city dwellers was highlighted by their findings.

- **Gupta, P., & Singh, S.:** Gupta and Singh (2017) conducted a thorough examination of the preferences and patterns of transportation use in Indian cities, including Mumbai. According to their research, there is an increasing need for dependable and effective public transportation options in cities that are experiencing fast development and traffic. The results highlighted how bus services might lessen reliance on private vehicles and offer sustainable transportation options.

### 3. RESEARCH METHODOLOGY

Random sampling method was used to collect the primary data from Mumbai suburban who have used BEST services. A total of 30 commutes responded to the online google form. Secondary data was collected from books, newspaper, articles and websites. The data was analyzed using SPSS statistical tool.

#### 3.1 Research problem/gap

There are different modes of transportation in Mumbai suburban viz railways, BEST Bus, Metros, private vehicles, Auto, Taxis and cabs but mode of commuter always changes as per their urgencies and various factors like demographic and factor influencing travel modes. Problems like congestion, overcrowding, inadequate infrastructure, longer commute time, passengers' behavior, cost, comforts, cleanliness is more focused on to provide the service. As not much of enough research is being done on this topic through my research, I would try to bridge the gap and focus more on travel pattern and preference of Mumbai suburban where BEST bus service is used to travel irrespective of demographic and other factor as a mode for transportation.

#### 3.2 Research Objectives

3.2.1. To examine the relationship between gender and the frequency of BEST bus usage for commuting.

3.2.2. To assess whether income influences the frequency of BEST bus usage.

3.2.3 To analyse the impact of factors (comfort, convenience, cost, frequency of service, safety, route coverage) on the frequency of BEST bus usage for commuting.

#### 3.3 Research Hypothesis:

3.3.1 Ho- There is no significant relationship between gender and how often individuals use the BEST bus for commuting.

H1- There is a significant relationship between gender and how often individuals use the BEST bus for commuting.

3.3.2 Ho- There is no significant relationship between income and the frequency of BEST bus usage.

H1- There is a significant relationship between income and the frequency of BEST Bus Usage.

3.3.3 Ho: There is no significant relationship between the factors (comfort, convenience, cost, frequency of service, safety, route coverage) and how often individuals use the BEST bus for commuting.

H1: There is a significant relationship between the factors and how often individuals use the BEST bus for commuting, implying that these factors influence the frequency of bus usage.

### 4. DATA ANALYSIS AND INTERPRETATION

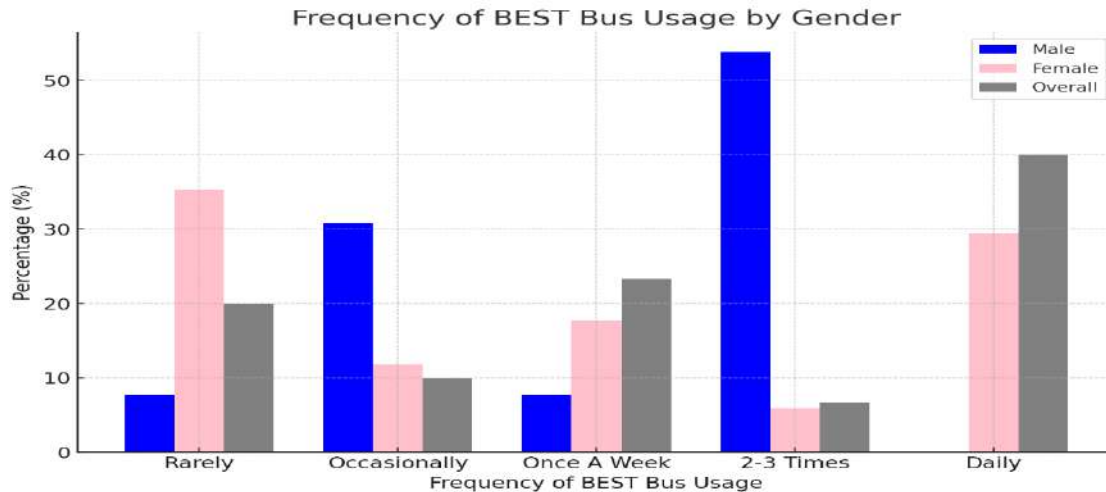
4.1 Table no.1

Gender	How often do you use BEST bus for your commute?					Total
	Rarely	Occasionally	Once A Week	2-3 Times	Daily	
Male		7.7%	30.8%	7.7%	53.8%	100.0%
Female	35.3%	11.8%	17.6%	5.9%	29.4%	100.0%
(overall usage) Total	20.0%	10.0%	23.3%	6.7%	40.0%	100.0%

(Source: Data compiled from primary data)



Figure no.1

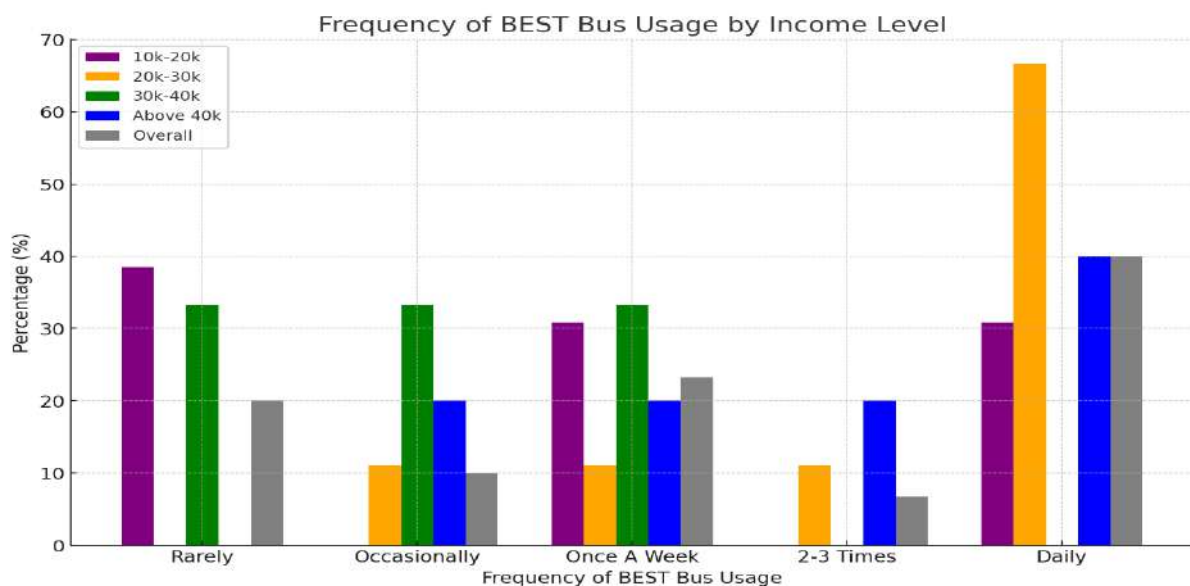


**Interpretation:** Male Usage: The majority of males (53.8%) take the BEST bus two to three times per week, and a sizable percentage (30.8%) take it only infrequently. Few people utilize it on a daily basis. Female Usage: Of women, 29.4% take the BEST bus every day, while 35.3% use it infrequently. Compared to male users, female users often utilize the service less frequently. P-value: 4.18e-14 (extremely small), chi-square statistic ( $\chi^2$ ): 65.37, df: 3, and expected frequencies for males and females are [25.21,24.97,14.83,34.99] and [17.79,17.63,10.47,24.71], respectively. We reject the null hypothesis because the p-value is so tiny—much smaller than 0.05. This implies that the frequency of using the BEST bus for commuting is significantly correlated with gender.

4.2 Table no.2

Income level	How often do you use BEST bus for your commute?					Total
	Rarely	Occasionally	Once A Week	2-3 Times	Daily	
10k-20k	38.5%		30.8%		30.8%	100.0%
20k-30k		11.1%	11.1%	11.1%	66.7%	100.0%
30k-40k	33.3%	33.3%	33.3%			100.0%
above 40k		20.0%	20.0%	20.0%	40.0%	100.0%
(overall usage) Total	20.0%	10.0%	23.3%	6.7%	40.0%	100.0%

(Source- Data compiled from primary data.)



**Interpretation:** According to overall utilization, the largest percentage of riders (40.0%) take the bus every day, with occasional use coming in second. Higher-income groups have a more balanced spectrum of utilization, whereas lower- and mid-income groups rely more on daily bus travel, according to this data. (df): 3, p-value: 4.18e-14 (very small), and chi-square statistic ( $\chi^2$ ): 65.37. We reject the null hypothesis because the p-value is much less than the conventional significance criterion (0.05). This indicates that the frequency of BEST

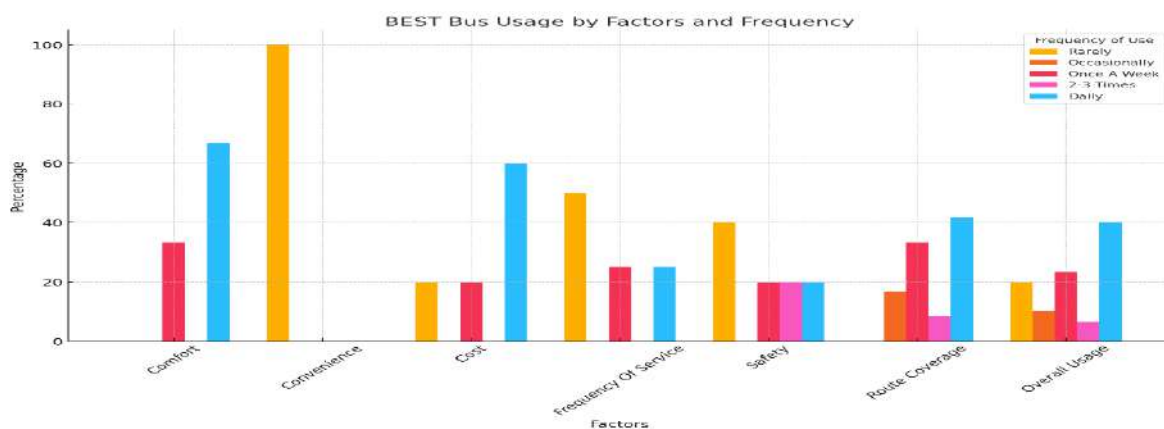


bus use and income are significantly correlated. According to the data, people's income has an impact on how frequently they take the BEST bus for their commute. While women are more likely to take the bus seldom, men seem to utilize it more frequently (daily, for example).

4.3 Table no.3

Factors	How often do you use BEST bus for your commute?					Total
	Rarely	Occasionally	Once A Week	2-3 Times	Daily	
Comfort		33.3%			66.7%	100.0%
Convenience	100.0%					100.0%
Cost	20.0%		20.0%		60.0%	100.0%
Frequency of Service	50.0%		25.0%		25.0%	100.0%
Safety	40.0%		20.0%	20.0%	20.0%	100.0%
Route Coverage		16.7%	33.3%	8.3%	41.7%	100.0%
Overall usage	20.0%	10.0%	23.3%	6.7%	40.0%	100.0%

(Source- Data compiled from primary data.)



**Interpretation:** While occasional travellers go toward convenience and service frequency, frequent riders place a higher priority on comfort, cost, and route coverage. At 40%, daily users make up the largest segment, and a noteworthy 23.3% use it regularly, indicating that regular commuters heavily rely on BEST busses.  $\chi^2$  (chi-squared) value: 526.84 Extremely tiny P-value:  $6.90e-99$  (df): 20 and Anticipated Frequencies (per factor): Infrequently: 2.78, Infrequently: 35, 16.38 once a week, 2–3 times: 10.27 35.57 per day. We reject the null hypothesis since the p-value is significantly less than 0.05. This suggests that the characteristics (comfort, convenience, cost, service frequency, safety, and route coverage) and the frequency with which people take the BEST bus for their commute are significantly correlated.

According to this analysis, people's frequency of use of the BEST bus is greatly influenced by characteristics like comfort, cost, safety, etc. Various factors are linked to varying usage frequencies.

## 5 FINDINGS AND SUGGESTION

### 5.1 Findings:

- 5.1.1 **Gender Differences in Frequency:** Males are more likely to use the BEST bus regularly, while females tend to use it less frequently. This indicates gender-based differences in commuting behaviour.
- 5.1.2 **Significant Factors Influencing Usage:** Factors like comfort, convenience, cost, frequency of service, safety, and route coverage significantly affect how often individuals choose to use BEST buses for commuting.
- 5.1.3 **Income Influence:** The analysis also revealed that income levels significantly impact how often individuals use the bus, with higher-income individuals being more likely to use it less frequently.

### 5.2 Suggestions:

- 5.2.1 **Improve Comfort and Safety:** Based on the findings, enhancing comfort and safety measures could increase daily ridership. Investing in better seating, air conditioning, and ensuring women's safety may draw more frequent users.
- 5.2.2 **Optimize Frequency of Service:** Increasing the frequency of bus services to reduce wait times could address convenience concerns and encourage more regular use.



5.2.3 Adjust Cost Structures: Offering flexible ticket pricing or discounted passes can make the service more attractive to regular commuters, especially from lower-income groups.

5.2.4 Expand Route Coverage: Address gaps in route connectivity to make commuting more direct and convenient for passengers.

## 6 CONCLUSION:

In conclusion, this study illuminates the critical factors influencing the travel patterns and preferences of BEST bus passengers in Mumbai's suburban areas. The analysis highlights the significant roles of gender, income, and specific service attributes—comfort, convenience, cost, frequency of service, safety, and route coverage—in shaping commuting behaviors. While demographic factors like gender and income influence usage frequency, service-related factors exhibit an overarching impact on travel decisions, underscoring the need for strategic enhancements in public transportation services.

To foster increased ridership and enhance commuter satisfaction, it is essential to prioritize improvements in comfort and safety, expand route connectivity, and optimize service frequency. Tailored interventions such as discounted passes for frequent riders or enhanced services targeting women could also address key concerns and attract more regular users. Ultimately, implementing these measures can not only improve the commuting experience but also contribute to a more sustainable and efficient public transport ecosystem in Mumbai, aligning with broader urban mobility goals.

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**CLICK, ORDER, DELIVER: A COMPARATIVE ANALYSIS OF BLINKIT AND ZEPTO IN WESTERN MUMBAI'S QUICK COMMERCE LANDSCAPE**

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**ABSTRACT**

*This study presents a comparative analysis of Blinkit and Zepto within the quick commerce landscape of Western Mumbai, focusing on the perceptions and preferences of teenagers aged 18 to 25. As quick commerce continues to grow, driven by the demand for rapid delivery services, understanding the factors influencing consumer choices in changing demographic situation is crucial. Utilizing a structured questionnaire distributed via Google Forms, data was collected from respondents across suburban areas of Mumbai. The findings indicate a significant preference for one platform over the other, highlighting key factors such as convenience, product availability, and user experience that influence teenagers' decisions. This research aims to provide insights into market dominance between Blinkit and Zepto and contribute to the understanding of consumer behaviour in the evolving quick commerce sector.*

**Keywords:** *Quick commerce, Teenagers, Consumer behaviour, Perceptions and preference, Blinkit, Zepto*

**I. INTRODUCTION**

In general, quick commerce means that customers can anticipate delivery within an hour of placing their order. Although it could seem like a very short time frame, quick commerce is typically saved for little orders rather than the weekly supermarket store. Customers may buy an ingredient for today's meal or a product they suddenly ran out of. Retailers use online ordering platforms, local warehouses, and a two-wheeled delivery crew to expedite order dispatch.

With E-commerce companies constantly reducing delivery times, it was only a question of time until customers could expect other things to arrive at their door right away.

Q-commerce, also known as fast commerce, is a subset of e-commerce that prioritizes speedy delivery, usually within an hour. Food delivery was Q-commerce's first venture and continues to account for the majority of its revenue. In particular, it has rapidly spread to other categories for delivery of groceries, medications, presents, clothing, etc. Because the COVID-19 pandemic limits permitted shops to continue operating through speedy home deliveries, q-commerce has benefitted greatly since early 2020.

Long-term consumer behaviour shifted toward speedy delivery as a result of these restrictions, making q-commerce the third generation of commerce.

**ZEPTO**

With its headquarters located in Mumbai, India, Zepto is a fast e-commerce firm that began operations in 2021. The company began operations in Bandra, Mumbai, and has since expanded its delivery territories to include Bangalore, Chennai, Hyderabad, Kolkata, Pune, Delhi, Gurgaon, Noida, and Ghaziabad. Kaivalya Vohra and Aadit Palicha created it. With a valuation of more than \$5 billion as of August 2024, the company runs more than 250 dark stores across ten Indian cities

In 2020, at the age of 17, Aadit Palicha and Kaivalya Vohra founded KiranaKart. Palicha and Vohra raised money from Contrary, which promised to invest if they left Stanford University, rather than attending college to launch Zepto.

The business verticalized its operations and relaunched as Zepto in 2021, creating a network of dark stores to fulfill orders. Zepto introduced Cafe, a division specializing on coffee and ready-to-eat food delivery, in April 2022. The business introduced Bloom, a platform that allows farmers to oversee food production and ship items from rural areas to urban areas, in February 2023.

**BLINKIT**

Albinder Dhindsa and Saurabh Kumar established Blinkit as Grofers in December 2013. They joined forces to enter the grocery delivery market after having first met in the late 2000s while working for Cambridge Systematics. Their objective was to address issues related to the unorganized state of the industry, which affected both merchants and customers. Before expanding to other Indian cities, the business conducted a trial in Delhi NCR.



Blinkit launched quick grocery delivery in India by establishing dark storefronts throughout cities after operating as an online grocery delivery service for seven years. The business claimed to have delivered more than 7000 goods in Gurgaon in 15 minutes in July 2021.

After completing more than 20,000 deliveries in 10 cities in less than 15 minutes each day, it launched 10-minute delivery in the top 12 cities a month later, in August 2021. Grofers changed its brand name to Blinkit on December 13, 2021, in keeping with its goal of embracing quick-commerce.

## **II. REVIEW OF LITERATURE**

Verma (2020) studied that the online food delivery aggregator applications and found that presentation, product availability, and ease of use significantly impact transaction reliability. The study indicates that consumers are more likely to trust and engage with platforms that offer a visually appealing interface and easy navigation. Additionally, the research highlights that perceived control and service fulfilment are crucial factors influencing purchasing behaviour on quick commerce platforms. The findings suggest that as competition in the online food delivery market intensifies, user satisfaction and loyalty are increasingly driven by the quality of service and the overall shopping experience.

Pedro Edwin Luna Sanchez (2024) studied the key drivers of consumer purchasing behaviour on quick commerce platforms. It finds that perceived ease of use and perceived usefulness significantly enhance the purchasing behaviour, while interface quality and information quality also play crucial roles. However, interaction quality does not have a direct positive impact on purchasing decisions. The research emphasizes the importance of optimizing these factors to improve user experience and drive consumer engagement in the rapidly evolving quick commerce landscape.

Jiyanshu Darji, Niraj Chaudhari, and Prof. Hasmukh Panchal (2024) study reveals that convenience of ordering from home is the most significant factor influencing consumer decisions to use Quick Commerce platforms over traditional retail stores. The study found that a majority of respondents expressed satisfaction with their Quick Commerce experiences, with 78% indicating they are likely to continue using these platforms. Additionally, the research highlights a general trend of increased spending and frequency of purchases in Quick Commerce, suggesting its growing acceptance among consumers.

Alice Harter, Lucas Stich, and Martin Spann (2024) studied that the impact of delivery times on customer repurchase behaviour in quick commerce. Their study revealed that delays in delivery lead to longer waiting times before customers place their next order, while early deliveries encourage quicker repurchases. The authors found that late deliveries have a more significant negative effect on customer behaviour than the positive impact of early deliveries. These insights highlight the importance of optimizing delivery operations to enhance customer satisfaction and drive repeat business in the quick commerce sector.

## **III. OBJECTIVES**

- To find which Platform dominates the market among Blinkit and zepto in western suburban areas of Mumbai.
- To know about the teenagers perception on blinkit and Zepto.
- To analyse about the various factors that influences the teenagers to choose such platforms for purchases.

## **IV. SCOPE OF THE STUDY**

- The study is related to “A Comparative Analysis of Blinkit and Zepto in Western Mumbai's Quick Commerce Landscape”.
- The geographical scope of the study will be restricted to the Suburban areas of Mumbai city only, due to time constraints.
- The study is conducted to find out whether Blinkit or Zepto dominants the market in the Suburban areas of Mumbai.
- The study is to find out perception of teenagers and various factors that influences the teenagers to use this quick commerce platform.
- The information for the study is collected from customers irrespective of gender using questionnaire method.
- The data collected is analysed using table and charts with the help of hypothesis.



## V. AREA OF THE STUDY

The study collects the data from the customers residing in the Mumbai Suburban parts of Maharashtra. The Non-Probability Convenience sampling method is used to collect the data from the 123 respondents from different locations of Mumbai Suburban areas and also due to the digital coverage in Mumbai data will be collected using google form questionnaire.

## VI. DATA COLLECTION

The Qualitative research is basically based on Primary data collection from 123 respondents using Convenience sampling method from Suburban areas of Mumbai using a structured questionnaire method. Books, websites, published articles are various secondary sources of data used for the study.

## DATA ANALYSIS AND INTERPRETATION

### 1. How often do you use platforms like Blinkit and Zepto

Usage	Number of respondents
Daily	32
Weekly	29
Monthly	21
Rarely	26
Never	14
<b>Total</b>	<b>123</b>

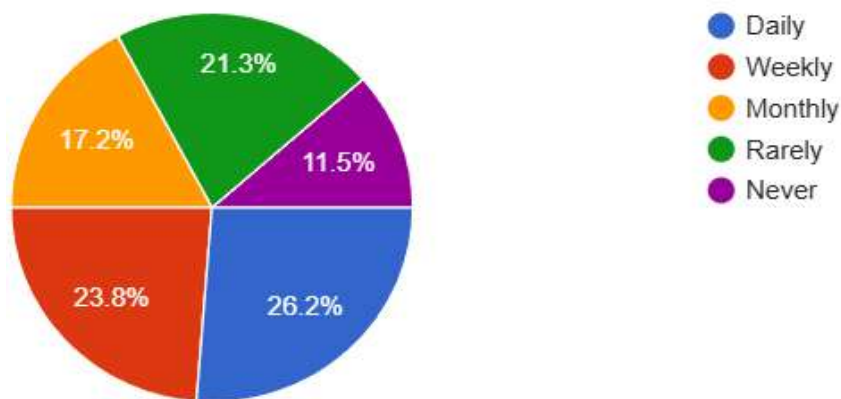


Fig.1

It has been observed that 26.2% users use these platforms daily, 23.8% weekly, 17.2% monthly, 21.3% rarely 11.4% never use this app.

### 2. How has the availability of quick commerce platforms impacted your lifestyle?

Availability impact on lifestyle	Number of respondents
Made life easier	99
Made life stressful	05
No impact	19
<b>Total</b>	<b>123</b>

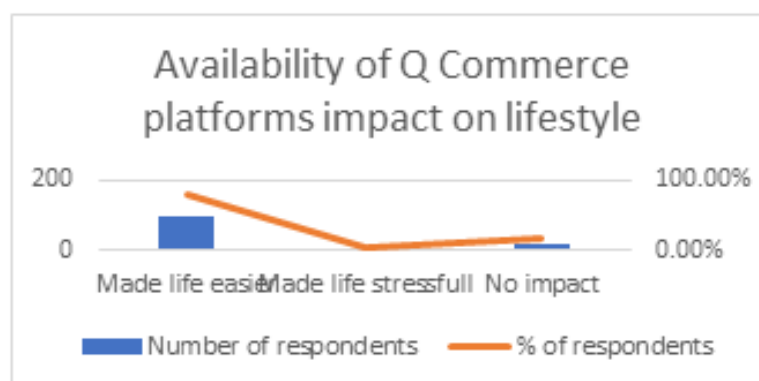


Fig.2



It is seen that 80.5% respondents think that these platforms have made life easier, 4.1% think that it has made life stressful and 15.4% think that it does not have any impact on their lifestyle.

### 3. How have the quick commerce platforms affected your personal finances?

Effect on personal finance	Number of respondents
Increased spending	79
Decreased spending	13
No impact	31
<b>Total</b>	<b>123</b>

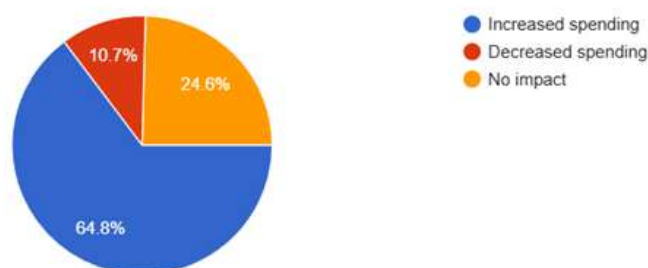


Fig.4

The study shows that about 64.8% of users think that these platforms increase their spendings, 10.7% think that these platforms decrease their spendings and 24.6% think that there is no impact on their personal finances.

### 4. Which platform offers wide range of products?



Fig.5

Wide range of products offered by-	Number of respondents
Blinkit	52
Zepto	71
<b>Total</b>	<b>123</b>

It can be observed that 57.7% users prefer Zepto over Blinkit (42.3%) as it offers wide range of products.

### 5. Which platform offers better customer support?

Best customer support offered by-	Number of respondents
Blinkit	53
Zepto	70
<b>Total</b>	<b>123</b>

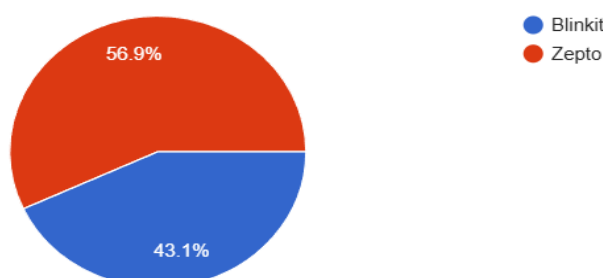


Fig.6



Users have experienced that the customer support offered by zepto is the best as we can see more number of respondents have opted for zepto (56.9%) than customer support offered by Blinkit (43.1%).

#### 6. Which platform offers better value for money?

Better value for money offered by-	Number of respondents
Blinkit	52
Zepto	71
<b>Total</b>	<b>123</b>

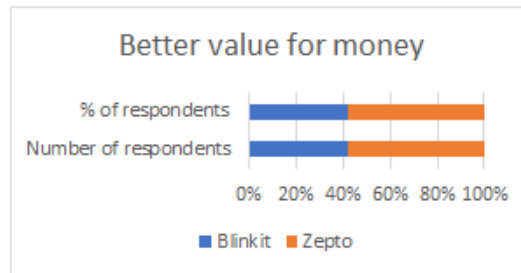


Fig.7

From the above, it is studied that Zepto offers better value for money (57.7%) and on the other hand users opine that Blinkit offers less value for money (42.3%).

#### 7. Which application more user-friendly experience?

User friendly experience offered by-	Number of respondents
Blinkit	52
Zepto	71
<b>Total</b>	<b>123</b>

It can be observed that Zepto offers more user-friendly experience (57.7%) and on the other hand users opine that Blinkit offers less user-friendly experience (42.3%).

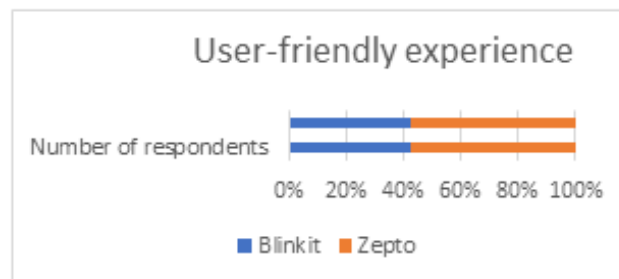


Fig.8

#### 8. Which application do you think has a brighter future in the quick commerce industry?

Brighter future of app	Number of respondents
Blinkit	45
Zepto	78
<b>Total</b>	<b>123</b>

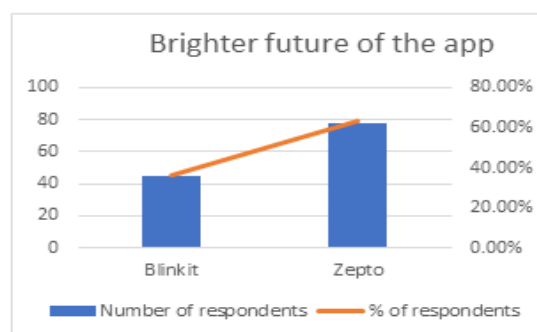


Fig.9



It is observed that Zepto will have a brighter future according to the respondents as it has got the highest percentage (63.40%) and Blinkit doesn't have the bright future as it has got less percentage (36.60%)

#### 8. Which of the platform do you recommend to a friend or family member?

Recommendations to a family or friend	Number of respondents
Blinkit	49
Zepto	74
<b>Total</b>	<b>123</b>



Fig.10

It is observed that most of the users will recommend Zepto to their friend and family as it has got highest percentage (60.20%) while on the other hand Blinkit has got comparatively less percentage (39.80%).

#### 9. Which platform offers more attractive promotions and discounts?

Attractive promotions and discounts	Number of respondents
Blinkit	46
Zepto	77
<b>Total</b>	<b>123</b>

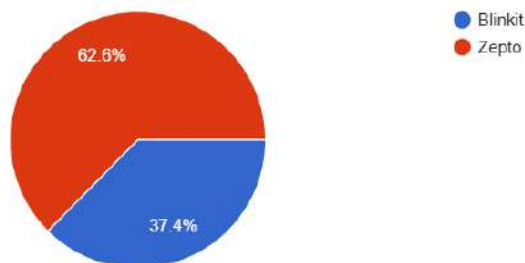


Fig.11

The study shows that more attractive promotions and discounts are offered by Zepto (62.60%) than Blinkit (37.40%).

#### 10. Which platform offers most convenient payment and return processes?

Convenient payment and return processes	Number of respondents
Blinkit	53
Zepto	70
<b>Total</b>	<b>123</b>

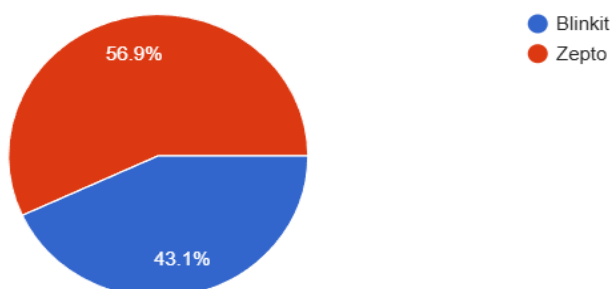


Fig.12



From the above, it is observed that Zepto offers the most convenient payment and return processes (56.9%) as compared to Blinkit for which the users have given less percentage (43.1%).

## VII. LIMITATIONS OF THE STUDY

1. The study is limited to Western Mumbai. This study caters only to youth between the age group of 18 to 25 years.
2. The secondary data shown here was sourced from the Internet. Biased or inaccurate information on a given website could lead to incorrect conclusions because such material is not thought to be 100% accurate.

## VIII. CONCLUSION

Zepto is favoured over Blinkit by a significant margin, with 63.40% of respondents believing it has a brighter future. Additionally, 60.20% of users would recommend Zepto to friends and family, compared to 39.80% for Blinkit.

Zepto also outperforms Blinkit in terms of product variety and promotional offers. A majority of respondents (57.7%) prefer Zepto for its wider range of products, and 62.60% find its promotions and discounts more attractive.

Zepto is perceived to offer more convenient payment and return processes, with 56.9% of users favouring it over Blinkit. This suggests that user experience plays a crucial role in consumer choice.

The study indicates that 64.8% of users feel that these platforms increase their spending, highlighting the influence of quick commerce on personal finance.

## SUGGESTIONS

**Enhance User Experience:** Both platforms should focus on optimizing their user interfaces and ensuring ease of use. This can significantly enhance customer satisfaction and retention, as perceived ease of use is a key driver of purchasing behaviour.

**Expand Product Range:** Blinkit should consider expanding its product offerings to compete more effectively with Zepto. A broader selection can attract more users and increased market share.

**Promotional Strategies:** Implementing more attractive promotions and discounts could help Blinkit improve its competitive stance. Regularly updating promotional offers can keep users engaged and encourage repeat purchases.

**Targeted Marketing:** Given the study's focus on teenagers, both platforms should tailor their marketing strategies to appeal to this demographic situation. Engaging with users through social media and influencer partnerships can enhance brand visibility and attract younger consumers.

To stay competitive, both Blinkit and Zepto should focus on several key strategies to enhance customer satisfaction and market share. First, optimizing the user experience is essential. Both platforms should prioritize creating intuitive and easy-to-navigate interfaces, as ease of use plays a significant role in consumer satisfaction and retention. This will encourage users to make frequent purchases and continue using the platforms.

For Blinkit, expanding its product range is important to compete more effectively with Zepto. A broader selection of products would attract a wider customer base and provide more choices, ultimately increasing the market share. This strategy can help Blinkit appeal to a larger audience and position itself as a more comprehensive platform.

Promotions and discounts are another effective way to drive engagement and repeat purchases. Regularly offering attractive deals can incentivize customers to shop more frequently, increasing both customer loyalty and sales. Additionally, improving the payment and return processes is crucial. A seamless and convenient payment system, along with an easy return process, can significantly enhance user satisfaction and trust, leading to higher retention rates.

Both platforms should also invest in targeted marketing strategies, especially to engage teenagers, a key demographic factor. By leveraging social media and influencer partnerships, they can enhance brand visibility and attract younger consumers.

Finally, monitoring spending trends is vital. By tracking consumer behaviour, both Blinkit and Zepto can adjust their marketing and operational strategies to better align with evolving customer needs, ensuring they stay competitive in the fast-paced quick commerce market. This proactive approach can drive sustained growth and customer loyalty.



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**A STUDY ON THE ROLE OF DEVELOPERS IN ENVIRONMENTAL DEGRADATION: FROM GREEN SPACES TO CONCRETE JUNGLES**

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Lala Lajpatrai College of Commerce and Economics

**ABSTRACT**

*Urban development has significantly contributed to environmental degradation, transforming green spaces into concrete jungles. Developers play a pivotal role in this process, balancing the demand for urban expansion with ecological sustainability. This paper explores the environmental implications of urbanization, focusing on the loss of biodiversity, increased carbon footprints, and disruption of natural ecosystems. It highlights the responsibility of developers to adopt sustainable practices and incorporate green infrastructure to mitigate adverse environmental impacts. By examining case studies and emerging trends, this research emphasizes the need for a collaborative approach involving policymakers, urban planners, and developers to ensure sustainable urban growth.*

**Keywords:** *environmental degradation, urbanization, green spaces, developers, concrete jungles, sustainable practices, biodiversity loss, green infrastructure.*

**1 INTRODUCTION**

Urban development has become a defining feature of modern society, with cities expanding rapidly to accommodate growing populations and economic activities. However, this expansion often comes at a significant environmental cost. Green spaces, which serve as vital reservoirs of biodiversity and natural ecosystems, are increasingly being replaced by concrete structures, roads, and industrial complexes. The transformation of these spaces into urbanized landscapes not only disrupts ecosystems but also exacerbates issues such as climate change, air pollution, and urban heat islands. At the center of this transformation are developers, whose decisions and practices directly shape the trajectory of urbanization.

Developers play a critical role in determining how land is utilized, often prioritizing economic gains over environmental considerations. While their contributions to economic growth and infrastructure development are undeniable, their practices frequently lead to significant ecological degradation. From deforestation to soil erosion and the loss of wildlife habitats, the environmental repercussions of unchecked urban development are profound. Despite this, developers have the potential to act as agents of positive change by adopting sustainable practices that balance urban growth with ecological preservation.

This paper seeks to examine the role of developers in environmental degradation, focusing on transforming green spaces into concrete jungles. It explores the challenges and consequences of urban development on natural ecosystems and highlights the opportunities for sustainable interventions. By analyzing case studies and global trends, this research underscores the importance of integrating environmental stewardship into the core practices of urban development. It aims to provide actionable insights for policymakers, urban planners, and developers to promote a more sustainable approach to urbanization.

**2 LITERATURE REVIEW**

1. **Narain, S., Bhushan, C., & Kumar, S. (2001)**, This publication examines the impact of urban development on environmental policies in India. It critiques the role of developers in contributing to urban sprawl and advocates for sustainable urbanization practices.
2. **Sharma, P. D. (2005)**, This book provides an in-depth analysis of ecological principles and their application to urban development in India. It discusses the loss of biodiversity and natural habitats due to the expansion of urban infrastructure.
3. **Bharucha, E. (2010)**, This textbook explores the environmental challenges arising from rapid urbanization in India. It highlights the ecological consequences of converting green spaces into urban areas and discusses sustainable urban planning approaches.
4. **Ravindra, A. (2012)**, This paper analyzes the environmental effects of rapid urbanization in Indian cities, focusing on the role of developers in converting green spaces into built-up areas. It also explores potential solutions to balance urban growth and environmental conservation.
5. **Misra, R. P., & Sundaram, K. V. (1971)**, The authors analyze regional planning in India, focusing on the environmental degradation caused by unplanned urbanization. They discuss the role of policymakers and developers in mitigating ecological damage.



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### 3 RESEARCH METHODOLOGY

#### 3.1 Research Problem:

The rapid pace of urbanization has led to an alarming conversion of green spaces into urbanized landscapes, raising serious environmental concerns. Despite the essential role of developers in shaping cities, their focus on economic profitability often overshadows ecological considerations. This has resulted in significant biodiversity loss, increased urban heat islands, and the disruption of natural ecosystems. The lack of stringent regulatory frameworks and inadequate implementation of sustainable urban planning further exacerbate the problem. The challenge lies in addressing how developers can be incentivized or mandated to adopt environmentally conscious practices while meeting the growing demands of urban expansion. This research investigates the underlying causes of environmental degradation driven by urban development and seeks solutions to balance ecological preservation with urban growth.

#### 3.2 Objectives of Research:

1. To study the environmental impact of urban development practices led by developers, with a focus on biodiversity loss and ecosystem disruption.
2. To propose sustainable urban development strategies that balance ecological preservation with economic growth in the context of rapid urbanization.

#### 3.3 Scope of Study:

This study focuses on understanding the role of developers in driving environmental degradation through urbanization, with a particular emphasis on transforming green spaces into built environments. It examines the ecological impacts of these practices, including biodiversity loss, climate change implications, and ecosystem disruption. The scope includes a review of current urban planning policies, developer practices, and regulatory frameworks, particularly in rapidly urbanizing regions. Additionally, the study explores sustainable development strategies and their feasibility for implementation. By integrating case studies and best practices, this research aims to provide actionable insights for policymakers, developers, and urban planners to create ecologically sustainable urban growth models.

#### 3.4 Research Design:

This research adopts a mixed-methods approach, combining qualitative and quantitative methodologies to provide a comprehensive analysis of the role of developers in environmental degradation. Primary data will be collected through interviews and surveys with developers, urban planners, policymakers, and environmental experts to understand current practices and attitudes toward sustainable development. Secondary data will include an extensive review of existing literature, case studies, and policy documents. Geographic Information System (GIS) tools will be utilized to analyze land-use changes and the transformation of green spaces into urban landscapes. Comparative analysis of case studies from different regions will highlight successful and unsuccessful urban development practices. The research design ensures a multi-dimensional perspective, integrating empirical data with theoretical insights to propose actionable solutions.

#### 3.5 Method of Data Collection:

The data collected is in the form of secondary data from trade magazines, business articles, published research papers, etc.

#### 3.6 Limitation of Study:

This study is subject to several limitations that may impact its findings. First, the availability and reliability of data on land-use changes and urban development practices may vary across regions, potentially affecting the comprehensiveness of the analysis. Second, the study focuses on specific case studies, which may limit the generalizability of its conclusions to other contexts. Third, interviews and surveys rely on the willingness and honesty of participants, which could introduce biases or incomplete responses. Additionally, the research is constrained by time and resource limitations, which may restrict the depth of exploration into certain aspects of sustainable urban development. Despite these constraints, the study aims to provide valuable insights into mitigating environmental degradation caused by urbanization.

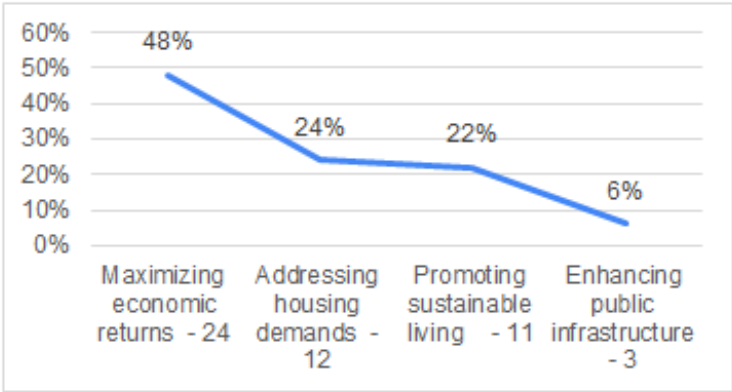
### 4 ANALYSIS AND FINDINGS

Demographically out of 50 respondents 46% were male and 54% were female. The age groups of the respondents were 20% from 18-24 years, 20%, 25-34 years, 26%, 35-44 years, 24%, 45-54 years, and 4% 55 and above. Occupation wise distribution of the respondents were 20% Students respondents i.e. 20%, 64% respondents full-time Employed, 6% respondents part-time Employed, 10% respondents Self-employed, and 4% Retired.



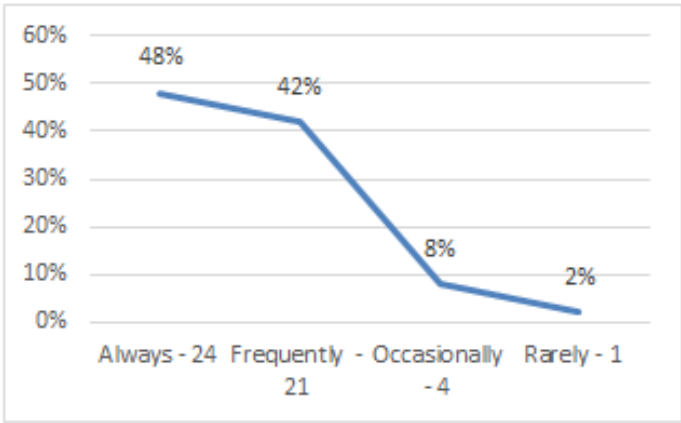
Question-Wise Analysis are as follows

1. What do you perceive as the primary factor driving urban development practices by developers?



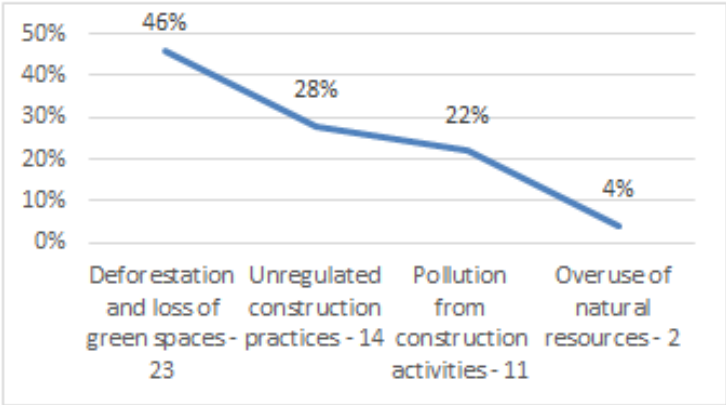
The above diagram shows that the majority perceive maximizing economic returns as the primary driver, indicating a profit-oriented approach in urban development.

2. How often do you think urban development projects lead to biodiversity loss and ecosystem disruption in your region?



As per the above diagram represents that nearly 90% believe urban development projects consistently lead to biodiversity loss and ecosystem disruption, emphasizing the significant ecological impact.

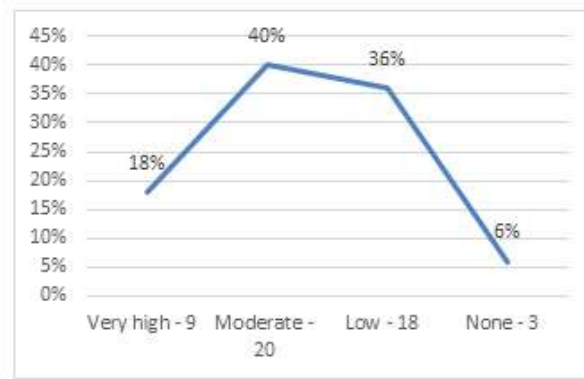
3. "Which of the following do you believe contributes most to environmental degradation in urban development"?



The above diagram represents that the deforestation and green space loss are viewed as the top contributors to environmental degradation, aligning with concerns over reduced ecological resilience.

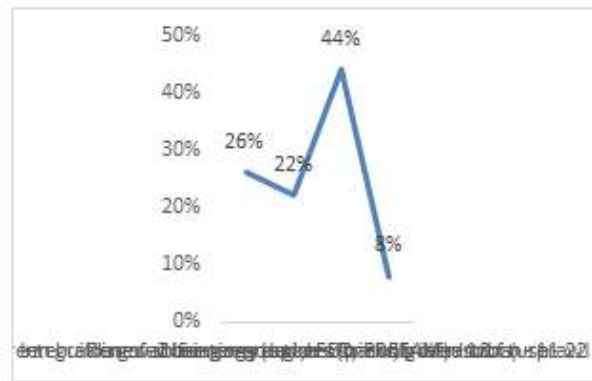


**4. What level of importance does developers in your region seem to give to ecological preservation in their projects?**



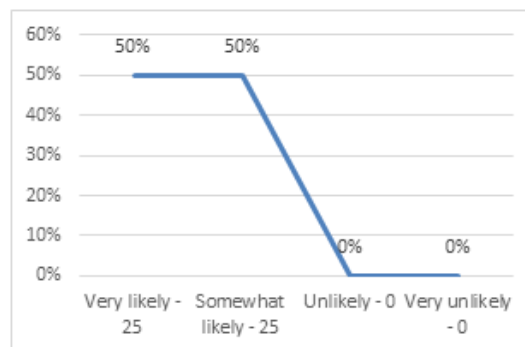
As per the diagram shows above that the majority believes developers give moderate to low importance to ecological preservation, suggesting inadequate prioritization.

**5. Which sustainable urban development strategy do you think is most effective in balancing economic growth and environmental preservation?**



The above diagram represents that the renewable energy and eco-friendly infrastructure are seen as the most effective strategies for balancing economic and environmental goals.

**6. How likely do you think it is that sustainable urban development practices could mitigate the environmental impacts of rapid urbanization?**



The Above data chart shows that all respondents are optimistic about the potential of sustainable urban practices, highlighting a strong belief in their efficacy.

## 5 CONCLUSION

The study reveals that urban development practices, primarily driven by economic motives, are perceived to contribute significantly to environmental degradation through deforestation and biodiversity loss. Most respondents agree that current practices give insufficient attention to ecological preservation. However, renewable energy and eco-friendly infrastructure are identified as the most promising solutions. Respondents are optimistic about the potential of sustainable practices to mitigate the environmental impacts of rapid urbanization.



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**THE ROLE OF ESG (ENVIRONMENTAL, SOCIAL, AND GOVERNANCE) CRITERIA IN MODERN INVESTMENT DECISIONS**

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**EXECUTIVE SUMMARY**

This research paper will provide an exploration of the role of ESG criteria in guiding modern investment decisions. By considering the implications of ESG integration, the paper will underscore the need for investors to embrace these criteria to foster positive change while achieving sustainable financial success in an increasingly dynamic market environment. This research paper explores the significance of Environmental, Social, and Governance (ESG) criteria in modern investment decisions. As stakeholders increasingly demand accountability, the role of ESG in shaping investment behavior and financial performance has become paramount.

**OBJECTIVES:**

1. To assess the level of awareness about ESG amongst investors and their preference
2. To know if the investors consider ESG while taking decisions

**Objective 1:** The first objective examines the level of awareness regarding ESG among investors and their preferences. The findings indicate a mixed awareness landscape, with 36% of respondents being very familiar with ESG criteria. Although a notable segment recognizes the importance of ESG factors, a substantial portion remains uncertain, highlighting a critical opportunity for educational initiatives to enhance understanding and integration of these factors in investment decisions.

**Objective 2:** The third objective investigates whether investors consider ESG factors when making investment decisions. Results show that 34% of respondents have made investment choices based on ESG performance, while nearly half expressed uncertainty. This indicates a growing, yet still developing, trend toward ESG integration in investment strategies, suggesting the need for greater transparency and communication about the benefits of sustainable practices.

**Key Terms:** ESG (Environmental, Social, and Governance) Investment Decisions, Sustainability, Responsible Investing, Financial Returns, Brand Loyalty, Risk Management, Investment Metrics, Consumer Awareness, Ethical Investing, Regulatory Framework, Investor Sentiment, Market Trends

**RESEARCH METHODOLOGY**

The researcher has used primary as well as secondary data, to examine the role of ESG criteria in investment decisions.

**Primary Data Collection:** The primary data was gathered through a structured survey administered to 50 respondents. This survey was designed to assess investor awareness, preferences, and the impact of ESG factors on decision-making. Respondents provided insights into their familiarity with ESG criteria, the influence of ESG on investment returns and brand loyalty, and whether ESG considerations play a role in their investment choices.

**Secondary Data Collection:** Secondary data was sourced from existing literature, academic journals, industry reports, and case studies. This data provided context and background information regarding global ESG trends, regulatory frameworks, and financial impacts across various sectors.

**Data Analysis:** The collected data was systematically tabulated to facilitate analysis. Various analytical tools, including graphs and bar diagrams, were employed to illustrate trends and patterns. This visual representation of data allowed for a clearer understanding of the relationships between ESG awareness, investment returns, brand loyalty, and decision-making processes.

Through this comprehensive methodology, the research offers a robust examination of ESG criteria in investment, providing valuable insights into investor behavior and the broader implications for sustainable finance.

**INTRODUCTION:**

In recent years, the landscape of investment has undergone a significant transformation, with Environmental, Social, and Governance (ESG) criteria emerging as crucial elements in the assessment of potential investments. Traditionally, investment decisions were largely influenced by financial factors such as revenue growth, profit



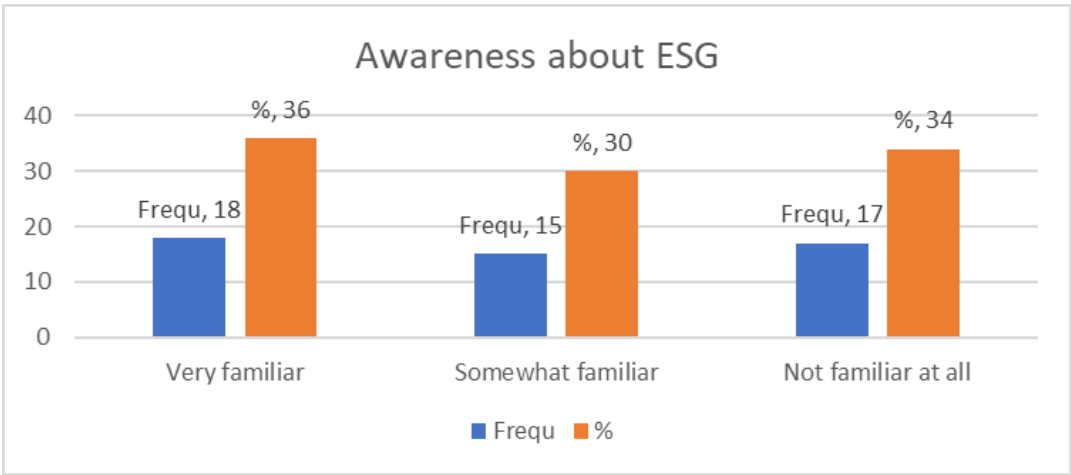
margins, and cash flow. However, the evolving expectations of investors, consumers, and regulators have resulted in a growing emphasis on the ethical and sustainable practices of companies. This shift is driven by an increasing awareness of global challenges, including climate change, social inequality, and corporate governance failures. As stakeholders demand greater accountability and transparency, investors are now prioritizing ESG factors, viewing them as essential components in assessing risks and identifying opportunities.

The integration of ESG criteria into investment strategies not only reflects a commitment to sustainability but also recognizes the potential for long-term financial performance. Numerous studies indicate a correlation between strong ESG performance and positive investment returns, underscoring the notion that companies prioritizing ESG factors are better equipped to navigate market challenges and capitalize on new opportunities. This research paper aims to explore the critical role of ESG criteria in modern investment decisions, analyzing its impact on financial performance across various sectors while addressing the challenges and regulatory developments that influence this evolving landscape.

Data collection and analysis

1. Awareness: How familiar are you with the concept of ESG (Environmental, Social, and Governance) criteria in investment decisions?

Awareness about ESG	Frequ	%
Very familiar	18	36
Somewhat familiar	15	30
Not familiar at all	17	34
Total	50	100



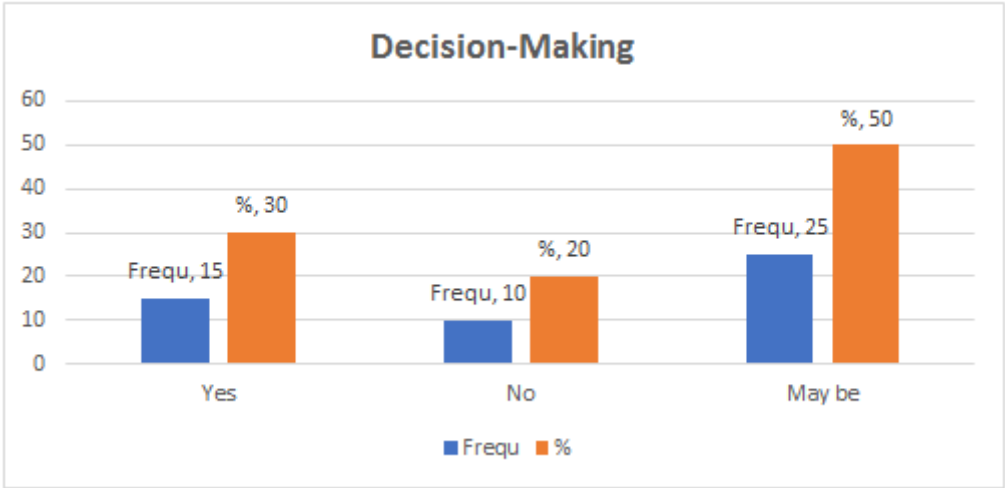
The data collected regarding awareness of ESG (Environmental, Social, and Governance) criteria in investment decisions provides valuable insights into the general public's understanding of this concept. Here's a detailed explanation of the findings:

- Very Familiar (36%):** A total of 18 respondents, or 36% of the participants, reported being "very familiar" with ESG criteria. This indicates a substantial portion of the population has a strong understanding of ESG factors and recognizes their importance in investment decision-making.
- Somewhat Familiar (30%):** With 15 respondents indicating they are "somewhat familiar" with ESG criteria, which accounts for 30% of the total, there is a noteworthy segment of participants who possess a moderate understanding of the topic. This familiarity could imply that these individuals are open to learning more about ESG factors and may incorporate them into their investment decisions, albeit to a lesser extent than those who are very familiar.
- Not Familiar at All (34%):** Lastly, 17 respondents, or 34%, reported being "not familiar at all" with ESG criteria. This significant proportion suggests that a considerable number of individuals lack awareness or understanding of ESG concepts. So, this data serves as a foundation for understanding the current landscape of ESG awareness among the public, which is a critical factor in the overall impact and effectiveness of ESG integration in investment strategies.

2. Decision-Making: Have you ever made an investment decision based on a company's ESG performance?



Decision-Making	Frequ	%
Yes	15	30
No	10	20
May be	25	50
Total	50	100



on decision-making based on a company's ESG performance reveals the following insights:

- Yes (34%):** Seventeen respondents, accounting for 34%, have made investment decisions based on ESG performance. This suggests a significant number of investors actively consider ESG factors when making investment choices, reflecting an evolving trend toward responsible investing.
- No (20%):** Ten respondents, or 20%, have not based any investment decisions on ESG performance. This indicates a segment of investors who may prioritize traditional financial metrics over ESG considerations.
- Maybe (50%):** A larger portion, 25 respondents or 50%, are uncertain ("maybe") about their decision-making. This group might be exploring ESG factors but has not yet committed to integrating them fully into their investment strategies.

So, while a notable segment of investors is already considering ESG criteria, there is significant potential to further integrate these factors into investment decisions. Strengthening awareness and education on ESG benefits can drive more informed and responsible investing.

FINDINGS:

Findings for objective 1

- Overall Awareness:** The data indicates a relatively mixed awareness level among the general public regarding ESG criteria. While over one-third of the respondents are very familiar with these criteria, a combined total of 64% are either somewhat familiar or not familiar at all. This suggests that while there is a growing awareness of ESG principles, there remains a substantial portion of the population that requires further education and information on the subject.
- Implications for ESG Integration in Investment Decisions:** The findings highlight the need for increased outreach and educational initiatives to raise awareness about ESG factors in investment decisions. As awareness grows, it is likely that more individuals will integrate these criteria into their investment practices, thereby driving greater demand for sustainable and responsible investment options.
- Actionable Insights for Stakeholders:** For financial institutions, asset managers, and companies, the data underscores the importance of developing educational resources and transparent communication strategies to inform investors about the relevance and impact of ESG criteria. This can help bridge the awareness gap and encourage broader adoption of ESG-related practices in the investment community.

Findings for objective 2

- Emerging Trend:** The data shows an emerging trend where a portion of investors are beginning to incorporate ESG criteria into their decision-making processes. However, a larger group remains unsure, highlighting the need for further exploration and understanding of ESG impacts.



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- **Potential for Growth:** The high percentage of respondents in the "maybe" category indicates potential growth in ESG consideration as investors become more informed about the benefits and implications of ESG performance on investments.
  - **Educational Opportunities:** Financial institutions, advisors, and educators have an opportunity to target the "maybe" and "no" groups with resources and information about how ESG factors can enhance investment outcomes and align with broader ethical and sustainability goals.

**CONCLUSION:**

This data serves as a foundation for understanding the current landscape of ESG awareness among the public, which is a critical factor in the overall impact and effectiveness of ESG integration in investment strategies.

Thus, while a notable segment of investors is already considering ESG criteria, there is significant potential to further integrate these factors into investment decisions. Strengthening awareness and education on ESG benefits can drive more informed and responsible investing.

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<https://privatewealth.goldmansachs.com>



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**CHALLENGES AND OPPORTUNITIES IN IMPLEMENTING SUSTAINABLE MICRO-FINANCIAL PRACTICES IN SMES**

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**Executive Summary**

This research paper investigates the challenges and opportunities associated with implementing sustainable micro-finance practices in small and medium-sized enterprises (SMEs). Recognizing the vital role that SMEs play in economic development, job creation, and innovation, the study aims to provide insights into how micro-finance can effectively support these businesses.

**Aspects covered / Challenges Faced by Micro-finance Institutions**

The analysis reveals multiple significant challenges SMEs encounter when seeking micro-finance. Key obstacles include complex application processes (32%) and regulatory barriers (36%), which hinder access to essential funding. Limited financial literacy (24%) among business owners further complicates this landscape. Additionally, concerns regarding the sustainability of micro-finance institutions themselves, such as lack of financial stability (30%) and inadequate support services (28%), pose significant risks.

**Opportunities for Growth and Development**

Despite these challenges, the research highlights promising opportunities presented by sustainable micro-finance practices. Access to micro-finance has led to improved customer engagement (32%) and increased revenues for many SMEs. A notable 42% of respondents identified technology integration (e.g., mobile banking) as a crucial avenue for expanding access and efficiency, while 28% viewed partnerships with other financial institutions as beneficial for diversifying support and resources.

**Recommendations for Stakeholders**

To enhance the sustainability of micro-finance practices, the paper recommends that stakeholders develop targeted financial literacy programs, streamline application processes, and prioritize financial transparency. By offering diverse products tailored to the unique needs of SMEs, micro-finance institutions can foster trust and strengthen their relationships with clients. Furthermore, investments in educational initiatives will empower SMEs to effectively leverage micro-finance opportunities for growth.

So, this research underscores the importance of addressing the existing challenges while capitalizing on the identified opportunities to create a more robust micro-finance ecosystem. By doing so, stakeholders can significantly enhance the impact of micro-finance on SME growth and contribute to broader economic development.

**1. INTRODUCTION**

Micro-finance has emerged as a transformative force significantly impacting financial inclusion and economic development, particularly for small and medium-sized enterprises (SMEs). These enterprises are vital to the economic fabric of many countries, especially in developing regions, where they represent a substantial portion of all businesses and contribute significantly to job creation and innovation. However, the journey of SMEs is often hindered by limited access to capital, inadequate financial services, and various systemic barriers. In this context, micro-finance provides a unique solution, bridging the gap between under-resourced entrepreneurs and necessary financial resources.

Micro-finance institutions (MFIs) play a crucial role in this landscape by offering financial services tailored to the needs of low-income individuals and small business owners who may otherwise be excluded from traditional banking systems. Through products such as microloans, savings accounts, and insurance, MFIs empower entrepreneurs to invest in their ventures, ultimately fostering economic growth. In many cases, access to micro-financing has enabled these enterprises to expand operations, enhance productivity, and improve their overall competitiveness.

Despite the significant potential of micro-finance to propel SME growth, the sustainability of micro-finance practices remains a critical concern. Sustainable micro-finance not only addresses the immediate financial needs of entrepreneurs but also incorporates social and environmental considerations into the lending process. This dual focus is increasingly recognized as essential for ensuring long-term viability, both for the MFIs themselves and for the businesses they support. The incorporation of sustainability principles can result in more equitable



lending practices, improved social outcomes, and reduced environmental impact, aligning the goals of micro-finance with global sustainable development objectives.

However, implementing sustainable micro-finance practices presents a range of challenges. MFIs often grapple with high operational costs, limited access to capital for their operations, and the need for effective risk assessment and management frameworks. Additionally, the regulatory environment in many regions can impose barriers that stifle innovation and limit the range of financial products that can be offered. Further compounding these challenges is the need for capacity building within MFIs, as staff may require training in sustainable practices and impact assessment methodologies.

Despite these obstacles, numerous opportunities exist for enhancing the sustainability of micro-finance practices. The advent of technology has revolutionized the micro-finance landscape, enabling MFIs to reach a broader audience and reduce costs through digital platforms and mobile banking solutions. By leveraging technology, MFIs can enhance client engagement, streamline operations, and offer tailored financial products that meet the specific needs of SMEs. Additionally, partnerships with diverse stakeholders, including governments, non-profits, and private investors, can pave the way for innovative financing solutions and expanded access to resources for both MFIs and entrepreneurs.

This paper aims to provide a comprehensive analysis of the challenges and opportunities associated with implementing sustainable micro-finance practices within SMEs. By evaluating existing literature and case studies, the study seeks to identify best practices that can inform stakeholders, including policymakers, micro-finance practitioners, and entrepreneurs. Ultimately, the findings of this research will contribute to a deeper understanding of how sustainable micro-finance can enhance the resilience and growth of SMEs, positioning them as catalysts for broader economic development and social progress.

## 2. BACKGROUND OF THE STUDY

Small and medium-sized enterprises (SMEs) play a crucial role in fostering economic development, generating employment opportunities, and driving innovation across various sectors. Representing a significant portion of businesses globally, SMEs are essential for promoting economic diversity and resilience. However, many SMEs face considerable challenges in accessing financing, a situation that severely limits their capacity to expand, innovate, and compete in an increasingly dynamic market. The lack of financial resources can stifle entrepreneurship and inhibit growth, ultimately hampering overall economic progress.

Micro-finance offers a promising solution by providing financial services specifically designed for underserved segments of the population, including small business owners who often lack access to traditional banking systems. Through micro-loans, savings accounts, and other financial products, micro-finance institutions (MFIs) enable SMEs to meet their immediate financial needs and invest in growth opportunities.

Importantly, sustainable micro-finance practices extend beyond the provision of capital by emphasizing responsible lending, social equity, and environmental stewardship. By integrating sustainability into their operations, MFIs can promote long-term socio-economic benefits while supporting the development of resilient SMEs. This study thoroughly examines the complex interplay between micro-finance, sustainability, and SME development to better understand how these factors can synergistically contribute to economic advancement.

## 3. LITERATURE REVIEW

### 1: The Role of Micro-finance in SME Growth

Khandker, S. R. (2005). Micro-finance and poverty: Evidence using panel data from Bangladesh. *The World Bank Economic Review*, 19(2), 263-286. <https://doi.org/10.1093/wber/lhi008>

This study highlights the importance of micro-financing as a tool for empowering SMEs by increasing their access to credit and promoting entrepreneurship. The findings illustrate how access to micro-finance can lead to improved business outcomes and poverty alleviation.

### 2: Challenges in Sustainable Micro-finance

Mersland, R., & Strøm, R. Ø. (2010). Microfinance mission drift? *World Development*, 38(1), 28-36. <https://doi.org/10.1016/j.worlddev.2009.06.004>

This paper identifies significant barriers to implementing sustainable micro-finance practices, including high operational costs, regulatory challenges, and the need for capacity building among MFIs. It provides insights into how these challenges can inhibit the effectiveness of micro-finance initiatives.

### 3: Impact of Micro-finance on Poverty Alleviation

Banerjee, A. V., Duflo, E., Glennerster, R., & Kinnan, C. (2015). The miracle of micro-finance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics*, 7(1), 22-53.



<https://doi.org/10.1257/app.20130512>

This research discusses how micro-finance can contribute to poverty reduction by enhancing the financial capabilities of entrepreneurs, enabling them to invest in their businesses, and supporting economic empowerment at the individual level.

#### 4: Sustainable Micro-finance Practices and Their Effectiveness

Morduch, J. (1999). The micro-finance promise. *Journal of Economic Literature*, 37(4), 1569-1614. <https://doi.org/10.1257/jel.37.4.1569>

This article reviews various sustainable practices employed by MFIs and assesses their effectiveness in promoting long-term financial stability for SMEs. It emphasizes the importance of balancing profitability with social responsibility within micro-finance.

#### 5: Technological Innovations in Micro-finance

Mazzarol, T., & Soutar, G. N. (2002). Push-pull" and "complementary" factors of motivation for small business owners: The case of public sector entrepreneurs in Australia. *International Journal of Entrepreneurial Behavior & Research*, 8(1), 3-23. <https://doi.org/10.1108/13552550210418492>

This study explores how technology can enhance the delivery of micro-finance services, reduce costs, and improve client outreach to underserved SMEs. It highlights the transformative role technology plays in expanding access to micro-finance.

#### 4. OBJECTIVES OF THE STUDY

1. To identify and analyze the primary challenges faced by micro-finance institutions in implementing sustainable practices for SMEs.
2. To explore the opportunities that sustainable micro-finance practices present for the growth and development of SMEs.
3. To provide recommendations for stakeholders in the micro-finance ecosystem to enhance the sustainability of micro-finance practices for SMEs.

#### Key Terms

- **Micro-finance:** Financial services, including loans, savings, and insurance, specifically tailored for entrepreneurs in low-income or underserved communities.
- **Sustainability:** Practices that ensure long-term economic viability while promoting social equity and environmental protection.
- **Small and Medium-sized Enterprises (SMEs):** Businesses with a limited size that play a fundamental role in economic growth and job creation.
- **Micro-finance Institutions (MFIs):** Organizations that provide micro-financial services to disadvantaged segments of society.

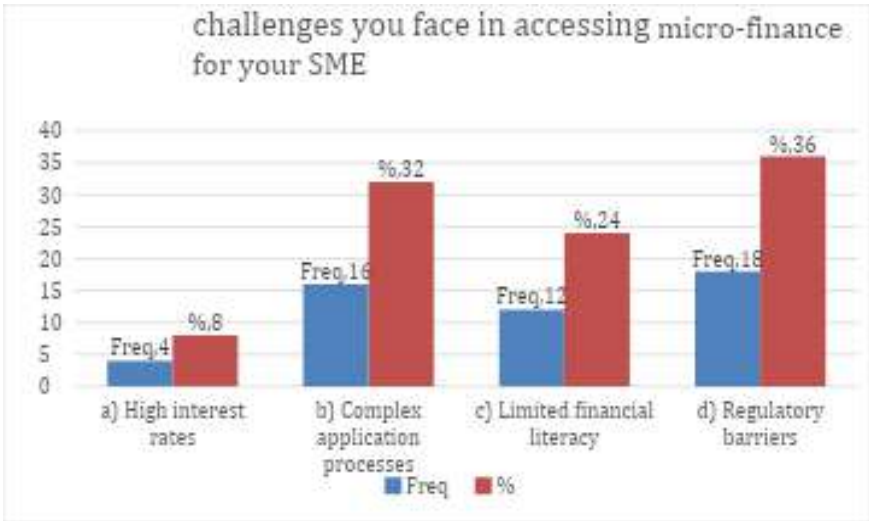
#### 5. Data Collection and its Explanation

In order to explore sustainable microfinance practices for small and medium-sized businesses (SMEs), this chapter explores the data gathering techniques and analytical strategies used in the study. Surveys and interviews with SME owners and representatives of microfinance institutions were used to collect the data. Important criteria were examined, including the influence of technological integration, regulatory difficulties, financial literacy levels, and the complexity of the application procedure. To guarantee clarity and make comparisons easier, the results are displayed using tables and graphs. These visual aids give stakeholders a thorough grasp of the potential and difficulties associated with implementing sustainable microfinance, as well as important insights into how to best support mechanisms for the expansion of SMEs and economic development.



Challenges in Sustainable Micro-finance Practices:

1. What are the biggest challenges you face in accessing micro-finance for your SME?



ANALYSIS

High Interest Rates:

Only a small portion of respondents (8%) identified high interest rates as a significant challenge. This suggests that while interest rates are a concern, other factors may present more substantial barriers to accessing micro-finance for most SMEs.

Complex Application Processes:

A significant number of respondents (32%) find complex application processes to be a major obstacle. This indicates that the procedures involved in securing micro-finance are cumbersome and potentially time-consuming, deterring SMEs from pursuing these financial resources. Simplifying these processes could therefore improve accessibility.

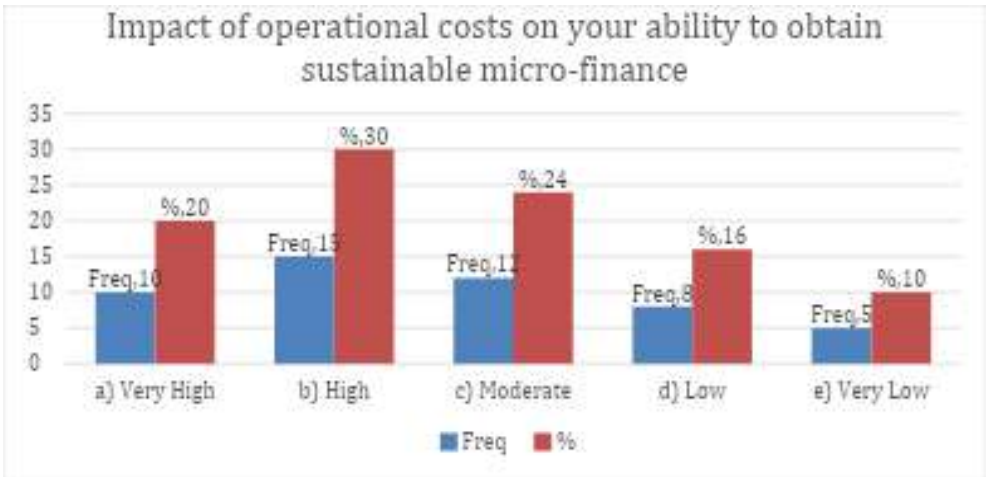
Limited Financial Literacy:

About 24% of respondents highlighted limited financial literacy as a challenge. This points to a need for better financial education and support for SMEs to enhance their understanding and navigation of micro-finance options, enabling them to make informed decisions.

Regulatory Barriers:

The largest proportion of respondents (36%) cited regulatory barriers as the primary challenge. This indicates that existing regulations might be restrictive or difficult to comply with, posing substantial difficulties for SMEs seeking micro-finance. Addressing these regulatory issues through policy reforms could significantly ease access for SMEs, allowing them to thrive and contribute more robustly to the economy.

2. How would you rate the impact of operational costs on your ability to obtain sustainable micro-finance?





ANALYSIS

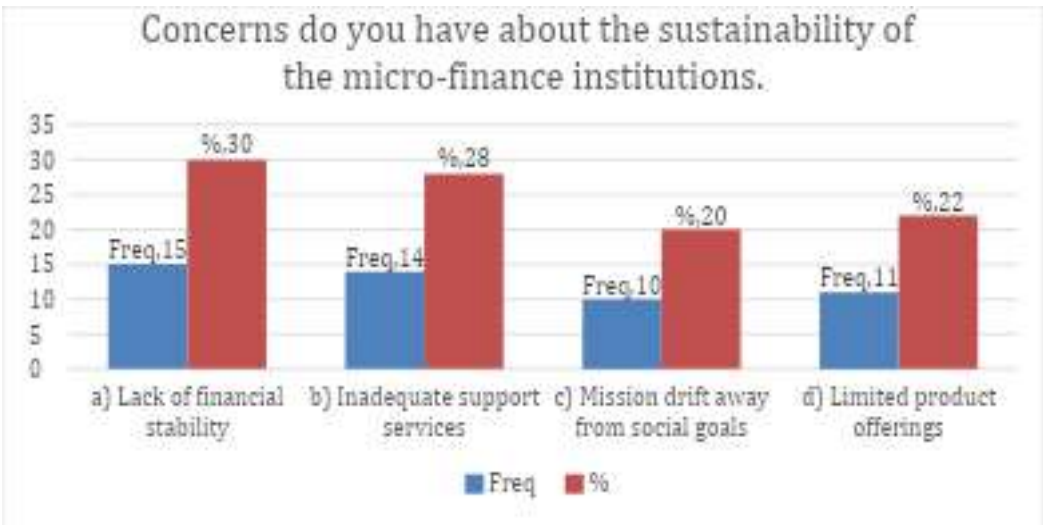
This data examines how operational costs impact the ability of SMEs to obtain sustainable micro-finance:

- 1. Very High Impact (20%):**
  - 20% of respondents perceive operational costs as having a very high impact on their ability to secure sustainable micro-finance. This highlights a substantial concern regarding the financial burden associated with managing these costs effectively.
- 2. High Impact (30%):**
  - A considerable 30% of respondents see operational costs as having a high impact. This implies that many SMEs find operational costs to be a significant hurdle, potentially affecting their financial stability and access to funding.
- 3. Moderate Impact (24%):**
  - With 24% of respondents indicating a moderate impact, it's clear that while operational costs are challenging, they are manageable to some extent for a portion of SMEs. This group might benefit from targeted financial management strategies or support.
- 4. Low Impact (16%):**
  - 16% of respondents rate the impact of operational costs as low. These SMEs may have better cost management practices or benefit from operational efficiencies that reduce the burden of costs.
- 5. Very Low Impact (10%):**
  - A small percentage (10%) report very low impact, suggesting that operational costs are not a significant barrier for these businesses. They might have effective strategies in place to mitigate these expenses.

Implications

The data suggests that for half of the SMEs (50%), operational costs are a high to very high concern, significantly affecting their ability to access sustainable micro-finance. Addressing these costs through improved efficiency, streamlined operations, or financial support could enhance the capacity of these businesses to secure needed funding. For policymakers and financial institutions, understanding these cost dynamics is crucial for developing targeted interventions that lower the financial barriers for SMEs.

- 3. What concerns do you have about the sustainability of the micro-finance institutions (MFIs) you work with?**



This data explores the concerns SMEs have regarding the sustainability of the micro-finance institutions (MFIs) they engage with:

- 1. Lack of Financial Stability (30%):**
  - A notable 30% of respondents express concern about the financial stability of the MFIs they work with. This indicates that many SMEs are apprehensive about the long-term viability of these institutions, which could affect their access to ongoing financial support and resources.



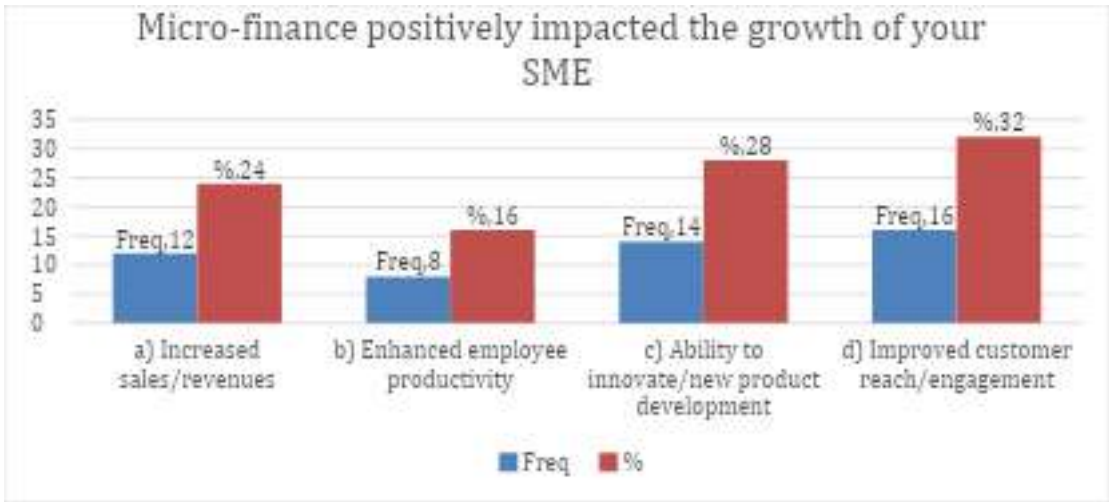
2. **Inadequate Support Services (28%):**
- Close behind, 28% of respondents voice concerns over inadequate support services provided by MFIs. This suggests that SMEs may feel unsupported in areas such as business development, financial literacy, and consultation, which could limit their capacity to leverage micro-finance effectively.
3. **Mission Drift from Social Goals (20%):**
- 20% of participants are worried about the potential for mission drift, where MFIs may prioritize profitability over their original social objectives. This concern reflects a desire among SMEs for MFIs to maintain a balance between financial sustainability and social impact.
4. **Limited Product Offerings (22%):**
- 22% of respondents express concern over limited product offerings. This suggests that SMEs may find that the financial products available do not fully meet their diverse needs, hindering their ability to access tailored financial solutions.

Implications

The data reveals that the main concerns among SMEs revolve around the financial stability of MFIs and the adequacy of support services. Addressing these concerns could improve the trust and engagement between MFIs and SMEs. For MFIs, maintaining a clear commitment to their social mission while ensuring robust financial health is crucial.

Opportunities in Sustainable Micro-finance Practices:

4. In your experience, how has access to micro-finance positively impacted the growth of your SME?



This data evaluates the positive impacts that access to micro-finance has had on the growth of SMEs:

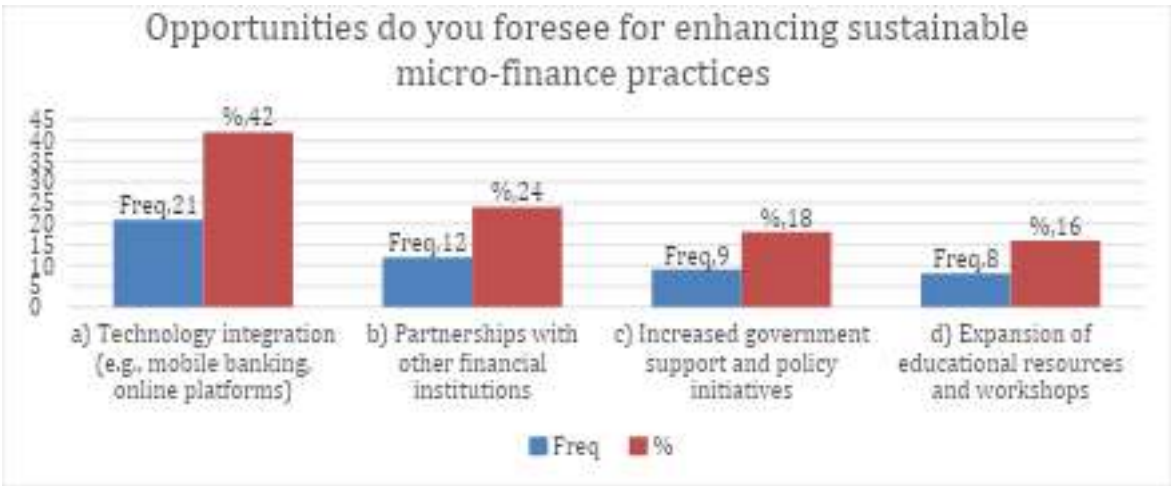
1. **Increased Sales/Revenues (24%):**
- 24% of respondents report that access to micro-finance has led to increased sales and revenues. This indicates that a significant portion of SMEs have directly benefited financially from securing funding through micro-finance, allowing them to expand their operations and market reach.
2. **Enhanced Employee Productivity (16%):**
- 16% of respondents noted improvements in employee productivity as a result of micro-finance access. This could be due to investments made possible by funding, such as better training, resources, or tools, which enable employees to perform more effectively.
3. **Ability to Innovate/New Product Development (28%):**
- The highest percentage (28%) indicates that access to micro-finance has facilitated innovation and new product development. This suggests that funding has allowed SMEs to invest in research and development or expand their product lines, enhancing their competitive advantage in the market.
4. **Improved Customer Reach/Engagement (32%):**
- 32% of respondents identified improved customer reach and engagement as a key impact of micro-finance access. This could involve funding for marketing initiatives or enhancements to customer service, enabling SMEs to better connect with their target audience.



Implications

The data reveals that access to micro-finance has had a significant and varied impact on SME growth, with improved customer reach and engagement being the most frequently cited benefit. This underscores the importance of micro-finance in empowering SMEs not only to increase their financial performance (sales/revenue) but also to drive innovation and enhance overall business operations

5. What opportunities do you foresee in the future for enhancing sustainable micro-finance practices for SMEs?



This data assesses perceived opportunities for enhancing sustainable micro-finance practices for SMEs in the future:

1. Technology Integration (42%):

The majority of respondents (42%) believe that technology integration—including mobile banking and online platforms—represents a significant opportunity for improving sustainable micro-finance practices. This indicates a strong recognition of how technology can streamline access to financial services, lower costs, and enhance user experience, thereby reaching more SMEs effectively.

2. Partnerships with Other Financial Institutions (24%):

24% of respondents see potential in forming partnerships with other financial institutions. These partnerships could foster collaboration, enabling MFIs and banks to offer a broader range of services and products that cater to the diverse needs of SMEs, thus enhancing overall support.

3. Increased Government Support and Policy Initiatives (18%):

18% of respondents highlight the need for increased government support and policy initiatives. This suggests a belief that government involvement can play a critical role in creating a more favorable environment for micro-finance, such as through regulatory reforms or funding support, ultimately benefiting SMEs.

4. Expansion of Educational Resources and Workshops (16%):

Lastly, 16% of respondents view the expansion of educational resources and workshops as an opportunity. This emphasizes the importance of financial literacy and capacity building in empowering SMEs to effectively utilize micro-finance and navigate financial challenges.

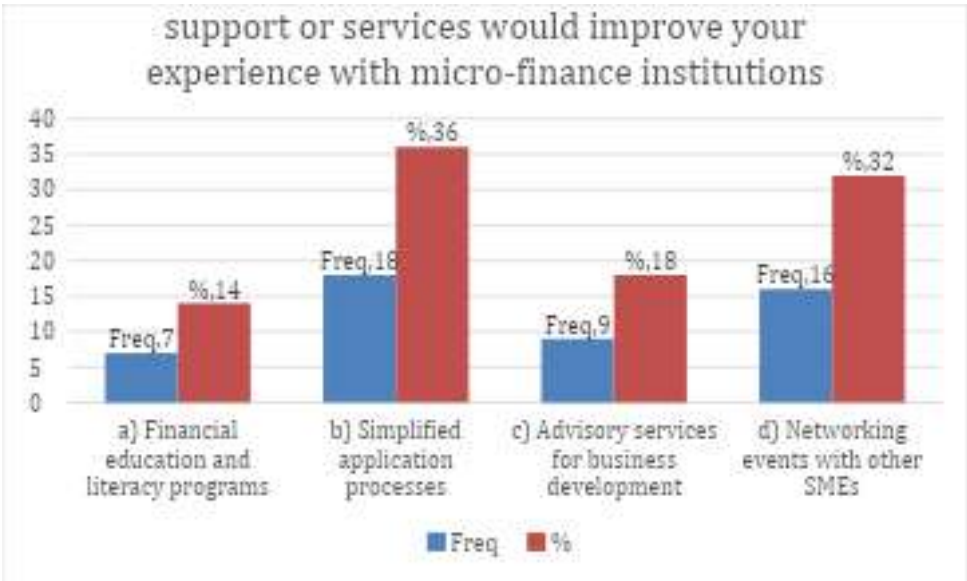
Implications

The data underscores a strong emphasis on technology as a pivotal opportunity for enhancing sustainable micro-finance practices, followed by collaborative partnerships and government support. MFIs should prioritize adopting technological solutions to improve service delivery and accessibility. Additionally, building stronger partnerships and advocating for supportive government policies can create a more robust micro-finance ecosystem.



Recommendations and Insights:

6. What kinds of support or services would improve your experience with micro-finance institutions?



This data evaluates the types of support and services that SMEs believe would enhance their experience with micro-finance institutions (MFIs):

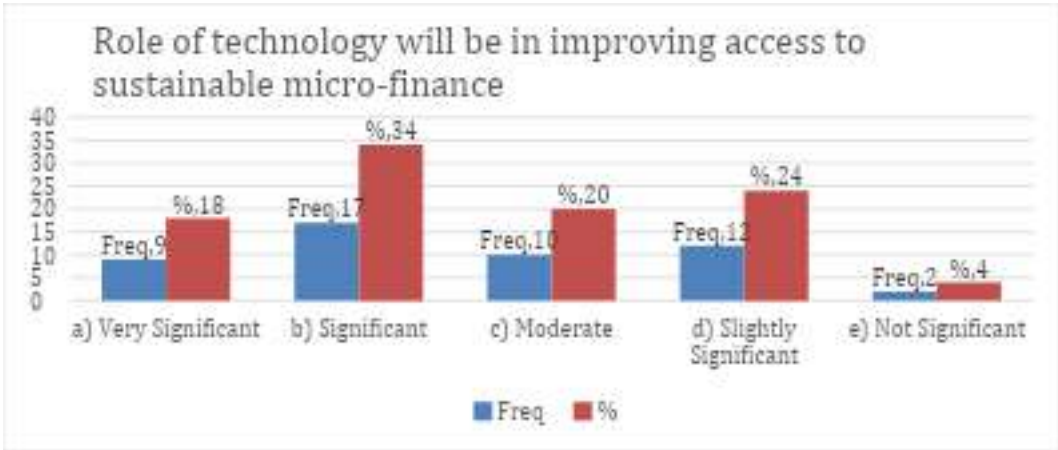
- 1. Financial Education and Literacy Programs (14%):**
  - Only 14% of respondents consider financial education and literacy programs as a support they would find beneficial. While this is important, it indicates that many SMEs may feel they already possess adequate financial knowledge or that other support services are a higher priority.
- 2. Simplified Application Processes (36%):**
  - The most significant portion of respondents (36%) identified simplified application processes as essential for improving their experiences with MFIs. This suggests that the complexity and length of current application procedures are considerable barriers to accessing micro-finance. Streamlining these processes could enhance accessibility and encourage more SMEs to apply for funding.
- 3. Advisory Services for Business Development (18%):**
  - 18% of respondents expressed a need for advisory services aimed at business development. This highlights the demand for expert guidance in areas such as operations, strategy, and market analysis, which can help SMEs maximize the benefits of the funding they receive.
- 4. Networking Events with Other SMEs (32%):**
  - A significant 32% of respondents indicated that networking events with other SMEs would be beneficial. This opportunity for collaboration and sharing experiences can foster a supportive community, potentially leading to partnerships, knowledge exchange, and enhanced resilience for SMEs.

Implications

The findings emphasize a strong desire for simplified application processes and networking opportunities as key areas for improvement in the relationship between SMEs and MFIs. By addressing the complexity of application procedures, MFIs can significantly increase access to their services. Additionally, facilitating networking events can cultivate a community among SMEs, enhancing collaboration and resource sharing. While financial education is valuable, the lower demand for it suggests that MFIs might focus their efforts on more immediate support needs.



7. How significant do you believe the role of technology will be in improving access to sustainable micro-finance in the future?



This data assesses the perceived significance of technology in improving access to sustainable micro-finance for SMEs in the future:

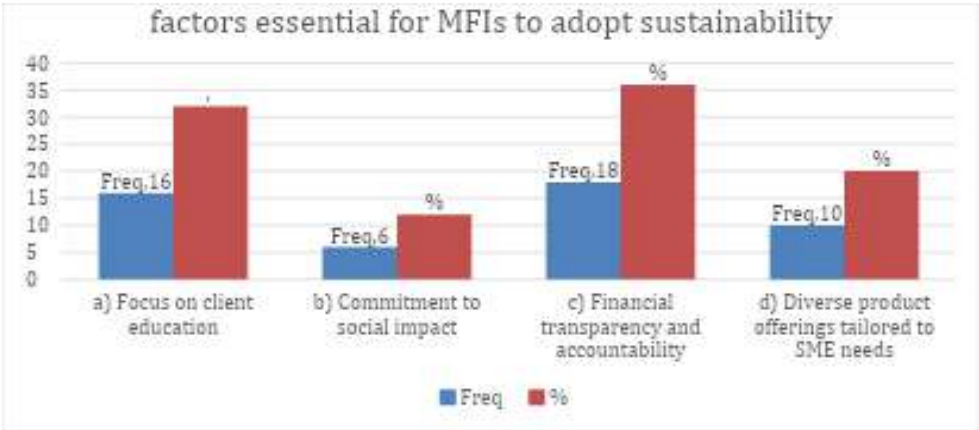
- Very Significant (18%):**
  - 18% of respondents view the role of technology as **very significant** in enhancing access to sustainable micro-finance. This indicates a clear recognition among some SMEs of the transformative potential that technology can have on financial services.
- Significant (34%):**
  - The largest group, comprising 34% of respondents, regards the role of technology as **significant**. This suggests a strong belief that while technology may not be the sole factor, it will play a crucial part in improving service delivery, accessibility, and efficiency in micro-finance.
- Moderate (20%):**
  - 20% of respondents classify the role of technology as **moderate**. This indicates that for this group, while technology may contribute to improvements, other factors may also be equally or more important in determining access to micro-finance.
- Slightly Significant (24%):**
  - 24% of respondents consider the role of technology as **slightly significant**. This suggests that some SMEs may feel that, although technology can aid in improving access, its impact may be limited in the context of other existing challenges.
- Not Significant (4%):**
  - Only 4% of respondents believe that technology will be **not significant**. This indicates that while the majority of SMEs see potential in technology, a very small percentage feels it will offer little to no benefit.

Implications

The data highlights a considerable belief among SMEs in the significant role of technology in facilitating access to sustainable micro-finance. With a combined total of 52% of respondents viewing technology as very or significantly important, it underscores the need for micro-finance institutions (MFIs) to prioritize technological advancements, such as mobile banking, digital platforms, and data analytics.



8. What factors do you think are essential for MFIs to adopt in order to ensure sustainability and support for SMEs



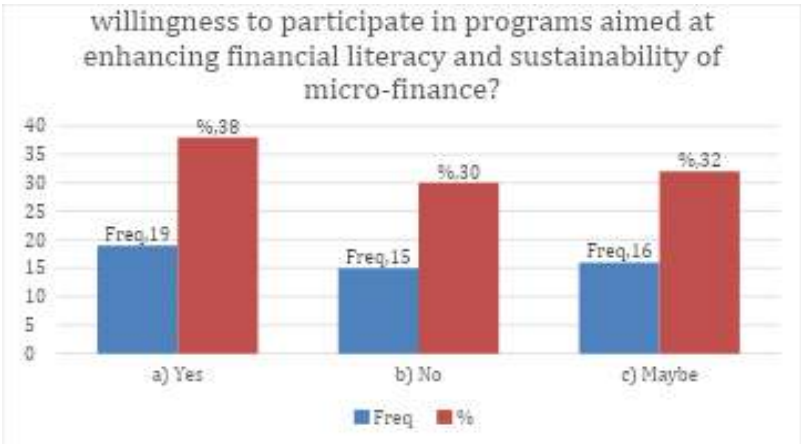
data identifies the factors that respondents believe are essential for micro-finance institutions (MFIs) to adopt in order to ensure sustainability and support for small and medium-sized enterprises (SMEs):

- Focus on Client Education (32%):**
  - 32% of respondents believe that a focus on client education is crucial for MFIs. This suggests that enhancing the financial literacy of clients will empower them to make informed decisions and effectively utilize the resources provided by MFIs, ultimately leading to better business outcomes.
- Commitment to Social Impact (12%):**
  - A smaller portion (12%) emphasizes the importance of a commitment to social impact. This indicates that while some SMEs appreciate the social mission of MFIs, many may prioritize other factors more highly in terms of immediate business needs.
- Financial Transparency and Accountability (36%):**
  - The most significant factor identified, with 36% of respondents, is the necessity for financial transparency and accountability within MFIs. This highlights the demand for trust and openness in financial dealings, essential for building strong, long-term relationships between MFIs and SMEs.
- Diverse Product Offerings Tailored to SME Needs (20%):**
  - 20% of respondents believe that having diverse product offerings tailored to the specific needs of SMEs is essential. This indicates a recognition of the unique challenges faced by SMEs and the need for MFIs to provide flexible, customized financial solutions.

Implications

The data reveals that financial transparency and client education are viewed as critical components for enhancing the sustainability of MFIs and their support for SMEs. With 68% of respondents identifying these factors as essential, MFIs should prioritize creating transparent communication channels and developing educational programs that equip SMEs with necessary financial knowledge.

9. Would you be willing to participate in programs or workshops aimed at enhancing your financial literacy and understanding of sustainable micro-finance?





This data assesses the willingness of respondents to participate in programs or workshops aimed at enhancing their financial literacy and understanding of sustainable micro-finance practices:

1. **Yes (38%):** 38% of respondents indicated that they would be willing to participate in programs or workshops. This shows a significant interest among SMEs in improving their financial literacy and understanding of micro-finance, suggesting that educational initiatives could be well-received.
2. **No (30%):** 30% of respondents expressed that they would not be willing to participate. This could indicate contentment with their current level of understanding or a lack of interest in additional programs.
3. **Maybe (32%):** 32% of respondents are uncertain about their willingness to participate, which highlights a potential for interest if the workshops are well-structured and relevant to their specific needs. This group could be persuaded through tailored offerings that showcase the benefits of increased financial literacy.

**Implications:** The data reveals a considerable openness among SMEs to engage in financial literacy programs, with a combined total of 70% expressing willingness (Yes and Maybe) to participate. This strongly suggests a demand for educational resources that can empower business owners to make informed financial decisions and effectively leverage micro-finance options.

### Findings and Conclusion

**Objective 1: To identify and analyze the primary challenges faced by micro-finance institutions in implementing sustainable practices for SMEs.**

**Findings:** The data indicates several significant challenges that SMEs face regarding access to micro-finance. Key obstacles include complex application processes (32%) and regulatory barriers (36%), which are perceived as substantial hurdles preventing SMEs from fully utilizing micro-finance services. Additionally, 24% of respondents highlighted limited financial literacy as a barrier, indicating a need for enhanced education.

**Conclusion:** Micro-finance institutions must address operational complexities and regulatory constraints to improve accessibility for SMEs. Simplifying application processes and enhancing the financial stability of MFIs are crucial steps in fostering a sustainable micro-finance ecosystem. Moreover, investing in financial literacy programs could empower SMEs to navigate the micro-finance landscape more effectively.

**Objective 2: To explore the opportunities that sustainable micro-finance practices present for the growth and development of SMEs.**

**Findings:** The exploration of opportunities revealed that access to micro-finance can significantly impact SME growth, with 32% of respondents noting improved customer reach and engagement as a direct benefit. Notably, technology integration (42%) was cited as a promising avenue for enhancing access to micro-finance. Additionally, 28% of respondents emphasized the importance of partnerships with other financial institutions as a means to diversify offerings and support development.

**Conclusion:** Sustainable micro-finance practices present SMEs with substantial growth opportunities, chiefly through enhanced customer engagement and the integration of technological solutions. MFIs should leverage technology to streamline services and foster collaborations with other financial entities to provide comprehensive support tailored to the unique needs of SMEs.

**Objective 3: To provide recommendations for stakeholders in the micro-finance ecosystem to enhance the sustainability of micro-finance practices for SMEs.**

**Findings:** The data indicates a clear demand for educational initiatives, with 70% of respondents expressing willingness to engage in programs aimed at improving financial literacy. Furthermore, there is a strong emphasis on the need for simplified application processes (36%) and an enhanced focus on client education (32%) as key areas for improvement. Financial transparency and diverse product offerings are also essential for maintaining trust and meeting the varied needs of SMEs.

**Conclusion:** To enhance the sustainability of micro-finance practices, stakeholders should develop targeted financial literacy programs that empower SMEs. Simplifying application procedures and ensuring financial transparency will foster trust between MFIs and SMEs. Additionally, expanding product offerings tailored to the specific needs of SMEs can further increase the effectiveness of micro-finance institutions, ultimately contributing to the long-term success and growth of small and medium-sized enterprises. By addressing these areas, the micro-finance ecosystem can create a more supportive environment for sustainable development.



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**REVISITING INDIA'S CRIMINAL JUSTICE SYSTEM: CHALLENGES AND STRATEGIES FOR REFORMATION**

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**ABSTRACT**

*The term "criminal justice system" describes the composition, operations, implementation that deal with the investigation, prosecution, punishment, correction, and prevention of crime. If the criminal justice system is a vehicle, its four wheels are the police, prosecutor court and prison. The purpose of the criminal justice system is to provide justice to people. This core purpose of the criminal justice system helps to maintain law and order, to prohibit the incidence of crime, to punish those who commit crimes, to impose deterrents on offenders in order to reduce crime, to compensate victims and to prevent convict to commit any criminal act in future.*

*There are many challenges that criminal justice system facing such as inadequate law enforcement, case delays, a shortage of trained police officers, an overwhelmed court system, and bad prison conditions. To solve these difficulties, the criminal justice system must be reformed. There is a need to make certain changes in the existing system so that justice is accessible to everybody. This research paper discusses numerous concerns related to the effective enforcement of criminal justice in the country. To address these gaps, structural reforms must be implemented. There are various efforts taken by the government such as keeping electronic records, modernizing investigation methodologies, and enforcing increased accountability at all levels. The purpose of this paper is to critically examine various steps the government has taken to expedite the criminal justice system.*

*The paper also focuses on recommendation and suggestions that can be used to address the current gaps in the criminal justice system.*

**Keywords:** Justice, Enforcement, Delay, Court, Police, Reformation.

**1. INTRODUCTION**

Criminal justice aims to prevent and control crime, maintain public order and peace, protect the rights of victims, punish and rehabilitate those found guilty of crimes, and generally protect life and property from crime. A competent criminal justice system is necessary for a stable society and the safeguarding of human rights.

The basic two concepts that have guided every criminal justice system are "It is better that ten guilty persons escape than that one innocent suffer" and "Justice Delayed is justice denied."

A country's criminal justice system is comprised of several legal and social bodies tasked with implementing criminal laws.

The main component of the criminal justice system are:

**Police-** The police are an enforcement agency that maintains order and stability in society. They enforce the legislation created by the legislature.

**Prosecution-** Whenever there is disturbance to society due to crimes, the State becomes party to a case and represented by public prosecutor.

**Judiciary-** The judiciary has a very vital role in implementation of rule of law. The primary and most important duty of the courts is to protect and enforce the human rights, as well as provide the relief to the victim.

**Prison-** Imprisonment is the most common form of punishment in the criminal justice system. The condition of the prisoners remained deplorable in the India. The law enforcement personnel were responsible for widespread violation of the human rights.

**2. REVIEW OF THE LITERATURE**

**Lokendra Nagotra** et. al. have given a brief overview to the criminal justice system, then examined the origins and development of the criminal justice system in India, and finally discussed the current criminal justice system. The researchers conducted a thorough evaluation of the system and identified certain actions done by the government that have accelerated up the process of criminal justice. According to the researcher, the current criminal justice system is inefficient and requires improvement. The scholar believes that police departments ought to be independent of state governments. Judicial proceedings must be made more affordable to the low-income group and government officials should alter the rules to make the complicated procedure simpler.



The researcher has also suggested that working hours of the courts and the number of working days should be increased.

**Manu S. R.** (2023) According to researchers, the Restorative Criminal Justice System (RCJS) is gained popularity worldwide as a substitute to conventional penal criminal justice systems. This research investigated the potential and obstacles for carrying out the RCJS in the Indian environment. The researcher also addressed experimental initiatives in India that have used restorative justice approaches and provided information on the outcomes and obstacles encountered. The study's key findings indicate that restorative justice can help to reduce recidivism, promote participation in the community, and satisfy the demands of perpetrators and victims. However, its implementation necessitates thorough evaluation of cultural, legal and administrative variables.

**Shivani Singh et. al.** (2024) studied India's diverse criminological landscape and criminal justice system. It investigated the progress of India's criminal justice system, from historic legal traditions to colonial impacts and post-independence advancements, using an interdisciplinary approach. The researcher found that significant work remains to be done to overcome the system's multiple challenges. India can pave the way for a more just, equitable, and humane criminal justice system that upholds the rule of law and protects the rights and well-being of all of its citizens by encouraging interdisciplinary collaboration, promoting research-driven policy reforms, and strengthening institutional capacities.

**Naman Jain (2021)** has highlighted the many layers of the Indian criminal justice system, as well as the faults that exist within it. Furthermore, the study discusses the numerous causes of crime as well as the various groups who are affected by it. Furthermore, the report outlines proposals and suggestions that might be implemented to address the existing gaps in the criminal justice system. that there are definitely serious human rights violations going place in the human rights system, but we have presented answers for the same, and perhaps they will be implemented in our country soon.

**Yangzee Pinasha, et. al.** () outlined the key components and challenges of criminal justice and rehabilitation in India. According to researchers, rehabilitation is a more thorough step toward societal reform and a necessary prerequisite for significantly lowering crime rates. The researcher looked into the psychological and philosophical components of the human brain in order to instil a sense of humiliation and repentance. The researcher conducted a comparative analysis of several cases from across the world in order to identify and offer methods that the Indian legal system could improve the field of criminal justice and rehabilitation.

### 3. OBJECTIVES OF THE STUDY

1. To study various components of Criminal Justice System in India.
2. To understand the various loopholes in the enforcement of Criminal Justice System in India.
3. To suggest various effective measures to reform the existing Criminal Justice System in India.

### 4. RESEARCH METHODOLOGY

The present research paper is based on the secondary data. The data has been collected from books, journals, international instruments, Law Commissions Reports, Report of Committee on Reforms of Criminal Justice System. The researcher has made extensive use of official and governmental papers, scholarly research articles, news stories, online resources and certain statutes and case laws. The goal of the study is to provide suggestion to improve the criminal justice system by analyzing previous research, court decisions, and case studies.

### 5. PROBLEM OF THE STUDY

India has an enormous backlog of cases, with over 40 million cases outstanding in various courts, as well as a lack of adequate courts, judges, and other personnel. Law enforcement agencies frequently lack the necessary resources and training to conduct fast and efficient investigations. Corruption among numerous enforcement organizations is a matter of concern. Politicians frequently have undue influence over investigations, prosecutions, and appointments. The police force is frequently understaffed and lacks adequate training in current investigative methods. Police use inappropriate force and custodial brutality, which weakens public trust. Witnesses are frequently intimidated or persuaded, resulting in tainted trials.

The society is partly to blame for the current degeneration of the criminal justice system, as victims, particularly in situations of sexual abuse, frequently experience stigma from society and intimidation throughout the legal procedure.

Due to above problems, need was felt to study the existing challenges criminal justice system is facing and to provide for suitable suggestion to improvise the existing system.



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**6. KEY ISSUES AFFECTING THE EFFECTIVENESS OF CRIMINAL JUSTICE SYSTEM.**

The existing criminal justice system in India faces various problems that jeopardize its effectiveness and impartiality. Here are the main issues:

- There is a significant backlog of cases. In India, there are only about 21 judges per million people, which is far lower than the recommended level.
- The police forces are overwhelmed and inefficient due to personnel shortages. Inadequate or no training on advanced detective tactics and cybercrime handling hinders efficient police.
- Corruption, favoritism, and political influence can affect the fairness of investigations and execution. Accountability procedures for the police and judiciary are frequently inadequate or inefficient.
- Legal assistance can be expensive and time-consuming, affecting economically vulnerable groups. Public legal aid programs are typically inadequate or poorly handled, keeping many people who are vulnerable unrepresented.
- Additionally, whistleblowers risk harassment and intimidation, which can impact trial outcomes. Victims of domestic and sexual violence may experience stigma from society and lack access to therapy and rehabilitation services.
- Women, Dalits, and minorities frequently endure systemic prejudice and bias in the criminal justice system. Fear of revenge, societal standards, and a lack of trust in the system all contribute to considerable underreporting of crimes.
- Undertrial inmates make up more than two-thirds of India's prison population, with many serving years without a judgement. Overcrowding, a lack of fundamental facilities, and inadequate medical care in prisons all contribute to serious human rights violations.
- Inadequate investigative and judicial processes are not keeping up with the rapid increase of cybercrime.
- Old colonial-era laws do not address new age crimes such as cybercrime and financial fraud. Although progressive laws (e.g., against sexual harassment, domestic violence, and surrogacy) are there, execution is sometimes weak.
- Pressure from politicians additionally affects police investigations and prosecution choices.
- The lack of openness in nominations of judges and transfers raises questions about impartiality.
- Low rate of conviction can be attributed to insufficient evidence collecting and weak prosecution cases. Prolonged trials can lead to hostile witnesses and diluted evidence.
- The system prioritizes punitive measures over rehabilitation and reintegration of criminals. Released inmates frequently endure stigma and receive little support for reintegration into society.
- International cooperation, which is frequently sluggish and bureaucratic, is necessary to address problems like terrorist activity drug smuggling, and human trafficking.

Crimes with crossborder ramifications are sometimes outside the scope of current legislation.

**7. STRATEGIES FOR REFORMATION**

Improving the criminal justice system in India requires comprehensive reforms addressing its structural, procedural, and operational challenges. Here are key suggestions

- i. It is necessary to create additional fast-track courts and increase the total number of judges in regular Courts. To lessen the load on courts digitization of the legal system should be done, also encouraging the use of alternative dispute resolution (ADR) procedures for civil, family, and petty criminal conflicts will help in effective delivery of justice.
- ii. Steps should be taken to strengthen the police force by giving cybersecurity management training, training on understanding investigation methodologies. Creating an impartial organizations to look into complaint of abuse by police or violence against inmates will also help to improve criminal justice system.
- iii. It is now important to increase and improve the availability of free legal help to disadvantaged populations. Informing the public about their rights and the availability of legal aid services is crucial in this regard.



- iv. The laws protecting weaker section of the society are to be adequately implemented and impose harsher punishments for repeat offenders.
- v. Establishing centralized databases for case proceedings, court rulings, and criminal records and Applying AI to case monitoring, crime pattern analysis will also help in effective delivery of criminal justice.
- vi. The Government must establish specialized departments to deal with the growing number of cyber frauds, data breaches, and online harassment incidents. It is also necessary to clearly define the procedures for gathering, storing, and presenting digital evidence in court.
- vii. Community service or probation must be considered as good alternative to imprisonment so that burden on jail can be reduced.
- viii. Assuring proper medical services to the prisoners, respecting their basic human rights, and skill-development initiatives for prisoners will also be helpful in achieving effective justice system. More focus should be given on rehabilitation and helping released inmates to reintegrate into the community, offer them education, job counseling, and psychological treatment are some of the ways of improving criminal justice system.

## **CONCLUSION**

Thus the Criminal Justice system is built on four primary pillars: investigation by police, prosecution of cases by prosecutors, determination of guilt by courts, and correction.

The effective administration of criminal justice requires adequate orientation at all levels and the coordinated operation of the four agencies participating in this process, namely the police, criminal courts, prisons, and correctional administration.

A comprehensive implementation of these reforms will enhance confidence in the public and the administration of justice in India in addition to increasing the effectiveness of the system of criminal justice.

Encouraging citizens to be informed of their rights and the legal system will definitely help in improvement of Criminal Justice System.

With changing times and advancements in thought, now stage has come where there is an urgent need to introduce revisions and new approaches for executing and providing people with the justice they deserve.

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**IMPACT OF ORGANISATIONAL CULTURE ON EMPLOYEE'S PRODUCTIVITY: AN EMPIRICAL INVESTIGATION**

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**ABSTRACT**

*This study explores the relationship between risk-taking behaviour, teamwork, and employee performance in organizations. The main objectives were to examine how risk-taking influences productivity and to assess the role of teamwork in improving employee performance. The total sample taken was 53 respondents in which non-probability sampling technique (convenience sampling) was used. The analysis revealed that risk-taking behaviour had no significant impact on employee performance, as indicated by a very weak and statistically insignificant correlation. In contrast, teamwork was found to have a modest but statistically significant positive effect on performance, suggesting that collaborative efforts among employees can enhance overall productivity. The impact of teamwork on performance was relatively modest, suggesting that future research could explore additional factors such as leadership style, employee engagement, and employee motivation to provide a more comprehensive understanding of performance drivers.*

**Keywords:** Employee Performance, Risk-Taking Behaviour, Teamwork, Organizational Culture, Productivity

**INTRODUCTION**

An organization, such as a business, institution, or association, is a collection of people working towards a common goal. Businesses, non-profit governmental organizations, and educational institutions are just a few of the different shapes it can take. Organizations operate according to a clear purpose, mission, or vision. To make cooperation and decision-making easier, they set up roles, duties, and hierarchies. Members of an organization operate in several departments or units and have assigned jobs. An organization's structure and operations are determined by its goals and surroundings. The collaborative efforts and contributions of workers at all organizational levels to carry out their designated responsibilities and support the general operation and prosperity of the company are referred to as organizational work. A wide range of activities are involved, such as carrying out designated tasks and assignments, cooperating and working in groups to accomplish common objectives, making well-informed decisions and resolving issues, communicating effectively both internally and externally, taking part in planning and goal setting, keeping track and assessing progress, participating in ongoing learning and development, and managing relationships with stakeholders. For an organization to be productive and successful overall, organizational activities must be executed well.

Employee motivation results in higher levels of productivity. Furthermore, a favorable work atmosphere has been found to be a key component in lowering absenteeism rates, which eventually boosts worker productivity. Other academics, however, have looked more closely at this issue and have concluded that implementing a workplace environment plan is essential to achieving favorable effects on staff productivity. This approach includes the proper use of machine design, environment and facility design, and task design. Ineffective management of these elements inside a company can have detrimental effects on workers' productivity as well as their well-being, way of life, and work-life balance.

**OBJECTIVES:**

1. To examine the influence of risk-taking behaviour on employee's performance.
2. To assess the impact of teamwork on employee's performance.

**REVIEW OF LITERATURE**

According to **Rama J. Joshi (2001)**, a high-performance culture in an organization can be fostered through the interaction between the organization's characteristics and those of the individuals and groups within it. Key organizational and managerial practices such as teamwork, trust, leadership, communication, rewards, and cooperation among different groups play a crucial role in developing positive attitudes and commitment. These factors are likely to have a positive impact on both performance and productivity.

**Borman (2004)** asserts that employee productivity is the most important component of organizational psychology and that it must be continuously tracked and improved by utilizing contemporary techniques and resources. In the upcoming period of increased competition, an organization's capacity to draw in and keep highly skilled employees will determine whether it succeeds or fails. As a result, the office environment has become even more important since it is now seen as a tool that helps businesses build and maintain a solid corporate culture while successfully winning over the hearts and minds of their workforce.



The study by **Dr. Melletus Uchechukwu Agbo and Meruo Emmanuel Okeoma (2020)** reveals that organizational culture significantly impacts employee productivity, which in turn drives better performance and profitability. The study also recommended that management should implement security measures to safeguard the interests of the organization.

The analysis conducted by **Temiloluwa Olakunle (2021)** highlights a positive link between company culture and performance, indicating that employees who are content in their work environment are likely to deliver better results. Key factors such as leadership style, communication, and employee engagement were identified as potential influencers of this relationship. These findings hold valuable insights for business owners and managers aiming to create a more productive and efficient workplace.

**Dr. G. Srilakshmi and K Archana (2024)** suggest that organizations should place greater emphasis on fostering a culture of risk-taking and maintaining a flexible organizational structure. By integrating these two elements into their culture, organizations can enhance employee performance, ultimately driving the overall success of the organization.

### RESEARCH METHODOLOGY

The research adopted a quantitative research design, aiming to analyze the relationship between organizational culture and employee productivity. The variables taken was risk taking and teamwork to understand the influence on employee productivity. The target population was employees working in organizations across industries. The total sample taken was 53 respondents in which non-probability sampling technique – (convenience sampling) was done. A structured questionnaire was developed to gather data on employees' perceptions of organizational culture (e.g., risk taking, teamwork) and their self-reported productivity levels. Statistical techniques such as Annova and Regression analysis was used to analyze the relationship between organizational culture and productivity.

### DATA ANALYSIS AND RESULTS:

**Table 1: Demographic details**

Category	Subcategory	Frequency	Percent (%)
<b>Gender</b>	Female	18	34.0
	Male	35	66.0
	<b>Total</b>	<b>53</b>	<b>100.0</b>
<b>Age (in years)</b>	20-30	1	1.9
	31-40	29	54.7
	41-50	19	35.8
	51 and above	4	7.5
	<b>Total</b>	<b>53</b>	<b>100.0</b>
<b>Monthly Income</b>	25000-50000	4	7.5
	Above 50000	47	88.7
	Less than 25000	2	3.8
	<b>Total</b>	<b>53</b>	<b>100.0</b>
<b>Job Position</b>	Executive	4	7.5
	Management staff	21	39.6
	Others	5	9.4
	Para-professional	1	1.9
	Professional	22	41.5
	<b>Total</b>	<b>53</b>	<b>100.0</b>
<b>Years in Organization</b>	1-5 years	13	24.5
	6-10 years	11	20.8
	More than 10 years	29	54.7
	<b>Total</b>	<b>53</b>	<b>100.0</b>
<b>Educational Qualification</b>	Bachelor's Degree	16	30.2
	High School Diploma	1	1.9
	Master's Degree	33	62.3
	Master's Degree or Higher	1	1.9
	Others	2	3.8
	<b>Total</b>	<b>53</b>	<b>100.0</b>



**Gender:** Among 53 respondents, 34% were female, and 66% were male.

**Age:** Most respondents were aged 31–40 years (54.7%), followed by 41–50 years (35.8%), while only 1.9% were aged 20–30.

**Monthly Income:** A significant majority (88.7%) reported a monthly income above ₹50,000, while 7.5% earned ₹25,000–₹50,000, and 3.8% earned less than ₹25,000.

**Job Position:** Most respondents (41.5%) were professionals, followed by management staff (39.6%), with the rest in executive, para-professional, or other roles.

**Tenure in the Organization:** Over half (54.7%) had been in their organization for more than 10 years, while 24.5% had worked for 1–5 years, and 20.8% for 6–10 years.

**Educational Qualification:** Most respondents held a master's degree (62.3%), with others having bachelor's degrees (30.2%) or other qualifications.

### Hypothesis:

**H1-** Employee performance improves when employees take more risks, suggesting a positive link between risk-taking and productivity.

**Table 2:** Regression analysis

Category	Details	Value
<b>Model Summary</b>	R	0.002
	R Square	0.000
	Adjusted R Square	-0.020
<b>ANOVA</b>	Std. Error of the Estimate	4.556
	Regression Sum of Squares (SS)	0.004
	Residual Sum of Squares (SS)	1058.713
	Total Sum of Squares (SS)	1058.717
	Degrees of Freedom (df) - Regression	1
	Degrees of Freedom (df) - Residual	51
	Mean Square - Regression	0.004
	Mean Square - Residual	20.759
	F-Statistic	0.000
	Significance (p-value)	0.990
<b>Coefficients</b>	Constant (B)	25.237
	Standard Error of Constant	2.332
	t-value (Constant)	10.822
	p-value (Constant)	0.000
	Risk-taking (B)	-0.008
	Standard Error of Risk-taking	0.627
	Beta (Standardized Coefficients)	-0.002
	t-value (Risk-taking)	-0.013
	p-value (Risk-taking)	0.990

The analysis reveals that risk-taking has an extremely weak and statistically insignificant correlation with employee performance. The R value of 0.002 and R Square value of 0.000 indicate that risk-taking does not explain any variance in performance. The negative Adjusted R Square of -0.020 suggests that including risk-taking reduces the model's explanatory power. ANOVA results show that the regression model is not significant ( $F = 0.000$ ,  $p = 0.990$ ), indicating that risk-taking does not meaningfully predict employee performance. The coefficients table further confirms this, with the risk-taking coefficient of -0.008 ( $p = 0.990$ ) and a Beta of -0.002, both indicating no substantial impact on employee performance.

**H2-** Employees who work more closely with their teams tend to perform better, indicating that stronger teamwork leads to higher productivity

**Table 3:** Regression Analysis

Category	Details	Value
<b>Model Summary</b>	R	0.264
	R Square	0.070



	Adjusted R Square	0.052
	Std. Error of the Estimate	4.394
<b>ANOVA</b>	Regression Sum of Squares (SS)	73.929
	Residual Sum of Squares (SS)	984.788
	Total Sum of Squares (SS)	1058.717
	Degrees of Freedom (df) - Regression	1
	Degrees of Freedom (df) - Residual	51
	Mean Square - Regression	73.929
	Mean Square - Residual	19.310
	F-Statistic	3.829
	Significance (p-value)	0.050
<b>Coefficients</b>	Constant (B)	20.768
	Standard Error of Constant	2.348
	t-value (Constant)	8.846
	p-value (Constant)	0.000
	Teamwork (B)	1.279
	Standard Error of Teamwork	0.654
	Beta (Standardized Coefficients)	0.264
	t-value (Teamwork)	1.957
	p-value (Teamwork)	0.050

#### Dependent Variable: Employee Performance

The analysis reveals a weak positive correlation between teamwork and employee performance, with an R value of 0.264. Teamwork explains only 7% of the variance in performance, as indicated by the R Square value of 0.070. The regression model is statistically significant ( $p = 0.050$ ), suggesting that teamwork has limited but positive impact on performance. The coefficient for teamwork ( $B = 1.279$ ) indicates that each unit increase in teamwork leads to a 1.279 unit increase in performance. However, the weak contribution of teamwork to performance suggests that other factors may also significantly influence employee performance. In the discussion, emphasize that while teamwork shows a significant positive impact on employee

#### LIMITATIONS OF THE RESEARCH

1. The study involved a sample of 53 respondents, which may not be large enough to generalize the findings to the broader population.
2. The study focused primarily on risk-taking behaviour and teamwork as predictors of employee performance. However, other factors, such as leadership style, organizational culture, job satisfaction, and individual employee traits (e.g., personality, motivation), were not considered.
3. The study relied on self-reported responses from employees, which can introduce bias.

#### DISCUSSION

The analysis's findings provide crucial new information about the connections among employee performance, teamwork, and risk-taking. The results indicate that risk-taking has no discernible or substantial effect on worker performance. According to the analysis, taking risks does not significantly predict performance and does not account for any discernible difference in performance results. Despite being a variable, risk-taking did not enhance the model or offer insightful predictions, indicating that other factors may have a bigger impact on worker performance.

On the other hand, although a small one, teamwork was found to positively correlate with employee performance. The statistical significance of teamwork suggests that while it does contribute to improved performance, its impact is modest. The findings imply that although cooperation is crucial, employee performance can be influenced by a variety of circumstances. Although the benefits of teamwork indicate that encouraging cooperation and collaboration can improve performance, the effects are not overpowering. It suggests that performance may also be greatly impacted by additional elements, such as leadership, corporate culture, and individual employee traits.

#### CONCLUSION

The study concludes that although teamwork improves employee performance, its impact is limited and should be weighed against other productivity-influencing factors. However, in this situation, taking risks doesn't seem to have a big effect on worker performance. While promoting teamwork might help organizations perform



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better, they should also look into and solve other variables that might have a more direct or stronger impact on productivity. To give a more thorough knowledge of the elements influencing employee performance, future studies could concentrate on additional variables like leadership, job happiness, or employee motivation.

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**AN OVERVIEW OF GENDER-BASED VIOLENCE, LEGAL RECOGNITION AND LIVED REALITIES: A GENDERED PERSPECTIVE ON EQUALITY**

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*Gender-based violence is a widespread societal issue that transcends geographical, cultural, and economic boundaries, disproportionately affecting women and marginalized gender groups. This paper provides a comprehensive overview of gender-based violence, focusing on its prevalence, legal recognition, and the lived experiences of survivors, examined through a gendered lens. Despite advancements in legal frameworks and international commitments, significant gaps remain between legal provisions and the realities faced by those impacted by gender-based violence.*

*Gender-based violence can be physical, sexual, psychological, and economic violence that emerges from unequal power dynamics and systemic discrimination. It explores the intersectionality of gender-based violence, showing how race, class, sexual orientation, and socio-economic status exacerbate vulnerabilities. Legal responses to this kind of violence, while increasingly robust, often suffer from inadequate enforcement, cultural resistance, and institutional bias, which undermine access to justice. Laws and policies frequently emphasize formal equality but fail to address the lived experiences and complex realities of survivors, creating a disconnect between legal ideals and ground-level outcomes.*

*Further, this article highlights the voices of survivors, revealing the psychological, social, and economic consequences of gender-based violence and the barriers they face in seeking justice and support. Survivors often encounter victim-blaming, stigmatization, and systemic hurdles within legal and healthcare systems, which perpetuate cycles of violence and marginalization. Drawing on a gendered perspective, the article underscores the need for transformative approaches to tackling gender-based violence. It advocates for survivor-centered policies, gender-sensitive legal systems, and community-based interventions that challenge patriarchal norms and foster cultural change. Additionally, it emphasizes the importance of education, awareness, and robust support structures to empower survivors and prevent future violence.*

*Ultimately, the article calls for bridging the gap between legal recognition and lived realities through inclusive, intersectional, and practical strategies. By addressing gender-based violence as a critical barrier to gender equality, it reaffirms the need for sustained efforts to create a just, equitable society where all individuals can live free from violence and discrimination.*

**Keywords:** Gender-based violence, inequality, discrimination, power dynamics, legal framework.

**INTRODUCTION**

Owing to the spread of education, today's society has become dynamic, developed, well-educated, informed, and modern. The ratio of educated men and women is almost the same, with women performing much better than men. Women have entered into all aspects of employment, whether it is civil services, defence, science and technology, finance and banking, law and judiciary, educational fields right from primary to higher education, industry, all forms of agriculture, and independent businesses. They are working hand in hand with men, shouldering responsibilities of both workplace and family efficiently. With the ever-expanding horizon of growth for women, on a regular basis are also exposed to various forms of violence - harassments, cruelty, torture, and exploitation, be it at their homes, workplaces or public places.

However, the rapid growth and development has led to society expanding gradually. The ever-expanding society, has emerged into different strata's, depending on an individual's social orientation, educational qualification, income, ethnicity etc. to cite a few. The wave of westernisation has influenced the mindset of the young generation and moulded traditional values and norms. Gender-based violence has prevailed to be omnipresent despite the spread of education and women entering the workforce. It has been observed by social scientists that the patriarchal mindset of society is the deep-rooted cause of gender-based violence against women and gender minorities. There is a prevailing culture of threat from the masculine gender to women's safety which perpetuates rape and sexual violence that have always been trivialised. The article examines the root causes of gender-based violence.

Tracing back to the historical context, the fight against gender oppression can be connected to India's Freedom Movement, where we come across numerous feminine leaders who came out to help the male leaders fight for



India's independence, to shatter the societal barriers obstructing their growth and to give them recognition as human beings who are deprived of their basic rights.

Internationally, 1975 is recognised as the International Women's Year, for recognising women's rights. In the last decade, there have been legal reforms and amendments to counter the crimes against women and gender minorities. Still, no laws have been enacted against marital rape and the perpetrators enjoy impunity. Technology and globalization's role cannot be denied in exacerbating this violence, which urges us to recognize intersectionality in experiences of violence.

Considering the current status of women's movement in India, specifically regarding sexual violence, the movement had its genesis in the Mathura rape case of 1980. This case witnessed public outrage leading to demands for stringent rape laws. This case also led to the beginning of significant reforms in criminal law, including the Criminal Law (Amendment) Act of 2013.

The widespread issues of domestic violence where there is child domestic abuse and child sexual abuse. The common factor in these crimes, is that the perpetrators are persons familiar or known to the victims. This leads to complications in the reporting process, where the matters are kept within closed doors and justice denied to the innocent souls. The instances of female infanticide cannot be denied, despite society becoming educated, the crime continues, that stresses on the need for societal awareness and strict implementation of legal mechanisms.

Another increasing form of gender-based violence is sexual harassment in the workplace, which narrates a different attribute to gender-based violence. Tracing the historical context to the case of Bhanwari Devi, it can be emphasised that masculine ego power dynamics play a role more than sexual desire. In 1997 the landmark Vishaka judgment evolved the definition of "workplace" and established structured grievance redressal mechanisms.

Owing to the growing population, the focus should be on nurturing and empowering adolescent girls. Domestic violence is prevalent in every sphere of society, culminates in child marriage for adolescent girls. The need is to emphasize preventive measures. The vulnerabilities faced by adolescent girls need to be recognised and intervened with support at an early age. Both adolescent boys and girls are required to be presented with opportunities to understand their gender roles and define them.

The often-overlooked forms of violence against women, particularly in the context of prenatal sex determination and sex-selective abortion in India can be explored considering the Prenatal Diagnostic Techniques (PNDT) Act, 1994 and the Preconception and Prenatal Diagnostic Techniques (PCPNDT) Act, 1994. These laws, intended to regulate reproductive procedures, have faced challenges while enforcing and promoting deterrence for sex-selection practices. These practices harnessed as these were not regarded as violence against women but rather medical procedures whose roots were deeply rooted in the society.

Acid Attacks are a form of violence that brings forth the male-dominated roots of society based on discrimination and inequality. In India, acids are easily accessible due to weak restrictions from the legal machinery and administration.

There are rapidly increasing instances of violence against the queer community. These violations start at home when the identities of these individuals come to the forefront. The acceptance factor triggers violence at the domestic level. The first instance of violence takes place in the form of rejection, where force is used to suppress their identities.

There is an urgent need to address the grave violation of human rights in the form of human trafficking. It is a highly prevalent and complex practice engraved within the socio-economic frames of society such as poverty, stigma, discrimination and family orientations. These driving forces render women, especially adolescent girls vulnerable. The various forms of violence can be examined through the cross-sections of factors such as gender, age, and socio-economic factors that come together to compound gender-based violence.

The critical issue of child sexual abuse remained dormant and within closed walls until the enactment of the Protection of Children from Sexual Offences (POCSO) Act in 2012, the highlights of the Act which could break the silence are the victim-centred features, making the victim address the violence from a comfortable space and holding of private trials.

The expanse of gender-based violence is vast; the above are a few widely spread forms of gender-based violence. The laws have been there, but implementing those rules and regulations is a task for the administration and law-implementing authority.



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**EXPLORING THE PERCEPTIONS AND ASCERTAINING THE GAPS:**

The recent horrific incidents of rape and murder of a medical intern in a reputed Medical College of Kolkata and that of a four-year-old girlchild have brought before us the present-day transcendental crisis faced by women and other gender minorities. The patriarchal mindset normalises this violence and shrugs away from shouldering any responsibility. The women are always blamed for being unable to protect themselves, for provoking men with their dressings, for going out late at night etc. This behaviour has contributed to the prevalence of sexually abusive culture within the society.

**A. Historical backdrop:**

The fight against gender-based violence can be traced to India's freedom movement, where the freedom sought was not only from the British Colonial rule but also from the social injustices and discriminations that were highly prevalent. The women's movement reached its milestone in the 1970s when the issues concerning gender-based violence reached the forefront in both national and international spheres. From then onwards the international platforms together with addressing concerns over equality, development, and peace started acknowledging the crimes against the vulnerable sections of society and sought preventive measures to combat the evil menace.

Factual assertions of the origin of the women's movement against sexual violence can be found in *Tukaram and another Vs. State of Maharashtra*, popularly known as the Mathura rape case in 1980. In this case, the focal point was the girl's character, which was questioned by the lower court up to the Supreme Court. The girl, who was a minor, from the marginalised community could not get justice despite numerous movements and protests by the women's groups all over the country.

It can be observed that over the decades, progressive laws and amendments came into the legal framework to address crimes such as rape, dowry deaths of newly wedded brides, and child marriage prohibition laws. These legislative enactments were due to the consistent advocacy by women's organisations.

**B. Legal recognition and the contemporary Criminal Justice System:**

The most underreported and pressing issue in India is domestic violence, affecting women from all walks of life. This violence happens within the four walls of a household and remains associated with a lot of social stigma and fear of societal pressures. The victims often keep themselves tight-lipped, enduring abuse and abusive relations day after day. It is usually found that the elders force the victims not to make any disclosure of the incidents, instilling fear-driven pressure on them that they have the responsibility to keep the family together. The Protection of Women from Domestic Violence Act (PWDVA) 2005 was a landmark achievement in tackling gender-based violence. Both the civil and criminal aspect of violence was approached. Ensuring that access to legal remedies is provided through the right to shelter, maintenance, and protection orders. The Protection Officers had to undergo training to assist the victims of domestic violence. There is a need to intervene in the matter of the social support systems in the early stages of this kind of violence. The women facing such violence have to take appropriate legal steps to ensure their protection and shelter.

The public outrage after the Nirbhaya case in 2012 culminated in the enactment of the Criminal Law Amendment Act of 2013, making the laws stringent. The Act broadened the definition of sexual assault, and fast trials with harsh punishments were provided for offenders. The rise of child sexual abuse was addressed by the Protection of Children from Sexual Offences Act (POCSO) 2012. This Act provides a comprehensive legal framework to address child sexual abuse, where it has been found that the majority of crimes involve people known to the victim. The Act comprehends the need to handle these sensitive cases in a child-friendly environment. The lack of a support system, societal stigma, and ostracization remains the major challenges that the survivors face in silence, the stigma of society instilling fear in their tender minds.

There is often a myth that perpetrators of rape are strangers. However, the stark reality is that rape is committed by known people, making it difficult to report the crime perpetrated. The victim is under pressure not to report the crime, in fear of disrupting family and social relationships. This leads to the underreporting of this violence, making it hard for the victim to get justice.

Although progress has been made, still there are various issues which remain unaddressed. The menace of marital rape has always been neglected and it is assumed that within a marital relationship, there is no need for consent, this sets up the triggers for violence within closed doors. It has been observed that the perpetrators of this violence are left scot-free due to power forces or they enjoy immunity that shields them away from prosecution.



Today's women work equally with men in all aspects of employment, making them spend a good amount of time with their male counterparts. There has been a rise in sexual harassment in the workplace, in sectors where women are less aware of their rights or have no access to report abuses and are becoming victims. The Supreme Court in 1997, by the Vishaka Guidelines, laid down the procedure for dealing with sexual harassment in the workplace. These later culminated in the enactment of the Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013. The Act emphasises the need for every workplace to establish an Internal Complaints Committee to address issues of this kind of violence. The Act also stresses the need to create greater awareness amongst women for a safe working environment and an atmosphere where women should feel safe to report harassment without fear of retaliation.

An age-old discrimination about the birth of a male child touches on the violence of female infanticide and modern-day sex-selective abortions, creating a disproportionate sex ratio in the country. The sex determination tests were made illegal with the coming into force of the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act of 1994. However, the practice continues in small towns, mofussil and rural areas. The most discouraging fact regarding this crime is that even with people becoming educated, the preference for male children continues to dominate Indian society.

### **C. Role of Technology and Globalization in Exaggerating Violence:**

Today, gender-based violence is not restricted to physical or mental cruelty, rather with the advent of technology and social media, there have been widespread instances of digital violence. This violence occurs in the form of cyber-bullying, online stalking, pornography, hate videos etc. The perpetrators target victims from far away places. The violence is done anonymously and it is done to damage the mental sanctity of an individual.

The globalised economy of contemporary times has rendered women as commodities. Women are glorified with beauty standards and figure statistics in industries like fashion, entertainment and advertising. The ones who fail to meet the standard are body-shamed and the violence is so enormous that the individual loses one's identity and becomes a mental wreck.

### **D. Gender Justice across the sections of the society:**

There is violence through the intersection of society where women from vulnerable and marginalised communities are the target victims. Among the sections, there are individuals from the LGBTQ community, adolescents and young children. The violence against them arises due to various socio-economic factors prevailing within the society. The landmark enactment of Transgender Persons (Protection of Rights) Act of 2019 is a progressive step towards recognizing the rights of these individuals. However, the process of gender-recognition mentioned in the Act, violates an individual's right to privacy as enumerated under Article 21 of the Constitution.

The digitalisation of almost every aspect of governance has brought a transformation in combating gender-based violence. Today there are digital websites to address and also provide support to the victims of violence. Some movements provide platforms where the survivors of this violence come out to share their stories of harassment and abuse. The perpetrators of this violence are challenged which disturbs their power structure, creating new vulnerabilities.

The significant gaps in implementation and societal attitudes that often trivialise harassment, contribute to a culture of silence. The implementation of legal mechanisms can only be attributed to a cultural change.

### **SUGGESTIONS AND RECOMMENDATIONS:**

Gender justice can be achieved with a comprehensive shift in societal attitudes, legal frameworks, and institutional mechanisms that protect victims rather than the perpetrators of violence. Education, stronger institutional mechanisms, and collective action are essential steps toward eradicating gender-based violence. The ongoing challenges in implementation are a low conviction rate and persistent societal stigma against survivors. Timely delivery of justice for victims remains a tremendous challenge. These aspects perpetuating inequality have to be addressed in the global structure. This calls for a multi-faceted approach combining legal reforms, social change, and institutional support to effectively combat gender-based violence and ensure justice for all survivors.

The transformative power of women's collectives in addressing domestic violence, sharing personal experiences, and successful grassroots movements in India have amplified voices, likening the fight against gender-based violence to another struggle for freedom, dignity and equality. This has made societal transformation possible.



There should be active advocacy and solidarity among individuals to challenge the power imbalances, emphasising the need for legal and equitable shifts to create a safe and inclusive environment at the workplace for all. Social media has to be vigilant in implementing stricter rules and regulations to prevent cyberbullying and harassment, emphasizing the need for a comprehensive legal framework to address online violence.

Stronger regulations on the availability of acid and a shift in societal mindset towards misogyny are the need to combat acid attacks on innocent victims who are unaware of the consequences. The root causes of the crime have to be approached, fostering an atmosphere of a safe and equitable society.

The violence against queer individuals starts at the domestic level when the family disagrees to accept the sexual orientation of a queer individual. The forcible practice of denying the identity equates to violence. There are vulnerabilities faced by female-oriented queer individuals are high due to oppressive familial environments. The lack of inclusivity in society is heightened when queer individuals face a lack of safe spaces in educational institutions, workplaces and public domains. These highlight the systematic failures often perpetuating violence against queer individuals. Increased awareness of rights and comprehensive policy reforms are required to create safer, more inclusive environments, ultimately advocating for a society that values and respects all gender identities.

The proper way to head-on address gender-based violence is to intervene at an early stage. The children need to be provided with ample opportunities to nurture their potential and redefine gender roles. Awareness camps to engage the community by educating them to address social issues, mobile libraries, resource centres for girls, and youth empowerment programs should be led by community organisations. Youths should be encouraged to participate in making sustainable changes to confront the prevailing systemic inequalities. The role of science and technology cannot be denied. The intersection of medical sciences, technological advancements and gender inequality with a comprehensive approach can consider the unproportionate gender parity. These measures are beyond the legal mechanisms, but crucial for achieving change in attitude of the society and thereby combating gender-based violence.

### **CONCLUSION:**

It can be emphasised that while significant progress has been made against sexual violence and domestic abuse, much remains to be done. The legal reforms have played an important role, but social and cultural attitudes that perpetuate violence against women are deeply entrenched and resistant to change. The women's movement calls for greater vigilance from both the legal system and society as a whole; the movement must continue to keep pushing for justice and equality for all survivors of gender-based violence. The multi-pronged approach involving legal reforms, social change, and institutional support systems to protect and empower women is of prime importance. The struggle for justice cannot be achieved with a few gender-supportive judgements from the Apex Court, rather it is a continuous fight to pursue relentlessly to ensure a safe, just society for future generations of women and other minor communities.

The impact of gender-based violence is severe on the survivors, families and communities. It manifests in emotional, physical, sexual, psychological and economic forms. Psychological consequences, such as depression and anxiety, are completely rejected by immediate family. The acceptance of often overlooked effects on children who witness violence leads to complex psychological issues and premature adult responsibilities. There has to be holistic support for survivors which includes mental health services, shelter and legal aid, sensitivity in service delivery, community-based support, local authority engagement, preventive programs for all, healing approaches through meditation and proper exercise schedules, all of these aiming at addressing gender-based violence with sustainable change.

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- Protection of Women from Domestic Violence Act (PWDVA), 2005.
- Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013
- Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act of 1994



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**THE ROLE OF LITERATURE IN SOCIAL MOVEMENTS OF INDIA**

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**ABSTRACT:**

*Various social movements in India had a deep impact of literature, which amplified and strengthened them to not only survive but thrive in all circumstances. Whether it was the war of Independence against British Rule, or some Tribal or Dalit Movement, or it was a desperate effort to protect the environment, literature has always tried to keep the spirit of agitators alive.*

*Agitations take place through muscle power, then why the weapon of intellectual i.e. literature has been of prime importance for these movements? Because humans feel more motivated through poetry, slogans, essays, articles and stories. So much so that in the modern era, when long write-ups have become concise, and social media has made writing very short and brief, literature is still playing a dominant role.*

*For example, X, with just the limit of 280 characters per message (for free accounts), is still affecting millions and millions of people every day. So, literature had been an important stimulator for movements, it still is, and it is not going anywhere in near future, at least.*

*This research paper is a survey of how literature played a poignant role in augmenting some movements of India.*

**Keywords:** *Literature, Freedom Struggle, Tribals, Dalit Movements, Environmental protection, social media.*

**INTRODUCTION**

India has always been a vibrant country where different social movements have kept the flame of freedom of expression burning. Even during the colonial era, we see that Indian writers and poets have strived to keep the spirit of freedom alive, though they had to pay a very hefty price for it. For example, we see Ram Prasad Bismil humming these lines that reverberated through the bloodlines of freedom fighters during the freedom struggle:

Sarfaroshi ki tamanna ab humaredil me hai

Dekhnahaizorkitnabaazoo e Qatil me hai

(Our hearts are teeming with a desire to sacrifice our life.

Let us see how high-spirited our murderers are?)

At one hand, they were wielding their swords against the British Raj in India, on the other hand there were many who were trying to persuade the British rules to relinquish their claim over Indian territory. The Indian National Congress which was founded seventy-two Indian Delegates in Bombay in 1885 was one such movement. Marshal P.J. says, "The first modern nationalist movement to arise in the non-European empire, and one that became an inspiration for many others, was the Indian Congress." (1)

Such movements watered the plant of literature in India. When we talk about literature in Indian context, it is not one language or dialect. As India is a bouquet of hundreds of languages it is difficult to define literature as one language. During the Mughal era Persian was their official language. After the mutiny of 1857, Britishers put an end to Persian and Urdu and later Hindi came to the center stage of languages. Describing this game of thrones of these Indian languages, the authors Dalby Andrew says,

"In the government of northern India Persian ruled. Under the British Raj, Persian eventually declined, but, the administration remaining largely Muslim, the role of Persian was taken not by Hindi but by Urdu, known to the British as Hindustani. It was only as the Hindu majority in India began to assert itself that Hindi came into its own." (2)

But either was Hindi or Urdu or any other language, the literature of these languages, despite all the efforts of the British to divide and rule, kept uniting Indians for one mission: freedom. The slogans like Inquilab Zindabad resonated along each street which resulted in the ouster of British from India in 1947. Indians won freedom, though literature was not much appreciated, but it was the unsung hero which played a very prominent role in our freedom struggle.



Though the freedom struggle against the British was one of the most prominent social movements that India had seen, surely, it was not the last one. Rather, it was the harbinger of a plethora of other movements that echoed throughout India during the post-independence era as well. And during all these movements, literature has been playing its role successfully and effectively. Because literature has always been the source of inspiration for these movements. Literature has supplemented the fuel for the fighters for various causes. Literature has helped the agitators to express their grief, make an appeal to the masses and inspire strugglers to strive, and to create a win-win situation for their cause. Writers penned their thoughts and poets hummed their songs; in toto every literary artist tried to paint their plight in a perfect manner. How much they succeeded, let history decide it. But they tried to use literature as a tool to support their cause is the cherry on the cake.

Apart from freedom movement, let us glance through some other risings that received tremendous help and support from literature.

**Tribal Movements:**

Tribals have always been an important part of the Indian population. Though often neglected and outcast, this community has always been on the receiving end. Various governments came and disappeared in the fog of time, they promised to change their lives, but to no avail. This is why there were times Tribals resorted to agitate, complain and grumble. Either it was the Rampa Revolt, the Tanabhat/Oraon Movement, or the Chenchu Tribal Movement, literature kept playing the role of an unsung hero somewhere in the backdrop of all these agitations.

Though Tribals have been mostly illiterate themselves, their sympathizers have highlighted the agony of this suffering through literature. Subha Rao in 'The Tribal way of Life', Venkatesh Bhaiyya in "A Day in the Life of a Tribal", and a score of other writers and poets have been inking the sagas of what Tribals have to go through in a very heart-touching manner. The most important among them is Mahasweta Devi.

Especially, in the post-independence era, literature has amplified the voices of Tribals and attracted global attention towards their plights. Among all those who wrote to defend the Tribals, Mahasweta Devi is a prominent name. She was the lady with guts to say that:

"The Tribals have been fighting against injustice for centuries, and their stories are a testament to their resilience". (2)

Ironically, our country is proud to proclaim that we have a President who represents the Tribals of our country. Despite this, the life of many other Tribals needs an uplift which they have desired and deserve for decades, but which is still a distant dream for them.

**Impact of Literature on Dalit Movements:**

In the pre-independence era, writers like Munshi Premchand were sweating to raise the concerns of the downtrodden; especially, those who were reeling under the yoke of caste system. But hard times create hard working men. Thus we see writers like Omprakash Valmiki touching the hearts of readers with the masterpiece like *Joothan* (1997); the biography of a man who had seen discrimination at school, college and everywhere else. *Joothan* is not only the sad swan song of a disheartened man, in the larger context it is truly, as described by, Surekha Elavala:

*Joothan* is a milestone in Dalit literature. (3)

*Joothan* is just an example, otherwise the entire Dalit Literature has served as a medium of resistance against tyranny of every kind and has provided each oppressed man and woman to raise his/her voice. Dalit writers have used their voices to expose the caste hierarchies and the marginalization they had to face for centuries. They have left no stone unturned in telling the world how untouchability leaves a whole community broken and how resilience and grit can change the scenario. Literature has proved a weapon for the demand of equality for these communities in India. As Arjun Dangle, in the introduction to his famous book 'Poisoned Bread' writes:

"Dalit writers began to realize more and more that there was no point in merely writing provocative poetry against injustice. The Dalit writers also became familiar with the Black movement and literature in the US." (4)

Through its never-say-die spirit, Dalit Literature has not only highlighted the perils of the backward castes in India, but it also has opened new vistas for the oppressed to raise their voice. Like the Blacks in America, Dalits have found a new way of expressing their feelings through literature and have so far achieved remarkable success in achieving this goal.



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**Environmental and Ecological Movements:**

Environmental awareness has always been a burning issue for the progressive countries, but for others not-so-developed countries it has never been a matter of prime importance. In the West, we find youngsters like Greta Thunberg earning centre-stage at global level by raising her concerns about the carbon footprint, etc. But this is not the case with many other developing countries.

India is an exceptional case in this matter. Despite not being on par with Sweden and Japan, India has always seen people rising for environmental issues and for protecting the ecological system of our country.

‘Chipko Movement’ and ‘Narmada Bachao Andolan’ have urged writers to come forward with a plethora of eco-literature. The writers like Arundhati Roy, Vandana Shiva and Ramachandra Guha have thrown their gauntlets to stand against deforestation and to create an amiable relationship between humans and nature.

Arundhati Roy through *The Greater Common Good* makes every reader feel the pain that so many indigenous communities had to suffer due to Narmada Dam project. It is a heart-wrenching tale of how one wrong decision can cause a mammoth loss to the ecosystem of our beloved motherland and destroys the happy lives of thousands of men, women and children.

Similarly, Vandana Shiva’s *Staying Alive: Women, Ecology, and Development*, throws light on the role played by women in protecting the environment. It is not only a testimony to the role played by women in safeguarding our degrading environment, but it also emphasizes the entry of women into a domain (agitation for protecting nature) which was almost unimaginable a few decades ago.

**CONCLUSION:**

In the past humans used to fight wars with a sword and not with a pen. But in the modern era we see that pen has taken a centre stage. More than battlegrounds, now newsrooms, newspaper offices, publications, social media messages, and other forms of written material play an important role in shaping the course of wars, or rather psychological wars. In this scenario, literature has taken a centre stage more emphatically as compared to past.

In future, we shall see literature playing a more poignant role in shaping the mindset of the people, inspiring them, discouraging them, uplifting them and ruining them. Social media has taken this literature impact to next level. Social media platforms like X (and various other social media platforms) are now leaving behind all other news resources and influencing millions and millions of people with just few lines’ message. This has opened a new vista for the literature to not only survive but to thrive and conquer the world. The only thing is that it is a two-edged sword. It must be used with caution, if not then it can cause more harm than benefit.

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**TO STUDY THE IMPACT OF GENERATIVE AI ADVERTISEMENT ON THE BEHAVIORAL INTENTION OF CONSUMERS**

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**Dr. Neelam Arora<sup>1</sup> and Mr. Krishnakant Lasune<sup>2</sup>**<sup>1</sup>Academic Dean and <sup>2</sup>Research Scholar, Lala Lajpatrai College of Commerce and Economics**ABSTRACT**

*The study aims to understand customers' behavioural intentions toward advertisement based on Generative AI. In the proposed theoretical model, the Technology acceptance model was extended using Perceived enjoyment, Anxiety, Perceived Trust as an external variable. Through the use of a questionnaire with a 5-point Likert scale, information was gathered from 260 respondents. Smart PLS software was used to analyze the collected information.*

**Keywords:** *Generative AI, Advertisement, and Technology Acceptance model.*

**1. INTRODUCTION**

The integration of Generative AI in advertising has revolutionized the industry, offering unprecedented opportunities for personalized and targeted marketing strategies. As brands strive to enhance their advertising effectiveness, the utilization of Generative AI models has become increasingly prevalent. This strategic implementation of AI in marketing is evident in the shift towards brands creating their own Generative AI models, tailored to their specific data, thereby reducing reliance on external Generative AI ("AI will alter US digital ad industry", 2023). Moreover, the significance of Generative AI in informing creative practice and its role in filtering and gatekeeping has been highlighted, emphasizing its importance in shaping the future of advertising (Atkinson & Barker, 2023). The impact of AI on the advertising process has been demonstrated through empirical studies, such as the Chinese experience, shedding light on the transformative influence of AI technologies in advertising (Qin & Jiang, 2019). Furthermore, ethical considerations in advertising when applying AI have been underscored, emphasizing the core question for marketers in the context of this trend (Rodgers & Nguyen, 2022).

The potential of AI to personalize emotionally appealing advertisements and its impact on advertising effectiveness has been a subject of scholarly discourse, contributing to the understanding of the opportunities and challenges pertaining to the use of AI in financial service marketing (Mogaji & Nguyen, 2021; Mogaji et al., 2019). Additionally, the amalgamation of empathic AI research with psychology and marketing literatures has facilitated systematic discussions of empathic AI in marketing, bridging the human-AI gap in affective and social customer experience (Liu-Thompkins et al., 2022). The revolutionizing effect of AI on digital marketing has been exemplified through the automation of digital advertising campaigns by prominent brands, signifying the transformative power of AI in reshaping marketing strategies (Esch & Black, 2021). The growing attention towards AI in advertising is indicative of its profound impact on the industry, prompting theoretical reflections on the nature of AI models and their emerging features, thereby shaping the discourse on the social construction of creativity and the evolving landscape of advertising (Argan et al., 2023).

As AI continues to permeate various facets of marketing, including knowledge creation, knowledge transfer, and customer relationship enhancement, its influence on the core of marketing theory and the potential to promote societal and environmental well-being has been underscored (Hermann, 2021). The evolving role of humans in advertising, as AI and big data approaches automate traditional functions, has been a subject of scholarly inquiry, reflecting the transformative implications of AI on the advertising industry (Gangadharbatla, 2020). Moreover, the impact of AI-enabled in-store communication on consumer patronage likelihood has been investigated, shedding light on the stimulating or intimidating effects of AI in shaping consumer behavior (Esch et al., 2020).

Davenport et al. discussed the transformative impact of AI on marketing, emphasizing the efficiency improvements, accuracy enhancements, and better decision-making associated with AI adoption. This aligns with the findings of Chen et al. (2021), who identified efficiency improvements, accuracy enhancements, and better decision-making as outcomes of AI adoption in business-to-business marketing.

Furthermore, the study by Ai-Zhong and Zhang (2022) highlighted the need for an organizing framework in literature reviews to build a knowledge system with comparability and logical consistency. This resonates with the work of Palmatier et al. (2017), which emphasized the importance of identifying and synthesizing relevant literature to provide a state-of-the-art understanding of the research topic.



Ethical considerations in AI advertising were addressed by Rodgers and Nguyen (Rodgers & Nguyen, 2022), who identified six ethical positions, including ethical egoism, deontology, relativism, utilitarianism, virtue ethics, and ethics of care. This aligns with the work of Thiebes et al. (Thiebes et al., 2020), who developed a Foundational Trust Framework to provide a conceptual, theoretical, and methodological foundation for trust research in general.

The impact of AI on various industries was also explored. For instance, Helberger et al. (2020) proposed a systematic conceptualization for the redefined advertising industry, consumers, government, and technology environmental factors, while Fares et al. (2022) identified research themes demonstrating the utilization of AI in banking and developed an AI banking service framework.

The review also covered the influence of AI on consumer behavior, as evidenced by the work of Sharma et al. (2022), who compiled 156 papers to capture contemporary and dynamic issues relevant to trust modeling in healthcare. Additionally, the study by Pillai and Metri (2022) provided insights into the antecedents of online shopping intention of customers after watching AI-based deepfake videos.

Overall, the existing literature provides a rich understanding of the multifaceted impact of Generative AI in advertisement, encompassing efficiency improvements, ethical considerations, industry-specific applications, and the influence on consumer behavior. However, there is a need for further research to consolidate the findings, identify research gaps, and set a research agenda for future researchers, as highlighted by Sharma et al. (2022) and Riedl (2022).

The contemporary landscape of advertising has witnessed a transformative shift with the integration of Generative AI technology. However, despite its growing prevalence, there exists a notable gap in understanding the intricate relationship between Generative AI advertisement and consumer behavior. Specifically, there is a lack of comprehensive investigation into the influence of Generative AI advertisement on consumers' behavioral intentions. This knowledge gap necessitates a focused exploration into how variables such as perceived enjoyment, anxiety, perceived trust, attitude towards technology, and behavioral intention to use are impacted by Generative AI advertisements.

This study seeks to illuminate the impact of Generative AI advertisements on consumers' behavioral intentions by examining key variables such as perceived enjoyment, anxiety, perceived trust, attitude towards technology, and behavioral intention to use. The primary objective is to discern the extent to which these variables are influenced or shaped by exposure to Generative AI advertisements in the realm of marketing and advertising. By elucidating these relationships, the research aims to contribute significantly to filling the identified gap in knowledge within the field of consumer behavior and advertising technology.

## **2. HYPOTHESIS OF THE STUDY**

H1: There is a significant positive relationship between Perceived enjoyment (PE) and Attitude (ATT).

H2: There is a significant positive relationship between Anxiety (AX) and Attitude (ATT).

H3: There is a significant positive relationship between Perceived Trust (PT) and Attitude (ATT).

H4: There is a significant positive relationship between Attitude (ATT) and Behavioural Intention (BI)

## **4. THEORETICAL FRAMEWORK**

This theoretical model combines the external variables PU, PC, PP, and HM in addition to Fred Davis's Technology Acceptance Model (TAM). The purpose of the study is to investigate how they affect consumers' attitudes and behavioural intentions when customers shop for furniture at Pepperfry. This study expands the use of TAM and investigates the relationships between these factors, offering significant insight on how consumers will use augmented reality while buying furniture.



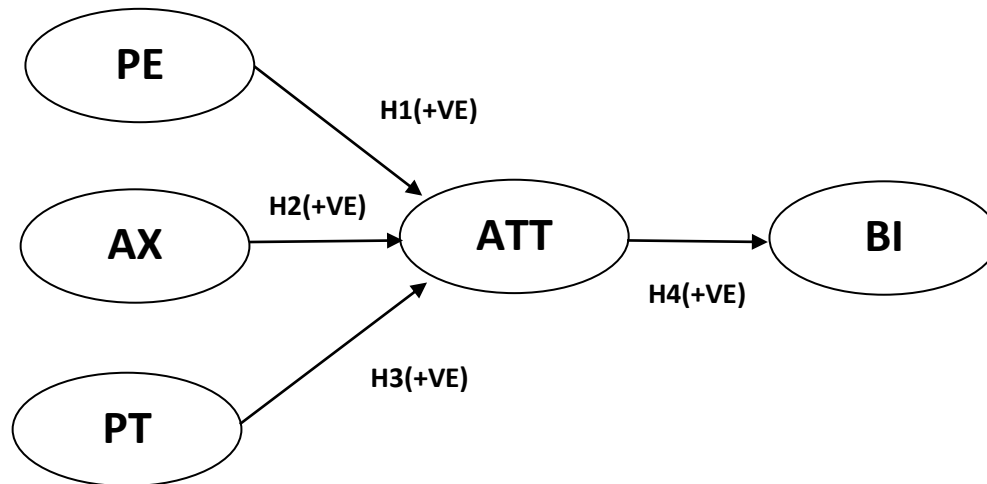


Figure 1

## 5. RESEARCH METHODOLOGY

Perceived Usefulness (PU), Perceived Compatibility (PC), Perceived Price (PP), and Hedonic Motivation (HM) variables were included in the Technology Acceptance Model (TAM) in this study to examine their effects on consumer behavioural intentions when purchasing furniture using Augmented Reality (AR) at Pepperfry. A total of 300 individuals participated in the data collection by exploring the augmented reality (AR) feature of the Pepperfry app for 5 minutes before answering questionnaires on a 5-point Likert scale. Participants were chosen using a convenience sample technique, and Smart PLS software's structural equation modelling (SEM) was used to analyse the data. In order to understand customer attitudes and intentions about AR-enhanced furniture purchase, the cross-sectional and deductive study was focused on the Thane region.

## 7. DATA ANALYSIS

### a. Demographic Profile of Respondents

Category	Variable	Frequency	Percentage (%)
Age	18-25	261	86.66%
	26-30	16	5.33%
	30-35	3	1%
	36-40	8	2.66%
	40 & above	12	4%
Gender	Female	133	44.33%
	Male	166	55.33%
Qualification	Graduate	225	75%
	Post Graduate	73	24.33%
	Ph.D. or higher	2	0.66%

Table 1

The data reveals that a significant majority of respondents in the study fall within the age group of 18-25 years, constituting 86.66% of the sample. In terms of gender, the distribution is fairly balanced, with 55.33% male and 44.33% female respondents. Regarding educational qualifications, the majority of participants are graduates (75%), followed by post-graduates (24.33%), and a small percentage holds a Ph.D. or higher qualification (0.66%).

### b. Measurement Model Assessment

In order to evaluate the model, it is necessary to analyze the rationality and dependability of all hypothetical constructs (Hair et al., 2019). Composite Reliability (CR), Loadings of Factors, and average variance extract(AVE) were first estimated to establish convergent validity.

#### Factor Loadings, Reliability, and Validity.

	Factor Loadings	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	AVE
PE1	0.836	0.851	0.854	0.900	0.692
PE2	0.848				



<b>PE3</b>	0.797				
<b>PE4</b>	0.845				
<b>AX1</b>	0.787	0.803	0.812	0.871	0.629
<b>AX2</b>	0.810				
<b>AX3</b>	0.726				
<b>AX4</b>	0.844				
<b>PT1</b>	0.789	0.804	0.805	0.872	0.630
<b>PT2</b>	0.770				
<b>PT3</b>	0.821				
<b>PT4</b>	0.793				
<b>ATT1</b>	0.806	0.820	0.820	0.881	0.649
<b>ATT2</b>	0.780				
<b>ATT3</b>	0.795				
<b>ATT4</b>	0.841				
<b>BI1</b>	0.751	0.811	0.816	0.876	0.639
<b>BI2</b>	0.849				
<b>BI3</b>	0.806				
<b>BI4</b>	0.787				
<b>Acceptable Values</b>	<b>&gt;0.600</b>	<b>&gt;0.700</b>	<b>&gt;0.700</b>	<b>&gt;0.700</b>	<b>&gt;0.500</b>

Table 2

Table 2 displays the validity and reliability analyses along with the factor loading for the items. All items showed factor loading values that were higher than the suggested value (>0.600) when the examination of the measurement model was conducted. (Gefen Straub,2005). Using Cronbach's alpha and composite reliability (CR), the constructs' reliability was evaluated. All of the CR values surpassed the suggested cut-off point of 0.700(Wasko and Faraj, 2005). The Cronbach alpha for all the constructs was higher than the required value of 0.700. Given that the Average Variance Extracted (AVE) was more than 0.500, the construct's convergent validity was acceptable.

#### • Discriminant Validity

The discriminant validity was assessed using the Fornell-Larcker criteria; the table demonstrates that the square root of AVE for the construct was greater than the correlation between the constructs. As per Fornell and Larcker (1981) discriminant validity for a latent variable is established only when it shows more variance than the indicator variables which it shares with other constructs in the same model. Based on the findings presented in Table 5, it is evident that the data demonstrates a satisfactory level of discriminant validity.

Table 3

	<b>ATT</b>	<b>AX</b>	<b>BI</b>	<b>PE</b>	<b>PT</b>
ATT	0.806				
AX	0.588	0.793			
BI	0.564	0.636	0.799		
PE	0.662	0.698	0.583	0.832	
PT	0.584	0.592	0.438	0.598	0.793

#### c. Structural Model Assessment

##### • Assessment of the Structural model

The bootstrapping method was used for the assessment of the path coefficient's significance. The minimum number of bootstrap samples was kept at 5,000. The number of observations that were valid as per the original samples was equated with the number of cases as recommended. The hypothesized paths of the research framework are illustrated by the structural model as shown in figure 2.



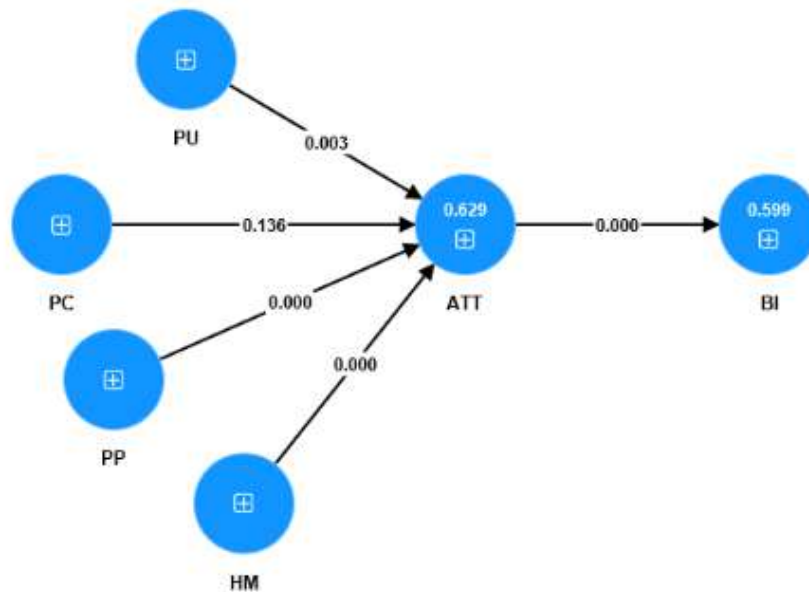


Figure 2

Table 4

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T value	P values
ATT -> BI	0.564	0.566	0.063	8.967	0.000
AX -> ATT	0.161	0.161	0.077	2.104	0.035
PE -> ATT	0.401	0.401	0.077	5.202	0.000
PT -> ATT	0.249	0.252	0.080	3.107	0.002

In order to assess the significance of the association of variables, hypotheses were examined and evaluated. According to the findings, PU significantly affects ATT ( $\beta=0.134$ ,  $t=2.966$ ,  $p=0.003$ ). H1 was therefore supported. H2 assesses whether PC significantly affects ATT. According to the findings, PC does not affect ATT ( $\beta=0.083$ ,  $t=1.49$ ,  $p=0.136$ ). H2 was therefore not supported. H3 assesses whether PP significantly affects ATT. According to the findings, PP significantly affects ATT ( $\beta=0.224$ ,  $t=4.482$ ,  $p=0.000$ ). H3 was therefore supported. H4 assesses whether HM significantly affects ATT. According to the findings, HM significantly affects ATT ( $\beta=0.495$ ,  $t=10.405$ ,  $p=0.000$ ). H4 was therefore supported. H5 assesses whether ATT significantly affects BI. According to the findings, ATT significantly affects BI ( $\beta=0.774$ ,  $t=27.643$ ,  $p=0.000$ ). H5 was therefore supported.

Table 5

	R-square	R-square adjusted
ATT	0.505	0.500
BI	0.318	0.316

A structural model's effectiveness is assessed using the  $R^2$  and the significance of path. The  $R^2$  value of the dependent variable, which must be equal to or higher than 0.1, determines the strength of each structural path (Briones Penalver et al., 2018). Falk and Miller (1992) All of the  $R^2$  values are greater than 0.1, as seen by the result in the table below. The R-squared and adjusted R-squared values for the ATT and CBGP variables indicate that the regression models explain a substantial proportion of the variance in both variables, with ATT at 62.9% and BI at 59.9%, demonstrating a good fit of the models.

Table 6

	ATT	AX	BI
ATT			1.000
AX	2.147		
BI			
PE	2.172		
PT	1.717		



$F^2$  value helps to assess a construct's contribution to an endogenous latent variable  $R^2$  value. The endogenous construct's minor, medium, and large effects are represented by the  $F^2$  values of 0.02, 0.15, and 0.35. The  $F^2$  values indicate the relative importance of each predictor variable (PU, PC, PP, HM) in explaining the variance in the ATT and BI variables. Among these predictors, HM (Hedonic Motivation) appears to have the highest impact on ATT with an  $F^2$  value of 0.375, suggesting it plays a significant role in influencing consumers' attitudes.

## 6. CONCLUSION

The study delved into the Impact of Augmented Reality (AR) on the Behavioral Intention (BI) of consumers towards furniture shopping, with a specific focus on Pepperfry. The investigation also examined the influence of consumers' attitudes (ATT) on their behavioural intentions. The results demonstrated that PU significantly influences ATT, indicating that consumers' perception of the usefulness of AR technology plays a pivotal role in shaping their attitudes towards using it for furniture shopping. Contrary to expectations, PC was not found to significantly affect ATT, suggesting that consumers' perceptions of how compatible AR technology is with their existing shopping habits may not strongly impact their attitudes. The study found that PP significantly affects ATT, implying that consumers' perceptions of the cost associated with AR technology influence their attitudes towards its use in furniture shopping. The findings demonstrated that HM significantly influences ATT, highlighting the importance of consumers' intrinsic motivation and enjoyment in using AR for shopping. The study confirmed a significant positive impact of ATT on BI, indicating that consumers' attitudes towards AR technology usage during furniture shopping strongly correlate with their behavioural intentions.

In summary, the results provide valuable insights for businesses like Pepperfry aiming to leverage AR technology in the furniture shopping sector. Enhancing the perceived usefulness, addressing cost concerns, and focusing on the hedonic aspects of AR experiences can be effective strategies to influence consumer attitudes and drive behavioral intentions, ultimately leading to increased adoption of AR technology for furniture shopping.

## 7. LIMITATIONS OF THE STUDY

The application is confined to the Thane domain and responses were restricted to students and faculty members. Only the questionnaire method, was employed; additional methods like interviews or group discussions could also have been considered. The questionnaire data were gathered using a 5-point Likert scale; however, a 6 or 7, or 10-point Likert scale could have been utilized for more precise information.

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**DIVERSITY AND ABUNDANCE STATUS OF AVIFAUNA IN VARIOUS LAND USE AROUND BHOPAR WETLAND AREA, THANE, MAHARASHTRA.**

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**ABSTRACT**

*In ecological assessment, avifaunal diversity is considered an effective parameter to determine the health and status of the ecosystem. In the wetland ecosystem, birds are top level consumers in the food chain. Any qualitative and quantitative change within an ecosystem can be identified by birds as bioindicators. Birds play various useful roles that contribute to maintaining various ecosystem processes. Birds serve as an important component as they respond to avoid any changing conditions (Newton, 1995). Bhopar lies in the outskirts of rapidly growing Dombivli city near Thane. Rapid changes in the land use patterns are occurring in the last decade. It also receives a Ulhas River channel which is developing wetland for numerous migratory birds visiting an area during migrator season. This area is surrounded by mangrove vegetation, scrubland, and open vegetation. Local residents also perform agricultural cultivation in monsoon leading to small patches of fields. The present study was undertaken from October 2022 to June 2023. Overall, 131 species of birds belonging to 41 families including resident and migratory birds are recorded during the study period. In which seven species are listed as Near Threatened and one species as vulnerable status in IUCN red list. The study area in the last few years is becoming a focal area for infrastructure development. This highlights the need to study diversity to understand possible changes and management of wetland in the future.*

**Keywords:** Avifaunal diversity, Bhopar, Dombivli, wetland.

**INTRODUCTION**

In biodiversity richness, diversity and endemism at global scale India is considered as one of the biodiverse countries. India has ten biogeographic zones and varied habitats ranging from mountains, deserts, semi arid areas, grasslands, forests and wetland areas. Avifaunal diversity in India is 12.13% of the world with 1271 species (Birdlife International 2023, [www.birdlife.org/state-of-the-worlds-birds/](http://www.birdlife.org/state-of-the-worlds-birds/)). Avian species are distributed widely across a wide range of habitats in India and can be indicators to predict changes in the surrounding environmental conditions. Which makes the avifaunal diversity analysis key in ecological research studies.

Wetlands in fresh or marine habitats form important breeding, nesting, roosting and feeding grounds for a wide range of avian species. 67 wetlands support bird species among about 1300 species of birds recorded in the Indian subcontinent with residential and migratory species (Conservation International 2012). Mumbai being a coastal urban city is an important wetland ecosystem for many migratory species. Dombivli is also gaining attention due to migratory birds visiting Ulhas river flowing around the city. The research thus focused on studying avifaunal diversity around a wetland in Bhopar, Dombivli in various land uses.

**MATERIAL AND METHODS:****Study Area:**

The avifaunal diversity was studied around Bhopar village near Dombivli, Thane. The site was situated at 19° 11.9' N and 73° 04.22' E.





**Figure 1:** Map presenting location of the study area.

The study site is divided for different land uses as wetland area, waterbodies, open vegetation area, open land covered with scrubby vegetation and built up area.

The wetland area is formed due to a stream of Ulhas river flowing along Dombivli. The water filled area lined by mangrove vegetation offers a suitable roosting, nesting and feeding habitat for wetland and associated species.

The study area has small water bodies, some of them are perennial while some of them occur around monsoon. These water bodies are utilised by local residents for agriculture and washing clothes etc. The water bodies are also lined by trees that support resting sites for aquatic birds like herons, egrets etc.



The open vegetation area is considered as tree clusters in between having small grasses, shrubs and ground vegetation. The vegetation patches show many indigenous trees like neem, which support frugivorous, insectivorous birds mainly.

The open area shows an open plateau which is covered with scrubby vegetation, cultivation patches which become dry after monsoon. These areas are often covered with scanty dry vegetation which is an important habitat for ground dwelling birds and perching birds.

The plateau region has developed into a built up area in the past few years. The small chawl-like residential structures are developed which are partially occupied. Some areas have been developed as residential colonies by local villagers. New high rising towers are upcoming in the wetland area after 2015. To create connectivity to residential complexes nearby road construction has also developed in the past five years.

Overall Dombivli city experiences hot and humid climate due to its proximity to coastal Mumbai city. The area receives monsoon between July to September.

### **SURVEY METHODOLOGY:**

The birds were daily observed in dawn and dusk by trail transect method. A point count study was conducted during morning (6:00-8:00) or evening (16:00-18:00) in each of the land covers and the bird species were recorded (Urfi et al., 2005). The land covers such as open land, built up (residential) areas, vegetation, areas around water bodies were observed for two consecutive years 2021-2023 from October to June months. During monsoon months of July to September these areas get filled up with water and heavy vegetation growth which makes it difficult to reach up to the wetland area. So, these months are not covered for field visits.

The bird species were recorded in dawn and dusk as they are mostly active on that time and also on different seasons so as to cover different summer and winter migrating birds. The bird species was seen from Nikon 10 X 50 binoculars and the images of birds were captured with Canon SX 60 HS digital camera with 60 X zoom.

The observed birds were identified by their physical appearance and calls using standard field guides of Ali and Ripley birds of Indian subcontinent, Richard Grimmett and Tim Inskipp, 2007 and birds of Thane creek.

### **DATA ANALYSIS METHODS:**

The avifaunal diversity is analysed on the basis of resident and migratory status, avian families, IUCN status and habitat preference by birds in land use.

The GIS map of the study areas was prepared using QGIS software from the google earth pro images of February 2017 and March 2022. The area was analysed for its different land use patterns as mentioned above. The bird species found in different land covers were listed in an excel sheet along with their scientific name, IUCN status. Analysis of avifaunal diversity was done using excel to show the percentage of various bird species present in different land covers. Similarly, a bar graph was made of all land covers showing the number of families in each land cover.

Land use analysis was carried out by calculating area for each land use for 2017 and 2022. The change detection in land use was attempted using excel by calculating percent change over 2017 and 2022.

### **RESULT AND DISCUSSION:**

#### **A) Diversity and Distribution of Recorded Avifauna:**

In the Bhopar and surrounding study area 131 species of birds are recorded during the study period. The birds belonged to 16 orders and 44 families of avifauna.

Order Passeriformes was recorded as the dominant order with maximum number of species (56 species) followed by Charadriiformes (21 species), Pelecaniformes (11 species), Anseriformes, Coraciiformes (7 species), Accipitriformes (5 species) and more.

Scolopacidae with 12 species of birds was recorded as the dominant family of birds followed by family Ardeidae (8 species) and anatidae with 7 species. Due to the wetland habitat, bird species belonging to these families are observed more. Out of total bird species recorded at the study area, 5 species were Near Threatened (NT), 2 species were Vulnerable (VU) under IUCN.

Based on IUCN records, Near threatened species observed during the study were Black tailed godwit, Oriental Darter, Woolly necked stork, Black headed Ibis and Alexandrine parakeet and Vulnerable category species observed were River tern and Indian spotted eagle. Painted storks also observed the wetland area throughout the year in good numbers, which were earlier considered near threatened species under IUCN data but recently in 2023 it is changed to least concern status due to increasing population trend in India.



Out of total avifauna, 80 species were observed from aquatic habitat covering wetland as well as small water bodies, 61 species were observed in open vegetation area, 31 species in open area with small scrubs, 36 species were belonging to cultivation and 30 species in built up habitat.

**Table 1:** Table representing the number of species and number of families the species belong from each land use.

Land Use	Number of species	No. of families
Wetland and water bodies	80	22
Open vegetation	61	29
Open area	31	18
Cultivated area	36	19
Built up area	20	16

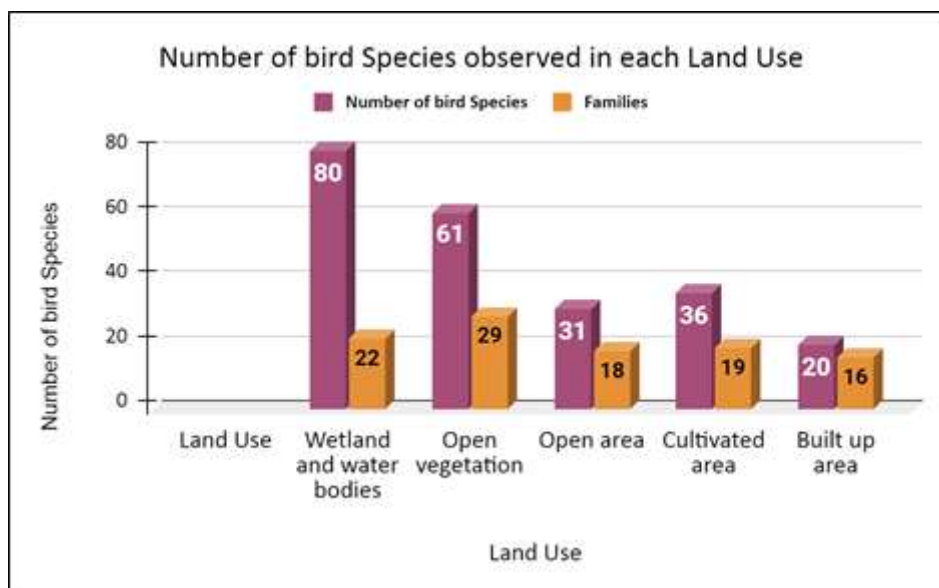


Figure 1: Figure representing the number and families of bird species in each land use.

Among the land cover the highest percentage of birds were observed in aquatic land use (35%) due to the large wetland area. Which is followed by vegetation area with trees (26.8%), cultivation area (15.8%), Open area with scanty scrubland 13.6% and built up area with 8.8% of total species.

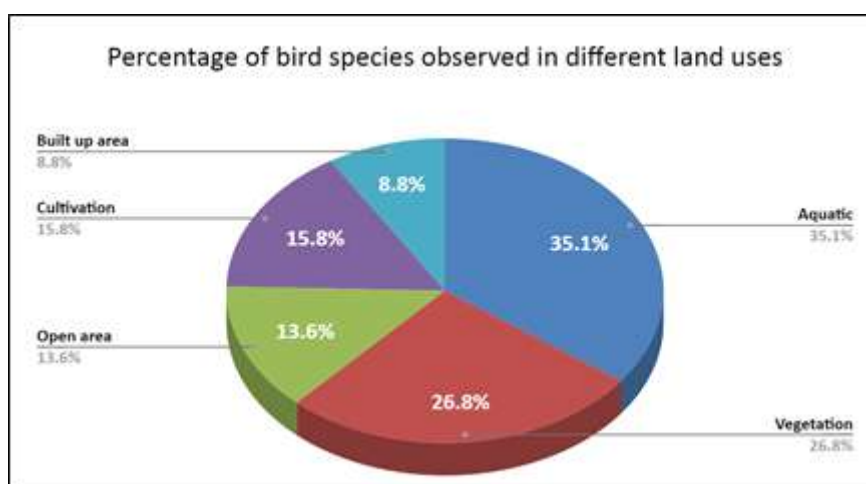


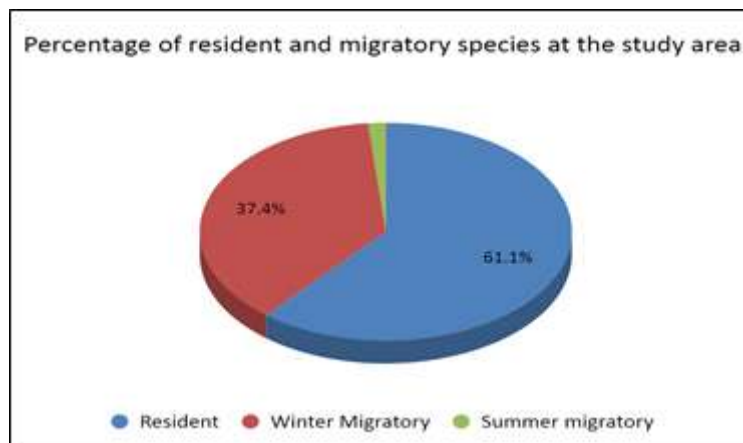
Figure 2: Pie chart representing the percentage of bird species observed along different land uses.

On the basis of bird's residential and migratory status, the highest number of 80 species are resident from the study area, 49 winter migratory species and 2 summer migratory species. Winter migratory species of ducks, pelagic birds, and waders majorly visit wetland areas every winter season from November end till March month in large numbers. Summer migratory visitors were observed as Pied cuckoo and Brahminy kite at the peak of summer in May And June months. The resident species observed are distributed all over the habitats and land uses.

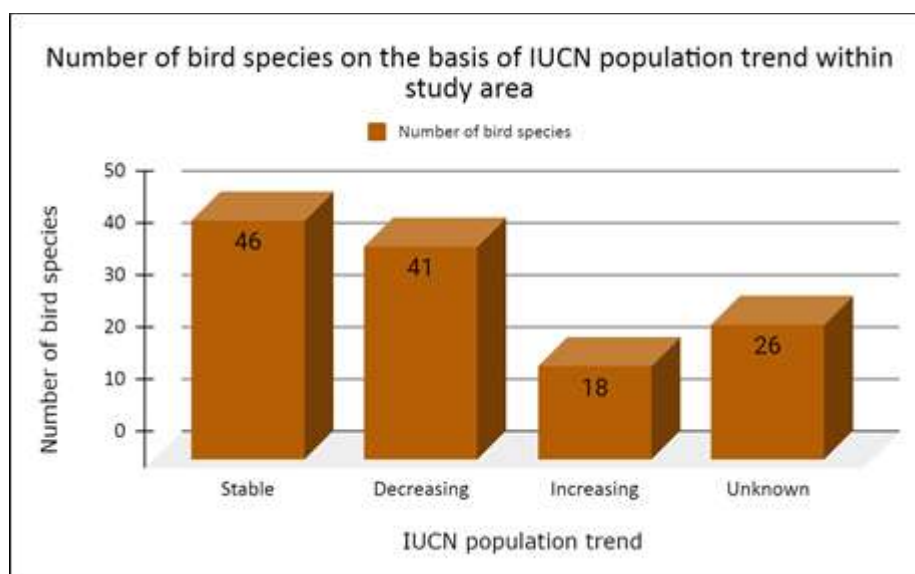


Table 2: Table showing the number of resident and migratory species recorded at Bhopar during study period.

Resident Status	number of bird species
Resident	80
Winter Migratory	49
Summer migratory	2

**Figure 3:** Pie chart showing percentage of resident and migratory species observed at the study area.

On the basis of IUCN population trend analysis, 46 species are stable population species, 41 species show decreasing population trend, 18 species increasing trend and 26 species with unknown population trend were observed during the study.

**Figure:** Bar chart representing number of bird species based on IUCN population trend.

### B) Land Use Analysis:

Land use study becomes important as globally rapid changes are occurring in land use patterns due to developmental activities, population growth, increase in demand for natural resources, infrastructural challenges and pollution. These land use changes can alter ecosystem structure and also may lead to disturbance within the food chain leading to threats to various species (Forman 1995; Bender et al. 1998; Turner et al. 2001).

The study area lies in the outskirts of core Dombivli city, which is experiencing a major shift of residential infrastructure in the past 7-8 years; as the main city areas are insufficient for increasing population. Rapid development of residential complexes are taking place around the wetland area. This is leading to conversion of land use patterns.

The study also attempted to find out land use changes around the study area to understand the possible impacts on avifauna. The high resolution google earth pro images of 2017 and 2022 were considered for land use analysis. The 2017 land use was considered as during that period infrastructural development began in the area and 2022 land use is taken as the pattern within the study period of 2021 - 2023.



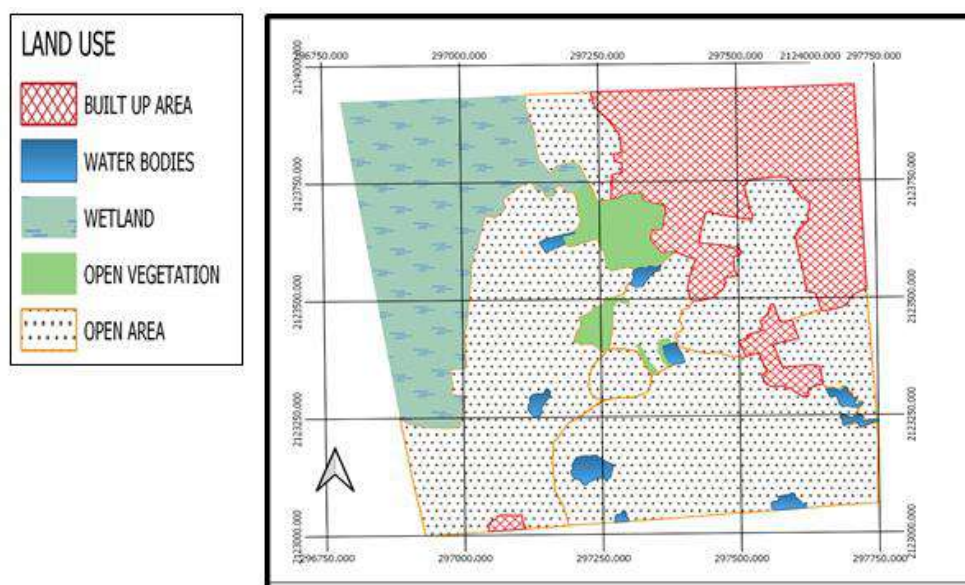
The land use land cover pattern analysis of 2017 showed major land use as Open area (56%) followed by wetland (19%), built up area (19.6%), open vegetation (3%) and water bodies (1.6%). The land use patterns for 2022 were analysed using QGIS showed Open area (51%) followed by wetland (18.5%), built up area (24%), open vegetation (3%) and water bodies (2%).

The above land use analysis clearly shows change in open area which is reduced from 56% to 51% (by 5%) and built up area increased from 19.6 % to 24.5% (by 5%). This represents conversion of open land areas into residential infrastructure by nearly 5% within 5 years. Such land use changes in the future will affect the habitat availability for many bird species.

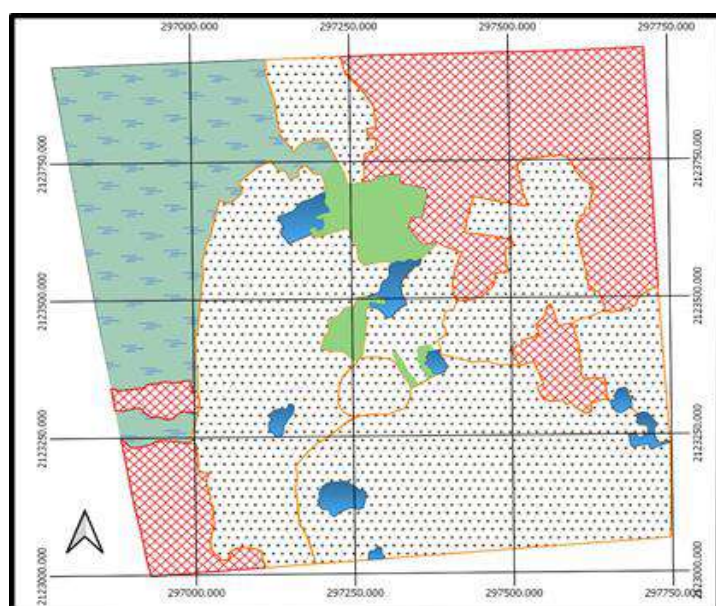
#### Land use land cover of 2017 and 2022:

BHOPAR	2017	2017	2022	2022
WETLANDS	In hectares	in %	14.8575	In %
OPEN AREA	15.4275	19	41.6528	18.5
OPEN VEGETATION AREA	45.2920	56	2.8167	51
WATER BODIES	2.7541	3	1.6377	3
BUILT UP AREA	1.2756	1.6	19.4836	2

**Table 03 :** Table representing area calculation for different land use types in the Bhopar study area for given years.

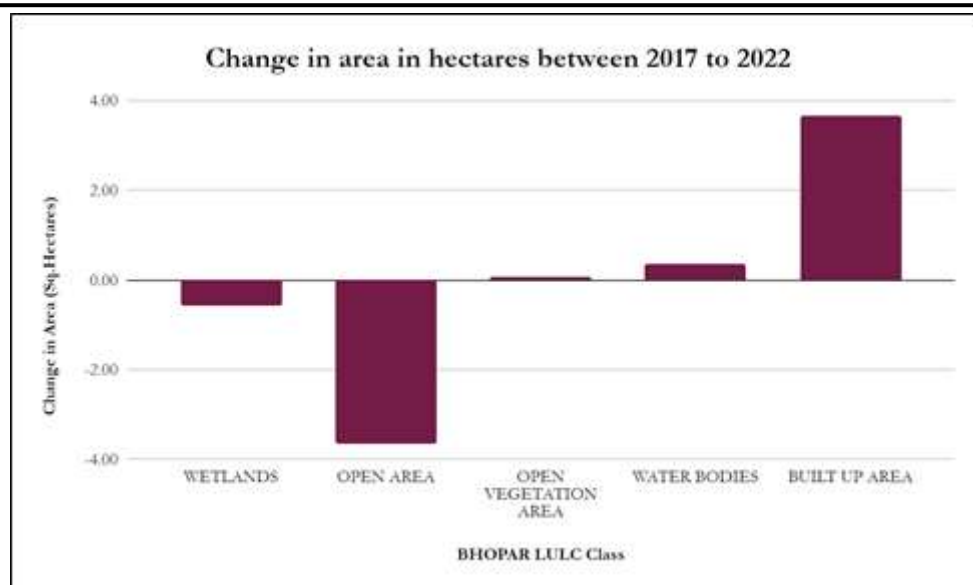


**Figure 4:** Layout representing the land use land cover pattern for Bhopar study area for the year 2017.



**Figure 5:** Layout Representing the land use land cover pattern for Bhopar study area for the year 2022.





**Figure 6:** Graph representing the change in the area in land use between 2017 and 2022.

## CONCLUSION

Wetlands are important habitats for residents as well as migratory species of birds as nesting, feeding grounds. Globally wetlands are utilised by human beings for productive and commercial uses leading to decline in wetland areas. Bhopar and surrounding area is an important wetland area in Kalyan- Dombivli city harbouring many migratory species being regular visitors in winters. Over the past few years since 2015 the area is facing several pressures of urbanization in the form of pollution, fishing, agriculture, residential infrastructure, cutting down the trees, non-biodegradable waste disposal by local people, washing of clothes in the water bodies. These activities can affect nesting and other activities in birds and also can create toxic impacts due to pollution. In spite of such threats the area supports thousands of birds of 131 species including 51 migratory species. Certain species like flamingoes have been reported taking a small stop over in the wetland and flying over from the wetland. The records of vulnerable species of river tern and Indian spotted eagle dependent on wetland habitat is reducing in their occurrence. The present study results reflect the need to undertake conservation steps such as control over the sanctioning of residential projects, monitoring land use changes and its impacts, awareness within locals about pollution, fishing effects, awareness about the role of birds and importance of their protection in local masses as management strategies.

**Table 01:** List of birds observed at Bhopar study area with near threatened and vulnerable IUCN Conservation status.

Black tailed godwit	<i>Limosa limosa</i>	WM	NT
River tern	<i>Sterna aurantia</i>	WM	VU
Oriental darter	<i>Anhinnga melanogaster</i>	WM	NT
Black headed ibis	<i>Threskiornis melanocephalus</i>	R	NT
Indian Spotted eagle	<i>Clanga hastata</i>	WM	VU
Alexenderine Parakeet	<i>Psittacula eupatria</i>	R	NT
Wolly necked Stork	<i>Ciconia episcopus</i>	R	NT

IUCN status: LC - Least Concerned; NT - Near Threatened. Seasonal status : R - resident, WM - Winter migrant, SM - Summer Migrant

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**OBSTACLES FACED BY INVESTORS IN ADOPTING AND MANAGING DIGITAL INVESTMENTS**

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**ABSTRACT**

*Digital investments are more accessible than traditional techniques, enabling investors to trade at any time and location, frequently with reduced expenses. They offer tools to support better decisions, enhance investments. It is inherent that everything that offers numerous benefits comes with drawbacks and issues. Hence, the purpose of conducting this study is to explore the obstacles investors face in adopting and managing digital investments. The technique used in this study is one sample t-test. The findings of the study indicated that Overreliance on Algorithms, Complexity of Platforms, Inadequate Customer Support, Limited Financial Knowledge, Technical Glitches, Payment Failures, High Transaction Costs, Unclear Tax Implications, Difficulty in Portfolio Management, High Fees and Hidden Charges, Data Security Concerns are the obstacles faced by investors in adopting and managing digital investments.*

**Keywords:** One Sample t-test, Digital Investments, Exploratory, Investors.

**INTRODUCTION**

The financial landscape has changed due to the quick development of technology, which is why modern investors are increasingly prefer digital assets. Digital platforms allow investors to easily monitor their portfolios and execute trades because they provide previously unheard- of levels of simplicity, accessibility, and cost-effectiveness. They also offer resources and tools to help make better. Despite these advantages, investors encounter many obstacles that may hinder full adoption and effective management of digital investments. These limitations, which might deter future users and make the experience more difficult for current ones, range from platform complexity and technological difficulties to gaps in financial knowledge and data security risks. Comprehending these obstacles is crucial for developing digital investing platforms that are more user-friendly, safe, and inclusive while meeting the demands of a wide range of investors.

Our daily lives have begun to be dominated by mobile apps (Balapour, Nikkhah, & Sabherwal, 2020). People depend on technology every single second of their lives because of its widespread use and "App Culture." Mobile apps now control everything from "Good Morning Messages" to "Daily Fitness Regime" to "Entertainment and Enjoyment." Additionally, the lockdown blues have contributed to the rise of "App Culture," when individuals are sitting in the corners of their homes and using more apps than ever before. The stock market is one such sector where mobile app culture has expanded (Anand, 2020; Rukhaiyar, 2020; Mookerjee, Mazumdar & Acharya, 2020). Over the past several years, a lot of consumers have been using stock broking companies' mobile trading apps. However, the lockdown has caused a spike in mobile phone stock trading and investing activities, reaching 45% in May 2020 compared to 24% the previous year (Rukhaiyar, 2020). With 1.2 million new accounts opening at CDSL in March and April, the number of first-time investors, primarily under 30, has increased by 20% on stock broking apps like Upstox and Zerodha (Mookerjee et al., 2020). Many jumped on this increase, believing that stock prices had been fairly valued since the March lows (Mookerjee et al., 2020). According to Anand (2020), modern, tech-savvy investors also like mobile trading apps. This increase may double in 2020 and beyond, according to numerous stock market specialists. People have an additional advantage in the stock markets to make more money. In addition to metro areas, non-metropolitan areas like Vizag, Patna, Agra, Jaipur, etc. also exhibit this pattern.

**Stock Market**

The stock market has grown into a profitable platform for investors. Investors have taken notice of the stock market's steady growth. For anyone seeking to build their wealth in the constantly shifting financial landscape, the stock market remains an effective and alluring platform. Historically, purchasing and selling stocks required a great deal of expertise, communication, and understanding of stockbrokers. However, as technology has developed, internet apps have emerged, changing the investing landscape and increasing public accessibility. On the stock market, buyers and sellers gather to exchange shares of equity of the publicly traded

corporation. Stock market investing can be done in a variety of methods, including offline and online strategies. The internet and web work together to establish an interface for e-commerce transactions. Computer users may discover information about goods and services and undertake online purchasing and selling thanks to e-commerce. Additionally, M-commerce is the subset of e-commerce that enables mobile users to do online



buying and selling as well as obtain information about products and services. Online trading is a system that uses a few stock exchange websites to facilitate stock exchanges on the Internet. (Johri, A., et al. 2023).

### **Online Trading**

Online trading is the purchasing and selling of different equities using a variety of channels and online platforms. These internet trading platform companies play a significant part in the development of new enterprises that have a bigger influence on the economy and numerous financial institutions. The Internet has made all of these companies successful, and their influence will only grow over the next several years. Online trading encompasses the purchase and sale of "bonds, shares, mutual funds, debt, gold, and numerous other commodities." Many companies have shifted to the Internet to save time, facilitate customer service, and generate revenue. This has significantly affected sales and the operation of a profitable company. This business started providing more discounts on a variety of products and services to meet the needs of Internet companies. Furthermore, process analysis and risk calculation become essential (Sandeep, et al. 2021).

Anyone can use online trading to buy and sell stocks, money, and other assets from the convenience of their own home. The web platform is incredibly simple to use, and no special knowledge or qualifications are required. Online trading has been made easier by the internet, which has also changed how investors access the market and how the market functions. Online trading has been popular in almost every nation; the Bombay Stock Exchange and the National Stock Exchange both successfully handle online trading. India has made great strides in achieving countrywide connection, which is arguably the most important component of internet commerce. Online traders can check the status of their trades via email or phone. (Sandeep, et al. 2021).

### **REVIEW OF LITERATURE:**

1. **Hanna, et al. (2024)** analysed the impact of the digital transformation on risk management in investment operations and developed recommendations for reducing risks and creating a favourable investment environment. Digitalisation improved the efficiency of investment processes, increasing success and profitability, the study found. Businesses' capacity to adopt new technology and adapt to a rapidly evolving environment was determined to be essential to risk management's future. The report also underlined how important it is to continuously adapt and use advanced technologies and analytical methods in risk management.
2. **Mahendra, & Rajeshwari. (2023)** studied the effects of digitalisation on investor performance and engagement, as well as how it enhances investment prospects and decision-making procedures. The paper claims that the digitalisation of financial services has made it simpler for investors to obtain investment funds, market data, and personalised investment opportunities. It underlined the need for financial markets and intermediaries to improve communication and decision-making processes to give investors better investment opportunities and outcomes.
3. **YudhitaValen, Prasarry, et al. (2023)** examined how Gen Y and Z investors use investment applications based on the UTAUT concept. The study found that "performance expectancy, effort expectancy, facilitating conditions, and social influence" all had positive and significant effects on behavioural intention, whereas enabling conditions and behavioural intention had a positive and large impact on user conduct. The adoption of investment applications by investors was found to be significantly predicted by these factors.
4. **Nair, P. S., et al. (2023)** examined how retail stock and mutual fund investors' decisions are influenced by mobile applications, with a particular emphasis on e-trading in developing financial markets. The study discovered that the main factors influencing behavioural intention to use mobile applications for e-trading were perceived return, effort expectation, and performance expectancy. Adoption behaviour was strongly impacted by investor habit, but perceived risk was less important than anticipated reward.
5. **Johri, A., et al. (2023)** examined the elements affecting users' adoption of stock trading apps from the viewpoint of the user. According to the study, the adoption of stock trading applications was greatly impacted by users' "awareness, benefits and investment choice, dependability, safety, risk-related considerations, financial literacy, technical elements, and dependency".
6. **Erick, Fernando., et al. (2021)** used the UTAUT2 model to investigate the determinants influencing investor acceptance of online investment applications, adding variables including awareness-knowledge, perceived risk, and trust. "Facilitating Conditions, Hedonic Motivation, Performance Expectancy, Effort Expectancy, Social Influence, Price Value, Habit, Perceived Risk, Trust, and Awareness-Knowledge" are some of the elements that affect investors' adoption of online investment programs, according to the study.
7. **Sandeep, et al. (2021)** studied consumer awareness and views of online trading, with a focus on the



elements impacting customer happiness and how online trades occur. The study's findings, which emphasise the significance of customer satisfaction for the success of online trading platforms, showed that ease of handling and the convenience of online trading were the main drivers of stock market investment.

8. **Malhotra, Suzanee. (2020)** investigated the salient characteristics of mobile trading applications that impact user preferences and choices. Easy-to-use apps were judged to be the most important feature, followed by information about investment analysis and security and privacy issues. These factors had a substantial impact on consumers' choice of mobile trading apps.

#### OBJECTIVES OF THE STUDY:

1. To explore the obstacles faced by investors in adopting and managing digital investments
2. To identify and suggest solution for overcoming obstacles in adopting and managing digital investments.

#### Hypothesis:

**H0:** The obstacles faced by investors in adopting and managing digital investments are insignificant

**H1:** The obstacles faced by investors in adopting and managing digital investments are significant

#### RESEARCH METHODOLOGY:

**Table No: 1** Research Methodology

Research Design	Descriptive
Data Collection	Primary and Secondary
Sampling Technique	Non-Probability Purposive Sampling
Sample Size	80 Individual Digital Investors
Sample Size Determination	According to Faul et al., a minimum sample size of 45 is required for conducting a one-tailed one-sample t-test.
Statistical Technique	Parametric One-Sample t-test
Statistical Tool	R Studio Software

#### DATA ANALYSIS AND INTERPRETATION:

**Table No: 2** One sample t test

Items	t – statistics	P – value	Ha: Obstacles Faced by Investors in Adopting and Managing Digital Investment > 3
Overreliance on Algorithms	20.98	0.000	High impact
Complexity of Platforms	21.09	0.000	High impact
Inadequate Customer Support	23.67	0.000	High impact
Limited Financial Knowledge	23.00	0.000	High impact
Technical Glitches	21.66	0.000	High impact
Payment Failures	21.34	0.000	High impact
High Transaction Costs	22.67	0.000	High impact
Unclear Tax Implications	21.04	0.000	High impact
Difficulty in Portfolio Management	23.40	0.000	High impact
High Fees and Hidden Charges	22.99	0.000	High impact
Data Security Concerns	21.87	0.000	High impact
A parametric one-sample t-test (one-tailed) is applied to examine Obstacles Faced by Investors in Adopting and Managing Digital Investment. It is seen that p-value < 0.05 and t statistics > 1.96 Overreliance on Algorithms, Complexity of Platforms, Inadequate Customer Support, Limited Financial Knowledge, Technical Glitches, Payment Failures, High Transaction Costs, Unclear Tax Implications, Difficulty in Portfolio Management, High Fees and Hidden Charges, Data Security Concerns.			



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**CONCLUSION**

The study identifies important barriers that investors face to accept and manage digital investments, highlighting the necessity of resolving these issues to guarantee more efficient and successful user experiences. The complex nature of platforms, which may put off less tech- savvy consumers, and excessive dependence on algorithms, which may result in a lack of individualized investing plans, are major problems. While investors' lack of financial literacy prevents them from making well-informed decisions, poor customer service just serves to increase user annoyance. High transaction costs, payment errors, and technical hiccups lead to operational inefficiencies that undermine investor convenience and confidence. Furthermore, strategic financial planning is hampered by confusing tax consequences and portfolio management challenges, and the total profitability of assets is decreased by exorbitant fees and hidden charges. Concerns about data security are still very important since financial transactions are increasingly being conducted through digital channels. Resolving these issues with better platform architecture, better customer service, transparent pricing and taxation, and strong security will benefit investors and the digital investment ecosystem as a whole, encouraging wider adoption and long-term viability.

**SUGGESTIONS**

- Improve the usability of digital investing platforms by simplifying them and making sure that users can navigate them with ease.
- Provide users with quick, easily accessible customer service across a variety of channels to help them with technical problems and inquiries.
- Provide investors with tools and educational materials to aid in their understanding of risk management, financial markets, and digital investments.
- Boost user data security and trust in digital investing platforms by fortifying cybersecurity measures.
- Provide a detailed explanation of all fees, levies, and tax implications up front to avoid misunderstandings and unforeseen costs.
- Incorporate functions that enable consumers to make well-informed decisions by providing individualized advising services or enabling customised investment plans.

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**ALTERNATIVE DISPUTE RESOLUTION MECHANISMS: LEGAL PERSPECTIVE AND REFLECTIONS FROM THE INDIAN KNOWLEDGE SYSTEM**

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**ABSTRACT:**

*Alternative Dispute Resolution (ADR) mechanisms have emerged as vital tools for resolving conflicts efficiently and amicably outside traditional court systems. This research delves into the legal dimensions of ADR while drawing insights from the Indian Knowledge System (IKS). The study explores the historical roots of dispute resolution in India, tracing practices such as Panchayat Raj, Nyaya Panchayats, and other indigenous methods deeply embedded in Indian culture. It critically examines their relevance in the contemporary legal framework, emphasizing how these traditional practices align with modern ADR approaches like mediation, arbitration, and conciliation. The paper highlights the interplay between statutory laws and customary practices, showcasing how the Indian legal system incorporates ADR mechanisms while maintaining sensitivity to local traditions and community-based solutions. It further discusses the potential of integrating IKS principles with global ADR methodologies to address current challenges such as backlog in courts, cultural diversity in disputes, and the need for sustainable resolutions. Through an interdisciplinary approach, this research underscores the significance of harmonizing traditional wisdom with modern legal frameworks, offering a unique perspective to enhance the efficacy and accessibility of ADR systems in India and beyond.*

**Keywords:** Alternative Dispute Resolution, Indian Knowledge System

**INTRODUCTION**

Conflict is an inevitable aspect of human interaction, arising from diverse interests, values, and needs. While courts serve as the primary mechanism for resolving disputes, they are often burdened by delays, high costs, and procedural complexities. In this context, Alternative Dispute Resolution (ADR) mechanisms have gained prominence as effective and efficient tools for addressing conflicts outside the traditional judicial framework. Methods such as mediation, arbitration, conciliation, and negotiation offer parties an opportunity to resolve disputes amicably while preserving relationships and fostering mutual respect.<sup>1</sup>

India has a rich history of dispute resolution practices, deeply rooted in its cultural and philosophical traditions. The Indian Knowledge System (IKS), encompassing ancient texts, customary laws, and community-based practices, offers valuable insights into resolving conflicts in a holistic and sustainable manner. Institutions such as the Panchayat system and Nyaya Panchayats exemplify how indigenous mechanisms prioritized justice, equity, and social harmony. These traditional approaches, though evolved over centuries, share fundamental principles with modern ADR mechanisms, such as consensual decision-making, impartiality, and adaptability to context.

This paper aims to explore the intersection of ADR mechanisms and the Indian Knowledge System from a legal perspective. It examines how traditional Indian practices align with and influence contemporary ADR frameworks and analyses their relevance in addressing the challenges faced by the modern legal system. By integrating insights from both historical and modern perspectives, the study seeks to contribute to the development of ADR mechanisms that are culturally sensitive, legally robust, and socially inclusive.<sup>2</sup>

This research also addresses the broader implications of incorporating traditional wisdom into global ADR practices, highlighting the potential for creating dispute resolution models that are both contextually relevant and universally applicable. Through this lens, the paper underscores the importance of harmonizing indigenous knowledge with legal innovation to advance the field of alternative dispute resolution.

**RESEARCH OBJECTIVES-**

- Examine the existing statutory and regulatory provisions governing Alternative Dispute Resolution (ADR) in India.
- To Trace the Historical Roots of Dispute Resolution in India

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<sup>1</sup> <https://www.cadrnlud.in/adr>

<sup>2</sup> [https://legallaaffairs.gov.in/sites/default/files/Arbitration\\_Mediation.pdf](https://legallaaffairs.gov.in/sites/default/files/Arbitration_Mediation.pdf)



- Investigate traditional dispute resolution practices rooted in the Indian Knowledge System (IKS), including Panchayats, Nyaya Panchayats, and other indigenous mechanisms.
- Evaluate the applicability of traditional Indian dispute resolution practices in addressing the challenges of the modern legal system, such as case backlogs and culturally diverse disputes.
- Identify opportunities for integrating IKS into formal ADR frameworks to improve their effectiveness.
- Offer insights into how lessons from the Indian Knowledge System can influence international ADR practices .

### RESEARCH QUESTION

How can the principles and practices of the Indian Knowledge System be integrated into modern Alternative Dispute Resolution mechanisms to enhance their legal efficacy, cultural sensitivity, and accessibility in addressing contemporary disputes?

### PROBLEM STATEMENT

The traditional judicial system in India is plagued by significant challenges, including excessive delays, high litigation costs, and an overwhelming backlog of cases. Alternative Dispute Resolution (ADR) mechanisms, though recognized as efficient tools for resolving disputes, often lack cultural adaptability and fail to resonate with the diverse socio-legal contexts of Indian society. The Indian Knowledge System (IKS), with its rich heritage of community-based and consensus-driven dispute resolution practices, offers a valuable repository of wisdom that remains underexplored in modern ADR frameworks. Despite the evident alignment between IKS principles and ADR methods, there is limited scholarly discourse on integrating these two domains to create culturally sensitive and legally robust mechanisms. Furthermore, the potential of IKS to address issues such as social harmony, restorative justice, and participatory conflict resolution remains untapped in contemporary legal systems. This disconnect leads to a missed opportunity to enhance the accessibility, effectiveness, and inclusivity of ADR mechanisms in India. There is a pressing need to examine how the principles and practices of IKS can complement modern ADR frameworks to address the limitations of the current system while preserving the essence of indigenous dispute resolution.<sup>1</sup>

### Hypothesis:

*“Integrating principles of Alternative Dispute Resolution (ADR) with the philosophical and procedural insights of the Indian Knowledge System can enhance the effectiveness, accessibility, and cultural relevance of dispute resolution mechanisms in the Indian legal context, promoting a more harmonious and efficient justice delivery system.”*

### Constitutional and Legal Framework

The foundation of Alternative Dispute Resolution (ADR) mechanisms in India is anchored in the Constitution and various statutory provisions, which emphasize justice, equality, and efficient resolution of disputes. The following constitutional and legal principles outline the framework for ADR mechanisms:

#### 1. Constitutional Provisions

Article 39A of the Indian Constitution mandates the state to ensure equal access to justice and promote mechanisms that deliver free and effective legal aid. ADR aligns with this directive by providing affordable and accessible dispute resolution methods. The Directive Principles of State Policy advocate for social justice and economic welfare, which ADR mechanisms support by fostering amicable and timely dispute resolution.<sup>2</sup>

#### 2. Legal Recognition of ADR in Civil Disputes

The Arbitration and Conciliation Act, 1996: This statute provides the primary legal framework for arbitration and conciliation in India, incorporating provisions from the UNCITRAL Model Law on International Commercial Arbitration. The Code of Civil Procedure (CPC), 1908: Section 89 of the CPC encourages courts to refer disputes for resolution through ADR methods, including arbitration, conciliation, mediation, and judicial settlement.<sup>3</sup>

<sup>1</sup> <https://www.education.gov.in/nep/indian-knowledge-systems>

<sup>2</sup> <https://legislative.gov.in/constitution-of-india/>

<sup>3</sup> [https://www.indiacode.nic.in/bitstream/123456789/11799/1/the\\_arbitration\\_and\\_conciliation\\_act%2C\\_1996.pdf](https://www.indiacode.nic.in/bitstream/123456789/11799/1/the_arbitration_and_conciliation_act%2C_1996.pdf)



### 3. Institutionalization of ADR Mechanisms

The establishment of mediation and arbitration centers under the judiciary and private organizations has strengthened the institutional framework for ADR in India.

Lok Adalats: Governed by the Legal Services Authorities Act, 1987, Lok Adalats are community-based forums that promote consensual settlement of disputes.<sup>1</sup>

### 4. Recognition of Indigenous Practices

The Panchayati Raj System, constitutionally recognized under the 73<sup>rd</sup> Amendment Act, provides a platform for decentralized dispute resolution based on traditional customs and practices. Nyaya Panchayats, though informal, function as community courts that embody the principles of participatory justice rooted in the Indian Knowledge System.<sup>2</sup>

### 5. Specialized ADR Mechanisms

The Commercial Courts Act, 2015: Mandates pre-litigation mediation for certain commercial disputes, encouraging parties to resolve issues before approaching the courts.<sup>3</sup>

Family Courts Act, 1984: Encourages conciliation and mediation for family disputes to maintain relationships and reduce adversarial litigation.<sup>4</sup>

### 6. International Commitments

India's participation in international treaties such as the New York Convention on Recognition and Enforcement of Foreign Arbitral Awards and its adoption of the UNCITRAL Model Law underscore its commitment to ADR.<sup>5</sup>

This legal and constitutional framework reflects India's recognition of the need for ADR mechanisms and highlights the potential to integrate principles from the Indian Knowledge System to create inclusive, efficient, and culturally resonant dispute resolution mode.

### Legal Perspectives and Reflections from the Indian Knowledge System

Conflict is an inherent aspect of human interaction, and resolving disputes effectively is crucial for maintaining societal harmony. While courts are the traditional forums for justice delivery, they often face challenges such as delays, high costs, and procedural complexities. This has led to the emergence of Alternative Dispute Resolution (ADR) mechanisms, which provide efficient and accessible pathways for resolving conflicts outside formal judicial systems. In the Indian context, the relevance of ADR mechanisms is deeply intertwined with the Indian Knowledge System (IKS), which encompasses traditional and indigenous practices of conflict resolution rooted in the country's cultural and philosophical heritage. Additionally, institutionalized ADR mechanisms, such as mediation centers, Lok Adalats, and arbitration tribunals, ensure structured and accessible avenues for resolving disputes. Lok Adalats, governed by the Legal Services Authorities Act, 1987, are particularly noteworthy for their alignment with community-based dispute resolution, embodying principles of consensual settlement and restorative justice. These mechanisms collectively highlight the legal system's emphasis on efficiency, equity, and inclusivity. The Indian Knowledge System offers profound insights into dispute resolution practices that prioritize social harmony and restorative justice. Historically, institutions like the Panchayat system and Nyaya Panchayats have played a pivotal role in resolving conflicts through community-based consensus. These systems emphasized dialogue, reconciliation, and mutual respect, aligning with core principles of modern ADR mechanisms such as mediation and negotiation.<sup>6</sup>

Ancient Indian texts, including the Arthashastra and Manusmriti, outline principles of justice that advocate for non-adversarial conflict resolution. These texts emphasize the importance of impartiality, fairness, and the preservation of social order. For example, the concept of Dharma in the Indian tradition underscores the ethical

<sup>1</sup> <https://blog.ipleaders.in/legal-services-authority-act-1987/>

<sup>2</sup> <https://www.galgotiasuniversity.edu.in/pdfs/Panchayati-Raj-System-in-India-A-Way-Ahead-Rachit-Sharma-Aditya-Bohra.pdf>

<sup>3</sup> [https://indiacode.nic.in/handle/123456789/2156?view\\_type=browse](https://indiacode.nic.in/handle/123456789/2156?view_type=browse)

<sup>4</sup> <https://ijtr.nic.in/family%20matters/05%20Family%20Court%20Pamphlet.pdf>

<sup>5</sup> <https://uncitral.un.org/>

<sup>6</sup> <https://iksindia.org/>



dimension of justice, ensuring that resolutions are not merely transactional but also uphold moral and social values.

### **Integrating IKS with Modern ADR**

Despite their shared principles, modern ADR mechanisms often fail to fully utilize the rich heritage of IKS. Incorporating traditional practices into contemporary ADR frameworks can address several challenges, including the lack of cultural sensitivity in standardized ADR methods. For instance, incorporating community mediation practices inspired by the Panchayat system can make ADR mechanisms more accessible and relatable, particularly in rural and tribal areas. Furthermore, IKS can enhance the effectiveness of ADR in addressing disputes that require nuanced understanding of cultural and social contexts. By harmonizing traditional wisdom with modern legal principles, ADR mechanisms can promote sustainable and inclusive resolutions that resonate with diverse stakeholders.<sup>1</sup>

The integration of IKS with modern ADR mechanisms is not without challenges. One significant barrier is the formal legal system's limited recognition of traditional practices, often perceiving them as informal or outdated. Additionally, there is a need to ensure that indigenous practices align with constitutional values such as equality, non-discrimination, and gender justice. However, these challenges also present opportunities for innovation. Establishing hybrid ADR models that combine statutory frameworks with indigenous practices can bridge the gap between tradition and modernity. Training legal professionals in the principles of IKS and encouraging community participation in ADR processes can further strengthen this integration.<sup>2</sup>

Alternative Dispute Resolution mechanisms offer an effective means of addressing the limitations of the formal judicial system. In the Indian context, these mechanisms are enriched by the Indian Knowledge System, which provides a wealth of traditional wisdom and practices rooted in cultural and ethical principles. By integrating IKS with modern ADR frameworks, India has the opportunity to create dispute resolution mechanisms that are not only legally robust but also culturally sensitive and socially inclusive. This harmonization can serve as a model for other nations, showcasing how traditional knowledge can complement contemporary legal systems to promote justice, equity, and harmony in a rapidly changing world. Alternative Dispute Resolution (ADR) mechanisms are increasingly recognized as essential tools for addressing the limitations of traditional judicial systems.

### **CONCLUSION**

In the Indian context, the integration of ADR with the Indian Knowledge System (IKS) offers a unique opportunity to create culturally sensitive, accessible, and efficient methods of conflict resolution. The historical roots of ADR in India, evident in practices such as Panchayats and Nyaya Panchayats, underscore the value of consensus-driven and community-based approaches to justice. These traditional systems resonate deeply with modern ADR principles, emphasizing harmony, fairness, and restorative outcomes.

While India has established a robust legal framework for ADR through statutes like the Arbitration and Conciliation Act, 1996, and institutional mechanisms such as Lok Adalats, there remains significant untapped potential in incorporating insights from IKS. By harmonizing traditional wisdom with contemporary legal frameworks, India can address challenges such as judicial backlogs, high litigation costs, and the need for socially inclusive dispute resolution systems. Share India's experiences of integrating IKS with ADR in international forums to inspire culturally sensitive dispute resolution practices worldwide. Collaborate with global institutions to create hybrid models that draw from diverse indigenous knowledge systems. By embracing these suggestions, India can enhance the effectiveness and inclusivity of its ADR mechanisms while preserving the rich heritage of its traditional knowledge systems. This approach not only addresses domestic challenges but also positions India as a leader in developing innovative, culturally rooted models of dispute resolution on the global stage.

### **SUGGESTIONS**

- Develop educational modules for legal practitioners and ADR professionals that highlight the principles and practices of IKS.

<sup>1</sup> <https://www.karmanyagurutvam.com/understanding-the-indian-knowledge-system-iks-a-comprehensive-overview>

<sup>2</sup> <https://www.alliance.edu.in/committees/ACADR/assets/publication/Rise-of-Alternative-Dispute-Resolution-Stepping-Towards-Efficient-Justice-System.pdf>



- Promote awareness of indigenous conflict resolution methods to foster culturally informed approaches in modern ADR.
- Encourage the adoption of community-driven ADR frameworks inspired by traditional systems like Panchayats.
- Provide formal recognition to community mediators and traditional dispute resolution bodies, ensuring their practices align with constitutional values.
- Introduce amendments to existing ADR laws to incorporate elements of IKS, ensuring they are adaptable to diverse social and cultural contexts.
- Create legal provisions that support the hybridization of formal ADR mechanisms with traditional practices.
- Conduct comprehensive studies to document and analyze indigenous dispute resolution practices across different regions of India.
- Encourage interdisciplinary research to explore the synergies between IKS and modern ADR systems.
- Engage communities in the design and implementation of ADR mechanisms, ensuring their practices reflect local customs and values.
- Organize awareness campaigns to promote the benefits of ADR, particularly in rural and tribal areas where access to formal judicial systems is limited.

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**UNCOVERING INTERPERSONAL RELATIONSHIPS IN THE DIGITAL ERA THROUGH MARTIN BUBER'S PHILOSOPHY**

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**ABSTRACT:**

*Perhaps, it is easy to say that human existence has lost its essence in this new digital era. Right from financial transactions to communication, it has all encompassed the world of technology. A few philosophers had dreaded this situation wherein the very essence of humanity would be astray. The digital world has invaded our privacy, security, and identity. This paper is an attempt to find out the possibility of bringing back humanity's lost existence through Martin Buber's philosophy. Buber's philosophy of dialogue or conversation takes us into the different realms of our very being. Firstly, he brings about the I-It relationship where the I is the self while the It is an object. We live in a world where we establish mere relationships that help us bring means to an end. Though as shallow as it sounds, this I-It relationship is crucial for Buber in moving towards the more intense human relationship, that is, I-Thou or I-You. The last realm creates a window of possibility in bringing back who we are before all vanishes in the future.*

**Keywords:** Existentialism, essence, existence, Martin Buber, dialogical communication, Interpersonal relationships, digital invasion.

**INTRODUCTION**

The need for philosophy is losing its meaning as we move more towards digitalization. There now exists a valley between mere existence and living. If humanity had to live like the plants or trees do, we would be merely existing. But with the great ability to reason, which makes us rational and different and also more potential beings, we are forgetting our actuality. Existence is itself a huge question on its own. It is the meaning for the very existence which blows life in it, that makes us question our being. If we had to think about what digitalization has done to the world, it would make us feel pity for how the world functions like robots. Everything existing in any form in this world has a good and a bad realm. Though the digital era has made life convenient, it has thrown us into the post-modern world where human conversations have lost their essence. Human life craves meaning and purpose. One might find a purpose to live for, but does one find meaning to live in? When encountered with such questions, it's easier to feel overwhelmed and scared of who we are and to wonder where we belong. Human nature cannot survive without communication because we are social beings. The complexity that one may come across while analyzing one's life, would sometimes question our involvement in the different dimensions of technology.

**1. Impact of Digital Technology on Society**

Every innovation impacts society. Perhaps, it is a moral and ethical question whether it is for the better or the worse. Digitalization has impacted the world around us and how we dwell in it as technology has overpowered man in every aspect. It has opened the doors for various job opportunities. Social media and its tools have redefined the distance between people. Making socializing easier, it has also a long list of the aftermath. Digital addiction has increased the number of offences and crimes. From fraud to murder, every anti-social act has been closely associated with the elements of digitalization. Social media has highly impacted people of all age groups, right from infancy to old age, leaving none behind. The purpose of the technology has now been lost. Man is now an instrument to it, which was created as a tool to serve man. With these, it calls for more physical and psychological damage. It has redefined the social structure bringing philosophical questions into discussion. Making lives vulnerable, every act questions one's identity. We are left with likes and ratings to define who we are; making us question our authenticity. Cybersecurity is a major issue, especially affecting the elderly and tech illiterate, leaving behind a wide gap between different classes of society and how they function. Mental health is another issue faced and also neglected by the majority. An increase in self-harm cases that includes social media has now become a trend hitting the headline news. One can feel the void that has been created by the overuse of the internet when one has no access to it due to technical reasons. Are we doing anything to save ourselves from this ever-widening void, this question, perhaps, may bring on to self-contemplation.

**2. Martin Buber's Philosophy of Dialogue and Philosophy in Digital World**

Martin Buber (1878-1965) an Austrian-Israeli philosopher, propounded the philosophy of dialogue through his book *I and Thou* (Translated from German *Ich und Du*). His focus on interpersonal relationships might make one wonder about their attitude toward the world outside. Influenced by Immanuel Kant, Søren Kierkegaard, and Friedrich Nietzsche, his writings also challenge them. His main emphasis on the relation between social



relationships or intersubjectivity and the development of human imagination can be seen in his sociological work. In his book, *I and Thou*, he mentions the first relationship or attitude that Buber calls the “*I-It*”. His focus is on the phony ‘subject and object’ relationship that captures the superficial understanding of the workings of our relationships. We can assume an example wherein you notice a beggar sitting on the street whom you happen to notice every day. One fine day, you are looked back upon by the same beggar, who stares into your eyes. The uncomfortable situation that you feel, makes you aware of the other person as not a beggar but a human being just like you. This existing situation what Buber calls “meeting” is one of his central concepts. In such moments, the “recognition” or the “encounter” that one feels while connecting with the another, moves us to the second attitude as Buber says, the *I-Thou* or *I-You*. One may perhaps, never encounter the *I-Thou* unless one gets involved in the *I-It* attitude. The opening of the *I-It* portal is important because it allows a person to shift from the mundane and unaware state of mind to the conscious and reactive state which is the *I-Thou*, the ‘subject and subject’ relationship.

One does not attain any knowledge if one does not interact with the world outside. Life is not about a fish in a pond but about the one swimming inside a deep, vast ocean. The ocean brings endless possibilities and endless encounters with several things that are observed and several things that are yet to be discovered. Humans as social beings would never survive without any interpersonal interaction and such interactions become authentic when there is an interpersonal relationship. Such attitudes are highly affected when one throws itself into the digital world and cuts out on all sorts of human interaction. Communication plays a vital role in understanding ourselves through others. Today, social media opens a portal where one seeks validation from others and lacks one’s authenticity and uniqueness. If any sort of digital idea replaces the reality or actuality of the human race, it will eventually bring an end to human communication letting everyone use each other as a means to their ends. Buber’s *I-Thou* attitude helps us to feel less lonely and reach out when one needs the other. The alienation that the digital era brings due to its misuse can be tackled through one’s understanding of Buber’s philosophy. Social media and other sorts of technologies have limited our way of interacting with the world. In the era of entertainment, one might forget how to live and carry on living a meaningless life, which is a bothering question for existentialism.

## CONCLUSION

Digitalization has affected how humans interact with each other. Man has moved from a ‘subject and subject’ relationship toward the ‘subject and object’ relationship. This calls for interactive relations at the need of the hour. Before the modern digital era took over the world where human communication existed, we must realize the ways to save humanity from being extinct. Buber’s philosophy of dialogue is what the world needs to understand which brings a ray of hope for empathic and living human survival, failure to which, humans would forget the ability to reason and let the world of computation and social media take over their lives. The unlimited human imagination can both save and destroy the race. It is how we limit ourselves from throwing ourselves from destruction to complete survival. One needs to realize that the *I-It* attitude also understood as a ‘subject-object’ attitude must be limited to the technology and not towards the ones who live just like us.

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**A STUDY ON THE IMPACT OF AI TOOLS ON STUDENT INTELLECTUAL DEVELOPMENT AND LEARNING OUTCOMES IN BUSINESS SCHOOLS**

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**ABSTRACT**

**Purpose:** *This study examined how artificial intelligence (AI) tools affect the cognitive growth and learning outcomes of postgraduate students in business schools in Mumbai.*

**Design/methodology/approach:** *This study employed a quantitative approach utilising a cross-sectional survey to gather data from 200 postgraduate students in Mumbai. Research objectives include the structure of joining questionnaires to distinguish the use of AI tools; students' positive perceptions of tools on the development of the mind, such as critical, problem-solving, and analytical skills; and educational achievements, including performance-based and knowledge retention. The relationships between these variables were studied using regression analysis.*

**Findings:** *Students frequent usage of AI tools was established as a result of the interactions between students' AI tutoring systems and intelligent personal assistants are of significant use. Regression analyses demonstrated a positive relationship between the usage of AI tools and intellectual development ( $R^2 = 0.0593$ ,  $p < .001$ ) and strong positive relations with learning outcomes ( $R^2 = 0.442$ ,  $p < .001$ ). The findings suggest that the use of aids in any form of Artificial Intelligence purports improvement in academic performance and better articulation in critical thinking, problem solving, and analysis.*

**Practical Implications:** *The practical implications for teaching and learning indicate that AI tools can improve students' intellectual development and learning outcomes. Incorporating them into a course is a step that teachers and faculty members must consider. Critical thinking and analytical skills are impressed upon by students while also being important for academic performance.*

**Originality/value:** *This study contributes to the empirical literature on AI in education to demonstrate an outstanding impact on postgraduate students' intellectual development and learning outcomes. The tremendous relevance of AI tools for the maturation of the skills needed for teachers and professional careers is highlighted.*

**Keywords:** *AI tools, intellectual development, learning outcomes, postgraduate students, business schools*

**INTRODUCTION**

Artificial Intelligence is becoming more common for its incorporation in different areas of education, providing unique opportunities, and modifying the conventional forms of education. AI in education is implemented using cross-sectional approaches and strategies to improve learning and execute educational objectives. Some of those that have been published include AI, which can help with personalised learning, learning support, and even with flexibility in the learning environment (Edeni, 2024; Tahir, 2024). AI technologies such as AI analytics and Intelligent Tutoring Systems have been applied to cultivate students' AI thinking, develop onlara critical thinking, and enhance their STEAM Learning Competencies (How & Hung, 2019; Ma, 2024). Further, the adoption of AI in learning institutions has promoted the use of AI assessment tools that evaluate teachers' perceptions of AI assessment in e-learning settings (Prieto et al., 2019). This underscores the need to identify teachers' beliefs about AI applications in order to improve their acceptance and usage. Furthermore, more studies have highlighted the importance of teaching children and college students' AI ethics and uploading those contents into the school curriculum to enhance positive perceptions of and responsible use of AI (Shih et al., 2021; Zhang, 2024). Despite the great potential shown for the positive impact of AI in education, the problem areas have been outlined by the author as privacy issues, preconceptions, trust, and a lack of ability to mimic inspiration (Pallivathukal, 2024). Moreover, ethical concerns regarding the utilisation of AI in education have implications that give a clear message of the ethical issues surrounding the use of AI and the correct usage of the technologies (Klímová et al. 2023). Thus, the integration of AI in education has great value and the following positive effects of individualisation with flexible personalised learning environments and mechanisms and support and solutions of existing barriers in traditional education systems. However, further questions about privacy, prejudice, and conflicts of interest are necessary for the essence of AI integration in the academic environment.



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**Importance of Studying the Impact of AI Tools in Business Education**

The study of the impact of AI technologies on business education is important for several reasons. Leveraging technologies, such as artificial intelligence and learning experiences, are personalised and responsive to the diverse needs of each learner (Srivastava, 2024). Integrating AI solutions into business education can enhance the learning process and provide students with more productive and personalised education. This paradigm shift across the world is foundational to preparing business leaders of the future to leverage technology for innovation, data-based decision-making, and insights led to leadership in an unpredictable world (McLaren 2024). By understanding and exploring the impact of AI tools, educators can equip students with the vital skills needed to adapt and thrive in the technologically advanced future.

AI-fuelled assessment and evaluation tools similarly transform the education system by speeding up evaluations, removing biases, and helping to identify issues in progress (Nomerovska, 2024). It can also align the student better with the field they wish to enter while creating a more equal system of evaluation using their skills rather than information that may discriminate against them. Furthermore, it could help in improving academic writing skills by regulating the use of AI tools in writing curricula, which could reinforce the quality of instruction received, yet still hold academic integrity standards (Aljuaid, 2024). Therefore, by exploring the influence of AI tools on learning, educators can better decide how to appropriately initiate the use of AI to teach vital skills that will help improve the quality of instruction as a whole.

There are also several challenges associated with the implementation and use of AI in education, including privacy and surveillance, bias and discrimination, and the role of human judgment, according to Nomerovska (2024). Thus, knowing the impact of AI tools, educators will be in a better position to make correct decisions and teach others about the same. In addition, business education should not only prepare students to become managers but also entrepreneurs (Sollosy & McInerney, 2022). This will enable students to be aware of the right place, right time, and right way of using AI and data analytics tools, encourage creativity, and equip them for a dynamic business environment.

In conclusion, studying the impact of AI tools in business education is essential for transforming the learning experience, preparing future leaders, enhancing assessments and evaluations, improving instructional quality, addressing ethical considerations, and fostering innovation. By understanding the implications and potential of AI in education, educators can effectively integrate AI tools into business education and equip students with the skills that they need to succeed in a technologically advanced world.

**OBJECTIVES**

1. To evaluate the impact of different types of AI tools on the intellectual development and learning outcomes of students in business schools.

**HYPOTHESIS:**

1.  $H_0$ : There is no significant relationship between the usage of AI tools and intellectual development.
2.  $H_0$ : There is no significant relationship between the usage of AI tools and Learning outcomes.

**LITERATURE REVIEW:**

AI-powered solutions such as Intelligent Tutoring Systems (ITS) and adaptive learning platforms are changing the learning environment by tailoring learning materials according to students' individual needs and understanding levels (Roll & Wylie, 2016). Such innovative platforms scan student outcomes to provide instant feedback and personalised learning sequences, making education much more efficient (Luckin et al., 2016). Moreover, AI applications can even perform mundane admin tasks such as marking and timetabling, which leaves more time for educators to teach and engage students. Automation of essay evaluations and AI-driven onboarding, for instance, simplifies administrative work (Ellis, 2019). In addition, the introduction of chatbots and virtual assistants increases efficiency by answering students' queries and providing information on demand (Winkler & Söllner, 2018).

It concerns AI for access to education. Adding speech-to-text and text-to-speech functionality to your application provides services which are useful for disabled students (Beal, 2019), and several other functions, such as language translation and live captioning, help native speakers to communicate, thus promoting inclusivity in learning (Heitmeier, 2020).

But how much AI actually enhances learning is still an open question. Some studies have reported such a case, and significant benefits are achieved, while others report marginal effects (Holstein et al., 2019). Furthermore, there are doubts about AI being another type of biased (or similar) AI algorithm that could exacerbate current



education inequality. Researchers have emphasised the need to create interpretable AI models to ensure fair treatment (Eubanks 2018).

The implementation of AI in educational settings raises considerable concerns regarding data privacy and ethics. Robust measures are essential to safeguard student information and ensure adherence to data protection laws, such as the GDPR, when AI systems gather and utilise student data (Selwyn, 2019). In addition, ethical considerations should be considered to prevent potential misuse of AI which may impact students' educational experience and sensitive information (Williamson et al., 2020). Furthermore, the long-term effects of AI tools on education have not been thoroughly studied. Work that is now accessible mostly concentrates on immediate results, which leaves the long-term consequences of integrating AI unclear (Chen et al. 2020).

Another significant area that still requires in-depth research is how teachers operationalise and modify AI tools to suit their specific needs. Although research on this question is still in its nascent stage, it is evident from the literature that suitable training and support are critical for the effective use of AI tools (Yin, 2020). Moreover, scant literature has reported on the effect of AI tool use in disadvantaged and low-resource educational settings, raising the need to equitably share the AI windfall (Dede, 2018).

Most studies agree that AI tools are useful in improving learning outcomes by enabling tailored learning experiences. For instance, AI-enabled systems modify tasks to the level of the student, thus facilitating understanding and retention (Holmes et al., 2019). They are able to respond to different speeds and styles of learning, and this makes them different in a big way from the one size fits all techniques that have characterized teaching methods in the past (Chaudhary, Nayak, & Panigrahi, 2020). There is a good body of evidence of AI's potential of AI to increase interest and motivation among learners, although some studies have reported mixed results on other indicators of educational progress, such as test scores (Luckin et al., 2016). This paradox seems to mean that, on the one hand, while AI has the potential to revolutionise learning experiences, it raises questions on what the net effect will be on the attainment of educational goals.

The tailoring features offered by AI applications present great benefits by modifying educational content to suit the specific needs of each individual student. Such customisation may lead to learning experiences that are superior to the more uniform practices characteristic of traditional education systems (Chaudhary et al., 2020). However, there is concern that AI technology may enhance a new type of uniformity, for example, focusing on easily remedied aspects at the expense of wider educational aspirations such as children's imagination and creativity<sup>148</sup> (Selwyn, 2019). This controversy suggests that caution should be exercised when adopting AI in education in a manner that hampers other, equally important goals. As far as educational AI is concerned, it also entails changing relationships between the teacher and learner other than the one where learners are able to learn at their own pace or in a tailored fashion. It should assist teachers with non-creative work, such as marking, enabling them to devote more effort to high-level interactive teaching-learning activities (Sharma & Giannakos, 2020). This change may improve the quality of teaching and at the same time increase the intensity of relationships between teachers and children. However, there is concern about excessive reliance on AI, which could mean less involvement of teachers and a decline in personal exchanges (Williamson, 2017). Finding a balance between the help provided by AI, where it can function as a supporting tool, and teachers' active participation is critical to ensuring the retention of the relational aspects of education.

Despite the anticipated advantages of AI in education, there are still many gaps in the literature. Few long-term studies have investigated the effects of AI tools on learning outcomes. Most studies have concentrated on short-term outcomes, thus limiting insights into the lasting effects. Most studies take place in higher education and affluent settings; therefore, additional studies in other educational contexts, including less-privileged schools and various cultural settings, are required. Much of the research focuses on cognitive outcomes, such as test scores, with much less consideration given to affective outcomes, such as motivation, emotional engagement, and socio-emotional skills development. Addressing these gaps is part of the understanding AI's role of AI in education.

In conclusion, the integration of AI tools in education shows tremendous potential for improving student learning through personalised learning experiences and efficient resource allocation. The literature presents inconclusive findings regarding the effectiveness of these technologies overall and opens important discussions about the concepts of personalisation versus standardisation and the changing roles of instructors. It is crucial to fill the gaps in the longitudinal effects and applicability of AI across educational contexts. Future research should focus on the development of a multimodal understanding of the role of AI in education, including long-term studies, a variety of contexts, and holistic effects on both cognitive and affective educational outcomes. The reasons abound as to why it is critical to research the impact of AI tools on business education. By etching



the impact of AI on teacher training, curriculum design/human resource evaluation, research and training of future leaders, assessment/evaluation, teacher quality, ethical issues, and encouraging innovation. By recognising the implications and prospects of AI in education, educators will be better prepared to benefit from AI tools in business education to empower students with knowledge of skills for sustainable success in a technologically advanced world.

RESEARCH METHODOLOGY

This study employed a quantitative methodology to methodically examine the effects of artificial intelligence tools on the intellectual growth and educational achievements of students in business schools. The research utilised a cross-sectional survey methodology, focusing on postgraduate learners enrolled in business programs. A convenience sampling technique was implemented with 200 students chosen from Mumbai.

The data-gathering process involved a structured questionnaire developed through comprehensive literature analysis and consultation with experts. The survey instrument comprised closed-ended questions and Likert-scale items to collect quantitative information on the use of AI tools, student perceptions, intellectual development (encompassing critical thinking, problem solving, and analytical abilities), and learning outcomes (including academic performance and knowledge retention). Before full implementation, the questionnaire was pilot-tested with approximately 20 students to enhance its clarity, reliability, and validity.

Cronbach's alpha coefficients were calculated to assess the internal consistency and reliability of the questionnaire items related to AI tool usage, intellectual development, and learning outcomes, ensuring that all the coefficients exceeded the recommended threshold of 0.7. Data collection was conducted electronically over a specified period, with paramount ethical considerations; participants provided informed consent, assured confidentiality, and the right to withdraw.

Through descriptive statistics, such as frequencies and means, data analysis described participant demographics and the patterns of usage of the AI tools. Regression analyses established the relationships between the use of AI tools and cognitive development or learning outcomes. Limitations include potential modifications of the sample size for generalisability and self-reporting biases in participant responses.

This methodology rigorously investigates how AI tools affect students' cognitive development and learning outcomes in business schools. Employing strong quantitative approaches in addition to ethical considerations, this study sought to make valuable contributions toward incorporating AI tools into educational fields.

RESULT

Table 1: Demographic variables

Age	Counts	% of Total
21-22	66	33.0 %
23-25	91	45.5 %
Above 25	43	21.5 %
Gender	Counts	% of Total
Male	100	50.0 %
Female	100	50.0 %

Table 1 provides insights into the distribution of age and sex among participants. Regarding age distribution, the majority of the population (45.5%) fell within the age of 23-25. Participants in the age-21-22 constitutes 33%, and 21.5% were older than 25 years.

This study also demonstrated equal gender parity among male and female students. This balanced gender representation suggests that the study sample is representative of gender diversity, which is crucial for ensuring diverse perspectives and mitigating gender bias in the study findings.

Table 2: Type of AI Tools Used	Never used	Rarely used	Sometimes used	Often used	Always used	Mean	SD
I use AI tutoring systems.	11.0 %	5.0 %	10.0 %	48.5 %	25.5 %	3.73	1.22
I use intelligent personal assistants (e.g., chatbots).	9.0 %	6.5 %	13.5 %	45.0 %	26.0 %	3.73	1.18
I use AI-based content delivery	8.0 %	15.0 %	38.5 %	31.0 %	7.5 %	3.15	1.03



platforms.							
I use adaptive learning systems.	11.0 %	11.5 %	18.5 %	44.0 %	15.0 %	3.4	1.2
I use AI-driven analytics tools.	9.0 %	16.5 %	28.5 %	31.5 %	14.5 %	3.26	1.17
I use AI tutoring systems.	17.0 %	26.5 %	20.5 %	26.5 %	9.5 %	2.85	1.26

Table 2 provides a breakdown of the frequency of AI tool usage across sample participants. Each row corresponds to a specific type of AI tool, and the columns represent the percentage distribution of participants based on their reported usage frequency along with the mean score and standard deviation (SD) for each tool.

For the "AI tutoring systems", the most commonly used category is "Often used" (48.5%), followed by "Always used" (25.5%). This indicates that a significant proportion of participants frequently utilised AI tutoring systems, with an average mean score of 3.73 and a moderate standard deviation of 1.22, suggesting moderate variability in usage intensity among participants.

"Intelligent personal assistants (e.g., chatbots)" show a significant frequency of use, with 45.0% of participants indicating they are "Often used" and 26.0% stating they are "Always used." This led to a mean score of 3.73, accompanied by a slightly lower standard deviation of 1.18, suggesting a reliable level of usage among respondents.

On the other hand, "AI-based content delivery platforms" reveal a different trend, as most users reported "Sometimes used" (38.5%) and "Often used" (31.0%). This pattern resulted in a lower mean score of 3.15 and a standard deviation of 1.03, indicating a wider range of usage variability.

Meanwhile, "adaptive learning systems" and "AI-driven analytics tools" have their usage spread across various categories, with significant portions falling into "Often used" and "Sometimes used." These tools have mean scores of 3.4 and 3.26, respectively, reflecting moderate to high usage levels, though there's some variability in usage intensity among participants, as shown by their standard deviations of 1.2 for adaptive learning systems and 1.17 for AI-driven analytics tools.

Overall, the data revealed differing levels of adoption and usage intensity for various AI tools among the study participants. AI tutoring systems and intelligent personal assistants seem to be utilised more frequently than AI-based content delivery platforms, which exhibit a more irregular usage pattern.

Table 3: Frequency of AI Tool Usage	% of Total
Never	10.0 %
Occasionally	9.0 %
Daily	21.0 %
Weekly	43.5 %
Monthly	16.5 %

The distribution of participants' use of AI tools is shown in Table 3 as a proportion of the entire sample. The findings showed that Most participants regularly used AI technologies, with 21.0% reporting daily use and 43.5% reporting weekly use. This distribution shows that a significant portion of the sample regularly engaged in AI technology as part of their professional or educational pursuits. Additionally, a sizable proportion of individuals (16.5%) reported using AI tools monthly, indicating regular and infrequent use. A minority of participants (10.0%) reported never using AI tools, whereas a smaller fraction (9.0%) reported using them occasionally. These results demonstrate the widespread integration of AI tools into the daily and weekly routines of the study participants. This widespread use suggests a growing reliance on AI technology in both professional and educational contexts, which could impact output, learning outcomes, and general effectiveness.

Table 4: Purpose of AI Tool Usage	Never	Rarely	Sometimes	Often	Always	Mean	SD
I use AI tools for coursework and assignments.	19.0 %	21.0 %	20.5 %	30.5 %	9.0 %	2.9	1.28
I use AI tools for research and information gathering.	6.5 %	13.5 %	13.5 %	50.0 %	16.5 %	3.56	1.11
I use AI tools for skill development (e.g., coding,	9.0 %	13.0 %	21.0 %	46.0 %	11.0 %	3.37	1.12



data analysis).							
I use AI tools for administrative tasks (e.g., scheduling, reminders	15.0 %	31.0 %	28.0 %	22.0 %	4.0 %	2.69	1.1

Table 4 shows the intensity and diversity of usage across many categories by revealing the reasons individuals utilise AI technologies along with the related mean scores and standard deviations (SD).

A sizable portion of the respondents frequently employed AI tools for coursework and assignments. Actually, 20.5% of respondents said they use these tools occasionally, while 30.5% said they use them "very often." The average score for this usage pattern was 2.9; however, the standard deviation was particularly high at 1.28.

This disparity is noteworthy, suggesting that students have varied degrees of addiction to AI technologies in their academic lives and prefer a wide range of options. The various ways in which students integrate AI support into their coursework and assignment fulfilment procedures are demonstrated by the variety of usage patterns.

Regarding "research and information gathering", 50.0% of the interviewees reported using AI technologies frequently, while 16.5% said they always did so. This category shows more consistent patterns of use for research than for coursework, with an overall mean score of 3.56 and a standard deviation of 1.11.

However, participants also utilised AI technologies for "skill development", with 21.0% reporting occasional use and 46.0% reporting regular use. This shows an average amount of use of AI technologies to enhance abilities such as coding and data processing, with a mean score of 3.37 and a standard deviation of 1.12. The distribution of utilisation for "administrative tasks", on the other hand, was more evenly distributed across the various categories, with the largest percentage (31.0%) using AI tools infrequently, and 28.0% occasionally. With a standard deviation of 1.10 and a mean score of 2.69, this category showed a moderate degree of variation in the intensity of utilisation for administrative purposes.

In conclusion, the data highlight the diverse purposes for which participants integrate AI tools into their activities, including coursework, research, skill development, and administrative tasks. The varying mean scores and standard deviations across categories underscore different levels of reliance and consistency in AI tool usage.

<b>Table 5:</b> Intellectual Development	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Mean</b>	<b>SD</b>
AI tools have enhanced my critical thinking skills.	10.0 %	13.5 %	30.0 %	38.5 %	8.0 %	3.21	1.1
AI tools have improved my problem-solving abilities.	11.0 %	18.5 %	18.0 %	37.5 %	15.0 %	3.27	1.24
AI tools have developed my analytical skills.	10.5 %	24.5 %	23.5 %	36.0 %	5.5 %	3.02	1.12
AI tools have fostered	8.5 %	27.5 %	21.0 %	33.0 %	10.0 %	3.08	1.16

Table 5 presents the reactions with respect to the observed effect of AI instruments on participants' mental advancement over different measurements, along with side cruel scores and standard deviations (SD) reflecting the concentration and consistency of these perceptions.

Participants' views on AI apparatuses upgrading basic considering aptitudes showed that 38.5% concurred and 8.0% unequivocally concurred, contributing a cruel score of 3.21 with a direct standard deviation of 1.1. This recommends a large positive but to some degree changed discernment among members with respect to the impact of AI apparatuses on basic thinking.

Regarding problem-solving capacities, 37.5% concurred, and 15.0% unequivocally confirmed that AI tools improved these abilities. A cruel score of 3.27 and the next standard deviation of 1.24 show somewhat more changeability in recognition compared to basic aptitudes, reflecting varying levels of affect seen by participants.

Regarding explanatory aptitude advancement, 36.0% concurred and 5.5% unequivocally concurred that AI devices have contributed emphatically. A cruel score of 3.02, with a standard deviation of 1.12, proposes direct assentation among members, with a few changes within the observed impacts on expository abilities.



Finally, in terms of cultivating imagination, 33.0% concurred and 10.0% concurred unequivocally with the explanation. A cruel score of 3.08 and a standard deviation of 1.16 demonstrate a direct agreement among members with respect to the impact of AI instruments on imagination, with shifting degrees of seen impact.

In conclusion, the information revealed that participants, for the most part, see AI devices emphatically in terms of upgrading basic considerations, problem-solving, explanatory abilities, and imagination. While there is agreement that AI apparatuses contribute to mental improvement in these measurements, the inconstancy in standard deviations recommends contrasting person encounters and discernments.

<b>Table 6: Learning Outcomes</b>	<b>Much worse</b>	<b>Worse</b>	<b>No impact</b>	<b>Better</b>	<b>Much better</b>	<b>Mean</b>	<b>SD</b>
AI tools have affected my academic performance (grades, GPA).	9.0 %	7.5 %	16.5 %	40.5 %	26.5 %	3.68	1.2
AI tools have influenced my knowledge retention.	9.5 %	10.5 %	16.0 %	39.5 %	24.5 %	3.59	1.23
AI tools have helped me apply concepts in practical scenarios.	12.0 %	9.5 %	16.5 %	41.5 %	20.5 %	3.49	1.26
AI tools have	9.5 %	17.5 %	31.5 %	31.5 %	10.0 %	3.15	1.12

Table 6 provides insights into how participants perceived the impact of AI tools on their learning outcomes across various dimensions, accompanied by mean scores and standard deviations (SD) indicating the intensity and variability of these perceptions.

The survey results concerning the influence of AI tools on academic achievement (grades, GPA) revealed that 67% of respondents reported improved performance, with 40.5% noting enhancement and an additional 26.5% indicating better results. The data yielded a mean score of 3.68 and a standard deviation of 1.2, suggesting that most participants perceived a positive impact on their academic performance due to AI tools. However, the standard deviation indicated some variation in the degree of improvement reported by the respondents.

In terms of knowledge retention, 39.5% of the respondents felt that AI tools had a positive impact, with 24.5% reporting significantly improved retention. The average score of 3.59, coupled with a standard deviation of 1.23, indicated a general consensus among participants that AI tools enhance knowledge retention, albeit to varying degrees.

Participants also acknowledged the role of AI tools in applying concepts in practical scenarios, with 41.5% reporting better applications and 20.5% indicating much better applications. This results in a mean score of 3.49 and a standard deviation of 1.26, reflecting a generally positive perception of AI tools facilitating the practical application of learning.

10.0% of the participants indicated significantly superior learning outcomes, whereas 31.5% of the participants thought AI technologies had a good impact on their overall learning outcomes. Although there is some variation in how each participant perceives the positive effects of AI tools on learning outcomes, the mean score of 3.15 and standard deviation of 1.12 point to a moderate level of agreement across participants.

According to the findings, participants generally had a positive perception of the effects of AI tools on academic achievement, knowledge retention, and the application of concepts in real-world situations. Despite differing opinions, these results highlight how AI techniques can improve the number of learning-outcome components.

### Testing of Hypothesis:

**H<sub>0</sub>: There is no significant relationship between the usage of AI tools and intellectual development.**

### RESULT:

Based on linear regression analysis, the model aimed to examine the relationship between the usage of AI tools and intellectual development. Overall model fit was assessed using several measures. The coefficient of determination ( $R^2$ ) was 0.0593, indicating that approximately 5.93% of the variance in intellectual development can be explained by the predictor variables included in the model. The adjusted  $R^2$  value, which considers the number of predictors, was slightly lower at 0.0545.



Using an F-test, the overall model test yielded a statistically significant result ( $F(1, 198) = 12.5, p < .001$ ), suggesting that the model as a whole provides a better fit than the intercept-only model. This indicates that the use of AI tools significantly predicted intellectual development among study participants.

Further examination of the specific predictor, usage of AI tools, was found to have a statistically significant positive effect ( $\beta = 0.112, p < .001$ ) on intellectual development. This suggests that individuals who reported a higher usage of AI tools tended to have higher levels of intellectual development, holding other factors constant.

In conclusion, the findings support the hypothesis that there is a positive relationship between the use of AI tools and intellectual development in the sample population. This finding implies that integrating AI tools into educational or cognitive tasks may enhance intellectual growth. However, it is important to note that while statistically significant, the effect size ( $R^2 = 0.0593$ ) suggests that the use of AI tools explains only a small proportion of the variance in intellectual development, highlighting the need for further research into other contributing factors.

Linear Regression							
Model Fit Measures							
				Overall Model Test			
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F	df1	df2	p
1	0.243	0.0593	0.0545	12.5	1	198	< .001

Omnibus ANOVA Test					
	Sum of Squares	df	Mean Square	F	p
Usage of AI Tools	143	1	142.7	12.5	< .001
Residuals	2266	198	11.4		
Note. Type 3 sum of squares					

Model Coefficients - Intellectual Development							
			95% Confidence Interval				
Predictor	Estimate	SE	Lower	Upper	t	p	Stand. Estimate
Intercept	8.523	1.1735	6.2086	10.837	7.26	< .001	
Usage of AI Tools	0.112	0.0318	0.0496	0.175	3.53	< .001	0.243

## 2. $H_0$ : There is no significant relationship between the usage of AI tools and Learning outcomes.

### RESULT:

The linear regression model exhibited a moderate fit with an  $R^2$  of 0.442, indicating that 44.2% of the variance in learning outcomes can be explained by the use of AI tools. The Adjusted  $R^2$  remains consistent at 0.439, suggesting robust explanatory power that is not significantly improved by additional predictors. The model's overall significance ( $F(1, 198) = 157, p < .001$ ) confirms the statistically significant relationship between AI tool usage and learning outcomes.

The ANOVA test reinforced the significance of the model, with a large F-statistic of 157 and a very low p-value ( $< .001$ ). The sum of squares for AI tool usage (1456.56) was significantly higher than the residual sum of squares (9.29), indicating that the variance in learning outcomes explained by AI tool usage was statistically significant compared to random error.

Examining the coefficients, the intercept ( $\beta = 0.949, p = 0.371$ ) suggests that, without AI tool usage, the expected learning outcome score does not significantly differ from zero. However, AI tool usage showed a strong positive association with learning outcomes ( $\beta = 0.359, p < .001, 95\% \text{ CI } [0.302, 0.415]$ ), implying that for every unit increase in AI tool usage, learning outcomes are predicted to increase by approximately 0.359 units, holding other variables constant.

### Conclusion:

In conclusion, the hypothesis that greater usage of AI tools positively affects learning outcomes is strongly supported by the findings. Regression analysis indicates that educational institutions can effectively enhance



student learning outcomes by integrating AI tools into their practices. As AI tools become more prevalent in education, they offer opportunities to significantly improve educational effectiveness and student success

Linear Regression							
Model Fit Measures							
				Overall Model Test			
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F	df1	df2	p
1	0.665	0.442	0.439	157	1	198	< .001

Omnibus ANOVA Test					
	Sum of Squares	df	Mean Square	F	p
Usage of AI Tools	1457	1	1456.56	157	< .001
Residuals	1840	198	9.29		
<i>Note.</i> Type 3 sum of squares					

Model Coefficients - Learning Outcomes							
			95% Confidence Interval				
Predictor	Estimate	SE	Lower	Upper	t	p	Stand. Estimate
Intercept	0.949	1.0574	-1.136	3.034	0.897	0.371	
Usage of AI Tools	0.359	0.0287	0.302	0.415	12.52	< .001	0.665

## DISCUSSION

This study aims to evaluate the impact of AI tools on students' intellectual development and learning outcomes in business schools. The findings provide robust evidence that supports the hypothesis that greater usage of AI tools positively influences both intellectual development and learning outcomes among postgraduate students.

**Intellectual development:** A statistically significant correlation between the employment of AI tools and intellectual development was found via regression analysis. In particular, students who reported using AI tools more frequently also showed stronger levels of creativity, critical thinking, problem-solving, and analytical capabilities. The results highlighted the positive effects of incorporating AI tools into teaching methods, even though the effect size was low ( $R^2 = 0.0593$ ), suggesting that the use of AI tools accounts for a small percentage of the variance in intellectual development. Numerous studies have confirmed that AI tools and intellectual capacity are positively correlated. For example, Holmes et al. (2019) found that by providing individualised feedback and adaptive learning pathways, AI-based educational platforms greatly improve students' critical thinking and problem-solving abilities. Similarly, Zawacki-Richter et al. (2019) emphasised that AI facilitates complex problem solving through interactive simulations and instant analytics, aligning with the modest effect size ( $R^2 = 0.0593$ ) noted.

**Learning Outcomes:** Regression study also showed a high positive correlation between learning outcomes and the use of AI tools. Regular users of AI technologies have reported higher academic achievement, better retention of information, and superior application of concepts in real-world situations. The large effect size ( $R^2 = 0.442$ ) indicates that AI tools may explain a considerable amount of diversity in learning outcomes, underscoring their potential to improve the efficacy of education. There is substantial evidence in literature that AI improves academic performance. According to Hamdan et al. (2021), students who used AI-based learning tools saw significant increases in their grade point averages and test scores, supporting the study's large effect size ( $R^2 = 0.442$ ) for learning outcomes.



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**Implications of Findings for Business Education and Practice**

These findings have important implications in business education. The efficiency of teaching and learning procedures can be improved by incorporating AI technology into the educational design and execution. By using AI-based tutoring systems, intelligent personal assistants, adaptive learning platforms, and AI-powered analytical tools, educators may tailor their training to each student's needs, promote active engagement, and create deeper connections with course material. In addition to raising student accomplishments, this individualised approach gives students the fundamental skills needed in today's digital environment.

According to our research, graduates who have received AI-driven education and improved analytical, critical thinking, and problem-solving abilities are better suited to handle challenging situations at work. Graduates who have been exposed to AI technologies during their academic careers can be advantageous to employers because they are likely to offer fresh insights and technological proficiency in organizational settings.

**Limitations of the Study and Suggestions for Future Research**

Despite the insightful information obtained, this study has certain limitations. First, the applicability of the results to larger student groups in various geographic and cultural contexts is limited by convenience selection from a single metropolitan area (Mumbai). To confirm the robustness of the results, future studies should consider more representative and diverse samples.

Second, using structured surveys to collect self-reported data exposes researchers to potential biases such as response set effects and social desirability. More detailed information about how students engage with and profit from AI tools in real-time learning environments can be obtained by incorporating qualitative approaches or observational studies.

Additionally, although the immediate effects of AI tools on learning outcomes and intellectual growth are the main focus of this study, longitudinal research might examine the long-term consequences on professional careers outside academic settings. Comprehensive insights into the revolutionary potential of AI in education can be gained by comprehending how career paths and lifetime learning habits are affected by AI-enhanced educational experiences.

**CONCLUSION**

Several important inferences can be drawn from the findings of this study regarding how AI technologies affect business school students' learning outcomes and intellectual growth. First, there is a definite positive correlation between postgraduate students' intellectual growth and their use of AI tools. These include enhancements in analytical, creative, problem-solving, and critical-thinking capabilities. Additionally, incorporating AI tools considerably improves learning results; students report higher academic achievement, better retention of information, and more successful application of concepts in real-world situations.

This study also identified common usage trends, showing that intelligent personal assistants and AI teaching systems are extensively used for research, coursework, and skill development. These tools are increasingly included in educational routines, as evidenced by the large number of students who regularly use them. Teachers, legislators, and business education practitioners can benefit from these insights. AI-driven platforms provide instructors with a significant chance to improve student engagement and the efficacy of their instruction. To meet a range of learning needs, these tools can support interactive tutoring, adaptive assessments, and personalised learning experiences. Policymakers are urged to support teacher-training programs, encourage the incorporation of AI technologies into educational frameworks, and guarantee fair access to AI technology.

Graduates with AI competencies in professional decision-making, data analysis, and problem solving are advantageous to practitioners. Businesses may generate trained workforces capable of utilising technology for innovation and expansion by investing in collaboration with educational institutions to create AI-driven learning environments.

AI tools will play a crucial role in future business education. As technology develops, AI will become increasingly important in preparing students for the challenges of contemporary workplaces. Future leaders should be better prepared to succeed in a changing global economy if AI is used responsibly and creatively, which has the potential to promote sustainable growth and innovation. This study provides valuable insights into maximising the benefits of AI in education while addressing challenges such as ethics, accessibility, and ongoing technological advancements.



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**GEOGRAPHICAL ANALYSIS OF TOURIST'S INCOME-WISE SATISFACTION LEVELS WITH ALL TOURIST FACILITIES IN NASHIK DISTRICT**

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**ABSTRACT**

*Tourism plays a significant role in the local economy by creating jobs, generating cash, and fostering economic progress. Increased tourism generates income and jobs in several industries, including agriculture, communication, healthcare, and education. It also promotes cross-cultural interaction by enabling visitors and residents to share customs and life experiences. Understanding the different types of visitors and their characteristics is crucial for both the development of a tourist destination and tourism planning. The behaviour of visitors provides insight into the state of tourism development and prospects in a certain place. The present study attempts to analyse the satisfaction level of the tourists as per the economic profile of the tourists. The data collected is processed with suitable statistical techniques, Kruskal Wallis test and the study area map is prepared using the GIS technique*

**Keywords:** *Tourism, Nashik district, economic profile of tourists, satisfaction level, Kruskal Wallis tests, GIS*

**INTRODUCTION**

As civilization evolves, the tourist industry, like many others, must also evolve to act as a catalyst for global wealth. Creating international cooperation, fostering economic progress, safeguarding the environment, and enhancement of well-being of people are among the main objectives of tourism.

Tourism is recognized as an activity significant to the lives of nations because of its direct impact on the social, cultural, educational, and economic sectors of national communities, as well as their global ties. (UN 1981) Many governments are in the run to garner a percentage of this voluminous 846 million strong tourist traffic. (UNWTO, 2007).

Tourism growth is of paramount importance because of anticipated economic advantages, including higher revenue and job possibilities. In 2023, the GDP share of the travel and tourism sector grew by 23.2%, creating 27 million new jobs which is a

9.1% increase from 2022 and a 4.1% reduction from 2019. The amount spent by visitors from within the country increased by 18.1%, while that from outside the country increased by 33.1%. (WTTC, Economic Impact 2024) In 2024, the industry is predicted to contribute \$11.1 trillion, or 10.1% of the world GDP, gaining 7.5% from 2019. Almost 348 million employments are anticipated in this industry in 2024, 13.6 million higher than in 2019—the previous high before the COVID pandemic. Travel and tourism continue to be a major worldwide economic force, despite worries about a global recession and rising prices. (Travel & Tourism Economic Impact, WTTC, 4<sup>th</sup> September 2024).

Tourism is becoming a vital element of modern societies; thus, its research and analysis are critical if its potential economic and social advantages are to be maximized and promoted in a way that aligns with society's goals. Tourism has a major effect on many different facets of the global economy, society, and cultures. It is a huge sector that involves individuals going on local or worldwide travel for work, play, or other reasons. All things considered, tourism plays a major role in the growth, development, and cultural enrichment of many economies around the world.

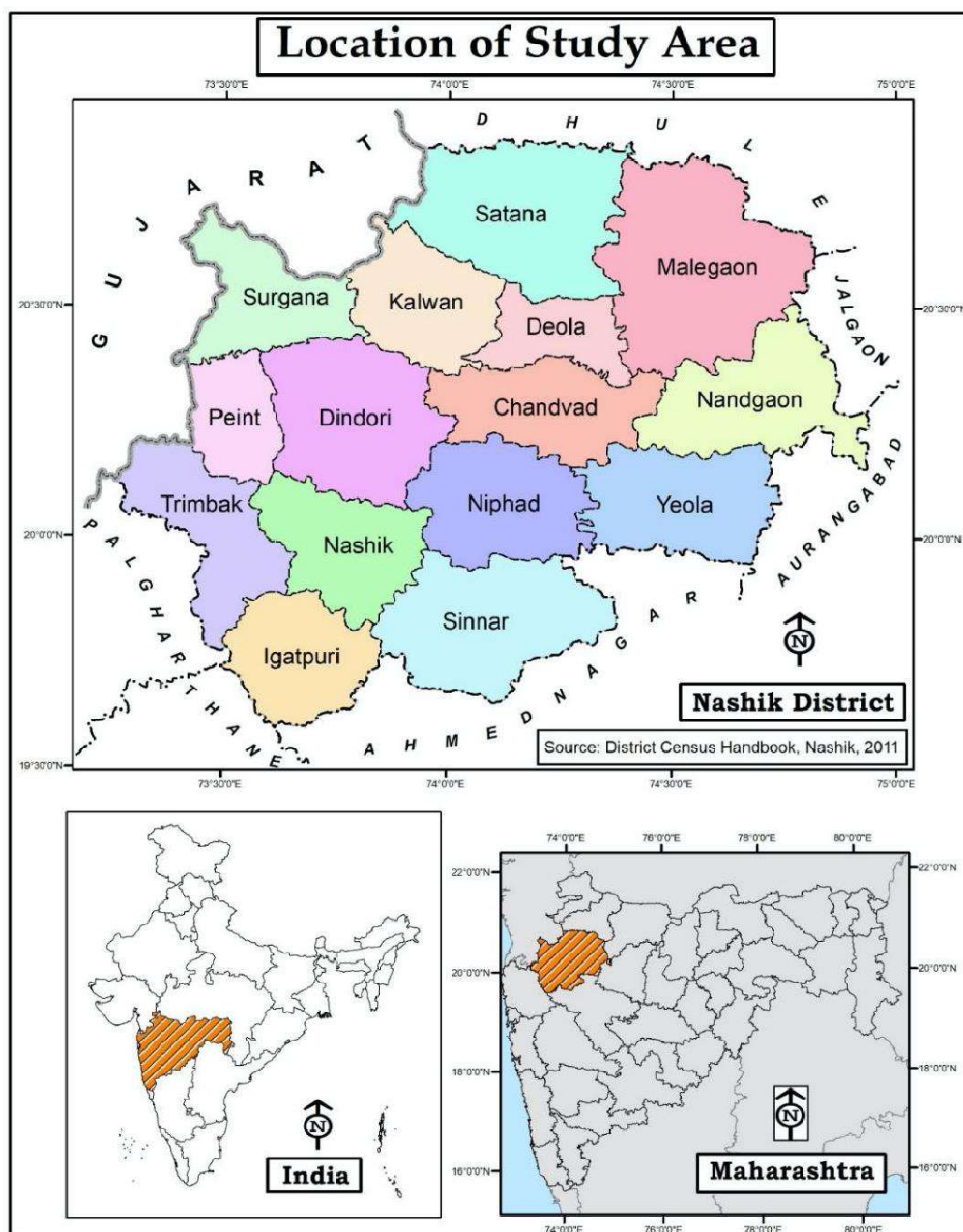
The Indian tourism industry has emerged as one of the key drivers of growth among the services sector in India. Tourism in India is a sun rise industry, an employment generator, a significant source of foreign exchange for the country and an economic activity that helps local and host communities. Rising income levels and changing lifestyles, development of diverse tourism offerings and policy and regulatory support by the government are playing a pivotal role in shaping the travel and tourism sector in India. (Subash, T. 2015). Domestic tourism together with inbound tourism has emerged as a key driver of economic growth.

**THE STUDY AREA**

Nashik is one of Maharashtra's most significant district. It also exposes a wealth of excellent tourism materials.

Nashik District is situated partly in the Tapi basin and partly in the upper Godavari basin. It lies between 19° 35' and 20° 52' north latitudes and 73° 16' and 74° 56' east longitudes. It is surrounded by Dhule District in the north, Jalgaon and Aurangabad Districts in the east, Ahmadnagar District in the south, Thane District in the south-west and Gujarat State in the north-west.





Nashik is the headquarters of the District. It is situated on the bank of river Godavari and famous as a Tirth Kshetra in India.

As per Census, 2011, the District has an area of 15,530 sq.kms and its population is 61,07,187. While the area of the District accounts for 5.05 percent of the total area of the State, the District population constitutes 5.43 percent of the total State's population. The density of population is 393 persons per sq. km. Among the 35 Districts of the State, the District ranks 3rd in terms of area, 4th in terms of population and 7th in terms of density.

This District is well known for grapes and onion. The chief articles of export are grapes, onion, bidi, yevla silk sarees, sweet oil, sugar, poultry products and leather goods.

In addition, timber and forest products are also exported to other places.

Forts, old temples and picnic points in the District play an important role in shaping the socio- economic pattern of the District. Kalsubai, the highest peak in Sahyadri Mountains is located in this District. Trimbakeshwar, Panchavati and Saptashringgad are among the religious places. (Nashik District Census 2011.) Geographically, the Nashik district exhibits significant variations in climate, socioeconomic level, and terrain. There is a lot of opportunity for improved tourist development in the Nashik area. This is crucial for the greater growth of Nashik's tourist industry.



## REVIEW OF LITERATURE

Changing patterns of international tourism suggest that new tourism geographies are already emerging. Tourism is a multifaceted field and tourism research focuses on a variety of aspects.

Keeping in view of the same, the present research takes a brief account of the various efforts undertaken previously in highlighting the significance of geographical study of tourism development in Nashik district.

**Patil. R (2011)** focused on eco-tourism of Salher fort, **Gadakh, Bharat L & Jaybhaye, Ravindra & Nalawade, Dr. Pravin. (2015), Nitin Borse (2017)** focused on potential of Nashik district, **Ansari, Z. (2016)** focused on eco-tourism potential of Malegaon, **Dadhich, S. (2019)** emphasized on heritage tourism of Trimbakeshwar area, **Thakkar, P. (2022)** focused on tourism development in Nashik district. All scholars emphasized the potential for tourism development in Nashik City and found that tourism has important contribution in sustainable development, economic upliftment by highlighting the natural resources of the area and the necessity of building infrastructure, lodging, and information centers to promote tourism in the potential regions because they have greater employment potential and lessen the burden on already established tourist destinations.

In her doctoral thesis **Patil, Manisha Shivaji (2018)** emphasized on dynamics in tourism development planning of natural historical and religious tourist centers in Nashik district of Maharashtra worked on theoretical framework of tourist's centers in Nashik and summarized with highlighting the tourism centers in the area and laid down the foundation for the present study.

In the doctoral thesis of **Ugale, V. P. (2022)** titled Tourism development and planning in Nashik District a geographical analysis focused on ecotourism potential, patterns, and facilities of Nashik district.

Tourism industry is a sunrise industry. **Nayak, S (2010)**. It is the fastest growing service sector. It is crucial to consider the demands, opinions and experiences of tourists to maintain and grow the tourism industry. Thus, several market research studies concentrate on comprehending the tourism mix to implement diverse business tactics. As a result, the development of tourism and planning of a tourist destination are greatly influenced by the geo-demographic, functional, and behavioural characteristics of the visitor. **Dimanche, F., & Havitz, M. E. (1995)**

## OBJECTIVES

1. To assess tourist behaviour and their economic conditions and patterns of average satisfaction of tourists in the study area

## PILOT STUDY

Pilot study was undertaken with a sample size of 100 respondents. Reliability Analysis has been used to test the internal consistency among the variables. Cronbach's Alpha ( $\alpha$ ) is a statistic commonly used measure to test the internal consistency or reliability of a set of items in a test or survey. Essentially, it assesses how closely related a set of items are as a group. The formula is:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

where:

- $N$  is the number of items,
- $\bar{c}$  is the average covariance between item pairs,
- $\bar{v}$  is the average variance of each item.

Cronbach's Alpha values range from 0 to 1. A higher value indicates greater reliability. Values from **0.7 to 0.8** are generally considered acceptable and **0.8 to 0.9** is considered good.

Based on the summary of reliability, it can be inferred that the value of Cronbach's Alpha ( $\alpha$ ) found to be more than 0.8 which shows the internal consistency for all the variables included in the research.

## DATA BASE AND RESEARCH METHODOLOGY

Data sources for the present research work includes the data collected from both primary and secondary sources.

Primary data is collected through

- a) Structured Questionnaire Surveys



b) Interview based survey method

c) Observation method through field visits by visiting the the prominent tourist destinations in the study area.

Questionnaire survey is used to understand the information related to the the geo- demographic social and economic aspects of the tourists. The study uses both qualitative and quantitative data. Qualitative data includes the secondary sources of data. Quantitative approach includes interview-based survey methods and questionnaire- based study with 5-point Likert Scale. GIS mapping is used to depict the locational attributes of the tourist centers. For data tabulation and analysis, Microsoft Excel and SPSS are used, and the data is represented graphically. Spearman Rank Co-relational analysis techniques and Pearson Chi Square test is used along with Kruskal Wallis test are used for hypothesis testing.

## HYPOTHESIS

**H04:** There is no significant difference of average satisfaction for Overall tourist facilities when compared with different income groups.

**H4:** There is a significant difference of average satisfaction for Overall tourist facilities when compared with different income groups.

Understanding and knowledge of visitor behaviour is essential to the growth of tourism, as it is also a critical component in the effective development of tourism services. Understanding the current tourism demand for a region necessitates the knowledge of tourist information and understanding about their experiences and satisfaction levels. For this reason, a thorough evaluation of the Nashik districts tourism segments was conducted by the researcher, considering socio economic, behavioural factors.

After the reliability analysis, the questionnaire was administered to 528 respondents in selected tourist's spots in the MTDC circuits.

SR.NO	TALUKA	SAMPLE SIZE
1	NIPHAD	49
2	YEOLA	32
3	CHANDWAD	62
4	KALWAN	84
5	TRIMBAKESHWAR	97
6	IGATPURI	78
7	NASHIK	126
TOTAL		528

**Source:** Primary data collection by Researcher Table 1. Classification of Tourism Sites and Tourist Sample

The above table depicts the detailed classification of tourism sites and tourist sample based on MTDC circuits. The MTDC circuit spots serve as the basis for this analysis. "Tourists" are an essential component of the tourism industry. Tourists profile is multi- dimensional in nature.

For all parties involved in tourism, understanding visitor behaviour is useful (Pearce, 2005). This study conducted helps citizens, travel brokers, hoteliers, and other tourism stakeholders comprehend what tourists want. Tourists differ based on a variety of factors, including nationality, culture, socioeconomic class, past travel experiences, and expectations and behaviour. Designing the entire experience with the visitor in mind is essential to generating experience value in the tourism industry.

However, tourists exhibit a wide range of complicated and varied behaviour. Motivation has been found to be the foundation of all behaviour. (Pearce, 2005) The reasons and interests of tourists influence their participation in leisure activities. Gaining a thorough grasp of the requirements and expectations of potential clients becomes crucial. The only trustworthy source of information for a successful, long-term tourism business is understanding the customer.

It is important to create a more inclusive and satisfying tourism experience for visitors across different income brackets, thereby fostering sustainable tourism growth and development. Hence the researcher has tried to understand the satisfaction levels for overall tourist's facilities as compared with different income groups with the following



**Table 2:** Annual Income Mean Rank Table: Analysis of Average Satisfaction For Overall Tourist Facilities With Different Income Groups

OVERALL TOURIST FACILITIES	ANNUAL INCOME MEAN RANK TABLE			
	2 lakhs and below	2 to 5 lakhs	5 to 10 lakhs	More than 10 lakhs
Communication facilities	216.78	312.51	260.68	259.75
Sightseeing facilities	192.48	253.48	271.29	271.32
Shopping facilities	203.95	303.43	264.68	261.04
Recreation facilities	160.62	246.28	274.51	274.82
Availability of overall tourist's facilities and are convenient for Public	199.45	247.86	269.97	272.87
Your visit to this Nashik district is better than what you expected	187.68	227.88	274.44	276.62

*Source:* Primary survey and Research Compilation through IBM Statistics 21

**Table 3** Kruskal-Wallis test result: Analysis of Average Satisfaction For Overall Tourist Facilities With Different Income Groups

OVERALL TOURIST FACILITIES	Chi-Square	df	p-value
Communication facilities	11.192	3	0.011
Sightseeing facilities	9.065	3	0.028
Shopping facilities	10.106	3	0.018
Recreation facilities	18.213	3	0.000
Availability of overall tourist's facilities and they are convenient for Public	7.91	3	0.048
Visit to this Nashik district is better than expected	16.375	3	0.001

*Source:* Primary survey and Research Compilation through IBM Statistics 21

The table 2 shows that the parameters which has p-value for Kruskal-Wallis test is less than that of 0.05 along with the income group of highest satisfaction.

**Table 3** Analysis of Average Satisfaction for Overall Tourist Facilities With Different Income Groups

TOURISTS FACILITIES	INTERPRETATIONS
Communication facilities	Respondents with income '2 lakhs and below' are significantly satisfied
Sightseeing facilities	Respondents with income 'More than 10 lakhs' are significantly satisfied
Shopping facilities	Respondents with income '2 lakhs and below' are significantly satisfied
Recreation facilities	Respondents with income 'More than 10 lakhs' are significantly satisfied
Availability of overall tourist's facilities and they are convenient for Public	Respondents with income 'More than 10 lakhs' are significantly satisfied
Your visit to this Nashik district is better than what you expected	Respondents with income 'More than 10 lakhs' are significantly satisfied

*Source:* Primary survey and Research Compilation through IBM Statistics 21 Interpretation:

Considering the Kruskal-Wallis test results, significant disparities in satisfaction with tourist amenities across different income groups were observed. The p-value for Kruskal-Wallis test for all other parameters is greater than that of 0.05 indicates that there is no significance of difference between average satisfaction level. For Communication facilities, there is a significant difference in satisfaction levels across different income groups ( $p = 0.011$ ). Similarly, there is a significant difference in satisfaction levels for Sightseeing facilities ( $p = 0.028$ ), Shopping facilities ( $p = 0.018$ ), Recreation facilities ( $p = 0.000$ ), Availability of overall tourist's facilities and



their convenience for the Public ( $p = 0.048$ ), and Your visit to the Nashik district being better than expected ( $p = 0.001$ ) across different income groups. In light of the Kruskal-Wallis test results, significant disparities in satisfaction with tourist amenities across different income groups were observed. The p-value for Kruskal-Wallis test for all other parameters is greater than that of 0.05 indicates that there is no significance of difference between average satisfaction level.

Null hypothesis is rejected, and Alternative hypothesis is accepted. Given these results, we reject the null hypothesis ( $H_0$ ) and accept the alternative hypothesis ( $H_1$ ), indicating that there is a significant difference in the average satisfaction for overall tourist facilities when compared with different income groups.

### **RECOMMENDATIONS**

Several recommendations may be made in light of the Kruskal-Wallis test results, which show considerable disparities in average satisfaction with various tourist amenities across different socioeconomic groups

Recommendations include customizing promotions and products to meet the varied requirements of tourists in different financial classes, ensuring accessible communication in multiple languages and formats, diversifying sightseeing options, enhancing the retail experience, investing in recreational opportunities for all socioeconomic backgrounds, improving accessibility and convenience of tourist amenities, skillfully managing visitors' expectations, and collecting continuous feedback for strategic decision-making.

Understand the differing tastes and requirements of tourists in various financial classes. Adapting tourist products and marketing strategies to meet these varied requirements might raise satisfaction levels. Considering the importance of communication tools for visitor satisfaction, make sure that details on tourism destinations, services, and amenities are readily available and offered in a variety of languages or formats to appeal to tourists from different backgrounds. Given that sightseeing amenities also have a big influence on satisfaction, the Nashik district can draw more visitors if it expands and improves the variety of experiences and attractions it offers.

Enhance the retail experience by offering a wide variety of goods, supporting regional companies and artists, and making sure that visitors of all financial levels have a pleasurable time shopping.

Make investments in the establishment and upkeep of leisure facilities that suit the tastes of tourists from all socioeconomic backgrounds. Parks, leisure centres, and adventure sports may fall under this category.

Increase the general tourist amenities' availability and convenience so that everyone may utilise them, regardless of budget, and they are easily accessible.

Considering the stark differences in perspectives about visiting the Nashik region, it is important to skillfully manage visitors' expectations by being open and honest in communicating the destination's experiences and services.

Regularly collect feedback from tourists across various income groups to understand evolving preferences and areas for improvement. Strategic choices aiming at improving overall tourist satisfaction in the Nashik district might be informed by this input.

By implementing these recommendations and insights, Nashik district can strive to create a more inclusive and satisfying tourism experience for visitors across different income brackets, thereby fostering sustainable tourism growth and development.

### **SUGGESTIONS**

Improve operational efficiency by simplifying booking processes, optimizing scheduling, and enhancing coordination between different service providers. Provide comprehensive training for staff to better handle challenges and improve customer service. Invest in technology solutions such as automated booking systems, customer relationship management (CRM) software, and data analytics to better manage operations and anticipate issues.

Engage with local communities to understand and address socio-economic issues that impact tourism. This might include creating job opportunities, supporting local businesses, and ensuring that tourism benefits are distributed fairly. Form partnerships with local governments and organizations to support socio-economic development projects that enhance the tourism infrastructure.

Invest in upgrading and maintaining tourist facilities such as hotels, transportation, and attractions to improve overall visitor experience. Implement regular maintenance schedules and establish a system for tourists to provide feedback on facilities and use this information to make necessary improvements.



Conduct a thorough assessment to identify specific challenges affecting travel and tourism operations, socio-economic factors, and tourist facilities. Create and implement strategies to address these challenges. This could involve problem-solving workshops, strategic planning sessions, and collaboration with experts. Regularly monitor the impact of implemented strategies and evaluate their effectiveness.

Encourage and implement sustainable tourism practices to mitigate negative impacts on the environment and local communities. This includes promoting eco-friendly options and reducing waste. Conduct awareness campaigns to educate tourists and operators about sustainable practices and their benefits.

Use data-driven marketing strategies to target specific demographics and promote positive aspects of the travel and tourism experience. Clear and transparent communication about the challenges being addressed and the improvements being made is imperative to build trust with stakeholders and customers.

Focus on these areas can enhance the overall effectiveness of travel and tour operations, address socio-economic issues, and improve tourist facilities, ultimately leading to a more positive and sustainable tourism experience.

Conduct detailed assessments to identify specific challenges faced by tourists in terms of travel operations, socio-economic factors, and tourist facilities and developing targeted strategies to address these challenges is the need of the hour.

## CONCLUSION

Streamline travel and tour operations to reduce difficulties faced by tourists. Implement efficient systems and provide adequate information to ensure smooth travel experiences. Invest in infrastructure and services to improve socio-economic facilities. Ensure affordability and accessibility of tourism-related services for diverse groups of tourists and enhance the quality and availability of tourist accommodations, amenities, and services. Focus on providing a comfortable and enjoyable experience to increase tourist satisfaction. By addressing the significant negative impact of challenges on tourism potential, stakeholders can improve the overall satisfaction of tourists and enhance the attractiveness of the tourism sector. Ensuring a positive and seamless experience for tourists is essential for the sustained growth and success of the tourism industry.

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**A STUDY ON THE ONLINE GAMBLING ADDICTION AMONG TEENAGERS OF GENERATION Z**

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*Gambling is the act of using money or valuables as a collateral against the outcome of an event or game, based on chance and luck, with the hope of winning additional money or prizes. Online gambling extends this concept by enabling individuals to participate in gambling activities through the internet, using digital platforms and websites, thereby being prioritized over traditional gambling establishments. The rapid proliferation of online gambling platforms has significantly influenced the behavioural patterns of Generation Z individuals born between 1997 and 2012. Social media platforms have been one of the biggest root causes of online gambling addiction among teenagers. This study investigates the behavioural impact of online gambling on this demographic, focusing on psychological, social, and economic dimensions, with the target audience being teenagers born between 2000-2006. The findings indicate a significant increase in gambling participation rates among Gen Z, with the accessibility and convenience of online platforms being primary reasons. Psychological impacts include heightened levels of stress, anxiety, and the potential for developing gambling addiction. Economically, the data shows that many young individuals experience financial instability due to a significant increase in their daily expenditures caused by gambling. The paper showcases few case studies on the gambling addiction and its consequences on teenagers among generation Z, while also showcasing the dangers and major security issues on how easily the underage teens are able to access various online gambling sites and platforms. The paper concludes with recommendations for policymakers, educators, digital platforms, etc to mitigate these adverse effects through targeted interventions and preventive measures. The paper is based on both primary and secondary data.*

**Keywords:** Online Gambling, Gen Z, Behavioural impact, Psychological Impact, Social Media, Digital Platform, Preventive measures, gambling addiction

**INTRODUCTION**

The appeal of gambling often lies in the thrill of risk-taking, the potential for financial gain, and the social aspects of various gambling activities, despite the fact that gambling also carries significant risks, including the potential for huge financial losses and the development of behavioural symptoms of addiction. Addiction to internet gambling can have serious side effects, such as social isolation, financial hardships, and scholastic challenges. Online gambling represents a digital evolution of traditional betting activities, leveraging the internet to provide access to various forms of gambling from virtually anywhere at any time. This modern approach to gambling encompasses a wide range of activities, including virtual casinos, sports betting, poker rooms, and lottery games, all accessible through computers, smartphones, and other internet-connected devices. The advent of online gambling has significantly transformed the gambling landscape, offering unprecedented convenience and accessibility to users worldwide. It removes geographical barriers, allowing individuals to participate in gambling activities without the need to visit physical establishments. This accessibility, combined with the immersive and interactive nature of online platforms, has attracted a diverse user base, including Generation Z. The origins of online gambling can be traced back to the mid-1990s, coinciding with the rapid growth of the internet with *InterCasino* being regarded as the first real money online casino, an iconic online casino that is still operational today. Slowly but gradually, the industry has experienced rapid growth throughout the years and soon after, online gambling was popularised worldwide. In the 2020s, The COVID-19 pandemic accelerated the shift towards online gambling as physical casinos closed. According to a study by the University of Bristol, regular gamblers were more than six times more likely to gamble online compared to before the COVID-19 pandemic. Today, online gambling is a multi-billion-dollar industry, with continuing technological advancements like virtual reality and blockchain technology shaping its future. In recent years, fantasy gaming apps have exploded in popularity in India, with millions of users joining platforms such as Dream11, My11Circle and MPL, among others such as stake.com, One X bet, jungle rummy, etc for gambling activities such as casino games, poker, etc. These apps offer users the chance to create virtual teams of real-life athletes and compete against others based on the performance of these athletes, with the chance to win cash prizes or other rewards. The highly profitable nature of Internet gambling has proliferated the participation of people in it. According to an article by a cloud-based hybrid cybersecurity platform the compulsive gambling nature has emerged in youth populations and the online gambling industry has become extremely lucrative in



the last few years and a major target for cyber criminals. This is because these websites and mobile applications are a gateway to the customers' credit cards, bank accounts, and other sensitive information. Regulations are to be made in case of the internet gambling. Regulations in case of the online gambling can be done with suitable policies, provision of identification, fair and square practices, respondent gaming and anti-money laundering. Various countries have different legislations in the case of online gambling. The debates regarding case of regulation and prohibition of online gambling are continuing. COVID-19 has created a huge impact even in case of the gambling, and among high-risk online gamblers it has created many psychological Issues. There is a highly problematic nature which affects the gambling status, mental health, financial difficulties and risky substance use among online gamblers. The prevention of harm and mitigation efforts from the side of decision-makers will only enhance gambling harm prevention in COVID-19 time (Price et al., 2023). The study has been focussing on the case of behavioural addictions, how social media has heavily influenced the online gambling industry and how it can be prevented. This brief history provides context for the rapid rise and evolution of online gambling, setting the stage for more detailed discussions of its impact on various demographics, including Generation Z.

## REVIEW OF LITERATURE

1. **2015, Sally Melissa Gainsbury “Online Gambling Addiction: The Relationship Between Internet Gambling and Disordered Gambling”**, from Australia published this research paper to understand more about online gambling addiction and states that features of Internet gambling may increase risks such as 24/7 accessibility, use of digital money, and immersive interface. It also states how online gambling does not directly affect gambling addiction by stating that when controlling for overall gambling involvement, Internet gambling participation does not independently predict problem gambling severity. The research paper also states that there are few online gamblers compared to offline gamblers. While the target audience as gamblers isn't exactly specified, it can be assumed that gamblers are not the primary audience or test subject for the research paper.
2. **2024, Mr. Pranav Prakash, Mr. Surbhi Girdhar & Mr. Antony Jose “Online Gambling Addiction: A Study among College Students of Kerala State, India”** authored a research paper authored that shows a different perspective and different results altogether on online gambling addiction. The scope of the research here mentioned is the Mallapuram District of The State of Kerala, with the target audience being 100 college students of the state. The Key findings include low awareness of gambling laws and risks, high usage of mobile phones for gambling, and stress/anger issues related to gambling losses. The study recommends stronger cyber law implementation, parental monitoring, and awareness programs to address this growing issue. The researchers conclude that easy mobile access and social media promotion of various gambling platforms are the major factors driving online gambling addiction among college students in Kerala. They call for more awareness and various regulations to address potential harms.

## RESEARCH METHODOLOGY

### 1. Research Objectives

To examine the influence of social media and social media influencers on online gambling behaviour among teenagers. It aims to assess the extent to which social media influencers impact teenagers' awareness, perceptions, and engagement with online gambling activities.

To investigate the relationship between family income levels and the prevalence of online gambling addiction among teenagers in urban areas. It aims to examine the frequency and intensity of online gambling activities among teenagers from different income brackets and determine if there is a statistically significant correlation between higher family income and increased risk of online gambling addiction in teenagers.

### 2. Sources of Data Collection

**Primary Data**-A survey was conducted in the form of a standard questionnaire which was circulated and sent specifically to teenagers who gamble or have gambled previously, keeping in mind that the target group for the study is teenagers that participate in online gambling.

**Secondary Data**-The data was collected through various articles, newsletters, previous research papers, etc

### 3. Scope of the Research

It focuses on individuals aged 18-23, with primarily focusing on college students. It also examines various forms of online gambling, with particular emphasis on sports betting, casino games, and lottery-style games. The study was restricted to the city of Mumbai and its nearby surrounding areas such as Navi Mumbai and Mumbai suburbs. The form has recorded 64 responses.



#### 4. Research Design

The research paper is exploratory and mixed-method research.

#### 5. Research instrument

For the study a detailed and structured questionnaire was circulated among the target group through a google form that included both open ended and close ended questions.

#### 6. Limitations of research

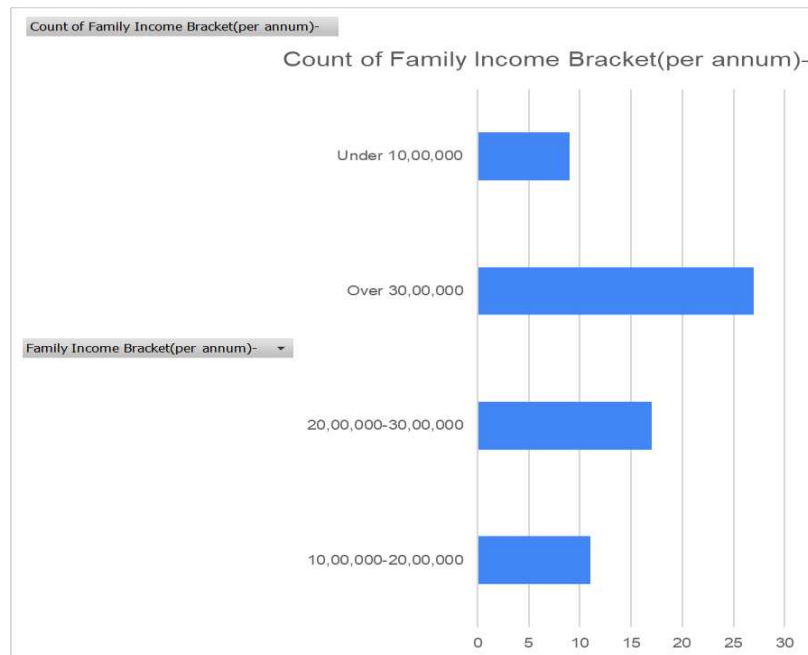
The location of the research is only limited to Mumbai due to insufficient amount of resources.

Understanding the concept of human behaviour is not an easy task, and therefore the responses for questions based on emotions and behavioural patterns of the respondent may not be always accurate.

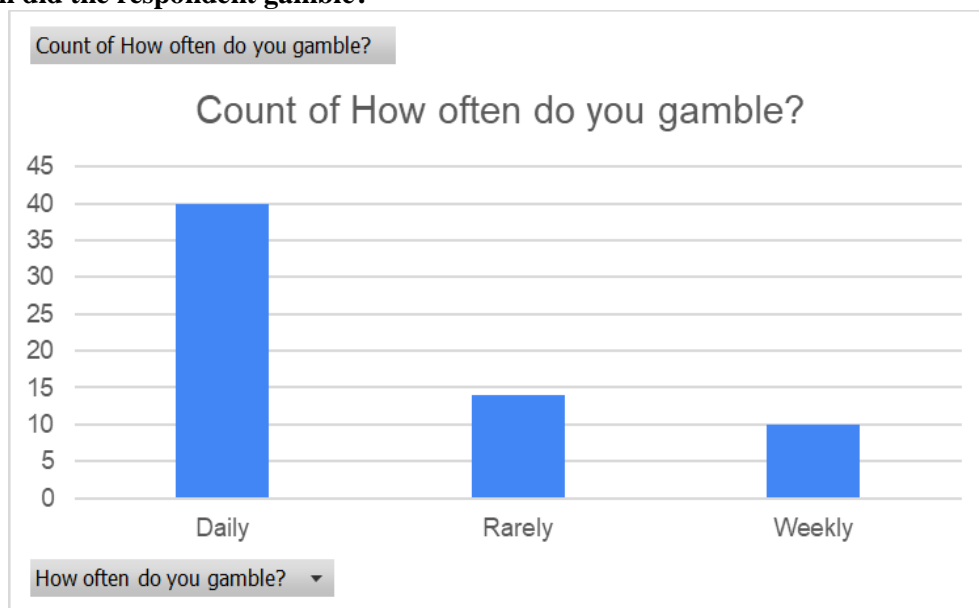
#### Primary Data analysis

The major questions that were asked in the survey were:

##### 1) Family Income bracket (per annum).

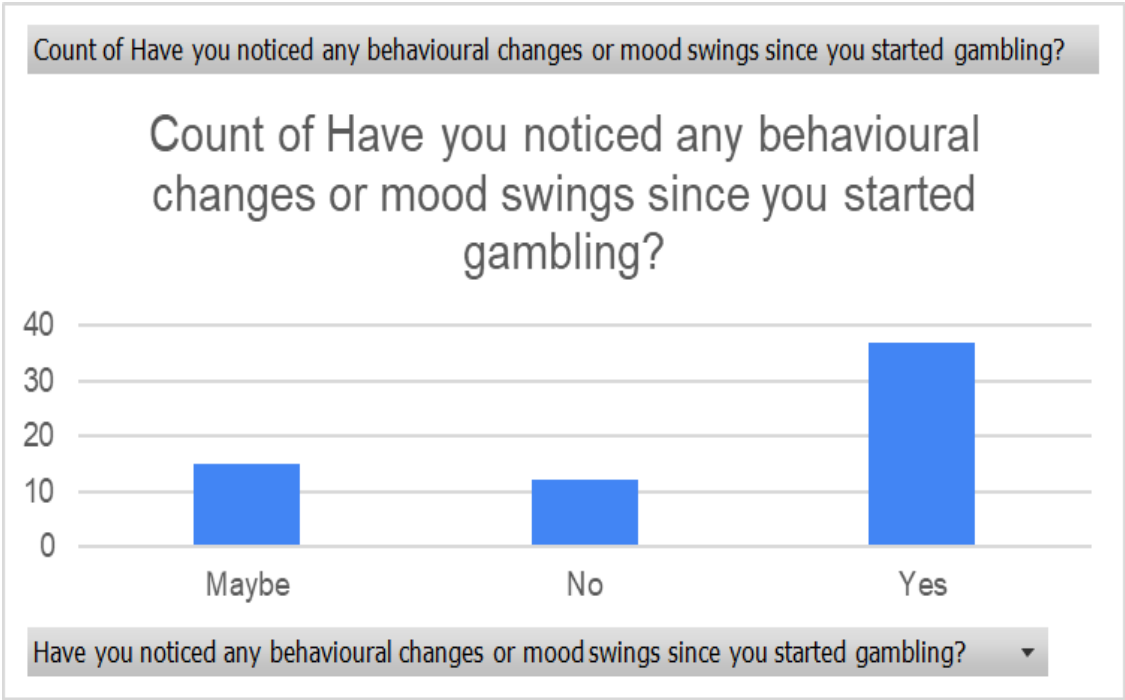


##### 2) How often did the respondent gamble?

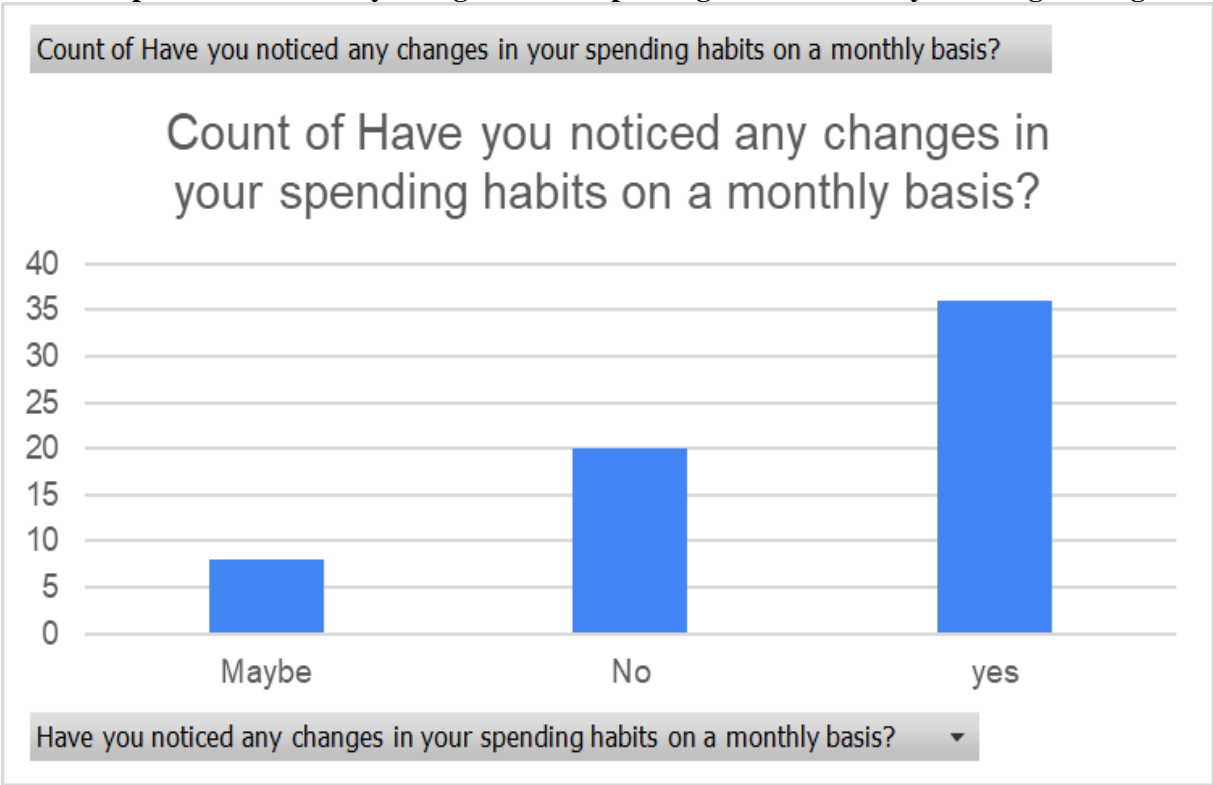


##### 3) Has the respondent noticed any behavioural changes or mood swings since they started gambling?





4) Has the respondent noticed any changes in their spending habits since they started gambling?





5) How likely has the respondent been influenced by a social media influencer to gamble money online?



6) Questions related to how advertisements and social media promotions by its influencers have also affected their decision and view on online gambling.



After thoroughly analysing the responses received for the questions asked in the survey, here are the key findings:

64.7% of respondents belonging to family income bracket of 20-30LPA and 65.5% of respondents belonging to family income bracket of over 30LPA have indulged in online gambling on a daily basis compared to the respondents belonging to lower levels of family income bracket.

Card games such as teen patti, rummy, poker etc are the most popular form of gambling among respondents, with 68.2% being either somewhat likely or very likely to participate with sports betting closely following behind. Some respondents also preferred to participate in casino games services provided on online gambling platforms

While most respondents prefer using their own money, there's still a concerning minority of 19.7% respondents who are likely to use their parents' money for gambling.

Over 50% of respondents are likely to gamble for the desire to win money and for the excitement or thrill of gambling, while it's worth noting that a significant minority of respondents (22.8% for desperation and 21.2% for stress coping) are more likely to gamble for more problematic reasons, which indicate a significant potential risk for gambling-related issues.

29.9% of respondents have noticed a slight change in their behaviour or have experienced mood swings, while 35.8% of respondents have noticed significant changes in their behaviour since the respondents started



gambling. By analysing the responses with respect to the emotions the respondents felt while gambling money online, **37.5%** of respondents felt sadness, disappointed in themselves and even felt a sense of low self-esteem. A few percentage of the respondents felt joy, elation and excitement while gambling their money online.

With regards to perception of the respondents towards gambling being addictive, more than **50%** of respondents believe that gambling can cause strong addiction and going as far as to say gambling might be or definitely is as addictive as cigarettes.

More than **60%** of respondents have noticed either a slight or a significant change in their spending habits either on a daily or a monthly basis, with most of them noticing an increase in their expenditure by roughly 15-25%.

**60.9%** of respondents have responded that they have maybe or have definitely been influenced by advertisements and promotions done by online gambling platforms, which are usually advertised on various websites, social media handles such as Instagram, Facebook, Twitter, etc.

The data that has been extracted and analysed shows that a significant amount of people have been influenced by social media influencers, with social media influencers being the main promoters of online gambling sites and platforms on various social media handles.

*Stake.com*, one of the most rising and popular online gambling platform, is majorly used and accessed by teenagers of generation Z for online gambling as understood by the responses given by the respondents, with One X bet, an online gambling site following closely behind. Majority of the respondents stated that the reason they specifically chose stake.com for gambling purposes was because it provided the facility for easy deposits, and easy and instant withdrawal of money. Stake keeps its minimum deposit amount as low as 500INR, while also allowing the user to instantly withdraw their money as soon as they wager their deposited amount at least once, and withdraw amount more than 500INR.

### Secondary Data analysis

- 1) An article published by Al Jazeera on July 20, 2023 shows how dire the consequences and the affects of online gambling addiction is on teenagers. The article describes a case study where within a month of using betting apps, a job seeker Santosh Kol lost the entire 40,000 rupees his father had sent him for his tuition. Kol's father, a mere construction labourer in Sidhi district in the central Indian state of Madhya Pradesh, had borrowed the money from the community leaders in his village to pay for the coaching classes where his son was enrolled to prepare for national competitive exams for government jobs. But instead, Kol, 25, bet on one of these apps, which offer the opportunity to earn large sums of money. Initially, he won a few thousand rupees but then like every gambling addict he became greedy and lost everything. Kol, who lives in a one-room apartment with books scattered everywhere and a small kitchen in one corner, told Al Jazeera that he was hoping to win money from his betting and gambling activities and return it to the village elders as soon as possible. After losing everything he had, Kol soon felt disappointed in himself and even thought of committing suicide.
- 2) Similarly, Prateek Kumar, a 16-year-old teen from the same area and an ardent cricket fan developed a habit of betting on fantasy gaming apps. His father Lalji Dwivedi is a small farmer and earns about 6,000 to 7,000 rupees a month. He told Al Jazeera that his son is hooked on cricket and watches all the matches of the Indian Premier League (IPL), cricket's most lucrative domestic tournament and which counts some of these gaming apps as its sponsors. Dwivedi blames the ads for luring his son into the gambling world. The father clearly states how his son Prateek got influenced by advertisements and promotions of betting on Ipl matches during breaks, and how his son keeps blackmailing him for more money in order to bet on these apps. The lack of regulatory authority and the massive advertising campaigns by these platforms have led to concerns about the addictive nature of these apps and the potential harm they can cause to users, specifically children and vulnerable individuals and teenagers. Interestingly, Prateek's favourite apps are Dream11 and My11Circle, his father said. They require a user to be 18 years old to be able to play, but that hasn't deterred Prateek who used his father's ID to sign up on both apps. This is a major security issue that has been overlooked not only on dream 11, but on various other gambling platforms where teenagers are able to easily access these gambling and betting sites even though it lawfully requires the website or the platform to strictly ban users under the age of 18 from accessing the site. Al Jazeera's emails to Dream11, My11Circle and the industry body the Federation of Indian Fantasy Sports, went unanswered.

According to an article, information and content shared on social media and online networks can be misleading and harmful by nature. An important area in this regard is the increased visibility of gambling content on social media platforms such as Instagram and Facebook. Gambling operators use social media platforms to advertise



gambling and often depict gambling as a glamorous lifestyle without mentioning gambling-related risks and harms. By doing so, they normalize and encourage gambling activities (Gainsbury et al., 2015), which may be alluring to young individuals in particular (Binde, 2014, Derevensky et al., 2010). In addition to gambling ads, youths can be exposed to their online friends' gambling activities, such as sharing gambling-related content. As active online users, young people are prone to exposure to various gambling content, which is alarming given that youths are a group at risk for developing gambling problems. Young teenagers are prone to peer pressure and thus are more vulnerable into falling into the trap of online gambling.

### **CONCLUSION**

The research papers would like to recommend few remedies and policy changes in order to reduce overall gambling addiction among teenagers:

Implementation of age restrictions and strictly enforcing age verification processes for online gambling platforms. The data shows many respondents are 18-20 years old, which is still too young for a person to start gambling, so the study also recommends to increase the minimum age limit from 18-21.

61.2% of respondents believe there should be restrictions on gambling advertisements, keeping that in mind, limiting gambling ads on social media and mass media platforms should be prioritized, false promotions that show gambling is an easy way to earn money should be strictly banned. Online gambling platforms need to show more transparency.

Implementation of stricter regulations for online gambling platforms, including mandatory display of odds and chances of winning.

### **RECOMMENDATIONS**

- Implement and strictly enforce age restrictions and verification processes for online gambling platforms.
- Limit gambling advertisements on social media and mass media platforms.
- Ban false promotions that portray gambling as an easy way to earn money.
- Impose penalties for misleading advertisers and social media influencers that promote gambling
- Implement stricter regulations for online gambling platforms, including mandatory display of odds and chances of winning.

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**A STUDY ON THE ROLE OF FINANCIAL INFLUENCERS IN MANIPULATION OF THE EQUITY MARKET**

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**Mr. Ananya Jha<sup>1</sup> and Ms. Stuti Aggarwal<sup>2</sup>**<sup>1</sup>Bachelors in Banking and Insurance<sup>2</sup>Assistant Professor, Kishinchand Chellaram Collegeananjha1357@gmail.com<sup>1</sup> and stuti.aggarwal@kccollege.edu.in<sup>2</sup>**ABSTRACT**

*The Indian stock market has seen impressive growth, fueled by more retail investors and the rise of digital trading platforms. However, this growth has also brought challenges, particularly with stock price manipulation by social media influencers on platforms like Twitter, YouTube, Telegram, and Instagram. These influencers have the power to sway investor sentiment, often leading to unpredictable price swings and market volatility. This study explores how influencers impact stock prices in India, focusing on cases like Yes Bank and Vakrangee Limited. By using a mix of research methods, including event study and sentiment analysis, the study reveals the significant influence of social media on market behavior. The findings highlight the need for better regulation, investor education, and cooperation with social media platforms to address the risks of influencer-driven manipulation. The study offers recommendations to create a more transparent and fair market, protecting investors from misleading practices and helping to maintain the stability of the Indian stock market.*

**Keywords:** Stock Market Manipulation, Social Media Influencers, Indian Stock Market, Investor Behavior, Regulatory Oversight

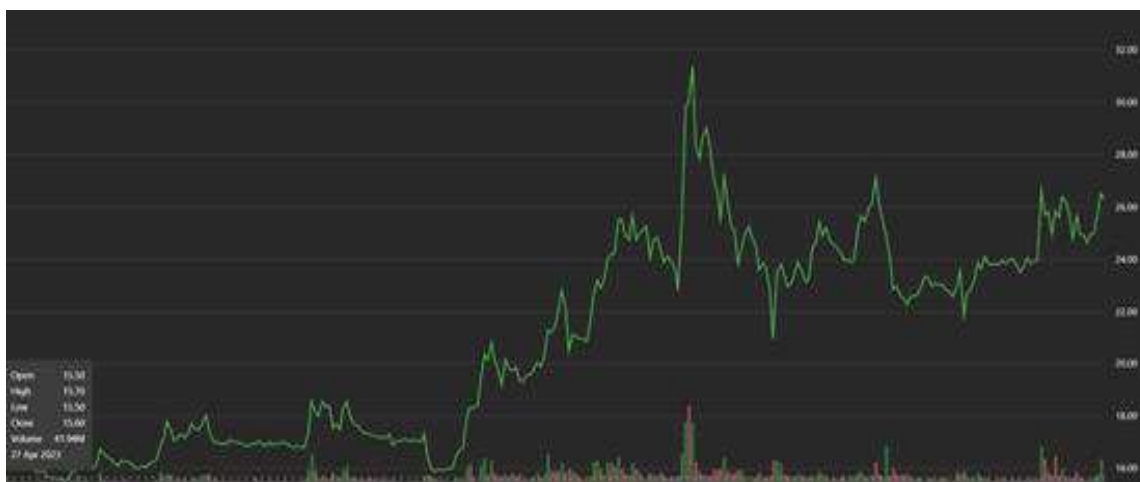
**INTRODUCTION**

The Indian stock market has witnessed substantial growth over the past decade, driven by a surge in retail investor participation and the proliferation of digital trading platforms. However, this growth has been accompanied by the rise of new challenges, particularly the phenomenon of stock market manipulation facilitated by social media influencers. These influencers, often operating on platforms like Twitter, YouTube, Telegram, and Instagram, have leveraged their large followings to sway investor sentiment and, in some cases, orchestrate significant movements in stock prices.

The advent of digital communication has democratized information access but also made markets more susceptible to manipulation. Unlike traditional financial analysts or media outlets, social media influencers do not always adhere to regulatory standards or professional ethics, making it easier for them to engage in or promote manipulative practices. This manipulation can take various forms, from "pump and dump" schemes to spreading rumors that lead to panic selling or buying.

**Several instances of stock manipulation have garnered attention in the Indian market, including:**

1. **Yes Bank:** The private sector bank has faced significant volatility, partly driven by rumors and speculative trading fuelled by social media activity. Influencers have been known to spread both optimistic and pessimistic forecasts, leading to erratic price movements.

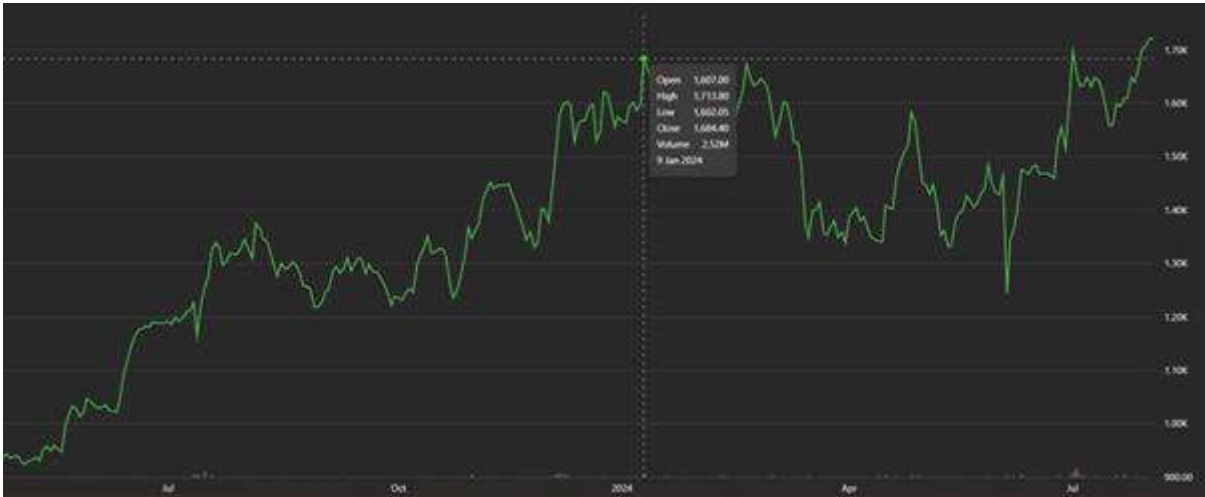




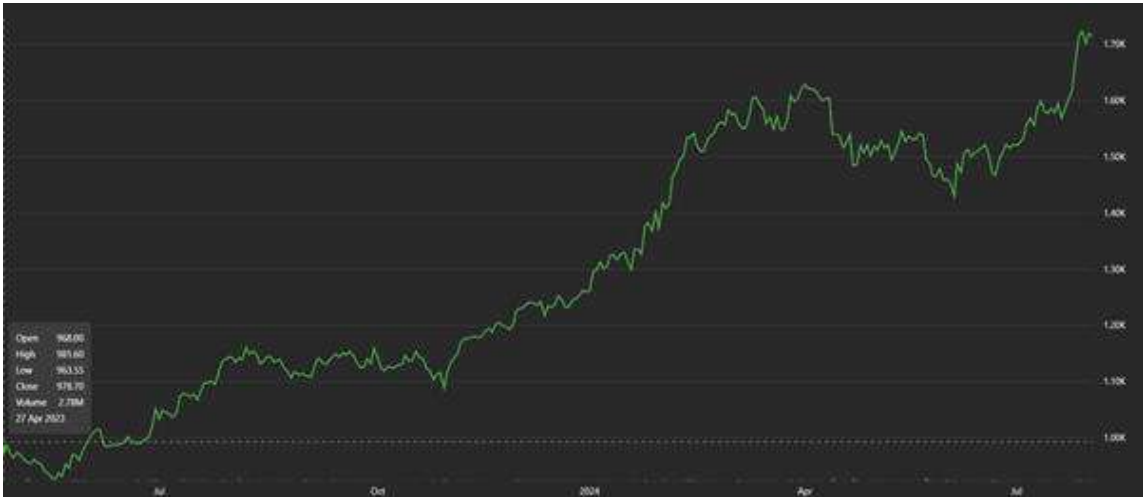
2. **Vakrangee Limited:** A technology company that saw its stock prices soar and plummet within short periods, influenced by coordinated social media campaigns that exaggerated the company’s potential and financial health.



3. **Ruchi Soya Industries:** A consumer goods company that experienced dramatic price increases during its relisting on the stock market, driven in part by social media hype and speculative buying.



4. **Sun Pharmaceutical Industries:** One of India's largest pharmaceutical companies, which has faced allegations of market manipulation and insider trading, amplified by influencer-driven narratives.





5. **Alok Industries:** A textile company that saw its stock price manipulated through coordinated buying and selling activities on social media, leading to artificial price inflation.



The graph above illustrates the price movements of these stocks over specific periods, highlighting the correlation between peaks in social media activity and stock price volatility.

## REVIEW OF LITERATURE

1. **Dalal, Sucheta, and Debashis Basu. (1993)** This influential book provides an in-depth analysis of the Harshad Mehta scam of 1992, a major financial scandal in India. It describes how Mehta manipulated the stock market through fraudulent transactions and deceitful practices, leading to a severe loss of investor confidence and market instability.
2. **Piskorski, M., and Curtin, P. (2011)** Harvard Business Review This article explores how social media has transformed the landscape of financial communication. It examines the strategies used by financial market participants to leverage social media for disseminating information and influencing market behavior.
3. **Antweiler, W., and Frank, M. Z (2004)** The Journal of Finance This study investigates the informational value of discussions on internet stock message boards. It evaluates whether the information shared on these platforms can influence stock prices and whether it provides reliable insights or merely generates market noise.
4. **Barber, B. M., and Odean, T. (2001)** Journal of Financial Economics Barber and Odean explore the behavior of individual investors, focusing on cognitive biases and heuristics that influence their decision-making processes. The research highlights how psychological factors such as overconfidence, loss aversion, and herd behavior can lead to irrational trading decisions, making retail investors particularly vulnerable to market manipulation by influencers.
5. **Kahneman, D., and Tversky, A. (1979)** Econometrica Kahneman and Tversky's seminal work on prospect theory provides a framework for understanding how people make decisions under conditions of risk and uncertainty. The theory explains deviations from rational behavior, including biases like loss aversion and the framing effect.

## RESEARCH METHODOLOGY

### Objective of the Study

The objective of this study is to examine the impact of social media influencers on stock market manipulation within the Indian stock market. Specific objectives include:

- Identifying the mechanisms through which influencers manipulate stock prices.
- Analyzing the regulatory challenges associated with influencer-driven manipulation.
- Evaluating the effect of such manipulation on retail investors and overall market stability.
- Investigating the role of social media platforms in facilitating or curbing stock market manipulation.
- Assessing the awareness and response of Indian investors to influencer-driven stock recommendations.



- Exploring potential strategies to mitigate the risks of influencer-driven market manipulation.

### **Sources of Data**

**Data for this study are collected from several sources:**

**The study utilizes both primary and secondary data sources:**

1. **Primary Data:** Data was collected through a structured survey distributed via Google Forms to 70 individuals who invest in or are knowledgeable about stocks.
  2. **Secondary Data:** Information was gathered from financial news articles, market reports, academic journals, and case studies related to stock manipulation and social media influence.
- **Stock Price Data:** Daily closing prices of selected stocks from the BSE and NSE over the past year.
  - **Social Media Data:** Posts, comments, and interactions related to these stocks on platforms such as Twitter, Facebook, YouTube, and Telegram.
  - **Control Variables:** Market indices (e.g., NIFTY 50, BSE Sensex), economic indicators (e.g., inflation rate, GDP growth), and company-specific news (e.g., earnings reports, corporate announcements).

### **RESEARCH DESIGN**

**This study utilizes both qualitative and quantitative research methods:**

The research employs an exploratory design, combining qualitative and quantitative methods to understand stock market manipulation by influencers. This includes analyzing case studies and survey data.

### **SAMPLING PLAN**

A Google Form was used to collect responses from 70 individuals who are familiar with or invest in the stock market. The survey aimed to capture a diverse perspective on social media's influence on investment decisions.

### **SCOPE OF RESEARCH**

- Focuses on the Indian stock market, specifically the BSE and NSE.
- Examines the influence of social media on stocks traded on these exchanges.
- Explores the regulatory framework in India concerning market manipulation.
- Investigates the specific impact of market manipulation on retail investors.
- Analyses the role of influencer culture in shaping investor behavior and market trends.
- Assesses the effectiveness of current regulations in addressing social media-driven market manipulation.
- Considers the long-term implications of social media-driven stock activities on market stability and investor confidence.

### **Sample Size**

The sample size for this study includes 70 individual investors who are knowledgeable about stock trading and active on social media platforms.

### **Data Analysis & Findings**

#### **Event Study Analysis**

Event study analysis is a way to see how specific events impact stock prices. This analysis helps us capture those ripples and understand how much the stock price deviates from what we'd normally expect.

In this research, we applied event study analysis to stocks that were heavily influenced by social media activity, such as Yes Bank and Vakrangee Limited. For example, when Yes Bank was aggressively promoted by influencers, its stock price jumped, only to fall sharply later. This kind of price movement suggests that the stock's performance was driven more by hype than by the company's actual fundamentals.

By looking at the stock prices before and after these social media events, we were able to measure the abnormal returns—those unexpected changes in price. This method helped us see how powerful social media can be in swaying market behavior, often leading to price movements that don't align with the true value of the stock. Understanding these patterns is crucial for both investors and regulators in a world where digital influence is growing.



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### Sentiment Analysis

Sentiment analysis is like trying to get a sense of the market's mood by looking at what people are saying on social media. It helps us understand whether investors are feeling optimistic, pessimistic, or somewhere in between based on the online conversation.

In our study, we used sentiment analysis to look at social media posts about certain stocks. We wanted to see if the general tone—whether positive or negative—was actually affecting stock prices. For example, when influencers were talking up a stock, it usually led to a lot of buying,

Which pushed the price up? On the other hand, negative comments often triggered selling and brought the price down.

This type of analysis is valuable because it gives us insight into the psychological factors at play in the market. While traditional financial analysis focuses on company performance and economic indicators, sentiment analysis adds an understanding of how market perceptions—often driven by influencers—can lead to real financial outcomes.

### Primary Data Insights

**1. Influencer Recommendations and Investment Decisions:** According to survey responses from 70 participants:

- **Financial Decisions Based on Influencers:** 33.33% of respondents have made financial decisions based on recommendations from influencers or celebrities. This indicates a significant portion of investors are influenced by non-traditional sources of information.
- **Perception of Social Media Influence:** 83.3% of respondents believe that social media can influence stock prices. This high percentage reflects a broad acknowledgment of the power of social media in shaping market perceptions and investor behavior.

**2. Awareness and Documentation of Manipulation:**

- **Investment Based on Recommendations:** When asked if they would invest solely based on an influencer's recommendation, the responses showed a divided opinion, indicating that while some investors might rely on influencers, others remain skeptical.
- **Regulatory Awareness:** A notable percentage of respondents are unaware of SEBI's actions against influencers for manipulating stock prices. This suggests a need for greater awareness and transparency regarding regulatory actions and protections.
- **Documented Cases of Manipulation:** Many respondents have heard of documented cases involving influencers manipulating stock prices, highlighting the prevalence and impact of such practices.

### Influencer Impact on Stock Prices

**1. Manipulation Cases:** The study identified several instances of stock manipulation in the Indian market linked to social media influencers. Notable cases include:

- **Yes Bank:** Influencers amplified the hype around Yes Bank's potential recovery, leading to a temporary surge in its stock price. Once the influencers exited their positions, the stock price collapsed, resulting in substantial losses for late investors.
- **Vakrangee Limited:** Influencers promoted Vakrangee as a high-growth stock, which led to a dramatic increase in its stock price. However, after the initial hype subsided, the stock price fell sharply, causing financial harm to many investors.
- **Future Retail:** Influencers' recommendations on Future Retail contributed to erratic price movements, driven by speculation rather than fundamentals.

**2. Market Volatility:** The study's event analysis indicates that social media-driven recommendations often lead to increased market volatility. Stocks heavily promoted by influencer's exhibit wider price swings compared to those without such influence. This volatility is attributed to speculative trading driven by influencer hype rather than fundamental factors.



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## CONCLUSION

The growing influence of social media and influencers on the stock market is an important problem in India. This study demonstrates that influencers can have a significant impact on

Stock prices, even when there is no direct connection to the company's actual performance. Positive posts from influencers frequently drive prices up, whilst unfavorable comments can lead prices to fall, resulting in a lot of volatility.

Our findings show that we need better laws, greater investor education, and tighter collaboration with social media platforms to address this issue. Influencers should have to reveal any financial ties to the companies they promote. We also need tools to analyse social media sentiment in real time and educational initiatives to teach investors about the risks of following influencers' recommendations without performing their own research.

In conclusion, while influencers are here to stay, it is critical to put protections in place to guarantee their influence is responsible and investors are safe from deception. This would help to make the Indian stock market fair and reliable for all. Moving forward, continuing research and flexible policies will be critical in managing this growing digital landscape.

## RECOMMENDATIONS

Based on the findings of this study, several recommendations can be made to address the issue of stock market manipulation by influencers in the Indian market.

### 1. Enhanced Regulatory Oversight:

- **Strengthened Disclosure Requirements:** Influencers discussing stocks should be required to disclose any financial ties or incentives they have with the companies they promote. This transparency can help investors better assess the motivations behind the recommendations.
- **Monitoring Social Media Activity:** Regulatory bodies like SEBI should develop tools to monitor social media platforms for unusual activity related to stocks. By identifying suspicious behaviour early, regulators can take timely action to prevent manipulation.

### 2. Investor Education Initiatives:

- **Awareness Campaigns:** Investors should be made aware of the risks associated with following advice from influencers without conducting their own research. Educational campaigns can highlight the importance of due diligence and understanding the fundamentals of investing.
- **Financial Literacy Programs:** Offering workshops or online courses that focus on the impact of social media on investing can empower investors to make more informed decisions.

### 3. Collaboration with Social Media Platforms:

- **Content Guidelines:** Social media platforms could work with regulatory authorities to establish guidelines for financial content. This could include tagging or flagging posts that involve stock recommendations to ensure transparency.
- **Reporting Mechanisms:** Implementing easy-to-use reporting tools on social media platforms would allow users to flag content that seems suspicious or potentially manipulative, helping regulators to respond more quickly.

### 4. Development of Analytical Tools:

- **Real-Time Sentiment Monitoring:** Both regulators and investors could benefit from tools that track the sentiment of social media posts in real-time, helping to identify emerging trends or manipulative behaviour early on.
- **Investor Decision Support:** Providing investors with access to tools that analyse social media sentiment could help them better understand the market mood and avoid making decisions based solely on hype.

### 5. Ethical Standards for Influencers:

- **Clear Guidelines:** Establishing ethical guidelines for influencers who discuss stocks can ensure that their recommendations are responsible and well-founded. This might include encouraging them to base their content on thorough research rather than speculation.
- **Incentivizing Compliance:** Offering incentives for influencers who follow these guidelines, such as



certification or verification badges, could encourage more responsible behavior.

#### 6. Ongoing Research and Adaptation:

- **Continuous Monitoring of Trends:** Given the fast-paced nature of social media, ongoing research is essential to keep up with new methods of manipulation and to adapt regulatory strategies accordingly.
- **Flexible Regulations:** The regulatory framework should be flexible enough to evolve as new forms of online manipulation emerge, ensuring that investor protection measures remain effective.

These recommendations aim to create a safer and more transparent investing environment, where both individual investors and the broader market are protected from the potentially harmful influence of social media-driven stock manipulation.

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**FRAUDULENT DIGITAL PAYMENTS: UNDERSTANDING THE THREATS OF CARDING, FAKE PAYMENT GATEWAYS, AND CHARGEBACKS**

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dipakpawar10@gmail.com**ABSTRACT**

*In modern times digital payments and payment gateways are essential to our day to day life on the one hand it makes all payment simple and easy but on the other hand it poses threat of fraudulent payments. This has also causes online frauds including carding, fake payment gateways and change bases. These fraudulent activities pose significant risk to consumer and business fake payments gateway, change payment cording. The researcher will also suggest preventing uses. This research paper will analyse the fraudulent digital payment methods and understand threats. The researcher will collect and analyse primary data through survey and questionnaire.*

**Keywords:** Carding, fake payment gateways charges.

**1 INTRODUCTION**

The rapid expansion of digital payment systems has revolutionized the way consumers and businesses engage in financial transactions, providing greater convenience, speed, and accessibility. From online shopping to mobile banking and digital wallets, the global adoption of digital payments has dramatically reshaped the financial landscape. However, alongside these advancements, a concerning rise in fraudulent activities within the digital payment ecosystem has emerged, posing significant risks to both consumers and merchants. Fraudulent digital payments, specifically involving practices such as carding, fake payment gateways, and chargebacks, have become prevalent and increasingly sophisticated threats that demand urgent attention and robust countermeasures.

Carding, one of the most widespread forms of digital payment fraud, refers to the unauthorized use of stolen credit or debit card information to make fraudulent transactions. Fraudsters typically acquire card details through various means, including data breaches, phishing attacks, or through dark web marketplaces, and use automated tools to test these cards on low-value transactions to confirm their validity. Once successful, they can escalate the fraud to larger transactions or resell the information to other criminals. The growth of carding fraud is directly tied to the increasing volume of digital transactions, with criminals exploiting vulnerabilities in payment systems to gain access to financial data. This type of fraud not only causes financial losses for cardholders but also undermines the trust in digital payment platforms, leading to potential reputational damage for businesses.

Another major threat in the digital payment space is the rise of fake payment gateways. These fraudulent platforms are designed to mimic legitimate online payment systems in order to deceive consumers into entering sensitive payment details, such as credit card numbers and personal information. Fake payment gateways are often used in phishing schemes, where customers are directed to fraudulent websites that look identical to trusted e-commerce sites. Once a consumer submits their payment details, the fraudsters capture the information and use it for illicit purposes, including making unauthorized transactions. As consumers become more accustomed to making payments online, they may inadvertently fall victim to these sophisticated scams, which can have devastating financial consequences.

Chargeback fraud, or friendly fraud, is another significant concern in the realm of digital payments. This occurs when consumers dispute legitimate transactions with their banks or credit card issuers, claiming that a purchase was unauthorized or that the goods or services were not received, even though the transaction was legitimate. Merchants, particularly those in e-commerce, often bear the financial burden of chargebacks, as they not only lose the revenue from the sale but may also face additional fees and penalties imposed by payment processors. In some cases, chargeback abuse is part of a broader scheme where consumers repeatedly initiate disputes, taking advantage of merchant vulnerabilities in chargeback prevention systems. This form of fraud poses a growing challenge for businesses, as it undermines revenue and can affect the long-term viability of online operations.

The implications of these fraudulent activities are far-reaching, with consequences affecting not only the financial institutions and merchants directly involved but also the broader digital economy. As digital payment systems evolve, fraudsters continuously adapt their methods, making it more difficult to detect and prevent



these fraudulent practices. The increasing complexity of fraud tactics requires a multi-faceted approach to mitigate these risks, including the development of advanced fraud detection systems, the implementation of stronger security protocols, and enhanced consumer awareness about online payment safety.

This study aims to explore the threats posed by carding, fake payment gateways, and chargebacks in the context of digital payments, analyzing the techniques employed by fraudsters, the impact of these activities on stakeholders, and potential solutions for combating these challenges. By understanding the scope and mechanisms of fraudulent digital payments, this research seeks to contribute to the development of more effective strategies for protecting consumers and businesses alike in the evolving landscape of digital transactions.

## 2 LITERATURE REVIEW

These literature reviews by provide valuable insights into the current state of digital payment fraud in India, particularly focusing on the specific threats of carding, fake payment gateways, and chargebacks. The papers offer a comprehensive analysis of the challenges and solutions from the perspectives of technology, regulation, and consumer behaviour. **Iyer, P., & Rao, S. (2022)**, this review examines the application of artificial intelligence (AI) and machine learning (ML) techniques in detecting fraudulent digital payments in India. It focuses on how these technologies are being leveraged by Indian financial institutions to combat carding fraud, fake payment gateways, and chargebacks. The paper highlights the challenges of implementing AI-driven fraud detection systems, such as data privacy concerns and the high rate of false positives, while also discussing their effectiveness in preventing fraud. **Patel, S., & Joshi, N. (2022)**, this review looks at the regulatory landscape for digital payments in India, specifically focusing on preventing fraud. It reviews policies such as the RBI's digital payment guidelines and the enforcement of the Payment Card Industry Data Security Standard (PCI DSS). The paper also explores how these regulations address the specific threats of carding, fake payment gateways, and chargebacks in the Indian context and evaluates their effectiveness in combating fraud. **Reddy, K., & Verma, A. (2021)**, this literature review explores the various cyber security threats affecting digital payments in India, with a focus on carding, fake payment gateways, and chargeback fraud. It discusses the vulnerabilities in India's rapidly growing digital payment infrastructure, the role of the Indian government and RBI in setting up cyber security protocols, and the involvement of financial institutions in fraud prevention. The paper also covers emerging threats such as mobile wallet fraud and phishing attacks in the Indian context. **Sharma, V., & Singh, R. (2023)**, Chargeback fraud, also known as "friendly fraud," is a growing concern in the Indian e-commerce sector. This review explores how Indian consumers exploit the chargeback process to reverse legitimate payments, leading to financial losses for merchants. The paper provides a detailed analysis of the types of chargeback frauds occurring in India and suggests strategies for merchants and financial institutions to mitigate these risks, including the use of robust fraud detection systems and consumer verification protocols. **Singh, A., & Kumar, R. (2021)**, this literature review discusses the rise of fraudulent payment gateways in the Indian e-commerce landscape. It examines how fake gateways are designed to deceive customers and steal sensitive payment information. The paper also discusses the role of regulatory bodies such as the Reserve Bank of India (RBI) and the Payment Card Industry Data Security Standard (PCI DSS) in preventing such frauds. The review provides insights into the techniques used by fraudsters and offers recommendations for consumers and businesses to enhance payment security. **Verma, P., & Jain, M. (2022)**, this review focuses on the growing issue of carding fraud in the Indian digital payments ecosystem. It examines the technological and social factors contributing to carding, including the use of stolen card details on online platforms. The paper also highlights the role of Indian banks, financial institutions, and payment processors in combating carding fraud. Additionally, it discusses the use of machine learning and other technologies to detect carding attempts in real-time.

## 3 RESEARCH METHODOLOGY

### 3.4 Research Problem

The rise of fraudulent digital payments, particularly in the form of carding, fake payment gateways, and chargebacks, presents a significant challenge to the security and integrity of online transactions. As digital payment systems continue to proliferate in both global and Indian e-commerce sectors, cybercriminals exploit vulnerabilities in payment infrastructures, posing financial risks to merchants, consumers, and financial institutions. Carding, wherein stolen card details are used for unauthorized transactions, remains a major concern, while the proliferation of fake payment gateways deceives users into entering sensitive information on fraudulent platforms. Additionally, chargeback fraud—where legitimate transactions are disputed by customers—creates further financial strain on businesses. Despite various technological advancements in fraud detection, the evolving tactics of fraudsters and the inadequacy of existing security measures necessitate further



investigation into the underlying causes and effective solutions. This research aims to explore these threats comprehensively, examining their impact on the digital payment ecosystem and evaluating strategies to mitigate fraud in a rapidly changing technological landscape.

### **3.2 Objectives of Research**

1. To understand consumer awareness of digital payment frauds.
2. To identify effective fraud prevention measure.
3. To analyse the impact of fraud awareness on consumer behaviour.

### **3.3 Scope of Study**

The scope of this study focuses on understanding the different types of fraudulent digital payment activities, particularly carding, fake payment gateways, and chargebacks, within the context of modern e-commerce and digital transactions. It will investigate the methods used by cybercriminals to perpetrate these frauds, the impact on businesses, consumers, and financial institutions, and the challenges faced by stakeholders in mitigating these risks. The study will also explore the effectiveness of existing fraud detection mechanisms, such as machine learning algorithms, artificial intelligence, and regulatory frameworks like PCI DSS and RBI guidelines. Additionally, the research will assess current consumer awareness and behavior in relation to digital payment security, while proposing potential solutions and best practices for reducing fraud in digital payment systems. The geographical focus of the study will be on India, while also considering global trends in fraudulent digital payments.

### **3.4 Research Design**

The research design for this study will adopt a mixed-methods approach, combining both qualitative and quantitative research methodologies to provide a comprehensive understanding of fraudulent digital payments. The quantitative aspect will involve the analysis of transaction data, fraud incident reports, and financial statistics from Indian financial institutions, e-commerce platforms, and payment processors to identify patterns and trends in carding, fake payment gateways, and chargebacks. Surveys and questionnaires will be distributed to merchants, consumers, and cybersecurity professionals to gather insights on their experiences, awareness, and the effectiveness of current fraud prevention measures. The qualitative component will include in-depth interviews with industry experts, cybersecurity professionals, and regulators to explore the challenges and emerging threats in digital payment fraud. This multi-dimensional approach will enable a detailed analysis of the underlying causes of fraudulent activities, the impact on stakeholders, and the effectiveness of existing countermeasures in the digital payment ecosystem.

### **3.7 Method of Data Collection**

The method of data collection for this research will include a combination of surveys and questionnaires targeted at e-commerce merchants, consumers, and cybersecurity professionals to gather quantitative insights on experiences with digital payment fraud. In-depth interviews will be conducted with industry experts and regulators to collect qualitative data on fraud prevention measures and challenges. Secondary data analysis from financial institutions and cybersecurity reports will help identify trends in fraud incidents. Additionally, case studies of real-world fraud cases will be used to understand the practical implications and effectiveness of existing countermeasures.

### **3.8 Limitation of Study**

The limitations of this study on fraudulent digital payments, specifically focusing on carding, fake payment gateways, and chargebacks, include the challenge of acquiring comprehensive data on the full extent of fraud due to the clandestine nature of these activities. Many instances of fraud are not reported or go undetected, leading to an underestimation of the scope of the problem. Additionally, the rapidly evolving tactics used by fraudsters, such as the use of sophisticated technologies and methods, may result in a lag between the identification of new threats and the adaptation of preventive measures. Furthermore, the study relies on available case studies and reports, which may not always represent a cross-section of all industries, limiting the generalizability of the findings. Finally, varying legal frameworks and regional differences in digital payment systems might affect the applicability of the study's conclusions across different geographical regions.

## **4 ANALYSIS AND FINDINGS**

The analysis and findings on the basis of feedback from the respondents through the questionnaire are as follows:

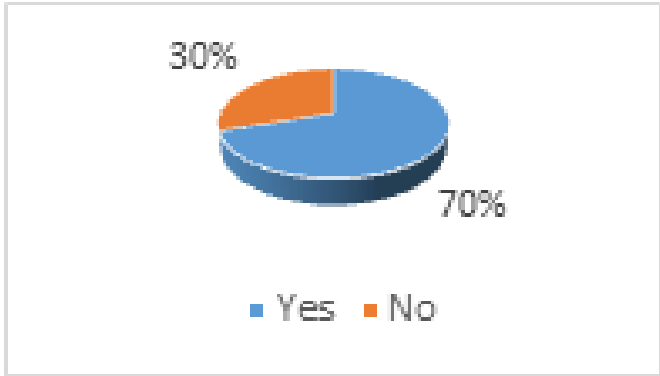


1) Familiarity with the concept of fraudulent digital payments?



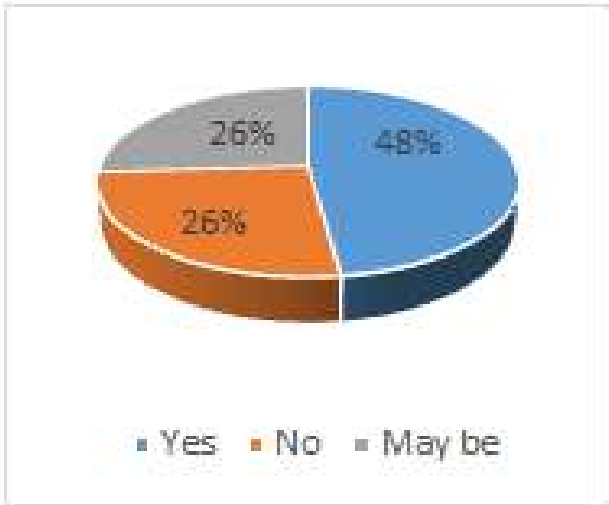
- Interpretation:** 100% of respondents indicated they are familiar with fraudulent digital payments. Everyone surveyed is aware of fraudulent digital payments, indicating that fraud is a well-known issue within the surveyed population.

2) Experience with or being affected by digital payment fraud?



- Interpretation:** 69.57% have experienced or been affected by digital payment fraud, while 30.43% have not. A significant majority of respondents (nearly 70%) have faced some form of digital payment fraud, suggesting that digital payment fraud is a prevalent issue among the group.

3) Awareness of the term "carding" in online payment fraud?



- Interpretation:** 47.82% are aware of the term "carding," 26.08% (6 out of 23) are not aware, and 26.08% are uncertain. Nearly half of the respondents understand the concept of "carding," but there is still a considerable portion (about 52%) that either doesn't know the term or is unsure. This suggests that while fraud is recognized, some of the specifics, like "carding," are less well-known.



4) Confidence in the security of credit/debit card information when shopping online



- **Interpretation:** 100% of respondents feel confident that their card information is secure when shopping online. Every respondent feels secure, which could indicate trust in their current online shopping habits and security measures. However, it might also reflect a potential overconfidence or lack of awareness about the risks of digital fraud.

5) Steps taken to protect card details when making online payments



- **Interpretation:** 60.86% take measures to protect their card details, while 39.14% do not. Most respondents are aware of the importance of protecting their card information, but there is still a sizable group (39.14%) that does not take protective measures, which could indicate a gap in security habits.

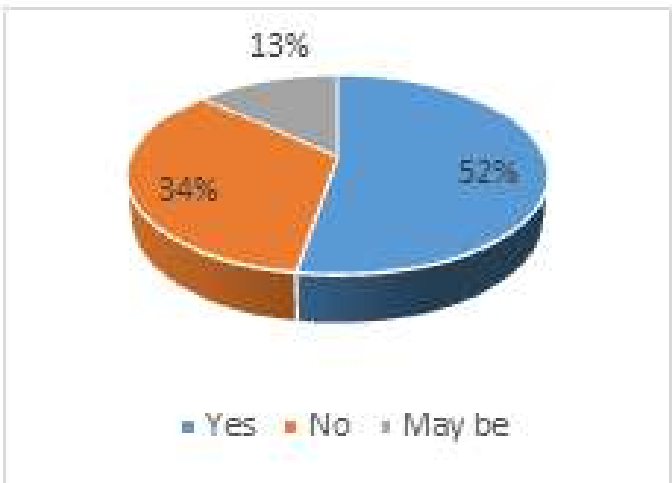
6) Perception of carding as a threat to online shoppers and businesses



- **Interpretation:** 82.60% view carding as a serious threat, while 17.40% do not. The majority considers carding a significant threat, which aligns with concerns about digital payment fraud and highlights the perceived severity of this issue.

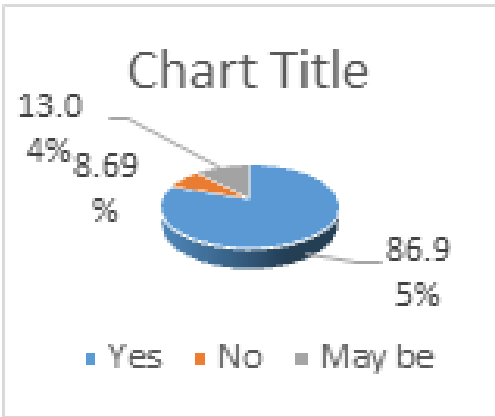


7) Encountering a fake payment gateway or website designed to steal payment information



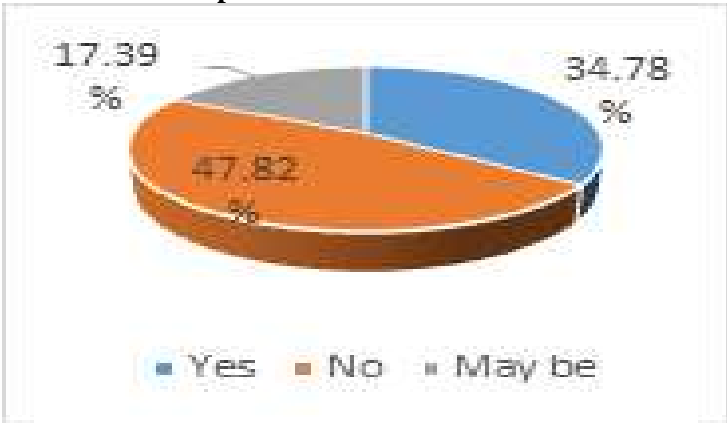
- **Interpretation:** 52.17% have encountered fake payment gateways, 34.78% (8 out of 23) have not, and 13.04% are uncertain. More than half of the respondents have faced fake payment websites, emphasizing the real risks posed by fraudsters using deceptive sites to steal information.

9) Usage of two-factor authentication or other security measures for online payments



- **Interpretation:** 86.95% use two-factor authentication or other security measures, while 8.69% do not, and 13.04% are unsure. A high percentage (over 86%) use enhanced security measures, which suggests an awareness of the risks and an active effort to mitigate them. However, a small number of respondents do not employ these measures.

12) Initiating a chargeback for an online purchase



- **Interpretation:** 34.78% have initiated a chargeback, 47.82% have not, and 17.39% are unsure. A relatively small portion of respondents has needed to initiate chargebacks, indicating that while fraud is an issue, not all individuals need to seek chargebacks. However, more than half have not needed this feature, possibly suggesting that fraud hasn't been experienced by everyone at the same scale.

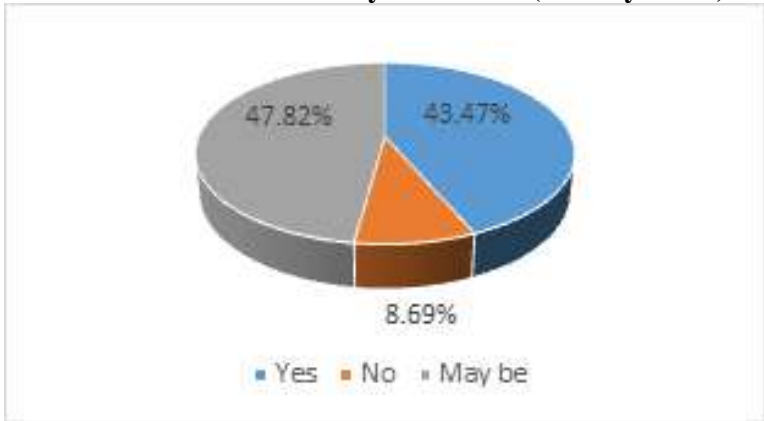


13) Ease or difficulty of resolving chargeback disputes



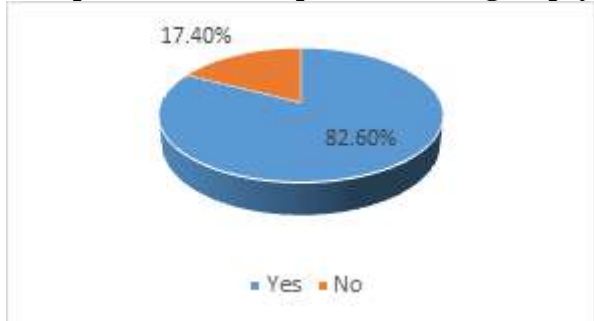
- **Interpretation:** 47.82% find it easy to resolve chargeback disputes, while 52.17% find it difficult. Nearly half of the respondents believe resolving chargeback disputes is challenging, which could indicate frustrations with payment processors, financial institutions, or businesses when dealing with fraudulent transactions.

14) Belief that chargebacks are sometimes abused by consumers (friendly fraud)



- **Interpretation:** 43.47% believe chargebacks are sometimes abused, 8.69% disagree, and 47.82% are unsure. Nearly half of the respondents think that chargebacks can be abused, indicating some level of skepticism about the process, which may reflect concerns about fraudulent chargebacks as much as about fraud itself.

15) Measures businesses should implement to better protect from digital payment fraud



- **Interpretation:** 82.60% want businesses to implement better fraud protection measures, while 17.40% do not. A strong majority wants businesses to do more to protect against fraud, which could point to a general expectation of enhanced security features from online merchants.

5 CONCLUSION

Everyone is familiar with the concept of fraudulent payments, with many having encountered fraud directly. While respondents express confidence in the security of their card information, most still take steps to protect it, though a significant minority do not. Many consider carding a major threat, and a large portion of respondents



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have encountered fraudulent site. The majority uses two-factor authentication, reflecting a strong focus on securing digital transactions. Many find chargebacks difficult to resolve, and there's a belief that chargeback abuse (friendly fraud) is common.

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**FINTECH AND THE FUTURE OF FINANCE**

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**ABSTRACT**

*This study investigates the impact of Financial Technology (Fintech) on the evolution of personal finance management. Fintech is revolutionizing how individuals access, manage, and grow their finances through innovations such as digital payment systems, robo-advisors, personal finance apps, and decentralized financial solutions. By giving consumers greater control over their financial decisions, these technologies are reshaping the financial landscape. This paper explores the development of Fintech, its key areas of transformation, and emerging trends, while addressing the challenges and regulatory factors influencing its growth. It also considers the implications of these advancements for the future of personal finance management.*

**Keywords:** Fintech, industrial structure, customer benefits, barriers, identity, cyber security, AI, financial stability, regulation crypto currencies, payments, business models, Bit coin, Block chain

**INTRODUCTION**

The financial services sector has experienced a significant transformation due to the emergence of Financial Technology (Fintech). This term refers to the use of advanced technology to enhance and streamline financial services. Fintech has had a particularly notable impact on personal finance management, offering individuals innovative tools like digital platforms, mobile applications, and automated systems to better oversee their financial activities. This paper explores how Fintech is revolutionizing personal finance, focusing on its historical development, current advancements, cutting-edge technologies, and the challenges that must be addressed to foster a sustainable and accessible financial environment.

**LITERATURE REVIEW**

Numerous studies have explored the impact of Fintech on financial inclusion, financial services, and personal finance management. Research indicates that Fintech has enabled greater access to financial products and services, particularly for under banked populations (Chen et al., 2018). Technologies such as mobile payments, digital wallets, and peer-to-peer lending platforms have democratized access to financial services.

Moreover, the emergence of robo-advisors and artificial intelligence (AI) has simplified investment management, enabling users to make smarter financial decisions with minimal input. However, literature also points to several concerns related to cyber security, data privacy, and regulatory issues, which pose risks to the growth and trust in Fintech services.

**Objectives**

The primary objective of this study is to develop a comprehensive understanding of the conceptual framework of Financial Technology (Fintech).

**Methodology**

This research adopts a qualitative methodology, utilizing secondary data from academic literature, industry reports, and case studies focused on Fintech and its role in personal finance. A thematic analysis was conducted to identify key trends, the impact of Fintech on personal finance management, and the challenges associated with its adoption.

The study takes a global perspective, emphasizing innovations in digital payment systems, personal finance management tools, and investment platforms. To enhance the analysis, interviews were conducted with Fintech experts, alongside surveys targeting users from both developed and emerging markets. These methods provide valuable insights into user experiences and perceptions of Fintech solutions.

**Evolution of Fintech**

The origins of Fintech can be traced back to the 1950s with the introduction of ATMs and credit cards. However, the sector experienced a transformative boom in the early 2000s, driven by the widespread adoption of the internet, mobile technology, and broadband services. This period marked a significant shift in financial services, transitioning from traditional banking methods to online banking and digital payment systems.

The 2008 global financial crisis further accelerated the search for alternative financial solutions, spurring innovations in peer-to-peer lending, mobile payments, and crypto currencies. In recent years, Fintech evolution



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has been defined by cutting-edge technologies such as block chain, artificial intelligence, machine learning, and big data analytics, shaping the future of financial services.

### **Key Areas of Fintech Transformation**

- **Digital Payments:**

Mobile wallets, contactless payments, and QR codes have revolutionized the way individuals make transactions. Platforms such as PayPal, Venmo, Google Pay, and Apple Pay have made payments faster, more secure, and accessible worldwide.

- **Robo-Advisors and Wealth Management:**

Robo-advisors leverage AI to provide automated investment advice and portfolio management. This technology democratizes investment by providing affordable and efficient services, traditionally available only to high-net-worth individuals.

- **Personal Finance Management (PFM) Apps:**

Apps like Mint, YNAB (You Need A Budget), and Personal Capital help users track spending, save money, and make better financial decisions. These apps use algorithms to analyze spending patterns and suggest personalized financial strategies.

- **Peer-to-Peer Lending (P2P):**

P2P lending platforms have enabled individuals to borrow and lend money directly, bypassing traditional financial institutions. This has democratized credit access and lowered borrowing costs.

- **Block chain and Crypto currencies:**

Block chain technology has disrupted the financial landscape, enabling secure, decentralized transactions. Crypto currencies like Bit coin, Ethereum, and stable coins offer new ways to store, transfer, and grow wealth.

### **The Future of Finance: Emerging Trends**

- **Artificial Intelligence and Machine Learning:**

AI will play a major role in enhancing personal finance management by automating budgeting, spending analysis, and investment decisions. AI-powered catboats are already assisting consumers in managing finances and providing financial advice.

- **Decentralized Finance (DeFi):**

DeFi platforms, built on block chain technology, are poised to disrupt traditional financial intermediaries. By enabling lending, borrowing, and trading without banks or other intermediaries, DeFi has the potential to make personal finance more inclusive and transparent.

- **Embedded Finance:**

Financial services embedded into non-financial platforms (e.g., retail apps, ride-sharing platforms) will become more widespread. This trend allows consumers to access credit, savings, and insurance services seamlessly within the apps they already use.

- **Sustainable Finance:**

As consumers become more environmentally conscious, Fintech solutions will increasingly support sustainable finance practices. Green Fintech platforms will help individuals invest in sustainable projects and manage their finances with a focus on environmental, social, and governance (ESG) criteria.

### **Challenges and Regulatory Considerations**

- **Data Privacy and Security:**

As personal finance becomes more digitized, ensuring the security and privacy of user data is crucial. Breaches in cyber security can undermine consumer trust and slow the adoption of Fintech services.

- **Regulatory Issues:**

The rapid pace of innovation in Fintech poses challenges for regulators. Developing and enforcing regulations that balance innovation with consumer protection is a critical issue. Regulatory bodies must ensure that Fintech services comply with existing financial laws while fostering innovation.

- **Financial Literacy:**

While Fintech platforms empower individuals to manage their finances, there is a need for greater financial literacy, especially in emerging markets. Many consumers still struggle with understanding the tools and strategies offered by Fintech platforms.



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## Challenges in Fintech

- **Adoption Barriers:**

Despite the growth of Fintech, adoption remains uneven. Many people, particularly in underserved regions, face barriers related to internet access, digital literacy, and trust in technology.

- **Technological Infrastructure:**

In developing economies, the lack of robust technological infrastructure can hinder the widespread adoption of Fintech solutions. Investment in digital infrastructure is necessary to make Fintech accessible to all.

- **Consume Trust:**

Fintech platforms must address concerns around fraud, hacking, and scams. Establishing trust with consumers is essential for long-term growth in personal finance management.

## Findings and Discussion

The study reveals that Fintech is transforming personal finance by enhancing accessibility, efficiency, and ease of use. Innovations such as digital payment platforms and personal finance apps are streamlining everyday financial activities, while robo-advisors are making investment opportunities more accessible to a broader audience. Despite these advancements, concerns about security, regulatory compliance, and consumer trust remain significant challenges.

The analysis also highlights that while Fintech adoption is more advanced in developed economies; emerging markets possess substantial growth potential. Increasing consumer awareness and improving financial literacy are critical to ensuring that a wider demographic can benefit from Fintech innovations.

## CONCLUSION

Fintech is revolutionizing personal finance by equipping individuals with advanced tools to manage their finances, invest wisely, and achieve their financial objectives. Emerging technologies such as artificial intelligence block chain, decentralized platforms, and embedded financial services are poised to shape the future of the financial landscape. However, for Fintech to achieve sustainable growth and inclusivity, it is crucial to address challenges related to security, regulatory frameworks, and financial literacy.

## RECOMMENDATIONS

1. **Promote Financial Literacy**

Governments and private entities should prioritize financial education initiatives to enhance consumer understanding and effective use of Fintech tools.

2. **Strengthen Cyber security**

Robust cyber security frameworks must be implemented to safeguard user data and build consumer confidence in Fintech platforms.

3. **Facilitate Regulatory Alignment**

Policymakers should strive for coordinated regulations across jurisdictions, enabling Fintech services to operate on a global scale while ensuring consumer protection.

4. **Design for Inclusivity**

Fintech providers should develop accessible and user-friendly platforms tailored to diverse socio-economic groups, with a particular focus on underserved populations in developing regions.

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**DIGITAL DIVIDE AND AI-POWERED PERSONALISED LEARNING: ADDRESSING ACCESS AND EQUITY ISSUES IN BIMARU STATES**

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drrajeshbhoite77@gmail.com**ABSTRACT**

*This study explains the potential of AI-powered personalised learning to narrow the digital divide gap and address equity and access issues in BIMARU states of India. It highlights the role of digital tools in providing equitable educational opportunities to unprivileged groups and marginalised communities. The paper is more on fostering inclusiveness and reducing socio-economic disparities among the states. The role of AI must be considered in this case as it is to be integrated with traditional teaching methods to engage students more, increase the rate of literacy, and mainly reduce dropout rates. The study aims to foster equity and access in education state-wise and make it a globally competitive region in education. It was found that Rajasthan is ahead of all the stated parameters, such as computer-internet access, AI-based learning, and educational indicators.*

**Keywords:** BIMARU states equity, access, inclusiveness, and AI-powered learning.

**• INTRODUCTION****▪ Bimaru States**

The BIMARU states refer to the group of Indian states that lag in economic development and infrastructure compared to other regions. BIMARU state consists of Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh. This term was coined in the 1980s by the economist Ashish Pose to highlight the challenges faced by some of the states in India that need to be appropriately developed and are pretty behind the other states. The features of the BIMARU states are that they are economically backward, there are many social challenges, migration and unemployment are the major problems, and governance and policy challenges are also present.

**▪ Digital Divide**

The digital divide refers to the disparity in access to and use of information and communication technology (ICT) across individuals, communities, and nations. This divide manifests in geographic, infrastructural, and socio-economic dimensions, leading to unequal access to digital tools such as the Internet, computers, and smartphones. Urban areas tend to experience relatively better access compared to rural regions, where the divide is more pronounced. Additionally, differences in digital literacy exacerbate this inequality. Key factors contributing to the digital divide include economic disparities, educational barriers, inadequate technological infrastructure, and geographical limitations. Consequently, the digital divide fosters economic, social, and educational inequalities. These disparities hinder opportunities for advancement and contribute to broader societal inequalities.

**• PERSONALISED LEARNING**

Personalised learning is an educational approach that binds content and teaching methods and engages each student. Unlike traditional models of the same kind of instruction, personalised learners leverage innovative teaching strategies to create individualised learning experiences. It is more related to adaptive learning platforms. We are students who can progress at their own pace while receiving targeted support in the areas where they struggle. It fosters students' engagement, encourages self-directed learning, and helps them master their subjects. This is very important because it enhances academic outcomes and nurtures critical thinking and problem-solving skills among these students in this dynamic world.

**• REVIEW OF LITERATURE.**

- **Ahmed, L., & Chen, Y. (2021).** Explored how socio-economic factors influence digital excess by using an external survey of 300 respondents using purpose sampling. Low-income households are less likely to own digital devices than what they found in their status.
- **Brown, A., & Wilson, K. (2021)** examined the role of AI in tailoring educational content by carrying out a quantitative experimental study on 300 students using random control trials. They found that AI-based platforms improved learning outcomes by adapting to individual learning speeds and styles.



- **Carter, H., & Ahmed, S. (2020).** Assist the impact of personalised learning on STEM performance By using mixed methods consisting of service and focus groups On 200 students using a stratified sampling method. They found that personalised strategies announced problem-solving skills and engagement in STEM subjects.
- **Davis, N., & White, R. (2019).** Analyse the impact of personalised learning on ungraduated courses using mixed methods consisting of service and interviews on 8000 students using multistage sampling of the students in the personalised learning environment performed.
- **Evans, M., & Taylor, J. (2019).** Evaluated the effectiveness of real-time feedback using learning analytics by conducting a quantitative longitudinal study on hundreds of Pi students using convenience sampling. They found that real-time analytics improves student performance and motivates them in online courses.
- **Johnson, P. (2019).** Analysed differences in Internet access between urban areas by using a survey-based study on 1000 households by using cluster sampling. They found that rural areas are significantly behind urban areas regarding Internet accessibility.
- **Johnson, P., & Singh, J. (2020)** studied the effects of personalised strategies on students' motivation by experimenting with 250 scooters using randomised sampling. they found that personalised learning methods increase motivation and help reduce the dropout ratio.
- **Lee, S., & Kumar, V. (2018).** Examine gender disparity in digital literacy using a qualitative study of 60 participants using convenient sampling. They found that women face more barriers to digital literacy in rural areas.
- **Lee, T., & Patel, R. (2021).** A qualitative study on 50 teachers was conducted using snowball sampling to assess the equity issues in personalised learning and approaches. They found that personalised learning benefits varied by socio-economic status and the location of the resources.
- **Patel, N., & White, A. (2022).** Evaluated the effectiveness of digital inclusion policies by implementing a case study and concluded that policies have marginally improved access but failed to address student affordability.
- **Patel, R., & Singh, J. (2020)** assessed the challenges faced by people with disabilities in a digital environment by conducting interviews with 40 participants using convenient sampling. They found a website, and the applications open lack accessibility features, Excluding disabled users from full participation.
- **Smith, J., & Doe, R. (2020).** Investigated the impact of the digital divide on students' learning using a mixed method consisting of service and interviews with 500 students using stratified random sampling. They found that the digital divide negatively impacts students' performance in low-income families.
- **Williams, A., & Hernandez, G. (2022).** The racial disparity over digital technologies was studied using qualitative and ethnographic studies on 50 participants using snowball sampling. They prompted me to commit to experiencing systematic barriers in obtaining and utilising digital technologies.
- **Williams, D., & Hernandez, L. (2021).** Examine the role of teachers in the personalised learning environment by carrying out a qualitative case study on ten schools. Using purposeful sampling, they observed that teachers shifted roles to facilitators and mentors, enhancing student learning.
- **Zhang, Y., & Kumar, V. (2022).** Investigated the scalability of adaptive learning technologies by carrying out quantitative surveys on 1000 students using cluster sampling. They found that adaptive platforms are more effective but require initial investment and teacher training.

#### • SIGNIFICANCE OF THE STUDY

This study aims to bridge educational divides in BIMARU states by addressing gaps and ensuring equitable access to AI-powered learning for rural and urban students. It promotes inclusiveness, reduces socio-economic disparities, and enhances literacy by lowering dropout rates and addressing inadequacies in education. By supplementing traditional teaching with personalised AI learning tools, students will engage more actively in self-development, particularly in underserved communities. The focus on digital tools empowers students, creating a skilled workforce and boosting employment opportunities. This aligns with India's global competitiveness and economic growth vision through enhanced digital education.



• OBJECTIVES OF THE STUDY

1. This study aims to determine the disparity in Internet access between urban and rural areas in BIMARU states and its impact on AI-powered personalised learning.
2. To assess the adoption and usage of AI-based learning tools in BIMARU states by comparing urban and rural divides.

• HYPOTHESES OF THE STUDY

1. There is no significant difference in using AI-based learning tools between urban and rural areas.
2. There is no significant difference in internet access between urban and rural areas.
3. There is no significant difference between literacy and dropout rates, and GER and literacy rates and GER.

• METHODOLOGY OF THE STUDY

This study is purely secondary data-based. The data is sourced from TRAI and NSSO to compare AI-powered personalised learning and tool usage in BIMARU states of India. The other data is sourced from published articles and theses.

• DATA ANALYSIS

A) Urban-Rural Internet Access

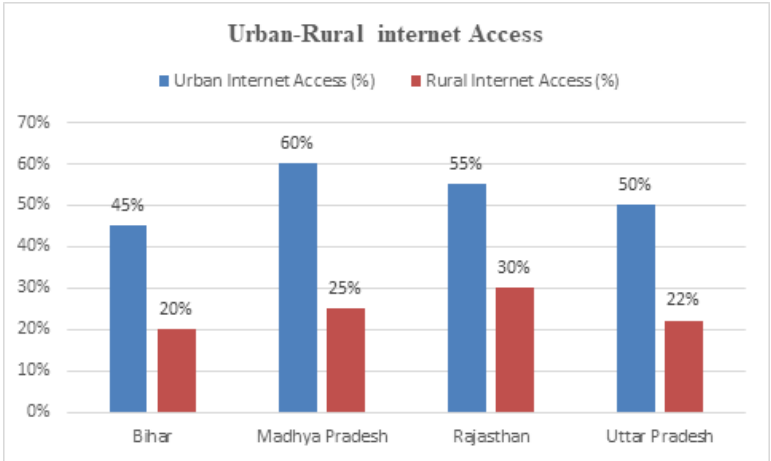


Figure 1.1

Source: TRAI 2022 and NSSO 2020

Figure 1.1 shows internet connectivity among these states. It is observed that except for Bihar, other states have comparatively satisfactory internet access. However, all the states show more access to urban areas only. The highest urban internet access is seen in Madhya Pradesh, followed by Rajasthan and Uttar Pradesh, and the least is observed in Bihar. Rural internet access in all these states is an average of 24 per cent, which is very low.

B) Urban-rural AI-based learning tool usage

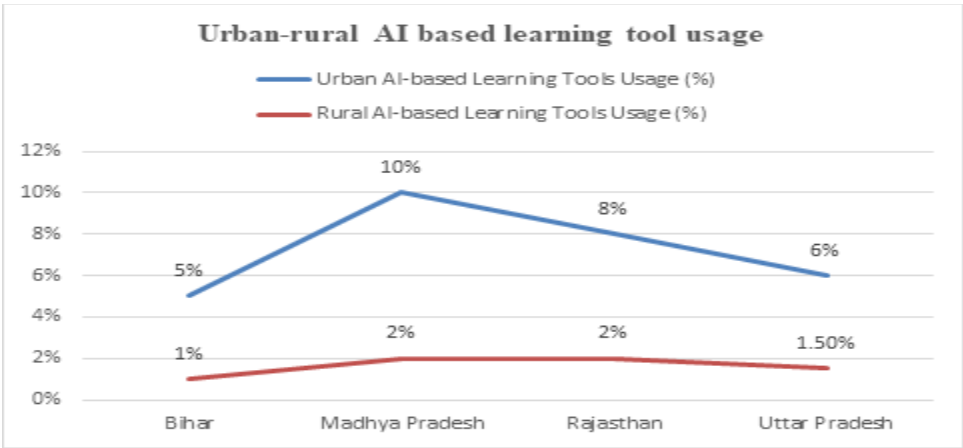


Figure 1.2

Source: TRAI 2022 and NSSO 2020



Figure 1.2 shows the urban-rural usage of AI-based learning tools. It is found that the adoption of AI-based learning tools is low in both areas. Comparatively, Madhya Pradesh is leading in urban adoption at 10 per cent, whereas Rajasthan, Bihar, and U.P. are not so satisfactory in their usage. The lowest use is in the rural Bihar area.

### C) Educational Indicators:

Indicators in Percentage	Bihar	M.P	Rajasthan	Uttar Pradesh
Literacy Rate	70.4	73.8	80.8	69.4
Dropout rate	5	4	3	6
GER	95	96	98	94

*Source:* NSSO\*Ministry of Education report\*Educational statistics 2023.

### It is observed that:

1. Regarding literacy rate, Rajasthan is better, with an interest rate of 80.8 per cent, reflecting better educational initiatives and access to education for both genders. Madhya Pradesh is next, showing little progress, but the condition of Bihar and Uttar Pradesh is quite challenging in literacy, especially among rural areas and the marginalised population.
2. Regarding the cross-enrolment ratio, Rajasthan leads for primary education, with more than 98% of children enrolled in schools, followed by Madhya Pradesh and Bihar. Uttar Pradesh is a bit behind due to challenges such as poverty and infrastructure.
3. Dropout rates at the primary level are relatively low across all the BIMARU states. Rajasthan's performance is notable, as retention is good. Bihar and M.P. are also showing better retention, but the U.P. is still facing challenges in universal education.
4. Overall, Rajasthan's progress can be considered a model for other states in retaining students. Effective intervention is needed in the U.P. and Bihar to improve literacy rates and reduce dropout rates at primary and secondary levels.

### • HYPOTHESIS TESTING

#### Hypothesis 01

The usage of AI-based learning tools is similar between urban and rural areas.

#### Result:

The T-statistic value is 6.26, and the P-value is 0.008, which shows that the P-value is less than 0.05. This shows that there is a difference between urban and rural AI-based learning usage. **The null hypothesis is rejected.**

#### Hypothesis 02

There is no significant difference in internet access between urban and rural areas.

#### Result:

Descriptive analysis shows a significant gap between urban and rural internet access in all the BIMARU states. Better accessibility is found in urban areas, creating a visible digital divide.

#### Hypothesis 03

There is no significant difference between literacy and dropout rates, and GER and literacy rates and GER.

#### Result:

##### 1. Literacy rate and dropout:

Fail to reject the null hypothesis as the P-value is 0.058 with a strong correlation but weak statistical significance. **Failed to reject the null hypothesis.**

##### 2. Dropout rates and GER:

The null hypothesis is rejected because the p-value of 0.017 shows a significant negative relationship, indicating that the states with lower dropout rates have high GER.

**The null hypothesis is rejected.**

##### 3. Literacy rate and GER:

The null hypothesis is rejected because the p-value is 0.016, which shows a significant positive relationship between the variables, stating that higher literacy rates also have higher GER.



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**• LIMITATIONS OF THE STUDY**

1. The data are available on the AI tools, and usage and internet access are restricted to BIMARU states.
2. The conclusion is time-sensitive due to the fast pace of technology in India.
3. The education system and technological infrastructure are unique in all the states.

**• CONCLUSIONS OF THE STUDY**

Implementing AI-based learning tools in the BIMARU states (Bihar et al.) reveals significant disparities in access to education. These differences are influenced by varying literacy rates, dropout rates, and Gross Enrolment Ratios (GER). While Rajasthan performs relatively better in urban and rural areas, challenges persist in providing equitable access to AI-based learning tools across all regions. This inequality in educational resources highlights the broader issue of implementing the National Education Policy (NEP), which aims to ensure equity, access, and inclusion in education. The lack of uniformity exacerbates socio-economic disparities, making it difficult to achieve inclusive education for all learners. Addressing these challenges is crucial to reducing educational inequalities and promoting social equity.

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**EXPLORING THE GIG ECONOMY AMONG INDIAN COLLEGE STUDENTS: AWARENESS, INTEREST, AND BARRIERS TO PARTICIPATION**

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Head – Niranjana Hiranandani School of Management & Real Estate**ABSTRACT**

*The gig economy has become a prominent employment option for many, offering flexibility and income opportunities, particularly for college students. However, despite its potential, the extent to which Indian college students engage with gig work remains underexplored. This research aims to examine the awareness, interest, experience, and challenges associated with gig work among college students in India. A survey was conducted with 100 students from various universities, collecting data on their familiarity with gig work, involvement in gig platforms, preferred roles, and the barriers they face. The findings indicate that while 45% of students are aware of gig work, only 30% have hands-on experience, and 58% express interest in pursuing gig opportunities. Common challenges include time management and income instability. The study further reveals that students prefer roles like tutoring and freelance writing, which align with their academic skills. Statistical analyses show no significant gender or age differences in participation, but awareness remains a key factor influencing engagement. The research highlights the need for greater awareness and support mechanisms to bridge the gap between awareness and actual participation. It concludes with recommendations for gig platforms and educational institutions to facilitate easier access to gig work for students, addressing their concerns regarding flexibility and financial stability.*

**Keywords:** Gig economy, Gig work, Flexible employment, Student engagement

**INTRODUCTION**

The **gig economy** refers to a labour market characterized by short-term, flexible, and freelance work arrangements instead of traditional full-time employment. Workers in the gig economy, often called **gig workers**, take on individual tasks or "gigs," such as driving for ride-hailing services, delivering food, freelance writing, or completing on-demand jobs via various platforms like Zomato, swiggy, vfast, etc

Key features of the gig economy include flexibility, technology-driven & lack of benefits for the gig workers. It's a growing segment of the economy but raises debates about labour rights and income stability.

**Gig workers** are individuals who perform short-term, flexible jobs or tasks, often facilitated by digital platforms or apps. They are typically classified as **independent contractors** rather than traditional employees, meaning they are responsible for managing their own taxes, insurance, and benefits.

**Examples of Gig Workers**

- **Ride-hailing drivers** (e.g., Uber, Ola)
- **Delivery personnel** (e.g., Zomato, Swiggy-Instamart)
- **Freelancers** (e.g., writers, designers, developers on platforms)
- **Task-based workers** (e.g., TaskRabbit)

Gig workers are central to the gig economy and valued for their ability to provide services on demand. However, they often face challenges such as income instability, lack of benefits, and minimal legal protections.

**Gig work** is becoming increasingly popular among **college students in India** due to its flexibility and the opportunity to earn while studying. Key reasons for its appeal include:

1. **Flexibility:** Students can work part-time or take on gigs that fit around their class schedules.
2. **Skill Development:** Gig work allows students to gain experience, build portfolios, and develop practical skills in areas like writing, graphic design, or tutoring.
3. **Financial Independence:** It provides a source of income to support tuition, living expenses, or personal needs.
4. **Digital Accessibility:** The rise of platforms like Swiggy, Zomato, Upwork, and Freelancer makes it easy for students to find work.



Popular gig roles among Indian students include content creation, delivery services, freelancing, and online tutoring. While it offers benefits, some students may face challenges like balancing studies and work or dealing with inconsistent income.

## REVIEW OF LITERATURE

**Chakraborty, S., & Biswas, W. (2021)** in their study examined the role of gig work in empowering youth and women in India. It highlighted how platforms like Uber, Ola, and Swiggy have provided employment opportunities. However, it also pointed out challenges like low pay, lack of social security, and work-life balance issues.

**Mehta, S. (2020)** in his article explores the impact of gig work on income stability among Indian workers. It shows that while gig jobs offer immediate income opportunities, they often lead to financial insecurity due to fluctuating demand and absence of benefits.

**Agarwal, R., & Roy, P. (2022)** in their research investigated the satisfaction levels of gig workers in India, focusing on delivery executives. They found that flexibility and autonomy contribute to satisfaction, but dissatisfaction arose from excessive workload and lack of organizational support.

**Kumar, A., & Singh, M. (2019)** in their paper analysed the regulatory and legal challenges faced by gig workers in India. It emphasized the need for reforms to ensure fair wages, safety, and social security for gig workers.

## Problem Statement

The gig economy has emerged as a significant mode of employment, particularly among young adults, including college students in India. Despite the increasing number of gig work platforms and the potential benefits of flexible work schedules and income opportunities, college students face various challenges in engaging with gig work. These challenges include limited awareness, time management issues, income instability, and a lack of understanding of the gig economy's long-term viability. As a result, the extent of participation and the factors influencing students' decisions to engage in gig work remain unclear. This research aims to explore the awareness, interest, experience, and barriers to gig work among Indian college students, providing insights into the factors that influence their participation and how gig work could be better integrated into their academic and professional lives.

## Objectives of the Study

- **To assess the level of awareness about gig work among college students.**
- Understanding how familiar students are with the concept of gig work.
- **To analyze the proportion of college students with prior experience in gig work.**
- Identifying how many students have participated in gig work and the nature of their experiences.
- **To evaluate the interest of college students in pursuing gig work.**
- Exploring their willingness to engage in gig work and identifying factors influencing their decisions.
- **To identify the preferred gig roles among college students.**
- Understanding which roles (e.g., freelance writing, tutoring, delivery services) attract students the most.
- **To examine the anticipated challenges students, associate with gig work.**
- Investigating potential barriers such as time management, income instability, or lack of opportunities.
- **To explore the relationship between demographic factors (age, gender, and field of study) and gig work preferences.**
- Analysing whether these factors influence awareness, experience, or preferences for gig roles.
- **To provide insights into improving gig work opportunities for college students.**
- Offering recommendations based on students' responses to make gig work more accessible and beneficial for them.

## RESEARCH METHODOLOGY

This study employs a **quantitative research methodology** to analyse the awareness, interest, and participation of Indian college students in gig work. A **survey-based approach** was used to collect primary data from 100



college students across various universities in India. The survey included structured questions to assess students' awareness of gig work, experience with gig platforms, interest in participating in gig work, preferred gig roles, and anticipated challenges.

The data was collected through an online questionnaire, ensuring a broad and diverse sample of students from different fields of study, age groups, and gender. The responses were analysed using **descriptive statistics**, such as frequency distributions and percentages, to summarize the data. Additionally, **chi-square tests** were applied to examine the relationships between categorical variables, such as the association between awareness and experience with gig work, and interest based on age or gender.

The findings were interpreted to identify patterns and challenges faced by students in the gig economy, providing actionable insights into how gig work can be better integrated into their lives. This methodology enables a comprehensive understanding of the factors influencing students' participation in gig work and the barriers that need to be addressed.

### Alternative Hypotheses of the Study

#### 1. Awareness of Gig Work

- **H1:** A majority of college students are aware of the concept of gig work.
- **H2:** Awareness of gig work significantly varies across different fields of study.

#### 2. Experience with Gig Work

- **H3:** Students who are aware of gig work are more likely to have prior experience with it.
- **H4:** Male students are more likely to have gig work experience than female students.

#### 3. Interest in Gig Work

- **H5:** A significant proportion of college students express interest in pursuing gig work opportunities.
- **H6:** Interest in gig work is positively associated with students' awareness of gig work.

#### 4. Preferred Gig Roles

- **H7:** Freelance writing is the most preferred gig role among college students.
- **H8:** Students from arts and commerce backgrounds prefer freelance work more than students from engineering or science backgrounds.

#### 5. Anticipated Challenges

- **H9:** Time management is the most commonly anticipated challenge among students considering gig work.
- **H10:** Female students are more likely to cite challenges like time management compared to male students.

#### 6. Demographic Influence

- **H11:** Students' field of study significantly influences their preferences for specific gig roles.
- **H12:** Younger students (18–20 years) are more likely to express interest in gig work than older students (21–25 years).

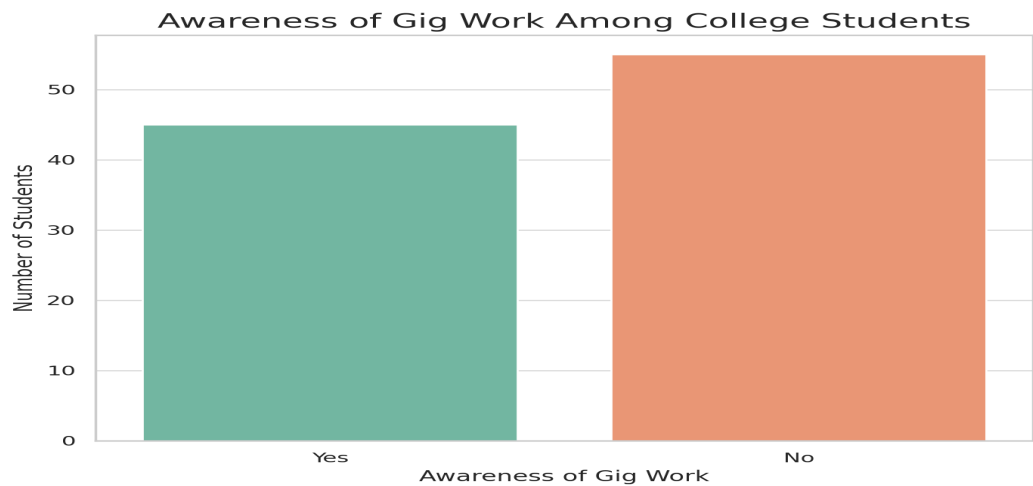
#### 7. Policy and Opportunity

- **H13:** Students with gig work experience are more likely to suggest improvements in gig opportunities compared to those without experience

### Data Analysis & Outcomes

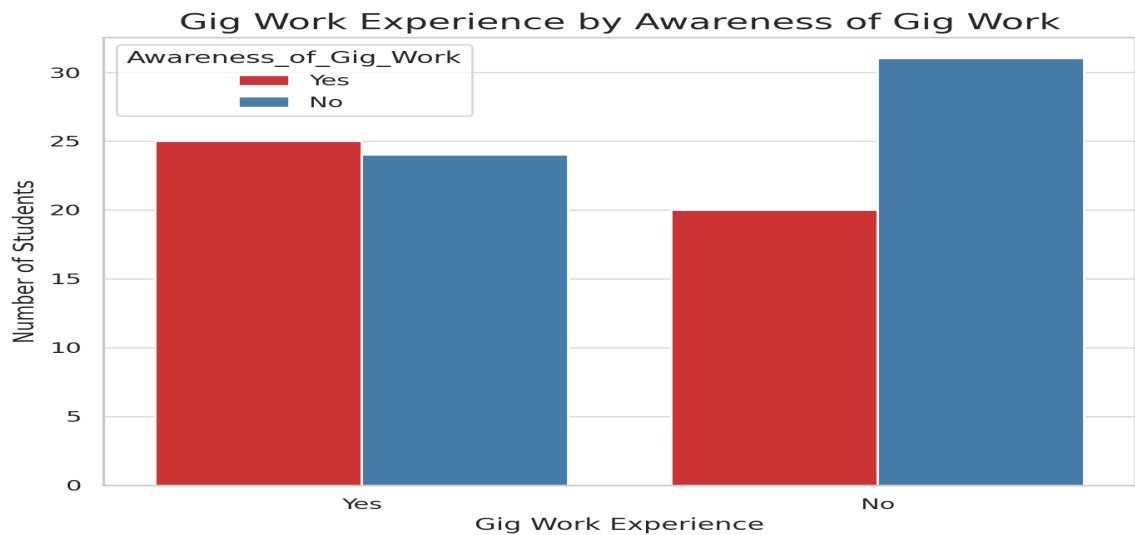
The graphical analysis of the dataset provides insights into the responses from college students about gig work:





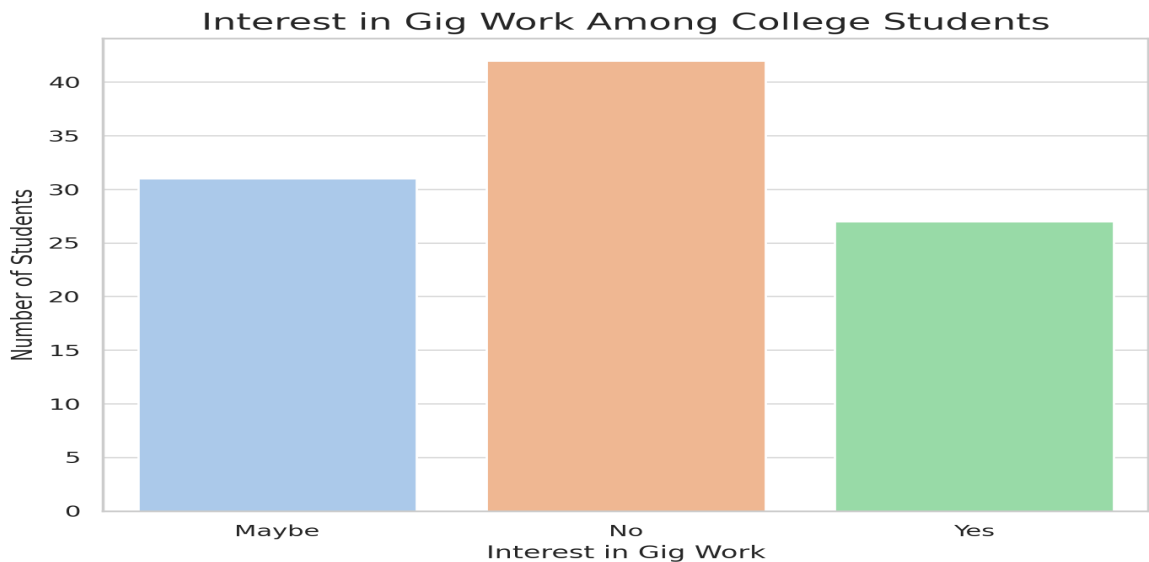
1. Awareness of Gig Work

The Awareness of Gig Work chart shows that approximately 45% of students are aware of gig work. This indicates a moderate level of awareness among college students.



2. Gig Work Experience by Awareness

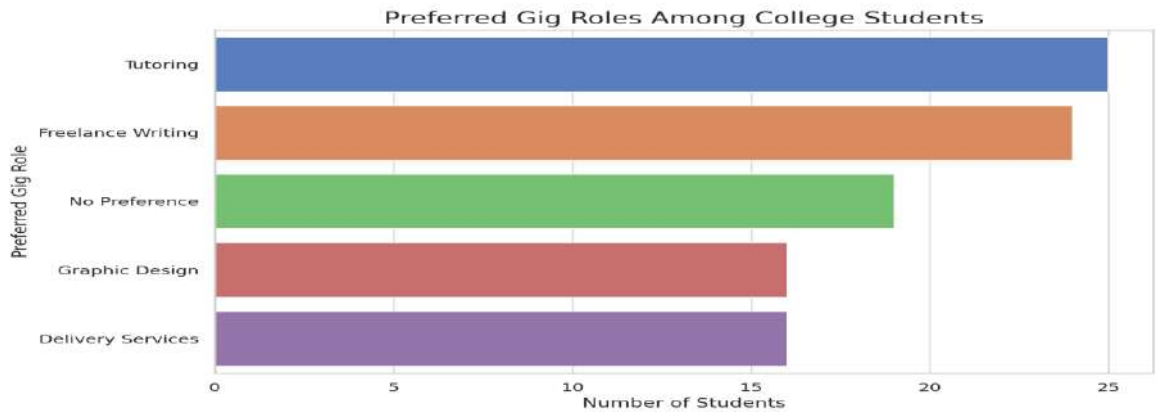
Students who are aware of gig work are more likely to have some experience with it. However, a large proportion of students who are aware still have no experience, suggesting a gap between awareness and actual participation





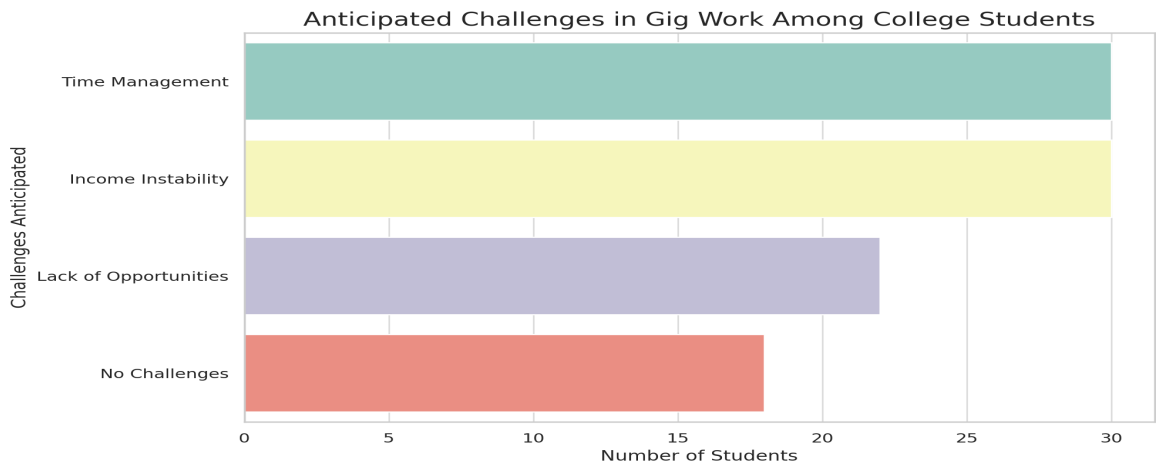
3. Interest in Gig Work

58% of students express some level of interest in gig work (combining "Yes" and "Maybe"). This indicates a considerable level of curiosity or willingness, especially considering the growing gig economy



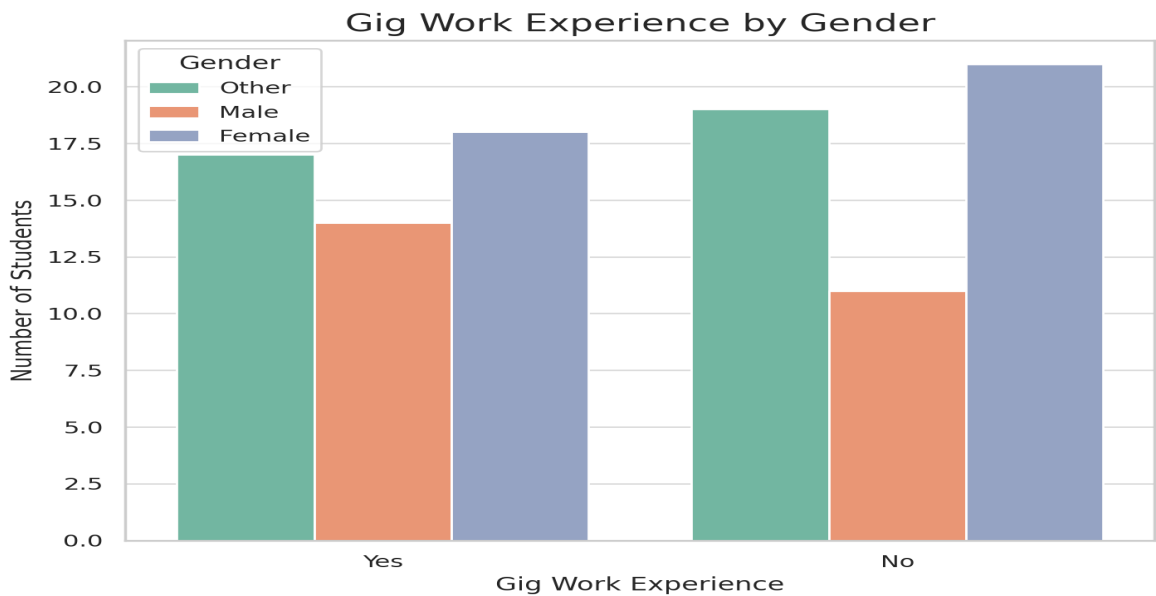
4. Preferred Gig Roles

The most preferred gig roles are **tutoring** and **freelance writing**, with a significant number of students leaning towards online, flexible roles. This shows that students are more inclined toward roles that allow them to use academic knowledge and creativity



5. Anticipated Challenges in Gig Work

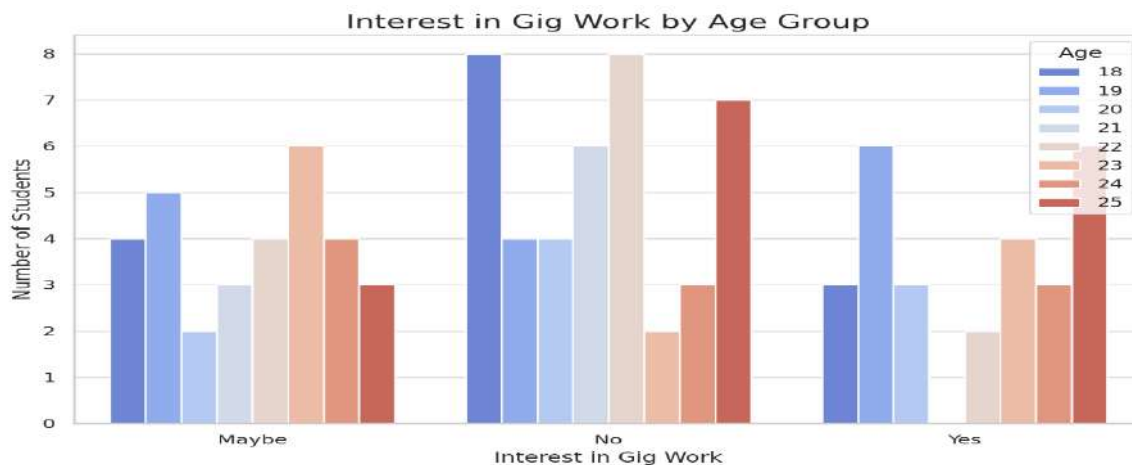
The most commonly anticipated challenge is **time management**, followed by **income instability**. This reflects the concerns of students balancing gig work with academic responsibilities





## 6. Gender-based Differences in Gig Work Experience

There is **no significant gender difference** in gig work experience. Both male and female students show a similar distribution of participation in gig work, though some minor variations may appear in specific roles



## 7. Age-based Differences in Interest in Gig Work

Younger students (aged 18-20) show slightly higher interest in gig work than older students. However, the difference is **not significant**, suggesting that the appeal of gig work is fairly uniform across age groups

### Outcome Interpretation

Each hypothesis test can yield:

- **Significant result:** Supporting the hypothesis ( $p\text{-value} < 0.05$ ).
- **Non-significant result:** Rejecting the hypothesis ( $p\text{-value} \geq 0.05$ ).

## RESULTS

**H1: A majority of students are aware of gig work.**

- Awareness proportion = **45%**.
- **Outcome:** Not supported as the proportion is less than 50%.

**H2: Awareness of gig work varies by field of study.**

- Chi-square = **7.25**,  $p\text{-value} = 0.203$ .
- **Outcome:** Not supported, as the  $p\text{-value} > 0.05$  indicates no significant association.

**H3: Students who are aware of gig work are more likely to have experience.**

- Chi-square = **0.97**,  $p\text{-value} = 0.325$ .
- **Outcome:** Not supported, no significant association between awareness and experience.

**H4: Male students are more likely to have gig work experience.**

- Chi-square = **0.66**,  $p\text{-value} = 0.718$ .
- **Outcome:** Not supported, no significant gender difference.

**H5: A majority of students express interest in gig work.**

- Interest proportion = **58%**.
- **Outcome:** Supported, as more than 50% express interest.

**H6: Interest in gig work is associated with awareness.**

- Chi-square = **0.82**,  $p\text{-value} = 0.662$ .
- **Outcome:** Not supported, no significant association.

**H7: Freelance writing is the most preferred gig role.**

- Top role = **Tutoring**, Proportion = **25%**.
- **Outcome:** Not supported, as tutoring is the most preferred role.



**H8:** Preferred role varies by field of study.

- Chi-square = **25.88**, p-value = **0.170**.
- **Outcome:** Not supported, no significant association.

**H9:** Time management is the most cited challenge.

- Top challenge = **Time Management**, Proportion = **30%**.
- **Outcome:** Supported, as time management is the most cited challenge.

**H10:** Anticipated challenges vary by gender.

- Chi-square = **8.38**, p-value = **0.212**.
- **Outcome:** Not supported, no significant gender difference.

**H11:** Field of study influences preferred gig role.

- Chi-square = **25.88**, p-value = **0.170**.
- **Outcome:** Not supported, no significant association.

**H12:** Younger students are more interested in gig work than older students.

- Younger interest = **59%**, Older interest = **57%**.
- T-statistic = **0.66**, p-value = **0.510**.
- **Outcome:** Not supported, no significant difference.

### Summary

Out of the 12 hypotheses, **H5 (Interest Proportion)** and **H9 (Top Challenge)** were supported, while the remaining hypotheses lacked statistical significance. This indicates areas for further exploration, particularly understanding factors influencing awareness and participation

### Findings

#### 1. Awareness of Gig Work:

Approximately **45%** of college students are aware of gig work, indicating moderate familiarity with the concept. Despite this awareness, there remains a significant portion of students who are unaware, suggesting a potential area for increasing awareness through educational campaigns.

#### 2. Experience with Gig Work:

A noticeable **gap** exists between awareness and experience, with students who are aware of gig work still not actively participating in it. This suggests that while awareness is present, factors such as time commitment, accessibility, or lack of opportunities may hinder students from engaging in gig work.

#### 3. Interest in Gig Work:

**58%** of students express interest in gig work, either by indicating a "Yes" or "Maybe" response. This shows that a considerable proportion of students are open to gig work, which points to an opportunity for platforms and organizations to target this student demographic more effectively.

#### 4. Preferred Gig Roles:

The most preferred gig roles among students are **tutoring** and **freelance writing**, which indicates a preference for roles that leverage academic knowledge and creativity. This trend suggests that college students are more inclined toward roles that offer intellectual engagement over more physically demanding work.

#### 5. Anticipated Challenges:

The major anticipated challenges for students engaging in gig work include **time management** and **income instability**. These concerns highlight the need for more flexible gig opportunities and reliable income structures to attract students to the gig economy.

#### 6. Gender-based Differences:

There were no significant gender-based differences in terms of gig work experience or interest. Both male and female students exhibited similar patterns, suggesting that gig work may be perceived as a gender-neutral opportunity.



### 7. Age-based Differences:

Younger students (aged 18-20) expressed slightly higher interest in gig work than older students, but the difference was not significant. This indicates that the gig economy holds appeal across age groups within the college student demographic.

## CONCLUSION

The research reveals that while awareness of gig work is present among college students, only a moderate proportion actively participate in it. **Interest in gig work is relatively high** (58%), particularly in roles like tutoring and freelance writing, which aligns with students' desire for flexible, intellectual engagement. However, **challenges such as time management and income instability** remain significant barriers to widespread adoption of gig work among students.

The findings also suggest that there is **no significant gender or age-based difference** in students' interest or experience with gig work, which positions gig work as a potentially gender-neutral and broadly appealing opportunity for college students.

To increase participation in the gig economy, platforms could focus on addressing students' concerns, particularly around time management and income instability. Additionally, **raising awareness** through targeted campaigns could help bridge the gap between awareness and actual participation in gig work.

Further research could explore **in-depth barriers to entry** and investigate specific interventions that could make gig work more accessible and appealing to the student population

## RECOMMENDATIONS

### 1. Increase Awareness and Education on Gig Work:

Despite moderate awareness of gig work, a significant portion of students remains unaware. Educational campaigns, workshops, and seminars could be organized by universities or gig platforms to provide students with detailed information on how to get involved in gig work, the potential benefits, and how to balance it with academic responsibilities.

### 2. Flexible Work Opportunities:

Since **time management** is a major concern for students, gig platforms should focus on offering highly **flexible work schedules** that accommodate the academic calendar. This would allow students to choose gig work that fits around their studies, preventing burnout or academic interference.

### 3. Reliable Income Structures:

The **income instability** cited by students as a key challenge can be addressed by offering **guaranteed minimum earnings**, structured payment systems, or the option for students to choose stable, recurring gigs rather than unpredictable tasks.

### 4. Focus on Knowledge-Based Gigs:

Given that students prefer roles like **tutoring** and **freelance writing**, gig platforms should promote knowledge-based gigs that utilize students' academic skills and creativity. This would increase engagement and retention within this demographic.

### 5. Gender-Neutral Approach:

Since there are no significant gender differences in interest or experience, gig platforms should ensure that all marketing, recruitment, and engagement efforts are **gender-neutral**, allowing equal opportunities for both male and female students.

### 6. Leverage Peer-to-Peer Networks:

To further promote gig work, university-specific **peer-to-peer referral programs** could be introduced, where students who have experience in gig work can mentor and encourage their peers to get involved, thereby reducing the entry barriers.

### 7. Provide Support for Skill Development:

Many students may lack the skills needed to perform well in certain gig roles. Offering **training programs or skill development workshops** could help students acquire the necessary expertise, making them more confident and capable in pursuing gig work.



**8. Further Research and Feedback:**

Continuous research is needed to identify new barriers or emerging trends in gig work among students. **Surveys and focus groups** could be conducted regularly to gather feedback and adjust platform offerings according to student needs and preferences.

By implementing these recommendations, gig platforms and educational institutions can create a more conducive environment for students to participate in the gig economy, while addressing their key concerns.

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## A STUDY ON THE UNNOTICED DISRUPTOR “DECISION FATIGUE” ON MANAGERIAL DECISION MAKING

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### ABSTRACT

*The need for available alternatives makes decision making a pleasant task for managers as they have the liberty to deliberate over the various options available and make the best decision which will be the most apt in the given situation. However, when too many alternatives are available to choose between, it can often have a paralysing effect. With all managers having to make thousands of decisions every day, choice-induced exhaustion has become a silent epidemic which is acting as a disruptor for normal work life. This has been given the name “Decision Fatigue”. This silent disruptor not only brings disruption in routine work life, but it also affects the personal lives of people as we all indulge in numerous decisions throughout our daily lives and to say that we are spoilt for choices will be an understatement.*

*The present study is an attempt to bring to the fore this silent disruptor by trying to understand the experiences of managers who experience this problem on a daily basis and to bring out a relationship between how decision fatigue has an impact on the quality of decision making which in turn would have an impact on the smooth functioning of the organizations. Using statistical tools for analysis, the researcher was able to establish a clear relationship between the key variable i.e., decision fatigue and the quality and quantity of decisions, as well as the conditions in which the decisions are made by the respondents on a regular basis & their outcomes, based on which appropriate suggestions have been given to overcome the impact of this silent disruptor in every day organizational lives.*

**Keywords:** Decision Fatigue, Decision Making,

### INTRODUCTION

In the fast-paced world of modern business, decision-making is a crucial skill that can make or break careers and companies. However, as managers and leaders navigate through countless choices daily, they may find themselves experiencing a phenomenon known as decision fatigue. This concept, while not new, has gained significant attention in recent years due to its profound impact on productivity and overall well-being in the workplace.

Decision fatigue refers to the deterioration of decision-making quality after a prolonged period of decision-making. It's a psychological phenomenon that occurs when an individual's mental resources become depleted, leading to decreased willpower and self-control. This concept was popularized by social psychologist Roy F. Baumeister and his colleagues in their research on self-regulation and decision-making.

In the context of human resources and management, decision fatigue can have significant implications. Leaders and managers, who often face a barrage of decisions throughout their day, are particularly susceptible to this phenomenon. The consequences can be far-reaching, affecting not only individual performance but also team dynamics and organizational outcomes.

### Need of Study

Each and every one of us makes a plethora of decisions on an everyday basis in our personal lives. Managers of organizations also face similar problem as on a daily basis, they have to make a substantial number of decisions ranging from those having little significance to those who would impact the organizational outcomes or affect the routine functioning of the organization in a negative manner. Therefore, it is important to understand the mental ecosystem which lies behind the decision-making abilities of managers and which makes their decision-making process effective or ineffective.

### 2. RESEARCH METHODOLOGY

Research Universe	Middle Level Managers of Corporates
Sampling method	Simple random sampling
Sample size	100
Data collection	Primary and Secondary data
Primary Data Collection	Pre – structured and pre – coded questionnaire
Secondary Data	Journals, Newspaper articles



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**2.1 Statement of the problem**

Leaders are responsible for a wide range of tasks, from hiring and team formation to promoting employees based on performance and conducting exit interviews. With such a heavy load, they must have strong decision-making skills. However, this constant decision-making makes managers particularly vulnerable to decision fatigue. In an organization, the choices made by senior managers have a significant impact, requiring them to invest considerable mental energy in every decision. Over time, this depletes their willpower, leading to fatigue.

**2.2 Research objectives**

- 1) To find out relationship between decision fatigue and the resultant outcome of the decisions taken by managers.
- 2) To find out relationship between decision fatigue experienced by managers and the quantity of decisions taken by them during a particular time period
- 2) To find out relationship between decision fatigue experienced by managers and the variety of conditions prevalent during the decision-making process during a particular time period

**2.3 Scope of the study**

To bring out the objectives of the paper, the researcher has to restrict the scope of this study to the city of Mumbai covering the middle level managers. The number of respondents was restricted to 100 managers belonging to various corporates in the city of Mumbai.

**2.4 Variables for the study****2.4.1 Y (Dependent Variable) = Decision Fatigue****2.4.2  $X_i$  (Independent variables)  $i = 1, 2$** 

$X_1$  = Quantity of Decisions

$X_2$  = Conditions surrounding the decision-making process

The sampling design considered is simple random sampling method. Also, a sample size of approximate 100 respondents was considered.

**2.6 Research design**

The research design deployed by the researcher is exploratory/explanatory, descriptive study. The researcher has tried to prove the observation of decision fatigue by way of this exploratory study and used descriptive statistical tools to find the conditions leading to the same to support the observation.

**2.7 Statistical techniques**

For proving hypothesis, statistical technique chi-square test has been used for finding relationship between decision fatigue, the quantum of decisions taken and the conditions prevalent at the time of decision-making during a particular period of time.

**2.8 Research Instrument**

The research instrument used was a structured questionnaire which included both open and closed ended questions. Closed ended questions were framed in relation to objectives and hypothesis of the research. Also, open ended questions were framed for recommendations of research.

**2.9 Method of Data Collection**

Primary data was collected from respondents using standard questionnaire and secondary data was collected from published articles trade magazine newspaper business article journals etc.

**2.10 Hypothesis Testing**

With reference to the objectives considered above the following hypotheses were considered.

**$H_0$ :** There is no relationship between Decision Fatigue and the resultant outcome of the decisions taken by managers

**$H_1$ :** There is a relationship between Decision Fatigue and the resultant outcome of the decisions taken by managers

**$H_0$ :** There is no relationship between decision fatigue experienced by managers and the quantity of decisions taken by them during a particular time period

**$H_1$ :** There is a relationship between decision fatigue experienced by managers and the quantity of decisions taken by them during a particular time period



**H<sub>0</sub>:** There is no relationship between decision fatigue experienced by managers and the variety of conditions prevalent during the decision-making process during a particular time period.

**H<sub>1</sub>:** There is a relationship between decision fatigue experienced by managers and the variety of conditions prevalent during the decision-making process during a particular time period.

### 2.11 Limitations of Study

The study was restricted to the following limitations

- 1) Only respondents of south Mumbai corporate entities were considered for the study.
- 2) The sample size was limited to 100 only.
- 3) Secondary data and information collected for review was assumed to be authentic in nature.
- 4) The independent variables considered were only limited to two for the study.
- 5) Respondent's Biasness.
- 6) Only middle level managers were considered for the study.

### 3. REVIEW OF LITERATURE

Many researchers have conducted various studies on the decision fatigue phenomenon and many theories have been established in an attempt to explain this concept. The researcher has gone through some of such previous research works to identify gaps and supportive literature for the assumption propounded:

**Evan Polman & Kathleen D Vohs (2016)** in their paper found that people report that making decisions for others (vs. the self) is less depleting because it was more enjoyable. They measured chronic focus on self or others (self-construal) and established a full process model that married prior findings with the current ones: Choosing for others was more enjoyable and less depleting to the extent that decision makers were independent, and less enjoyable and more depleting to the extent that decision makers were interdependent. That a mismatch between chronic and state orientation led to the better outcomes for self-control indicates a special link between self-construal and decision-making

**Grant A Pignatiello, Richard J Martin, Ronald L Hickman Jr (2021)** conducted a search of the term 'decision fatigue' across seven research databases which yielded 17 relevant articles. The authors identified three antecedent themes (decisional, self-regulatory, and situational) and three attributional themes (behavioural, cognitive, and physiological) of decision fatigue. However, the extant literature failed to adequately describe consequences of decision fatigue

**Kathleen Vohs et al (2005)** opine that effortful choice is costly, but so is accommodating to choices made by others. In five studies conducted by them, participants who made a series of choices regarding consumer products, college courses, or course materials subsequently showed poorer self-regulation (measured in terms of task persistence, task performance, and pain tolerance), as compared to people who viewed or rated similar options without making choices

**Oto Brandon (2012)** in his paper has defined certain characteristics of decision fatigue. Among them self-control figures most prominently because according to him it is the motivating fuel that directs thoughts & actions. According to the researcher, almost any decision making requires self-control and it drains you when you take a decision and commit on a course of action. According to the researcher, the pool of self-control can be adequately recharged by rest.

### 4. DATA ANALYSIS AND FINDINGS

#### Analysis 4.1

**H<sub>0</sub>:** There is no relationship between Decision Fatigue and the resultant outcome of the decisions taken by managers.

**H<sub>1</sub>:** There is a relationship between Decision Fatigue and the resultant outcome of the decisions taken by managers.

Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.945 <sup>a</sup>	1	.005		



Continuity Correction <sup>b</sup>	6.449	1	.011		
Likelihood Ratio	7.583	1	.006		
Fisher's Exact Test				.010	.006
Linear-by-Linear Association	7.865	1	.005		
N of Valid Cases <sup>b</sup>	100				
<b>Source: SPSS</b>					

P value = 0.006

Since p value < 0.05

Thus, the researcher Rejected H<sub>0</sub>

Therefore, there is a relationship between Decision Fatigue and the resultant outcome of the decisions taken by managers.

#### Analysis 4.2

H<sub>0</sub>: There is no relationship between decision fatigue experienced by managers and the quantity of decisions taken by them during a particular time period.

H<sub>1</sub>: There is a relationship between decision fatigue experienced by managers and the quantity of decisions taken by them during a particular time period.

<b>Chi-Square Tests</b>			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.808 <sup>a</sup>	21	.048
Likelihood Ratio	34.865	21	.029
Linear-by-Linear Association	11.979	1	.001
N of Valid Cases	100		
<b>Source: SPSS</b>			

P value = 0.048

Since p value < 0.05

Thus, the researcher Rejected H<sub>0</sub>

Therefore, there is a relationship between decision fatigue experienced by managers and the quantity of decisions taken by them during a particular time period.

#### Analysis 4.3

H<sub>0</sub>: There is no relationship between decision fatigue experienced by managers and the variety of conditions prevalent during the decision-making process during a particular time period.

H<sub>1</sub>: There is a relationship between decision fatigue experienced by managers and the variety of conditions prevalent during the decision-making process during a particular time period.

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	42.047 <sup>a</sup>	24	.013
Likelihood Ratio	36.680	24	.047
N of Valid Cases	100		
<b>Source: SPSS</b>			

P value = 0.013

Since p value < 0.05



Thus, the researcher Rejected H<sub>0</sub>

Therefore, there is a relationship between decision fatigue experienced by managers and the variety of conditions prevalent during the decision-making process during a particular time period.

## CONCLUSION

In human resources and management, decision fatigue can have serious implications. Leaders and managers, who are constantly faced with numerous decisions, are especially vulnerable to this effect. The impact can extend beyond individual performance, influencing team dynamics and overall organizational results.

Area Impacted	Potential Consequences of Decision Fatigue
Leadership Effectiveness	Decreased ability to make strategic decisions, poor judgment in critical situations
Employee Productivity	Inefficient task prioritization, procrastination on important projects
Team Morale	Inconsistent decision-making leading to confusion and frustration among team members
Organizational Culture	Promotion of a reactive rather than proactive work environment
Innovation	Reluctance to explore new ideas or take calculated risks

## Suggestions

While decision fatigue is a common experience, there are several strategies that individuals and organizations can employ to mitigate its effects:

- **Make Important Decisions Early:** Tackle critical decisions earlier in the day when your mental energy is highest. This aligns with your natural circadian rhythm and can improve decision-making outcomes
- **Develop Routines and Automate Small Decisions:** Establishing routines for repetitive tasks or decisions helps lighten your mental load. For instance, successful leaders like the late Steve Jobs often wore the same outfit every day to remove one decision from their daily agenda
- **Apply Decision-Making Frameworks:** Use structured processes for tackling complex decisions. Tools such as the Eisenhower Matrix or SWOT analysis offer a systematic approach, helping to minimize cognitive strain
- **Engage in Mindfulness and Self-Care:** Consistent mindfulness practices, like meditation or deep breathing, can recharge mental energy. In addition, prioritizing sufficient sleep, proper nutrition, and regular exercise supports overall cognitive health
- **Delegate and Share Decision-Making:** In organizations, spreading decision-making responsibilities helps prevent overload on any single person. This approach not only lightens the load but also empowers team members, fostering more diverse and innovative solutions
- **Reduce Options:** Whenever possible, minimize the number of choices to evaluate. This strategy, called "choice architecture," can help alleviate decision fatigue

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**GLOBALIZATION'S IMPACT ON CENTRAL TRANSFERS TO STATES – A CASE STUDY OF KARNATAKA**

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**ABSTRACT**

*The Economic Reforms have impacted adversely and favourably to the different aspects of the Indian Economy, among which the Fiscal Sector is also one of them. India being a federation adopting Fiscal Federalism has experienced asymmetric division of fiscal resources among state and central government. To analyse the changes in fiscal federalism in India with the introduction of economic reforms in the country, FRBM Act has been considered which was one of the major Fiscal Sector reforms. The Fiscal Responsibility and Budget Management (FRBM) Act was introduced in India in 2003 with the objective of promoting fiscal discipline, prudent fiscal management, and long-term debt sustainability. Along with FRBM Act and Globalization has impacted various levels of economic activities, responsibilities of government to build the socio-economic overheads and the nature of fiscal transfers. Karnataka being one of the States of India to get benefited and impacted by globalization by the abundant inflow of FDI and its ripple impact on the all the sectors of the State. In these changing economic dimensions, an attempt has been made to analyse the implied changes in the fiscal transfers between the Central government and state government with respect to Karnataka. The present study aims to analyse the changes and growth of Central transfers to Karnataka within the time frame 1980-81 to 2019-20. The research question in the present study is whether there is a significant change in the fiscal transfers to Karnataka in the post-globalization period.*

**Keywords:** Federalism, Globalization, Central Transfers, FRBM

**INTRODUCTION**

Indian federation is characterized by a definite framework of fiscal transfers from Centre to the states in order to resolve the fiscal imbalances and promote equitable and balanced regional development. The dynamics of fiscal federalism and power-sharing between the central and state governments have continued to evolve through judicial interpretations and amendments to the Constitution. The financial relations between the central and state governments are based on provisions drawn from the Government of India Act, 1935<sup>1</sup>. The Indian federation is considered asymmetric in nature because the states have been assigned relatively limited and less elastic sources of revenue, while they have significant responsibilities for providing public goods and economic services. This imbalance between revenue sources and responsibilities puts a fiscal burden on the states. The Constitution provides for the devolution of resources from the central government to the states to compensate for the inadequacy of their own revenue sources. This devolution aims to ensure that states have the necessary funds to fulfill their responsibilities. In turn, the states are expected to devolve a portion of their revenue to the local governments, both in urban and rural areas. The Local governments were created through the 73rd and 74th amendments to the Constitution in 1992<sup>2</sup>. In the early 1990s, fiscal reforms were initiated at the central government level to address the deteriorating fiscal situation<sup>3</sup>. However, it became evident that fiscal reforms at the central level alone would not be sufficient, as the fiscal situation at the state level continued to worsen. This highlights the interconnectedness of different levels of government and the need for comprehensive fiscal reforms that encompass all levels. In addition to constitutional transfers, the central government provides assistance to the states for their development plans. These resources are typically channelled through bodies like the Planning Commission (now replaced by NITI Aayog), which was created to coordinate and implement India's development plans. The fiscal situation in India has been a subject of ongoing reform efforts to improve revenue generation, fiscal sustainability, and intergovernmental fiscal relations. These reforms aim to ensure a more balanced fiscal structure and efficient allocation of resources among the central, state, and local governments.

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**2** *ibid.*, 123

**3** Deepak, S. (2017). **Fiscal Federalism and Redistributive Politics in India**. Indore: IIM Indore.



Globalization has had a significant impact on the centre-state fiscal transfer of financial resources in India. Globalization implies increasing interconnectedness and interdependence of economies around the world, leading to the integration of markets, trade, and investment flows. In the context of India, globalization has brought both opportunities and challenges for the fiscal transfers between the central government and state governments. With the economic reforms initiated in the early 1990s, India opened up its markets to foreign investment and trade and this resulted in changes in the income generation capacity and taxable capacity in the state. Globalization has introduced fiscal reforms which have directly led to changes in the taxation structure of India. The biggest reform in the second stage of economic reforms has been the introduction of goods and services tax (GST) in 2017 which replaced multiple indirect taxes levied by the central and state governments<sup>1</sup>. This unified tax system has streamlined fiscal transfers by creating a common pool of revenue that is shared between the centre and states based on an agreed-upon formula. Globalization has led to differential impacts across states in India. Some states have attracted more foreign investment and experienced higher economic growth, while others have lagged behind. This has encouraged regional disparities, imbalanced regional development and differences in economic resources base. To address this, the central government has implemented various schemes and programs to transfer funds to less-developed states and bridge the gap. Globalization has intensified competition among states to attract foreign investment. State governments have started offering various incentives, tax breaks, and infrastructure development to lure investors. This has increased the need for fiscal transfers from the centre to support various developmental initiatives and maintain a level playing field. Globalization has underlined the importance of fiscal federalism, which involves the division of fiscal powers and responsibilities between the centre and states. The central government plays a crucial role in coordinating fiscal transfers to ensure balanced regional development, promote economic growth, and address social and economic disparities arising from globalization. Overall, globalization has influenced the centre-state fiscal transfer in India by providing new opportunities for economic growth and tax revenues, as well as creating challenges related to regional disparities and competition for investment. The government has taken measures to adapt to these changes and ensure a fair and equitable distribution of financial resources among the states.

In the Context of reforms in India is FRBM Act has been a big change in fiscal Sector reforms. The Fiscal Responsibility and Budget Management (FRBM) Act was a legislation enacted by the Government of India in 2003 to ensure fiscal discipline and consolidation at both the central and state government levels. The primary objective of the FRBM Act is to achieve fiscal sustainability by controlling fiscal deficits and reducing the overall debt burden. While the FRBM Act primarily focuses on fiscal targets and debt management, it indirectly impacts fiscal transfers between the central and state governments. The Act also influences the design of conditional transfers from the central government to the states. These transfers may be contingent upon states implementing specific fiscal measures or meeting certain fiscal targets, as prescribed by the Act<sup>2</sup>. This encourages states to align their fiscal policies with the objectives of the FRBM Act to access additional financial resources. The Act's objective of reducing fiscal deficits and managing debt can indirectly influence fiscal transfers by encouraging states to rely more on their own revenue generation rather than being overly dependent on central transfers. This promotes greater fiscal autonomy and accountability at the state level.

### **Reflection of Karnataka's Fiscal Sector after Economic Reforms 1991**

In the context of Karnataka, the state government has initiated several steps over the years to implement fiscal discipline and improve the state's fiscal health. Karnataka was one of the first states in India to implement the FRBM Act, which sets targets for reducing fiscal deficit and debt-to-GDP ratio. The state has been implementing the Act since 2003, which has helped in controlling the state's fiscal deficit<sup>3</sup>. The state government has taken various measures to augment its revenues. These measures include improving tax administration, introducing e-governance initiatives, and rationalizing user charges for public services. The Karnataka state has implemented expenditure rationalization measures to control its expenditure. These measures include controlling administrative expenses, implementing the recommendations of the 14th Finance Commission, and prioritizing expenditure on social welfare schemes. The state has implemented measures to manage its public debt, including setting up a Debt Management Cell and issuing bonds for long-term funding.

<sup>1</sup> Rao, G. M. (2017). Central Transfers to States in India: Rewarding Performance while ensuring equity. Report Submitted to NITI Ayog. New Delhi: NITI Ayog.

<sup>2</sup> Singh, N., Rao, M. G. (2006). op.cit., 177.

<sup>3</sup> Gayithri, K. (2018). Program performance budgeting approach to enhance quality of public expenditure: Approach and challenges in Karnataka. In G. Karnam (Ed.), Public Budgeting in India principles and practices. Springer.



The implementation of GST has helped in improving tax compliance and increasing revenue for the state government. The SFRC has been strengthened to oversee the implementation of the FRBM Act and to provide guidance on fiscal management. Overall, these measures have helped Karnataka in improving its fiscal health and achieving fiscal discipline.

Along with the introduction of various steps to strengthen the fiscal discipline in the state, the process of globalization had a positive impact over the tax revenue of the state and has led to greater buoyancy in tax generation for the state. Karnataka, especially its capital Bengaluru, has emerged as a global IT and tech hub due to globalization. Multinational companies (MNCs) and IT firms like Infosys, Wipro, and other tech giants have set up operations, contributing to higher corporate tax collections. The expansion of Global Capability Centers (GCCs) and Foreign Direct Investment (FDI) has resulted in growing economic activities, increasing both direct taxes (corporate tax, income tax) and indirect taxes (GST, VAT). Post-globalization, Karnataka has become a major player in software exports, e-commerce, and manufacturing. These sectors generate significant Goods and Services Tax (GST) revenue for the state. Karnataka has witnessed increased demand for luxury goods, alcohol, and other consumer products, partly due to globalization-driven lifestyle changes. This has led to higher excise duty collections (Karnataka heavily relies on alcohol excise for tax revenue). Globalization has boosted employment opportunities, especially in the IT-BPM, fintech, and manufacturing sectors, attracting highly skilled workers. This has led to higher individual income tax collections, which improves scope of pool of transfers for Karnataka. In summary, globalization has significantly increased Karnataka's tax receipts, primarily driven by the growth of the IT sector, manufacturing, international trade, and lifestyle consumption.

But along the positivity observed in fiscal sectors in Karnataka, the developmental aspect of the state poses certain challenges like – regional imbalances between northern and southern parts of Karnataka, Low contribution of GSDP from the primary sector and greater scope for infrastructural strengthening, inadequate expenditures dedicated to planned human resource development to cop-up with skyrocketing development contributed by globalization to the state. In this dynamic context of Karnataka, an analysis of the state has been conducted to analyse the composition and growth of central transfers and to understand the underlying factors behind the change.

### **Statement of the Problem**

Indian Fiscal Federalism is featured with adoption of fiscal federalism with division of fiscal powers and responsibilities between different levels of government and this division is decorated and debated with the presence of imbalance in division of resources which can be considered as asymmetric division of resource among Central and State government. With the introduction of LPG reforms, globalization has strengthened the revenue receipts of Karnataka but on the other hand with every Finance Commission the criteria for sharing central taxes with the states have been undergoing change, which has impacted the share of central taxes to Karnataka. In this study an attempt has been made to analyse the nature of change in central transfers to Karnataka in the post-globalization period.

### **Objective of the Study**

**The objective of the Study is as follows:**

1. There has been fall of Central transfers to Karnataka in Post-Globalization period
2. The Share of Central Taxes to Karnataka as a percentage of Total Transfers has declined in post-globalization period.

### **METHODOLOGY OF STUDY**

The Time-Series Analysis is based on secondary data relating to relevant fiscal indicators which are to be compiled from the RBI bulletin (various issues) and State Finance Reports, Handbook of Statistics on Indian Economy, Annual financial statements of GoK, Medium Term Fiscal Plans (MTFP) of GoK, Economic Survey of India, Economic Survey of Karnataka, Accounts at Glance published by CAG. The time-period of the study is 1980-81 to 2019-20. The time-period has been classified into two periods – 1980-81 to 1989-90 as pre-globalization period and 1990-91 to 2019-20 as post globalization period. The tool used in the study is dummy variable model.

### **FINDINGS OF THE STUDY**

The Central Transfers are classified into three categories as Statutory transfers, plan transfers and discretionary transfers. But with the replacement of planning commission with NITI Aayog there has been absence of plan transfers and there are changes in discretionary grants hence the present study focuses on three elements of



transfers, they are – Share of Central Transfers, Loans from the Centre and Grants from the Centre. In post-globalization the share of all three components is reflected in the following table.

**Table1:** State-wise Composition of Central Transfers to 17 General Category States of India

State-wise Composition of Central Transfers - Share in Central Taxes (SCT), Grants (GFC) and Loans from Centre (LFC) (1990-91 to 2019-20) (in %)													
Sl no	States	Avg. of 1990-91 to 92-93			Avg. of 2000-01 to 02-03			Avg. of 2010-11 to 12-13			Avg. of 2017-18 to 19-20		
		SCT	GFC	LFC	SCT	GFC	LFC	SCT	GFC	LFC	SCT	GFC	LFC
1	Andhra Pradesh	42.02	29.27	28.71	42.72	29.75	29.86	60.64	32.37	6.98	64.78	31.98	3.24
2	Bihar	48.57	26.65	26.08	69.53	14.46	16.04	72.2	25.93	1.87	75.87	20.76	3.37
3	Chhattisgarh	-	-	-	57.23	31.46	11.31	56.97	42.15	0.89	61.23	37.34	1.43
4	Gujarat	28.57	24.2	57.87	28.48	39.4	36.12	57.39	40.44	2.17	58.66	39.88	1.46
5	Haryana	33.22	26.45	40.33	37.85	38.8	23.34	48.43	48.86	2.72	53.23	45.63	1.14
6	Jharkhand	-	-	-	54.2	35.25	9.84	58.98	40.33	0.69	68.12	30.12	1.76
7	Karnataka	43.46	26.28	30.26	45.35	28.09	26.56	55.06	38.02	6.92	61.65	36.44	1.91
8	Kerala	39.11	23.73	33.9	50.52	22.59	24.06	63.91	26.05	4.68	65.67	25.06	9.27
9	Madhya Pradesh	45.53	33.92	20.55	56.59	23.2	20.22	60.64	34.42	4.34	61.24	34.48	4.28
10	Maharashtra	35.27	24.92	39.81	50.97	31.55	17.48	50.2	47.41	2.39	57.34	40.76	1.9
11	Odisha	41.39	33.85	24.76	46.86	25.59	27.56	61.62	36.88	1.5	62.23	34.27	3.5
12	Punjab	17.63	14.96	67.41	33.71	34.65	31.64	56.48	40.52	3	59.76	39.12	1.12
13	Rajasthan	36.72	38.9	24.38	47	36.74	16.26	67.47	31.14	1.39	65.34	30.12	4.54
14	Tamil Nadu	43.37	25.5	31.13	53.99	27.94	18.07	60.58	33.02	6.39	61.27	34.56	4.17
15	Uttar Pradesh	38.12	33.47	28.41	64.17	17.94	17.89	70.47	28.98	0.55	68.93	27.98	3.09
16	Uttarakhand	-	-	-	18.47	70.98	11.25	35.86	63.5	0.64	43.54	55.23	1.23
17	West Bengal	41.04	25.84	33.12	48.21	30.69	21.1	62.65	35.94	1.42	67.23	31.34	1.43

**Source:** Compiled and Calculated from Accounts at Glance published by CAG and Various Economic Surveys of Karnataka

In the above table the average percentage of three years in first two decades and in last decade starting three years and ending three years have been averaged to understand the movement of change in post-globalization era. The three components of transfers are SCT – Share of Central taxes, GFC – Grants from the Centre and LFC – Loans from the Centre have changed. In all the four periods the percentage of SCT is higher compared to GFC and LFC, but with a movement from first period to the last averaged period the percentage share of grants has increased compared to loans and the percentage share of loans has incredibly declined which is reducing the fiscal burden on the state. The decline in loan component has been significant. The general category states had been receiving nearly 20-30% of central transfers in form of loans which has fallen to 1-5% for all the states in the study. In case of Karnataka also the same pattern is observed, during 1990-91 to 1992-93 the percentage share of loans among all the three component was 30.26% and from 2000-01 to 2002-03 the percentage of loans was 26.56% , in 2010-11 to 2012-13 the percentage of loans was 6.92% and in 2017-18 to 2019-20 was 1.91%, hence it can be remarked there is remarkable fall in the Loans from the Centre. This change implies contraction of available resources for the state, but in long-run the state will be able to protect the fiscal discipline by reducing the burden of debt servicing which is very crucial for the state's fiscal prudence which is one of the aim of FRBM Act. In case of Karnataka, the proportion of share in central taxes has risen up from 43.46% to 45.35% from first period to second period and then to 55.06% in third period and to 52.49% in the last period of analysis. In case of grants there has been a jump from 26.28% to 45.25% from first period 1990-91 to 1992-93 to the last period as mentioned in the table as 2017-18 to 2019-20.

In the following segment we presenting the shift impact on central transfers due to presence of Globalization and FRBM Act on all states with respect to all the components of Central Transfers – SCT, GFC & LFC and the total central transfers. In the following analysis the time period is from 1990-91 to 2019-20. In this case the dummy variable model will be as follows:

$$Y = \alpha + \beta x + \beta_1 x_1 + \beta_2 x_2$$

In this model, the  $\alpha + \beta x$  represents the intercept and the slope co-efficient of Share in Central Taxes for the 1st stage of post- globalization period (pre-FRMB Act Period) and  $\beta_1 x_1$  represents increment in the intercept for the 2nd stage of post- globalization period (post-FRBM Act period). In the model the increment in the central transfer components in the second period over the first period is represented by  $\beta_2 x_2$ , which represents the increment in the slope co-efficient of the model.

In this case the null hypothesis states that there is no significant difference in the central transfers in post-globalization and post-FRBM period. The alternative hypothesis states that there is a significant difference in central transfers to states in the post-globalization and post-FRBM period.



In the context of importance of Central transfer for low-income states as these states have lower level of development and with historically determined structural constraints, it would be of importance to examine the nature of growth period-wise in case of Karnataka using Dummy variable Analysis. The span of time for analysis for Karnataka has been from 1980-81 to 2019-20. The total span is divided into three periods viz.,

- A. 1980-81 to 1989-90 representing pre-globalization period,
- B. 1990-91 to 2004-05 representing the 1st stage of post-globalization period (pre-FRBM Act Period) and
- C. 2005-06 to 2019-20 representing 2nd stage of globalization (post-FRBM Act period).

The results are presented in Table below.

**Table 2:** Growth Rate of Components of Central Transfers to Karnataka in pre-globalization and post-globalization period

Components	A	$\beta$	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	R <sup>2</sup>
Share in Central Tax	4.129	0.060* (16.41)	0.520	0.029	0.026* (-2.41)	0.014 (-0.01)	0.997
Grants from Centre	4.244	0.041* (5.30)	0.0175	-0.416	0.009 (-0.87)	0.019 (1.36)	0.979
Loans from Centre <sup>a</sup>	4.001	0.039 (1.02)	-0.109	-0.635	-0.165* (-4.04)	-0.020** (2.07)	0.593
Total transfer	5.007	0.048* (3.98)	0.420	-0.263	0.031 (-0.96)	0.011 (-0.07)	0.923

**Source:** Compiled and computed from Karnataka Account & Finances, RBI Bulletin- State Finances; note: Figures in the parentheses give t-values; \*1% level of significance, \*\* 5% level of significance.

From the output of the model it can be said that all the coefficients are found positive for all components of transfer and statistically significant for all transfers excepting Loans from Centre. It is observed that there is a tendency of deceleration in the growth during post-globalization period before introduction of FRBM. The post-FRBM period records positive incremental growth coefficient in case of share in central taxes, grants from the Centre and total transfer and are statistically significant. Thus, it may be inferred that after FRBM Act flow of funds through loans from have not accelerated for Karnataka and the rest components of transfers have been accelerated in the post-globalization and pre-FRBM Act period.

During 2015-20, the share slightly decreased over the years, from 4.328% during the 13th Finance Commission to 3.647% during the 15th Finance Commission. This indicates a gradual reduction in Karnataka's share of central taxes. The 14th Finance Commission increased the weight for demographic changes and included new criteria such as forest cover, which could have impacted Karnataka's share. The 15th Finance Commission also placed significant emphasis on demographic performance and other criteria, which has been a reason to explain the reduction in Karnataka's share. Cesses and surcharges are levied by the Centre to raise funds for specific purposes and are not shared with the states. Historically, cess and surcharge revenue was around 10-15% of GTR during 2011-2020. The Centre's revenue from cesses and surcharges rose from Rs 2.55 lakh crore in 2019-20 to an estimated Rs 4.5 lakh crore in 2020-21, marking a 77% increase. As a consequence of the increased revenue from cesses and surcharges, the devolution to states has decreased. During 2015-2020, states received nearly 35% of the GTR. This has dropped to around 30% of GTR in the last two years. The percentage share of components of central transfers to Indian states has evolved significantly from 1990 to 2020, reflecting broader economic reforms, shifts towards cooperative federalism, and an increasing focus on performance and outcome-based funding. Statutory transfers have gained prominence, particularly with the recommendations of the 14th Finance Commission, while grants-in-aid have been restructured to emphasize flexibility, sector-specific needs, and performance incentives. Other transfers, particularly loans, have seen a decline in significance over the years.

## CONCLUSION

In post-globalization period and with the advent of fiscal sector reforms, Karnataka has been experiencing a fair growth of SCT and GFC. In case of LFC, the state has experienced a sharp fall which is good in long-run and it helps to curb the debt burden of the state, but in the short-run it is pinching on state resources to meet the current expenditure assignments.



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**CONTRIBUTION OF SIR SORABJI POCHKHANAWALA TO THE INDIAN BANKING SECTOR****Mr. Fraeortis Rohinton Satarawalla**

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**ABSTRACT**

*Sir Sorabji Pochkhanawala was born on 09<sup>th</sup> August 1881 in Bombay. At the age of 18, Sorabji used to work with his brother Hirjibhoy in the Chartered Bank. Sorabji later joined the Bank of India where his work was admired as a talented and hardworking person but ultimately became a victim of racial discrimination which prompted his mind to have a bank free from foreign influence. He resigned and later founded the first Swadeshi bank called the Central Bank of India in 1911.*

*Whilst serving as the Managing Director he introduced many new ideas and innovations which greatly benefitted the people. Apart from the bank he founded, he also served as the Managing Director of the Union Bank of India till his demise in 1937. Plus he had been member of various commissions, committees and institutions related to the banking sector at domestic and international level. After his demise people paid tribute to him and called him "The Father of Indian Banking".*

**Keywords:** *Sir Sorabji Pochkhanawala, Sir Phirozeshah Mehta, Henry Parker Stringfellow, Swadeshim, Central Bank of India, Tata Industrial Bank, Union Bank of India, Central Exchange Bank of India.*

**INTRODUCTION**

One of the Indian bankers who are known as pioneers in Indian banking is Sir Sorabji Pochkhanawala, who founded the Central Bank. It was his dream to start a bank and he achieved it after many hurdles. The Central Bank has been known as the people's bank since its inception. Considering the needs of middle and poor people, this bank has been serving them.<sup>1</sup> The Bank owes its foundation to the vision and enterprise of Mr. (later Sir) Sorabji Pochkhanawala who, while yet a very young man, conceived the idea of establishing a bank which would be entirely Indian in its composition and management.<sup>2</sup>

**Early Life of Sir Sorabji Pochkhanawala**

Sorabji was born on August 9, 1881, in Bombay, the youngest of four sons and three daughters of Goolbai (mother) and Nusserwanji Pochkhanawala (father).<sup>3</sup> It was indeed hard luck for Sir Sorabji to have lost his father when he was six years old. To be deprived of parent at such a tender age and under such circumstances spells a huge calamity for many an unfortunate child, and deprives it of adequate care and guidance. But be it said to the credit of his elder brother Hirjibhoy that shouldering all family responsibilities, he manfully stepped into the parental breach. He was then employed in the Chartered Bank of India, Australia and China on Rs100 and with this slender income he cheerfully undertook the duties of supporting the family and educating his two younger brothers, Edulji and Sorabji, and one sister. He remained unmarried to the last and died in 1936 with the supreme satisfaction of having so well filled the place of his father. In the rise of Sir Sorabji he found the fruit of his early efforts and sacrifices.<sup>4</sup>

At the age of seven years, he studied in New High School and passed the matriculation examination. He then joined St. Xavier's College to graduate with a BA degree in college.<sup>5</sup> His failure in the first examination of "Previous" told him that he had wrongly selected his career.<sup>6</sup> Unfortunately, Sorabji did not received education from the college but maintained his habit of reading books which later got acquainted with the banking sector.<sup>7</sup>

**Early banking career of Sir Sorabji Pochkhanawala:**

Sorabji found a job in the Chartered Bank as a clerk with his elder brother's aid.<sup>8</sup> Initially the salary was only twenty rupees. At that time Sorabji was 19 years old (1899 C.E.)<sup>9</sup> Sorabji made rapid progress with the bank's work. Unlike other clerks, he did not merely rest content with doing his work, but, being anxious to learn and ambitious, he tried to study every branch of the banks' business. Foreign banks take no interest in the training of their Indian clerks, and, therefore, there was no question of his being deputed from department to department to learn the work.<sup>10</sup>

In order to qualify himself better for his career in the bank Sorabji joined book-keeping class which used on be held on Sundays. In due course he passed examinations of the London Chamber of Commerce and of other similar institutions.<sup>11</sup> Subsequently his diligence ensured that he overcame this hurdle as well, becoming the first Indian to be a certified Associate of the Institute of Bankers in London.<sup>12</sup> A five pound bonus was awarded to those who passed the first division of the London Institute of Economics. Sorabji passed but did not get any



bonus. On writing a letter to London, he got a reply from there that this clause did not apply to him as he belonged to the Indian branch of the Banking institute. Sorabji was saddened by this distinction between White and Black.<sup>13</sup>

In 1905, the Bank of India was founded under the sponsorship of Indians such as Sir David Sassoon, Sir Cawasjee Jehangir, and Ratanji Dadabhoy Tata, Sorabji greatly desired to join the new bank.<sup>14</sup> Sorabji joined Bank of India as an Accountant on a salary of Rs 150 a month.<sup>15</sup> When the Bank of India was started, it had no manager. The responsibility of organizing, preparing books and supervising routine work fell on Sir Sorabji. He ably acquitted himself of the charge showing the mastery he had acquired over banking business.<sup>16</sup> However, the acknowledgement of Sorabji's contribution did not prevent them from appointing H.P. (Henry Parker) Stringfellow as the Manager on a huge salary of Rs 5,000 per month. This figure emphasizes the huge chasm that separated the higher rungs of the hierarchy manned by Europeans and the lower rungs to which people like Sorabji and his brother were confined. Stringfellow, who came to the Bank in December 1906.<sup>17</sup> *"No Indian is competent to manage a bank"* was the opinion expressed by Mr. H. P. Stringfellow, the Manager of Bank of India in 1910, at the height of the swadeshi movement. He was quite naturally taken aback later that year when he was told that an assistant accountant in his own bank, twenty eight year old Sorabji Pochkhanawala, was planning to start a bank on his own. Regarding this as a *"huge joke"* he called the young man into his office and advised him to abandon what seemed to him a *"chimerical"* scheme and to avoid taking any hasty decisions for atleast 24 hours. Mr. Pochkhanawala's response was, *"Sir, I have made up my mind. I resign from the Bank's service. One day my bank will be bigger than yours."*<sup>18</sup>



An image of Sir Sorabji Pochkhanawala

**Source:** *Jame-Jamshed Centenary Volume*, Messrs Jehangir Murzban & Co., Bombay, 1932, p.90

### Foundation of the Central Bank of India

The cry for "Swadeshim" heard on all sides in India in those years inspired Sir Sorabji to start a banking and financial enterprise on Western lines, but conducted and managed solely by Indians. The result was the Central Bank of India started in 1911.<sup>19</sup> On leaving Bank of India in 1910 Mr Pochkhanawala with the support of prominent cotton merchant Kalianji Jetsey approached many investors. Mr Jetsey paid all the preliminary expenses involved in the launching of the Bank.<sup>20</sup> Another collaborator was found in Mr Sorabji Vicaji, Cashier of the Eastern Bank Ltd. who join the enterprise and also brought to it its service the influence he wielded in the mercantile community.<sup>21</sup>

The Central Bank of India was accordingly born on the 21<sup>st</sup> December, 1911, with its Registered Office in Bombay, and with an Authorised Capital of Rs.50 lakhs divided into 1,00,000 shares of Rs.50/- each.<sup>22</sup> The Bank was singularly fortunate in securing the services of that far sighted statesman, Sir Pherozeshah Mehta, as its first Chairman. He rendered invaluable assistance to Mr. S. N. Pochkhanawala in guiding the destinies of the Bank during the earlier years.<sup>23</sup> It is interesting to note that for the first ten years, Mr. Pochkhanawala managed



the Bank as Manager and not as a Director. It was only on February 24, 1920 that he was elevated as Managing Director.<sup>24</sup>

### **Trial by Fire**

In its very infancy, the bank faced in 1913 the greatest financial crisis ever befell this country. Quite a large number of banks, most of them bigger and older than Central Bank came to grief. Central successfully weathered the terrible storm. The Board of Directors pledged the resources to save the bank.<sup>25</sup> When Bank went into Depression and people asked money back Sir Sorabji mortgaged his property to pay off all creditors and ensured that no one loses money.<sup>26</sup>

In 1918, 1922, 1924 and 1925 there were heavy withdrawals due to rumours that the Bank had suffered large, unsustainable losses. The Bank staff worked round the clock and all demands of depositors were met. At one time Mr. Pochkhanawala himself sat at the counter disbursing cash not leaving his seat for seventy two hours. Notices were also issued in newspapers explaining the strength of the Bank. In time, depositors realised they were ill-informed and shamefacedly returned the monies they had withdrawn.<sup>27</sup>

The bank quickly secured the confidence of the public and also became the first bank under the Indian Management to penetrate the barriers of the Bank's Clearing House in Calcutta in 1916.<sup>28</sup>

### **Expansion of the Central Bank of India under Sir Sorabji Pochkhanawala**

The Bank began its operations in Gresham Building in the Fort area of Mumbai. In 1923, after the merger of Tata Industrial Bank, the Bank shifted to the magnificent premises designed by George Wittet occupied by that Bank on Esplanade Road (presently Mahatma Gandhi Marg).<sup>29</sup>

The Bank's first branch was opened in Mandvi, Mumbai in May 1, 1912. Other branches were opened in key centres such as Zaveri Bazaar, Share Bazaar, Abdul Rehman Street, Sandhurst Road, Kalbadevi and Bhuleshwar. The Bank's first branch outside of Mumbai was opened in Karachi in August 1913.<sup>30</sup> Until 1923, the Bank had only 19 branches. This grew gradually to 23 by 1929 and 29 by 1932. However, there was a spurt and in 1933, 34 branches were opened. This grew 88 branches by 1937.<sup>31</sup>

### **Amalgamation of the Tata Industrial Bank**

Mention may be made here to the Tata Industrial Bank. Established in 1917, it was the oldest and largest industrial bank. Its directors included R.D.(Rattanji Dadabhoy) Tata and David Sassoon. It made a promising beginning and its special business was to finance the development of industries although it undertook ordinary banking operations too. While the profits of the latter were better than those of the other banks, the results of its industrial activities were disappointing. Hence, they were discontinued. With the shareholders criticizing the management, it was amalgamated with Central Bank in 1923.<sup>32</sup>

### **Sir Sorabji as Managing Director of the Union Bank of India**

In course of time this great Indian banker took up the task of putting Indian banking on a sound basis. His first notable achievement in this connection was the rescue of the Union Bank of India, Ltd., from its unstable position. The Central Bank now owns about half the capital of the Union Bank.<sup>33</sup> Shri Sorabji Pochkhanawala took charge of the Bank as Managing Director on behalf of the Central Bank of India on 01.02.1923 and continued to manage bank till his death in July 1937. During this difficult period, Shri S. N. Pochkhanawala was guiding the bank along the right path and in recognition of his services, a bonus payment of Rs.10,000 to him was approved by the Board.<sup>34</sup>

### **Firsts, new ideas and innovations of the Central Bank of India under Sir Sorabji**

Central Bank of India was the first bank to appoint Public Relations person in 1920. Central Bank of India was the first bank in India to devise the Home Savings Safe Scheme (HSS) in 1921. Central Bank of India was the first bank to introduce the book banks and H.S.S. passbooks and system of withdrawal by cheques in saving accounts in 1922. Savings not so common in early years was encouraged through advertisements.<sup>35</sup>

Central Bank of India has played its part in the emancipation of Indian women. Yasmin Surveyor India's first woman commerce graduate was also the first woman to join a bank-the Central Bank of India. The Bank was also one of the first to employ women in clerical positions.<sup>36</sup>

Realising that the need for a Safe Deposit Vault is very great, particularly in a big city like Bombay, the Central turned its attention towards meeting that want. It is noteworthy that just as it took the lead in many other directions, the Central was the first bank to provide this facility too.<sup>37</sup> When opened it was the largest and most up-to-date Vault in India, which afforded maximum security at lower cost.<sup>38</sup>



Central Bank was the first institution to start and maintain a well-equipped library in 1923 for the benefit of its staff.<sup>39</sup>

Between 1932 and 1934, the Bank opened Mandi branches in Punjab. These branches were opened in village at the time crops harvested. Agriculturists could store their produce and were given advances till the prices were established. The branches were closed and reopened in time for the next harvest. The Bank was the first to open these specialized branches.<sup>40</sup> Sir Sorabji believed that banking should be for the poor people and he established banks in the rural areas. He also provided children with Safe Vault Box as a piggy bank to encourage savings of money. The Savings were later deposited in the bank account.<sup>41</sup>

### **Committees and Commissions**

Sir Sorabji had been the member of the Indian Industrial Commission (1916-1918) to look into the causes of failure of the industries and provided solutions to these failures.<sup>42</sup>

Sir Sorabji Pochkhanawala was a member of the Government Securities Rehabilitation Committee in 1922 and was appointed Chairman of the Industrial Finance Committee, U.P. (United Provinces) in 1934.<sup>43</sup>

Sir Sorabji was also a member of the Land Mortgage Committee and submitted its report to the Government of Bombay in 1934.<sup>44</sup>

The extent of Sorabji's foresight is evident from the suggestions he made to the government. Establishing the Reserve Bank of India and giving that power to the Reserve Bank instead of the government printing notes (currency) so far, he prepared a meta-report of the country's economic system and submitted it to the government.<sup>45</sup> Memoranda on the Reserve Bank (1933) written by Sir Sorabji is still kept in Pochkhanawala Museum, Central Bank Building, Mumbai.<sup>46</sup>

Sir Sorabji also gained international repute and was invited by the Government of Ceylon to be the Chairman of the Ceylon Banking Inquiry Commission in 1934.<sup>47</sup>

Sir Sorabji Pochkhanawala was a member of the Bombay Stock Exchange Inquiry Committee appointed by the government in November, 1936.<sup>48</sup>

### **Establishment of the Central Exchange Bank in London**

In September 1936 he started the Central Exchange Bank of India in London. It was the first bank to be started in London.<sup>49</sup>

### **Honour by the Government of India**

In appreciation of the valuable services rendered by him, a knighthood was conferred upon Sir Soraji Pochkhanawala (1936 C.E.).<sup>50</sup>

### **Death and Legacy**

Sir Sorabji passed away on 4<sup>th</sup> July 1937 after a painful illness. In a quarter of a century, Sir Sorabji had build up the Central Bank of India, almost single handedly, from a fledging organization into a mighty bank.<sup>51</sup> Founder and Father of Indian Banking, he was regarded not merely as a successful banker but as a nationalist who made banking his medium for serving Indian nationalism.<sup>52</sup> The Municipality of Cawnpore referred to him in its address as "the Father of Indian Banking."<sup>53</sup>

### **CONCLUSION**

The history of Sir Sorabji and that of the Central Bank are so intertwined that it is difficult to separate the two. The Central Bank became the only hobby and the only purpose of his life. He was the first Indian banker to strengthen indigenous banking through treaties and absorptions. He was indeed a pioneer in many respects.<sup>54</sup>

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**A STUDY ON STRATEGIES TO OVERCOME CANCEL CULTURE IN TODAY'S TIME**

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*This study aims to shed light on the dynamics of cancel culture on modern brand management, focusing on brand image, consumer loyalty, and buying behaviour. Social media and digital activism have turned cancel culture into a form of social accountability, compelling brands to adhere to ethical standards and societal expectations. This research strives to understand cancel culture in contemporary society and its impact on sales and consumer confidence for understanding ways to prevent, deal with, and recover from cancellations. It will also look at how social media and influencers can fuel or mitigate the effect of cancel culture, for insights into social media management. Quantitative analysis of hypotheses show that brand image and consumer behaviour are impacted negatively, thus providing ways for revival. Unlike the research conducted for Western countries based mostly on political and racism issues, it tries to generalise findings to the Indian market and further explore diverse triggers apart from them. Based on both empirical evidence and practical implications, proactive strategies, clear communication, brand apologies, and strategic partnerships with influencers are imperative for brands to deal with challenges and sustain good relationships with consumers.*

**Keywords:** cancel culture, brand image, crisis management, consumer behaviour, social media influencers.

**INTRODUCTION**

Today, we live in a world where one tweet can destroy a brand's reputation within hours and public outrage on social media has the capability to bring down sales exponentially and shatter consumer trust. This brings out the real face of the cancel culture; a nemesis that demands branding to be strategically done with proper plans. Defined as the act of publicly shaming and isolating organizations for perceived missteps, cancel culture has emerged alongside digital platforms. Brands find themselves particularly vulnerable to its effects since they face numerous challenges in defending their reputation and protecting their share of consumers. This paper, therefore, seeks to explore the complex interplay between cancel culture and brand management; to identify strategies that not only help brands survive but also prosper under public scrutiny. It's a deep investigation of this phenomenon and proposes practical strategies for modern brand management.

**REVIEW OF LITERATURE**

**Theme A:** Cancel Culture and its Influence on Brand Image and Behaviour of Gen Z and Millennials Cancel culture, defined as the practice of withdrawing support from public figures or brands after they have made statements or actions considered objectionable, has gained substantial momentum especially after Covid-19, majorly among the Gen Z and Millennials (Ng, 2020). This phenomenon is driven by fast diffusion of information and public opinion through social media platforms, with severe consequences for brands: reputational damage, loss of consumer trust, and declining sales.

The impact of cancel culture on brand reputation is illustrated in the case study of Goya Foods carried out by Barraza (2021) that surfaces the negative sentiment and emotional reactions on social media that completely wrecked Goya Foods' brand reputation. Liu and Su (2023) further highlighted the multidisciplinary nature of cancel culture in that it provokes extraordinarily strong emotional reactions while studying consumer behaviour. Consumers, especially from younger generations, react very strongly to the perceived missteps of the brand as digital activism. This shows how

sensitized and reactive Gen Zs and Millennials are towards brand behaviour when it comes to ethics and authenticity portrayed by brands more likely to boycott brands, demanding transparency, and true apologies, supported by Ordun (2015).

**Theme B: Strategies for Overcoming Cancel Culture and Common Triggers**

**For managing cancel culture, strategies developed must be comprehensive in three dimensions:**

**Pre-crisis Prevention:** It's Imperative to prevent of blowback before it happens. According to Media garage group (2022), there should be transparency as well as the use of robust corporate values that reflect consumers' values which is possible through inclusive hiring and taking ethical stands that resonates with its target audience in a way that it does not get caught by cancel culture.



**Crisis Management:** Communication is critical during a crisis, with the need for immediate and appropriate action, as stressed by Robson and Farquhar (2021) and Norris (2023) whereby there should be open communication with all stakeholders, where they should not only confirm the crisis but also offer apologies and assurances for improvements to regain their lost trust. Barraza (2021) noted the importance of social listening to tailor responses accordingly and respond to what will be expected by managing the narrative and salvaging as much impact as possible.

**Post-Crisis Recovery:** Robson and Farquhar (2021) strongly outlined that strategic long term brand recovery programs are realized with the aid of continuous efforts in getting brand actions in conformity with consumer expectations and values. This involves concrete corrective actions and engagement with consumers to show that the brand has learned from such mistakes and is committed to positive change.

Commonly identified triggers of cancel culture include unethical business practices, political disagreements, and insensitive remarks or actions by brand representatives. The Statista report (2023) provides statistical insights into such triggers, which outline that few of the top reasons for brand boycotts include ethical concerns and product quality issues. Hence, the brand can impart an understanding of the triggers to help a brand become more prepared if and when such a problem occurs.

### **Theme C: Role of Social Media and Influencer Activism**

**Twitter, Instagram, YouTube, and Facebook:** Social media sites act as a conduit for communicating cancel culture in dissemination of information swiftly. Digital Information World (2022) points out the essence of social media in issues of brand perception since consumers are always on record to express their views and mobilize others towards boycotting calls. This way, consumer voices are amplified, making it easy for them to take brands to account as Seven Publicacoes (2021) claims.

With their thousands of followers, social media influencers are some of the key players in this ecosystem, using their voices to support or speak out against brands. Through influencer activism, they use their reach to stand for social justice issues, environmental causes, and more. JMAAP (2021) and Khatija (2021), showing how influencers affect purchase intentions, demonstrated that they could not only bring changes in public opinion but also greatly affect consumer behaviour, thus the endorsements and criticisms by influencers can make or break the reputation of a brand. Brands, on the other hand, can protect their reputations in a social media activism by partnering with influencers who share their values. In fact, according to Media garage group (2022), this is not only crucial for brand resilience against cancel culture but also critical for improving credibility and trust from consumers. Brands will be able to pass their messages appropriately while creating positive associations with the audience through influencer collaborations who support their core mission. MGIMO Review (2023) has compared cases of cancel culture in the USA, UK, and Russia: it is one of the ways that cultures and national contexts weigh into scaling and effectiveness. The perfect illustration of why local dynamics become important in dealing with issues in cancel culture is evident from this.

### **Research Gaps**

- Most of the research are conducted for western countries and it investigates the political aspects of cancel culture, there are limited research exploring cancel culture with respect to marketing.
- There is a significant gap in understanding the long-term effects on brand loyalty, trust, and financial performance.
- Few studies provide quantitative data of the impact of cancel culture on brands as well as how consumer behaviour and perception change after a brand implements recovery strategies post-cancellation.

### **Significance of the Research Paper**

The study clarifies an important aspect of modern brand management by thoroughly understanding the challenges that a brand faces and its recovery strategies for the same that can be generalised in India. This will also explain the effectiveness of brand action and what adjustments need to be made during pre-crisis and post-recovery towards the re-attainment of consumer trust in an era of consumer domination and heightened social accountability. The paper investigates the role of social media and influencers in a bid to expound on how digital platforms interact with brand reputation dynamics. It is an essential resource for brands, agencies, and students and helps in obtaining practical insight into brand management during crisis.



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**Research Methodology**

The research presents the dimensions of cancel culture in terms of the depth of impact, demographics, gender-wise distribution, a view on actions taken, how brands responded, and the role played by social media. High participation of the 16-30 age group, balanced gender participation, importance of consideration of brand stances on social issues, and the role of social media in promoting cancel culture was found.

**A. Objectives of the study:**

1. To understand the concept of cancel culture and its role in today's time.
2. To study and measure the impact of cancelling incidents on consumer loyalty, trust and consequently on sales towards brands.
3. To explore and examine the strategies employed by brands to prevent, address, manage and recover from damage caused due to cancelling incidents.
4. To study the impact of post boycotting incidents on consumer buying behaviour and perception for measuring the extent of negative impact and develop strategies accordingly.
5. To study the role of social media and influencers in amplifying or mitigating cancel culture's effects.

**B. Hypothesis:**

H1: Cancel culture has a negative impact on the brand image of a business. H0: Cancel culture has a positive impact on the brand image of a business.

H2: Cancel culture has a negative impact of cancel culture on consumer buying behaviour. H0: Cancel culture has a positive impact of cancel culture on consumer buying behaviour. H3: Dealing with cancel culture helps brands revive themselves.

H0: Dealing with cancel culture does not help brands revive themselves.

**C. Data Collection:****Primary Data**

1. Quantitative Consumer Surveys Analysis: A survey to understand consumer's perspective towards the significance of social stands taken by brands, their attitude towards cancel culture and the brand that is getting cancelled while also studying their purchase behaviour before and after the incident as well as the level of impact influencers have on their purchase decisions.
2. Qualitative Interviews with Marketing professionals: In-depth interviews of marketing professionals on their perspectives related to pre-approach or prevention strategies, handling strategies for the crisis, and post-boycott recovery strategies.

**Secondary Data**

1. **Case Studies:** Brands that have previously suffered from cancel culture; reasons for their cancellation, their reaction, and revival strategies used.

**D. Participants and Procedures:****Primary data was collected through two set of groups:****1. Consumers:**

- **Sample Size:** 100, 105 responses counted valid (200 responses received, 95 were eliminated due to respondents ticking only middle points on all Likert scale questions or only choosing the first/ last option for all the questions)
- Structured questionnaires in the form of MCQs were distributed using snowball sampling over a period of 20 days.

**2. Professional Marketers:**

- **Personal Interviews:** 10 professionals (who had previously encountered cancel culture incidents).
- Structured and open-ended questions were asked.



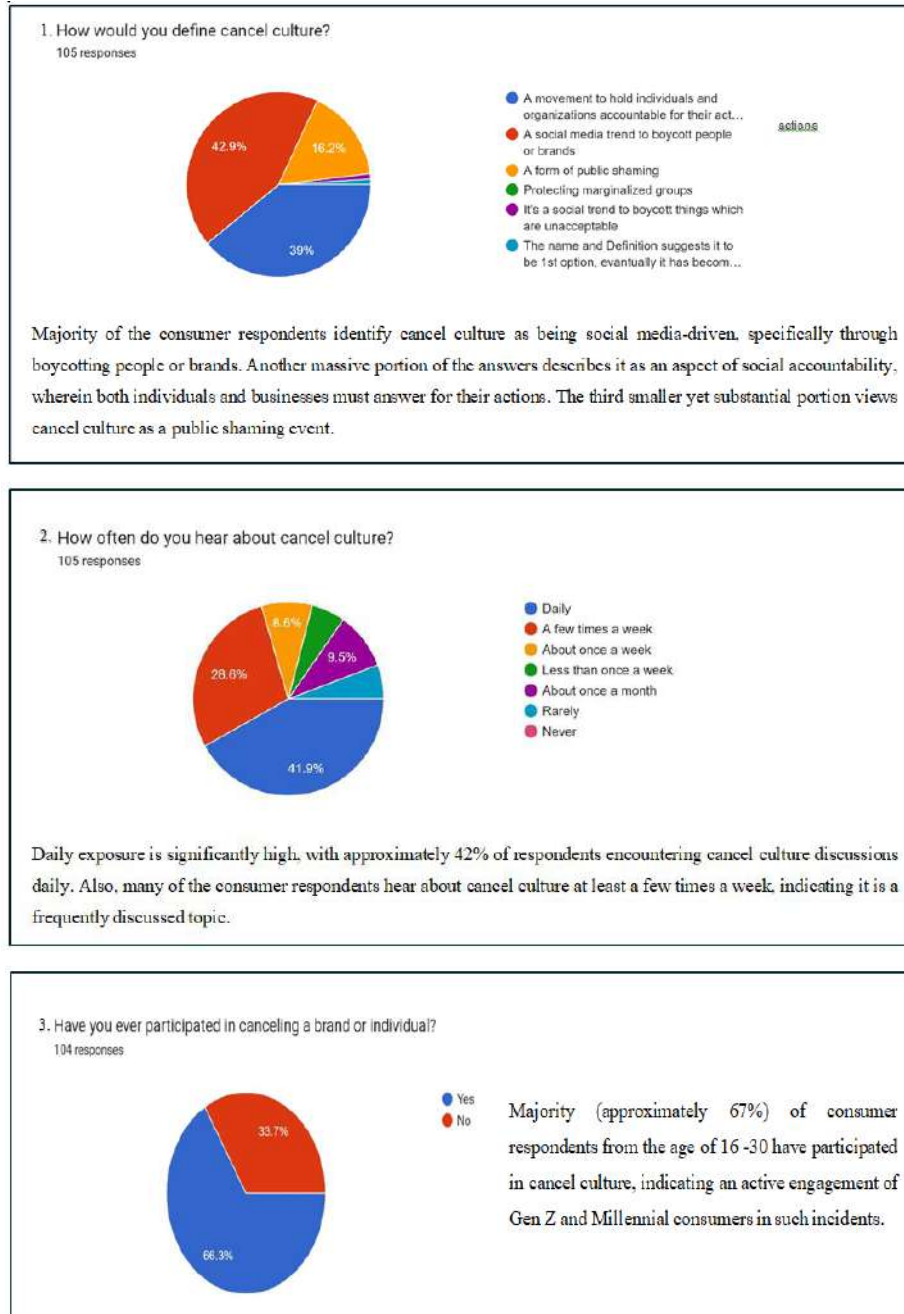
### E. Ethical Consideration:

Throughout the research, much thought was given into taking ethical considerations into account. Informed consent was taken from all research participants, and their privacy and confidentiality are ensured. Participation was voluntary, and participants were free to withdraw from the study at any time.

### Findings and observations:

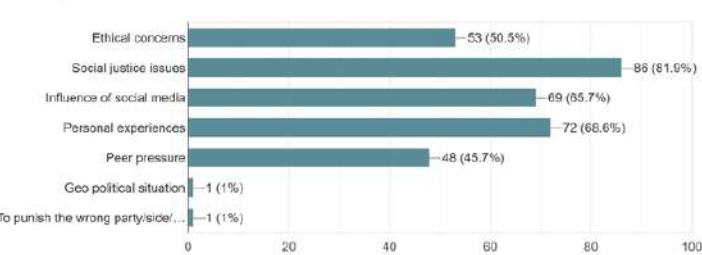
#### 1. Consumer survey Method

The analysis of collected data provided the following insights:



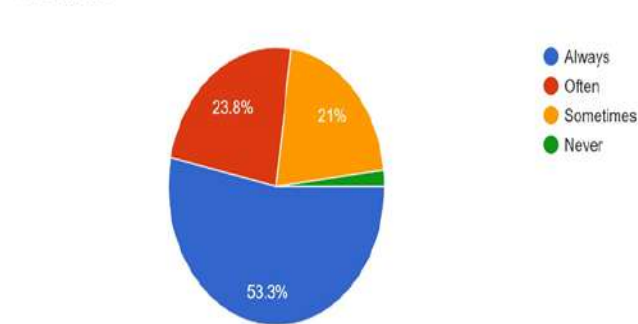


4. What motivates you to participate in cancel culture? (select all that apply)



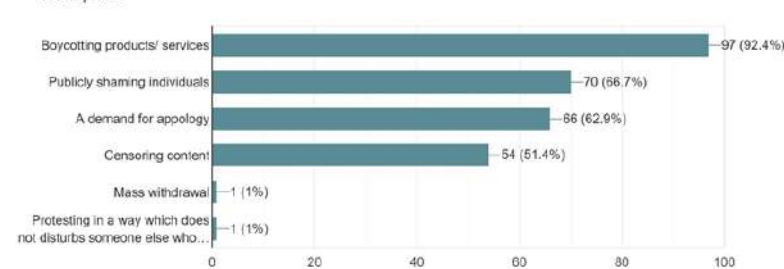
**Social justice issues** and **Personal experiences** are the most prevalent motivations, with approximately 82% and 68.6% participation, respectively along with **Influence of social media** and **Ethical concerns**, each influencing around 65.7% and 50.5% of the respondents, respectively. **Peer pressure** is a less significant but still notable factor, affecting 45.7% of the consumer respondents.

5. How often do you consider a brand's stance on social issues before making a purchase?



This indicates that most of consumers often consider a brand's stance on social issues before making a purchase, with a moderate variance suggesting some level of disagreement among other respondents.

6. Which of the following actions do you consider as a part of cancel culture? (select all that apply)

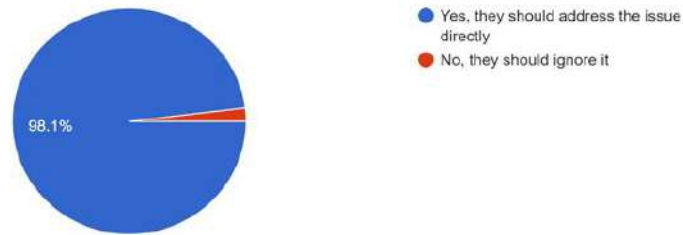


The most frequently mentioned action associated with cancel culture is **Boycotting products/services**, followed by **Publicly shaming individuals**, **Demand for Apology** and **Censoring content**. Therefore, it can be said that consumers often associate multiple actions with cancel culture, with combinations like boycotting, shaming, censoring content, and demanding apologies together.



7. Do you believe brands should respond to cancel culture?

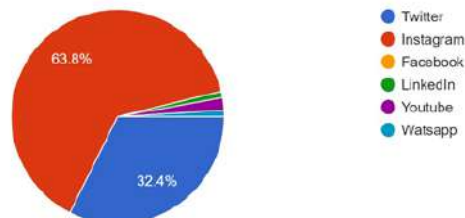
105 responses



There is a clear preference among consumers for brands to directly address the issue of cancel culture, implying that transparency and accountability are highly valued.

8. Which social media platform do you think plays the biggest role in cancelling a brand?

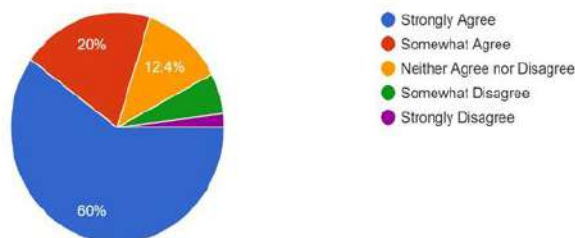
105 responses



Instagram and Twitter are the primary social media platforms and Instagram is perceived to play the biggest role in cancelling a brand. There is a clear indication that visual and fast-paced platforms drive much of the sentiment around brand cancellation.

9. Seeing a Celebrity / influencer support a boycott makes me more likely to boycott the brand myself.

105 responses



### Hypothetical Analysis:

The following hypotheses are tested with Z testing method.

**H1:** Cancel culture has a negative impact on the brand image of a business.

**H0:** Cancel culture has a positive impact on the brand image of a business.

### Question focused on:

“When a brand is 'cancelled', it greatly damages my perception of the brand.”

### Likert Scale Conversion:

- **Strongly Agree** = 5
- **Strongly Disagree** = 1 Responses were distributed as follows:



- **Strongly Agree:** 70 responses
- **Somewhat Agree:** 28 responses
- **Neither Agree nor Disagree:** 5 responses.
- **Somewhat Disagree:** 1 response
- **Strongly Disagree:** 2 responses

**Calculations:**

Mean = 4.58

Standard Deviation = 0.79

- **Population mean ( $\mu$ ):** 3 - Neither Agree nor Disagree (Neutral)
- **H0:** (Mean  $\leq$  3)
- **H1:** (Mean  $>$  3)
- **$\alpha$  :** 0.05

**Results of one sample Z test**

Z  $\approx$  20.34

P-value  $\approx$  0

**Interpretation of Results**

This indicates that cancel culture has a negative impact on brand image, i.e., most people agree on how brand cancellation negatively affects brand perception. This is further evidenced by a high Z-value of 20.34, way above the normal critical values for the test of the hypothesis thereby allowing to reject the null hypothesis. This also implies that negative electronic word of mouth decreases consumer's trust and loyalty.

<b>H2:</b> Cancel culture has a negative impact on consumer buying behaviour.
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<b>H0:</b> Cancel culture has a positive impact on consumer buying behaviour.
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**Two questions were focused upon:**

- “How much does a brand getting cancelled influence your decision to buy from them?”
- “When a brand is 'cancelled', it greatly damages my perception of the brand.”

**Z Test:**

To compare the means of responses indicating negative versus positive impacts on consumer buying behaviour

**Results:**

The Z Score of 2.14476 indicates that the difference between the positive and negative means is statistically significant, assuming an alpha level of 0.05. This Z Score corresponds to a P Value less than 0.05, and to reject the null hypothesis in favour of the alternate hypothesis.

**Interpretation of Results:**

This shows that consumers are hesitant to purchase (brand avoidance) from a brand attributed to negative phenomena on the social end unless they take actions towards it.

<b>H3:</b> Dealing with cancel culture helps brands revive themselves.
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<b>H0:</b> Dealing with cancel culture does not help brands revive themselves.
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The focus was on two questions for analysing the relationship between them using the Z test:

- “Dealing with cancel culture helps the brand revive themselves.”
- “Supporting a brand again after boycotting them, once they addressed the issue.”

**Results:**

- **Z-Statistic:** 48.33
- **P-Value:** Approximately 0.00 (0.00293908e-112) Interpretation of Results:
- The Z test resulted in a **very high z-statistic** of 48.33 and an **extremely low p-value** (close to zero) indicating that there is a **strong statistical relationship** between the belief in the effectiveness of addressing cancel



culture and the likelihood of supporting a brand again post-boycott if the brand addresses concerns and takes accountability for its actions. This proves that apology followed by concrete actions for corrections leads to decrease in brand avoidance and brand cancellation levels.

## 2. INTERVIEW METHOD

### **Q1: What is the best way to deal with a public backlash?**

The best way to respond to public backlash is by making a sincere apology with the help of PR team, reworking on the offending ad or message, and taking corrective measures. Brands need to respond by giving out data that highlights the company's intentions. Confrontation and press conferences can be utilized as well.

### **Q2: What are the impacts of cancel culture on a cancelled brand?**

Negative publicity goes viral through social media, provokes organized boycotts, and results directly in loss of revenue. Publicly traded businesses are negatively impacted as share prices fluctuate because investors respond to the perception of economic loss. Increased public and media scrutiny dramatically hurt the morale of employees, affecting productivity and retention. Besides, there are legal battles to fight with added expensive issues. The big costs of PR, campaigning, reviews, positive initiatives, etc., also come in the recovery process.

### **Q3: How has cancel culture affected overall business strategies?**

Cancel culture has made businesses to become socially aware, encouraging inclusive marketing. They also resort to reputation management to ensure a positive image of the brand because consumer expectations are always rising. This impacts product development by adopting a sustainability and ethical approach. The process of market segmentation becomes more granular and focuses on the needs of precise consumer segments without dissociating others. It has a prominent level of preparedness and plans for crises with timely responses. Collaborations nowadays are more careful about being associated with the values that they hold in common to avoid any controversy. Building long-term brand loyalty through consistent value demonstration helps mitigate short-term controversies.

### **Q4: How would you recommend utilizing social media platforms to manage effects of cancel culture? What role do influencers play in the strategy to combat this?**

A social media brand presence allows a two-way dialogue and immediate feedback. Whether its addressing concerns or acknowledging positive feedback, it helps to build a strong rapport with their consumers by making them feel more valued. During a crisis, brand's social media handles have the highest reach and attention from media and consumers, thus they need to be cautious about what they upload. They can post their side of the story, publicly apologise, and utilise social media marketing by keeping contests or announcing give aways / freebies. Engaging daily with followers and replying to comments and DMs will also help.

Influencers can amplify negative sentiments by sharing criticisms with their large audiences (negative E- word of mouth) thus accelerating the reach of backlash. Conversely, during recovery, influencers can help mitigate damage by communicating brand's corrective actions and endorsing efforts to make amends, which helps rebuild and restore reputation.

### **Q5: How can social media monitoring tools be used proactively to take measures against potential brand cancellation?**

Using real-time alert features to search for keywords, hashtags, or mentions of the brand and even its competitors when trying to identify negative sentiment quickly, which has the potential to escalate into an online issue: by metrics from shares, comments, and mentions in content to identify major issues that have been repeated over time. Tools like trend analysis, help brands to alter strategies accordingly. By monitoring competitors, businesses could learn from other businesses' mistakes and prepare themselves for such issues beforehand.

### **Q6: What are some practical strategies while facing such a crisis?**

Key strategies would include direct engagement, demonstrating accountability, re-evaluating the strategies and corrective actions. They can also offer discounts/ coupons as compensation as well as for increasing sales. Hyper- Personalization and customization by AI, AR, and VR, helps make deeper connections, leaving a lasting impression easily for consumer personas that are quite diverse. Recovery actions can include best quality products and compliance, authentic storytelling, collaborating with influencers, CSR activities, showing positive feedback on socials, and nostalgia marketing or ingratiating strategies for bringing back old positive memories that help to forget negative controversies.



**Q7: How do businesses check the effectiveness of their response to incidents of cancel culture?** This would include a decrease in negative mentions of a brand on a social media platform and an increase in positive engagements. Surveys, reviews, and feedback from both consumers and influencers provide direct insights, while data about improved sales indicate recovery. Looking for positive media coverage, reducing negative content in SEO and online presence, and increasing employee morale regarding internal support also help in evaluation.

**Q8: How to avoid potential controversies of cancel culture?**

Firstly, brands should conduct in-depth market research to take note of the diversity of audience—especially for Generations Z and Y. Important are regular feedback loops, practicing ethics, ensuring inclusiveness in marketing, real-time scanning of social media trends, risk assessments through internal audits, training in diversity, critically reviewing campaigns, and a crisis plan ready for implementation. Besides, there are social media monitoring tools, which assist in the detection of early warning signs, thereby giving room for timely measures. Also keeping in mind data privacy protection for consumers, all this can help in avoiding the problems in the future.

### 3. CASE STUDY METHOD: ADIDAS:2

- **Incident:** In July 2024, Adidas was boycotted by Jewish groups and Israel for featuring supermodel Bella Hadid in its latest campaign, as she has Palestinian roots and has consistently taken a strong pro-Palestinian stand on social media, besides posting criticism against Israeli policies. The campaign was for retro-styled sneakers from 1970s and connection of the shoe with Munich Olympics 1972, where Israeli athletes were tragically killed by Palestine terrorists.
- **Consequences:** The incident significantly impacted the brand of Adidas and led to a decrease in consumer trust. There was also an evident financial effect on the company through a reduction in sales and a fall in stock value. After they withdrew Hadid from their campaign, the brand had to withstand the heat from pro-Palestine groups that labelled the brand as stifling those of Palestine heritage voices.
- **Strategies applied:** Adidas apologized for the campaign's anguish publicly. They have accepted that the shoes' silhouette drew inspiration from the historical tragedy of the 1972 Munich Olympics and regretted the mistake and its effects. The company pulled the social media advertising and further pledged to rework on the campaign to eliminate any misinterpretations. Adidas still works through the recovery process from the incidence by always staying in touch with all stakeholders.

### KELLOGG'S:5

- **Incident:** Kellogg's faced a tremendous boycott in 2024, primarily from millennial moms, after the remarks of Kellogg's CEO, Gary Pilnick, at an interview at CNBC. It is understood that Pilnick suggested that families struggling to cope up with rising food prices can make dinner out of breakfast cereal, as this is a cheap thing. This was considered by many as a tone-deaf and insensitive because that comment had been made just after the company raised its products' prices by 28%. Many found it an oversimplification of food insecurity, which sent the wrong message: it is because of poor choices of individuals and not an economic systemic challenge.
- **Consequences:** Consumers reacted immediately to this through online social platforms, for posting angry messages and encouraging others to stop buying all products from Kellogg's. Such videos and messages went viral, damaging Kellogg's image and resulting in a drop in sales. In addition, 1400 of its striking workers had also been terminated by the company.
- **Strategies applied:** Kellogg's made some statements that tried to clear up Pilnick's comments. Such effort was almost perceived by the boycotting public as insignificant. As a result, Kellogg's temporarily reduced the prices of some of its products to cushion the financial weight on the consumers and announced fresh marketing campaigns to regain confidence and build back their brand. Kellogg's also reached out to community organizations to contribute better towards eradicating food insecurity, by building up the company's social responsibility and consumer trust which was lost.

### Zomato: 4

- **Incident:** In 2023, Zomato was boycotted because of an advertisement featuring the character “Kachra” from the film



- “Lagaan”. The ad was meant to encourage recycling by portraying the character Kachra (meaning “garbage” in Hindi) turning into several types of recycled products. However, the ad turned out to be casteist because the message it emanated was that Dalits, which Kachra embodies, are garbage.
- **Consequences:** The ad brought about a vast cacophony and was boycotted through social media. Many condemned it, terming it an ad that had a casteist attitude in bad faith and did not warrant publication. So, this proved to be very detrimental and created a huge backlash, as many criticized the ad to be based on reinforcing caste-based stereotypes and dehumanization.
- **Strategies Used:** Zomato released an apology stating that they tried to raise awareness about recycling humorously but accepted that the ad hurt the sentiments of a community. They took it down to avoid further damage. Zomato pledged to be a green company, including an aim to recycle over 100% of the plastic in its packaging and made changes internally for better cultural sensitivity.

#### Nestlé: 21

- **Incident:** In 2022, Nestlé was under fire for using pictures of Lord Jagannath on KitKat wrappers in Odisha, India with an intention to empower the cultural heritage. The wrappers were decried and shamed for their potential disrespect of religious sentiments, since their images were perceived to be unsuitable for a commercial product and because some people said they will eventually be thrown into the dust bin, roads, sewage, and will be disrespectful to the lord.
- **Consequences:** The controversy led to a negative impact on Nestlé's reputation among consumers from Odisha, as they felt the brand was insensitively representing Lord Jagannath.
- **Strategies applied:** Nestle apologized for hurting sentiments and explained their intentions, consequently pulling back those wrappers from circulation. The brand also responded to social media queries and stated their commitment toward cultural sensitivity. For recovery, Nestlé focused on increasing its understanding of local cultures and religious sentiments and ensured that all its marketing activities were respectful and inclusive.

#### Fair and lovely: 22

- **Incident:** In 2020, The Fair & Lovely controversy, gained significant momentum amidst the global Black Lives Matter movement that sparked widespread discussions about colourism, bringing attention to products that promote lighter skin tones as more desirable.
- **Consequences:** There were boycotts and petitions against Fair & Lovely, that affected the brand's image, positioning it as a symbol of colourist attitudes in society.
- **Strategies applied:** Hindustan Unilever's strategy was the rebranding of Fair & Lovely to Glow & Lovely, aimed at distancing product from fairness and focusing on glow and skin radiance. The company issued public statements to explain the changes and address the criticisms. They also pledged to stop using shade guides that measure skin lightening in its advertisements. They increased its focus on CSR initiatives like supporting education and career opportunities for women, which aligned with their message of empowerment and self-confidence.

#### CONCLUSION

Today, almost one-third of the country's population is in the age bracket of 18 to 34 years who wield tremendous purchasing power and are consciously choosing to align with brands that reflect their values (Nikhil Gupta, 2024). Cancel culture has become a powerful instrument in shaping brand perception and consumer behaviour. Cancel culture amplifies through digital media, particularly through social media and influencers in the post-COVID-19 era, which is instant in sharing news and voicing opinions. Consumers are highly alert about the actions and words of brands. When it is emphasized about consumer domination, it would be clear that those brands not compliant to the mindset of consumers will have to face cancel culture. This in turn presents brands experiencing cancellation with opportunities for positive change because the re-evaluation of their policies and practices will make them adopt characteristics in conformity to societal expectations and enhance values toward improving their reputation in the long term.

An effective cancel culture management policy is balanced with proactive steps, effective crisis management tactics, and genuine efforts to satisfy consumer expectations thus reducing levels of brand avoidance and cancellation and increasing the levels of brand forgiveness.



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**RECOMMENDATIONS**

For overcoming Cancel culture effectively, brands must make meaningful connections with stakeholders. Transparent and personalised dialogues are important to re-instil trust and loyalty. Restoring trust includes authentic storytelling, CSR, and collaborating influencers during crisis. Adapting proactive strategies, like test marketing, ethical and inclusive marketing, and continuous monitoring of social media handles, can prevent crises before they shoot up.

Effective management of negative e-WOM can be done through apologies, ingratiation strategies and remedial actions because it establishes that the brand has made efforts to rectify the errors. Sentiment and trend analysis using Natural Language Understanding (NLU) through AI, will help understand the consumers for tailoring campaigns accordingly. As important as it is to use moment marketing (taking advantage of a recent event by integrating product with relatable content), brands should also not only be politically correct, but also historically, culturally and socially sensitive (using PESTLE Analysis particularly for the campaign) to not hurt anyone in the process, thus avoiding cancellation.

**FUTURE SCOPE FOR RESEARCH**

Future research should make this study further generalizable by increasing the sample size and interviewing more industry professionals. Some areas that merit further investigation would be the consequences of brands ignoring the crisis or scapegoating the incident as a strategy itself; how startups could be strategized differently; cancellation of brands due to dark patterns and deceptive marketing; Pros of Controversial marketing; and ways in which AI and new technologies may expedite the brand's recovery from Cancel Culture.

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**A STUDY ON THE BEHAVIOUR AND PERCEPTION OF THE INVESTORS IN THE STOCK MARKET WITH SPECIAL REFERENCE TO THE CITY OF MUMBAI**

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**ABSTRACT**

*With the abundance of information accessible to us using the internet regarding anything and everything, individuals are expected to make more sound financial choices presently, not just in general but, more importantly, in the stock market. The study of stock market investors' behaviour and thinking is crucial in determining what decisions are taken by investors in this day and age.*

*This study aims to find decisions that investors make in the stock market, both generally and concerning black swan events, which will provide insight into their thinking. This research also intends to investigate not just the perception but also, if any, the potential influence that perception may have on an investor's capacity for making decisions in the city of Mumbai.*

*According to multiple studies, their findings indicate that investors frequently make irrational judgments because of their perceptions and psychological prejudices, in addition to being blindsided by black swan events.*

*The findings and analysis of this research conclude that there is, in fact, an association between the ages of the investors and an impact of general elections of 2024 indicating a negative perception. Negative perception referring to, the tendency of investors to follow gut feeling decisions. Another finding also concludes that there exists a significant relationship between risk-tolerance and the duration of investments made by the investors of Mumbai.*

**Keywords:** *Investor behaviour, stock market, black swan events, investor perception, decision making.*

**INTRODUCTION**

Since its establishment in Europe in the 13th century, in 1531, the stock market has made it easier for anybody to purchase and sell securities and assets. The stock market serves as a vital medium for individuals' personal wealth accumulation and corporate funding. As a result, the dynamic structure of the stock market comprises banks, clearing firms, stock exchanges, investors, corporations, stock brokers, regulators, and financial intermediaries.

A vast number of economic, political, and psychological factors influence the workings of a stock market. These factors may have a positive (upward) or negative (downward) effect on the prices of assets and securities in the market. An upward direction could indicate prices rising, in turn increasing value, therefore being positive. A downward direction could indicate prices falling, in turn decreasing value, therefore negative.

The events that lead to the increase in wealth are positive, and the ones that lead to a decrease in wealth are categorized as negative. It is therefore important to study the behaviour of an investor who makes such decisions in regards to such events and the perception they carry while doing it. In doing so, also to understand if the perception they have has any effect on their decision-making ability as an investor.

The perception of the investors is influenced by various factors, such as social influence, market upward or downturn events, availability of information, prejudices, and future predictions. Keeping in mind that these investors solely engage in buying, selling, and trading pertaining to the stock market. The decisions made by these investors also give us an insight into their thinking. The analysis of this also helps to learn what decisions could be made in a better manner.

There is a lack of research on the behaviour and investor perception in the city of Mumbai. Furthermore, there is a lack of research on the events taking place in this year (2024) specifically relating to the region of Mumbai; the lack of research on the perception and behaviour of an investor relating to stock market specifically also adds to this. Mumbai, the so-called financial capital of India, serves as a hub for day-to-day large and small-scale financial activities and makes it perfect to understand the behaviour and perception of investors.

The decisions no matter how small or large made by investors having positive perception i.e., a detail analysis of the market situation and decisions taken on the basis of it or, negative perception i.e., making decisions on the basis of herd mentality or gut feeling, have a huge impact and the evidence in fact, dates back to **1731**, but it was notably seen observed more during the **Great Depression of 1929**, which changed the world economy



forever for years to come. The thinking and the peculiar behaviour that the investors portrayed during the great depression were noteworthy.

The market was at an all-time high, and not just a vast majority of investors but also the laymen who didn't have adequate funds, saw it as an opportunity to gain in the long term, by simply investing. Only a few people could make it out that in the long term, the market would collapse. Not just the **Great Depression**, but several other events such as the **Housing Market crash of 2008**, **Russia-Ukraine War**, **General Elections of India 2024**, **The Budget 2024 for India**, etc.

## REVIEW OF LITERATURE

### **Latifah Wulandari Binti Asbaruna, Ridwan Ismail Gorib, Muhammad Akbar Ali Syifa (2023)**

In their juridicial normative study, using only the means of secondary data, they have found theoretical and empirical evidence that shows that investors in the stock markets are vulnerable to psychological factors in the process of decision-making. According to the conducted research studies viewed by them, in the face of uncertainty and major risks, investors experience several emotions while making a decision.

### **Azra Mehraj Mukhdoomi and Farooq Ahmad Shah (2023)**

The study focuses finding out the personality traits to be one of the influencing factors in determining risk tolerance of small investors in Kashmir. The findings indicate a strong relationship between the existence of a personality trait influencing risk tolerance of the investors. Furthermore, a positive relationship with risk tolerance was associated with the investors who had a 'extraversion' or 'openness to experience' personality traits and vice versa.

### **Dr. Urvi Amin, Dr. Swati Saxena, Dr. Shivanisinh Parmar (2024)**

Their study investigates the relationship between market volatility and herd mentality. The data presented in the research points to a strong correlation between investor sentiment and herd mentality, which affects the market significantly during war events. The paper's conclusions provide insight on the complex and dynamic relationship that exists between market sentiment, herd mentality, and uncertainty imposed by the war.

### **Annu Pandey, Dr. Sana Moid, Dr. Sushma Vishnani (2024)**

The study establishes a significant relation between investor experience and overconfidence. For hypotheses testing one way, ANOVA is applied on identified variables. Regression analysis is run to identify the impact of behavioral biases on investment decision. The findings indicate that the overconfidence bias affects the investors in the stock market of Lucknow who have more than 2 years of experience.

## RESEARCH METHODOLOGY

### **Objectives of the study**

- To understand the perception of investors in the stock market in India.
- To understand if the perception of the investors with regards to their ages has an impact on their decision-making.
- To understand the level of risk taken by the investors in today's day and age.
- To understand the impact of investment decisions made by the investors in the face of major events.

### **Hypothesis**

**H<sub>0</sub>** : There is no association between the age and the impact of the 2024 general elections on investment decisions indicating a positive perception.

**H<sub>1</sub>** : There is an association between the age and the impact of the 2024 general elections on investment decisions indicating a negative perception.

**H<sub>0</sub>** : There does not exist a relationship between risk-tolerance and the duration of the investment made by the individual in Mumbai.

**H<sub>1</sub>** : There does exist a relationship between risk-tolerance and the duration of the investment made by the individual in Mumbai.

### **Sources of Data**

Primary Data – A questionnaire survey of people of diverse age groups.

Secondary Data – Websites, research papers, financial journals.



**Research design**

This is an exploratory research.

**Sampling Technique**

This research is carried on with random sampling technique.

**Scope of the research**

- Only respondents of Mumbai were considered for the study.
- Decisions pertaining solely to the stock market by the investors were considered.

**Sampling size**

A sampling size of 100 individuals from the region of Mumbai metropolitan city were taken into consideration

**Limitations**

- The secondary data used was assumed to be authentic in nature.
- Further, the primary data collected is from only 100 individual investors due to time limitations.
- The primary data collected is in a cluster form.

**Future scope of study**

- Exploring the psychological and behavioural responses of the investors in relations to black swan events.
- Comparative studies between different cities or countries to understand regional differences in behaviour during black swan events.
- Explore the role of technological advancements in enhancing market resilience to black swan events.
- Evaluating the effectiveness of investor education programs in promoting financial literacy and rational decision-making.

**Data Interpretation & Findings**

1. When asked if their gut feelings kept them from selling an investment at a loss despite the fact it was the right decision, 28% of respondents answered they believed that way, 21% answered maybe, and 51% answered that they did. The 21 percent of respondents who selected maybe indicate that they may be undecided or ambivalent about this subject. Almost half of the respondents (51%) acknowledged that they have refrained from selling an investment at a loss due to gut instincts. This suggests that a considerable portion of investors tend to rely on their emotions and intuition when making financial decisions. Merely 21% of participants stated that they have not refrained from selling an asset at a loss based on a gut feeling, indicating a minority of investors adhere strictly to rational decision-making strategies. This group likely represents more experienced or disciplined investors who have the confidence and knowledge to follow through with rational investment choices, even when faced with potential losses.
2. When asked if they were comfortable investing in high-risk, high-reward opportunities, 16% of the respondents said they were extremely uncomfortable, 54% said they had a neutral opinion, and 30% said they were very comfortable. The majority of participants (54%) had a neutral opinion about investments with high risk and high payoff. This balance implies that although these investors don't aggressively look for high-risk possibilities, they also don't totally ignore them. Notably, 30% of investors said they were extremely at ease with alternatives that were high-risk but high-reward. This is probably a group of experienced investors or risk-takers. Stability and security are probably preferred by the 16% of respondents who are extremely uncomfortable with high-risk ventures. Some traits that this group may exhibit are conservatism or being new or inexperienced investors.
3. When the investors were asked if they were comfortable with low-risk, low-reward options 53% responded with Neutral, 19% responded with Uncomfortable and 28% responded with Very Comfortable. A majority of respondents (53%) indicated a neutral stance towards low-risk, low-reward investments which may indicate a balanced approach or indecision or flexibility. A notable 28% of respondents reported being very comfortable with low-risk, low-reward options. This may include conservative or risk-averse individuals. The 19% of respondents who feel uncomfortable with low-risk investments are likely driven by a desire for higher returns they may include aggressive investors or growth-oriented investors.



4. When the investors were asked that if during the time frame of the elections they sold/purchased securities or assets in the stock market, 31% responded with a No, 7% responded with Maybe, and 62% responded Yes. A significant majority of respondents (62%) reported that they engaged in selling or purchasing securities/assets during the election time frame. This high level of activity indicates that elections are a major event that prompts investors to reassess and adjust their portfolios. 31% of respondents reported that they did not engage in any buying or selling of securities/assets during the election period. This inactivity could be due to several reasons such as risk-aversion or long-term investment strategy. The 7% of respondents who answered "Maybe" indicate a level of indecision or uncertainty about their actions during the election period. This group may not have a clear strategy for dealing with political events or may have made minimal adjustments that they do not perceive as significant.

### Proof of Hypothesis

#### Hypotheses 1

##### Pearson's Chi-square test

- $H_0$  : There is no association between the age and the impact of the 2024 general elections on investment decisions indicating a positive perception.
- $H_1$  : There is an association between the age and the impact of the 2024 general elections on investment decisions indicating a negative perception.

**Table 1.1:** Pearson's Chi-square statistics table to identify the relation between age and impact on investment behaviour due to general elections of 2024

	Significant Impact	Unchanged/ No Impact	Total
Ages 18-19	37	19	56
Ages 20 & above	14	30	44
Total	51	49	100
P-value		.000671	
Chi-square statistic		11.5685	

1. The table 1.1 takes into the account ages of 18-19 and ages 20 & above and compares it against the investment behaviour during general elections of 2024 indicated using the parameter of significant impact or unchanged/ no impact.
2. The Chi-Square test yielded a statistic of 11.577 and a p-value of 0.000659. Given that the p-value is significantly less than the standard significance level of 0.05, we reject the null hypothesis.
3. The results of the Chi-Square test indicate a significant association between the age of investors and the impact of the 2024 general elections on their investment decisions.
4. Specifically, younger investors (18-19 years) are more likely to be influenced by political events compared to their older counterparts (20 years and above).
5. This finding suggests that age plays a critical role in determining the susceptibility of investors to external political factors, with younger investors being more emotionally reactive.

#### Hypotheses 2

##### Spearman's Rank Correlation

**Table 1.2:** Spearman's rank correlation coefficient between duration of investment and risk-tolerance of an individual pertaining to the city of Mumbai

Variable 1	Variable 2	Spearman's Rank Correlation Coefficient	p-value	Critical value	Significance
Duration of the investment (short-term/ long-term)	Risk-tolerance	0.2101	0.05	0.197	Significant

1. The table 1.2, takes into account the two variables, variable 1 (duration of the investment) and variable 2 (risk-tolerance).



2. The spearman's rank correlation coefficient is 0.2101 and the critical value at  $\alpha$  5% for 100 observations is 0.197 which less than the correlation identified thus, there exists a significant relationship between the two variables identified.
3. Due to the close relationship between the two, the Null Hypotheses can be rejected.
4. Since the Null Hypotheses is rejected, we can conclude that the Alternate Hypotheses (There does exist a relationship between risk-tolerance and the duration of the investment made by the individual in Mumbai) proves to be true.
5. Therefore, we can conclude that, there exists a relationship between the duration of investments made by the investors and their risk-tolerance.

## CONCLUSIONS

From the Spearman's rank correlation coefficient and Pearson's Chi-square tests, we can understand the perception of the investors in the stock market region of Mumbai to be negative, i.e., the majority of the investors have made decisions based on their gut feelings in association with having to portray a relationship between their demographic ages and (in the face of a major event) the general elections of 2024 impact their investment decision behaviour. The tests also exhibit a relationship between the duration of their investments and the degree of risk tolerance in regards to them. This study highlights the importance of considering demographic factors, such as age, when analyzing investor behaviour in the stock market. The significant influence of major political events on investors' decision-making underscores the need for tailored financial advice and strategies to mitigate emotional biases.

## RECOMMENDATIONS

The researcher recommends that investors can make better use of technological advancements and make better decisions pertaining to their investments in the following manner:

1. To use AI-driven platforms to make a market analysis.
2. To not solely rely on AI but also do their own part of the research to make better decisions.
3. Analyse trends and dips in the markets for their investment strategies.
4. Analyse the stocks carefully to figure out if the stocks are pump and dump or actually worth investing by calculating the P/E ratios and the graph for the specific stock for 1 year or more.
5. Before making a decision always carefully chart it out if it is on the basis of the analysis made by them or the herd mentality the investor is taking part in.

As always it can be difficult to be a rational choice at all times, and distinguish the herd mentality from the analytical behaviour but the above recommendations may help any investor to overcome at least prior mistakes they might have made.

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2. Timeline of U.S. Stock Market Crashes
  3. Great Depression
  4. List of stock market crashes and bear markets
  5. behavioral finance: investors psychology



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**A STUDY ON THE PSYCHOLOGICAL FACTORS INFLUENCING THE PERSONAL FINANCE ATTITUDES OF INDIVIDUALS WITH REFERENCE TO THE CITY OF MUMBAI**

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*T. Harv Eker emphasised, “Your attitude towards money determines your financial success.” A person's perspective on money influences their financial actions, which in turn impacts their level of success. An individual's financial mind set, particularly their approach to managing money, reflects the practical application of financial concepts when making and assessing financial choices. Decisions involving spending, savings, and investments are influenced by an individual's understanding of common financial terms, their emotional response to financial situations and their experience which shape their financial habits. For example, some people prefer having an emergency fund, some avoid investing in the stock market while some emphasise the need for minimal expenditure. These decisions differ from person to person and are influenced by an individual's psychology. This research paper aims to identify and analyse the psychological factors that affect an individual's decision-making and specific attitudes towards personal finance. Additionally, these connections will shed light on the unconscious forces shaping one's financial attitude and behaviour. The findings of this research have multifaceted implications, including but not restricted to helping develop effective financial education programs.*

**Keywords:** Financial attitude, psychological factors, financial habits, psychology, decision making.

**INTRODUCTION**

Pankow D. (2003) described financial attitude as the state of mind, viewpoint, and assessment of an individual's personal finances, which is evident in their attitude. Analogously, Gede A. (2021) defined financial attitude as an attitude that is raised when an individual views his personal financial problems as measured through a question or opinion. An individual's financial attitude contributes to determining their financial management behaviour.

Managing an individual's income, expenses, savings, and investments to achieve their financial goals is what personal finance entails. It is a critical aspect of daily life synonymous with creating a roadmap for one's economic future, ensuring present stability and overall well-being. Financial goals, retirement planning, tax planning, budgeting, debt management, good credit, and insurance are the key principles that drive a sound personal finance strategy and thus decision-making.

Besides these principles, various psychological factors also play a pivotal role in shaping an individual's personal finance attitude and decision-making process. These factors influence how individuals perceive, approach, and manage one's financial resources. They include cognitive and personal biases, emotions, risk perceptions, social influences, and previous experiences.

The concept of personal finance has evolved significantly over centuries, shaped by economic developments, societal changes, and advancements in financial systems. Historically, personal finance was primarily concerned with basic money management and survival. In ancient civilisations, such as Mesopotamia and Ancient Egypt, rudimentary financial systems emerged to facilitate trade and wealth accumulation. Reed styluses were used to make impressions in wax or clay tablets, which exemplifies the earliest form of bookkeeping records.

The Industrial Revolution of the 18th and 19th centuries brought about profound changes in economic structures, leading to increased wealth creation and a growing middle class. This era saw the emergence of modern financial instruments, such as stocks, bonds, and insurance, which expanded opportunities for investment and risk management.

In the 20th century, the field of personal finance gained prominence with the advent of consumer credit, retirement planning, and government social security programs. During the period from the 1970s to the 1990s, there was a rise in consumer behaviour research which examined how psychological factors influence purchasing decisions. This period saw an increase in financial literacy and consumer protection along with the emergence of behavioural finance.



In today's world, personal finance is shaped by the cogency of globalisation, rapid technological progress, and a multifaceted financial environment. This field has broadened its scope to encompass disciplines such as behavioural finance, delving into how psychological elements influence financial decision-making.

In the post-COVID-19 era, personal finance strategies have been subjected to psychological and social implications of remote work, maintaining a work-life balance, and managing social isolation. According to Pisit (2024), as remote work becomes more prevalent, individuals and organizations must consider the long-term financial planning implications, such as changes in spending patterns, investment priorities, and retirement planning.

Cognitive bias is creating an individual's own 'subjective reality' based on their perception of the input. It is the inability to reason intuitively with greater orders of magnitude according to Kahnmen D, and Frederick S (2002). Personal bias refers to learned beliefs, opinions, or attitudes that people are unaware of and often reinforce stereotypes. Risk is how individuals mentally perceive, and judge risk as emphasised by Bodemer and Gaissmaier (2015). Previous experience may be considered as an individual's personal experience concerning any subject matter.

Understanding these underlying psychological factors that influence an individual's personal finance attitude and in turn, affect their decision-making process is instrumental. The underlying aim of this research paper is to identify and analyse such factors.

## **REVIEW OF LITERATURE**

**Goyal, K., Kumar, S., Xiao, J.J. and Colombage, S. (2022)** carried out a meta-analysis on the association between personal finance management behaviour (PFMB) and six psychological factors (financial attitude, financial self-efficacy, self-control, materialism, internal locus of control and external locus of control). Their original study concluded that overall meta-analysis findings do not support the association between the two variables. However, the researchers conducted a subgroup study whereby it was revealed that there exists an association between PFMB and the six psychological factors. This subgroup study underlined the association between the explanatory variables, both positive and negative, was different based on the demography and age group being analysed.

**Denis J. Hilton (2001)** in his paper has tried to analyse the applications of psychology, social psychology and behavioural finance in improving efficiency and decision-making processes within financial markets. The researcher identified seven deadly sins which impact financial decision-making namely confirmation bias, overconfidence, loss aversion, anchoring, availability bias, representativeness bias and hindsight bias. These factors are reviewed by drawing parallels with biases observed in other domains such as managerial and medical decision-making. The study suggests a better understanding of cognitive biases could lead to significant improvements in revenue earnings. This would aid the financial institutions in enhancing their performance and mitigating risks associated with irrational decision-making.

**Matz, S. C., Gladstone, J. J., & Farrokhnia, R. (2023)** in their research paper, scrutinised the role that the psychological fit of the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism) with an individuals savings goal influence their savings behaviour. The research demonstrated that individuals whose personalities aligned more closely with their saving goals reported higher levels of savings, supporting the importance of psychological fit in achieving savings success. Additionally, they accentuated how understanding the psychological aspects influencing an individual's savings behaviour can help them make informed financial decisions and enhance their personal finance management.

**Hon, T.-Y., Moslehpour, M., & Woo, K.-Y. (2021)** through their research paper aimed to investigate the psychological effects on human behaviours and how cognitive biases explain the inefficiencies in the market and the existence of anomalies. The researchers identified behavioural biases, risk perception, herd behaviour, mental accounting, financial goals and behavioural finance tools as primary psychological factors influencing personal finance decision-making. The study emphasised the need for integrating cognitive psychology into economic and financial models to better understand and predict financial market phenomena.

**Akhtar, M. and Malik, M.U. (2023)** expand upon personality theories in the context of risk behaviour and financial literacy. The research aimed to examine the relationship between personality traits and investor risk behaviour of individuals trading in stock markets.



Furthermore, the research aimed to establish the association between financial literacy on the relationship between personality traits and investor risk behaviour. This study revealed that personality traits significantly influence investor risk behaviour.

## **RESEARCH METHODOLOGY**

### **Objective of the Study**

- The researcher wants to identify and analyse the psychological factors affecting the personal finance attitudes of individuals, concerning the city of Mumbai.

### **Hypothesis**

- $H_0$  – There is no relation between an individual's attitude towards personal finance and their psychological makeup, concerning the city of Mumbai.
- $H_1$  – There exists a relation between an individual's attitude towards personal finance and their psychological makeup, concerning the city of Mumbai.

### **Sources of Data**

- Primary Data – Online Questionnaire Survey of participants.
- Secondary Data – International Financial Journals, Research Gate and similar research paper websites.

### **Research Design**

- This research employs an Exploratory Design.

### **Sampling Plan**

- This research was conducted using the Random Sampling technique.

### **Scope of Research**

- The study investigates cognitive biases, emotional responses, social influences, and previous experiences.
- The results underscore the significance of psychological aspects in making financial decisions and indicate potential implications for financial education initiatives.

### **Limitations of Research**

- The research is limited to the metropolitan city of Mumbai due to limitations.
- The primary data is collected from 104 respondents due to limitations.
- The primary data collected has inherent limitations.

### **Sample Size**

- A sample size of 104 individuals from the metropolitan city of Mumbai is taken into consideration for this research.

### **Data Interpretation & Findings**

In this study, the researcher analysed the responses of 104 research participants from the city of Mumbai. The data was collected using a random sampling technique through the means of an online questionnaire survey. The individuals involved in the study, specifically the survey participants, come from various age brackets, with ages ranging from 18 to 80. The respondents were a mix of males and females. The survey was conducted to identify the psychological factors influencing personal finance attitudes. The following is the interpretation of the survey undertaken:

- When asked about how they would, i.e. the respondents, describe their general attitude towards money, 58.7% of the population inclined towards the option stating money should be saved and invested for future security, 22.1% responded that money represents opportunity while 14.4% responded that money is meant to be spent and enjoyed. 4.8% of the population considered money to be a source of stress and anxiety. The question was designed to determine the main psychological factor that affects an individual's perspective on money, choosing from emotions, cognitive biases, and social influences. In analysing these responses, it is clear that the psychological factors affecting financial attitudes are multifaceted and complex. The inclination towards saving for future security is clearly influenced by emotional factors, particularly fear of financial instability, which leads to risk aversion and a preference for conservative financial behaviours. Conversely, the attitude of viewing money as an opportunity reflects a more optimistic mind set, where individuals are willing to take calculated risks to achieve their financial goals. This group may be less



affected by fears of loss and more motivated by the possibility of personal or financial growth. This can be interpreted as **emotions in the form of fear of the future playing a role in influencing an individual's attitude towards money.**

- The respondents were asked how often they review their financial situation. The feedback varied, but the largest group of respondents, at 33.7%, indicated that they review it monthly, while the least popular choice was "rarely," at 11.5%. Akin to the previous question, the answer to this question portrays personal bias. The data also speaks to the role that cognitive biases play in financial behaviour. Those who review their finances more frequently may be actively counteracting biases such as the anchoring effect, which involves relying too heavily on past financial decisions, or overconfidence bias, where individuals believe they have more control over their finances than they actually do. Regular reviews allow individuals to make adjustments based on current realities, ensuring that they are not overly influenced by past assumptions or outdated financial strategies. The answers when matched against age indicate that **prior experience also plays a role when making this decision.**
- A question in the survey aimed at identifying how the respondent makes financial decisions. While 35.5% of respondents based their decision on the logical analysis of cost and benefits, 28.4% of respondents based their decision on advice from family and friends and 23.1% of respondents based their decision on current trends. The data suggests that while logic and rational analysis do play a significant role in financial decision-making, psychological factors, including social influences and herd mentality, are also major contributors. In fact, many individuals may blend both rational and emotional components in their financial decisions, with the influence of social networks or trends sometimes outweighing careful financial analysis. This highlights the complexity of financial decision-making, where people are not always driven purely by cold, calculated logic but are also influenced by emotional ties, societal pressures, and the desire to fit in with others.
- The participants were inquired about the primary factors that impact their financial decision-making process. This inquiry is intended to gather the participants' perspectives on the factors they feel had the greatest influence on them. As a result, it may be influenced by personal bias, but it is valuable as it helps the researcher grasp how the participants perceive their decision-making process. 30.3% of respondents selected previous experience, 24.6% of respondents selected risk assessment and current trends, and 10% of respondents selected individual bias. The existence of conscious bias exhibited by the respondents can be analysed through this. The concept of confirmation bias is particularly relevant here, where individuals seek out information that aligns with their existing beliefs and ignore data that contradicts those beliefs. In the context of personal finance, this could manifest as an individual investing heavily in a particular asset class because they have a pre-existing belief that it will yield great returns, while dismissing warnings or negative information about the asset. The existence of conscious biases, as indicated by the responses to the survey, highlights the importance of self-awareness in the financial decision-making process. Understanding that personal biases exist and recognizing their influence on financial decisions can help individuals make more informed, objective choices. Since **conscious biases stem from socialisation and personal experiences**, it can be interpreted that these **psychological factors influence the personal finance attitude of individuals.**

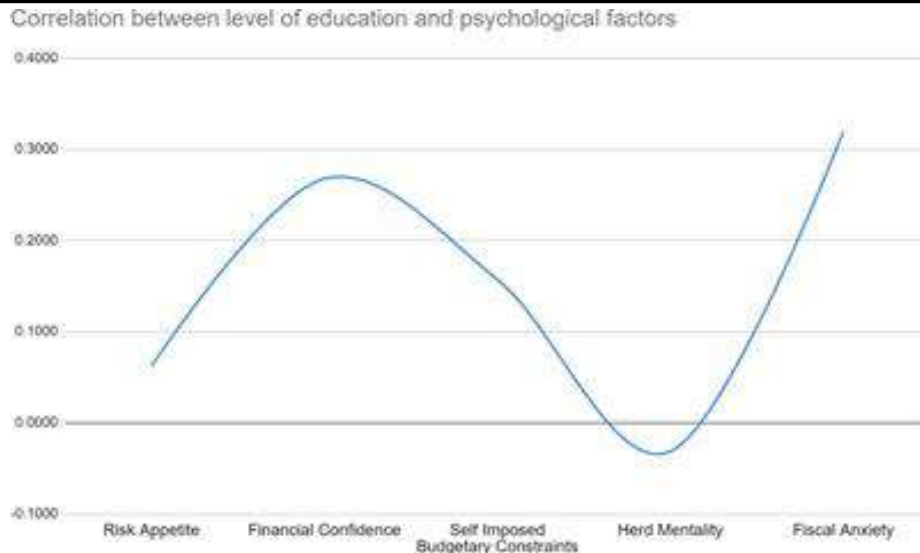
### Hypothesis Testing

The following hypothesis is tested to determine the existence of a relationship between psychological factors and personal finance attitude; in the context of the city of Mumbai using Pearson's Correlation Coefficient and Chi Square Statistic Table.

- Null Hypothesis ( $H_0$ ) – In the city of Mumbai, there is no relation between an individual's financial attitude and their psychological makeup.
- Alternative Hypothesis ( $H_1$ ) – In the city of Mumbai, there exists a relation between an individual's psychological disposition and their attitude toward personal finance.

Graph 1.1: Pearson's Correlation Coefficient plotted on a line graph to exhibit the correlation between the level of education and personal finance attitude, in the city of Mumbai.





**Source:** Compiled from the questionnaire Inference:

Graph 1 demonstrates the indirect as well as direct relation between variables. It is seen that there exists a positive correlation between the level of education and risk appetite, financial confidence, self-imposed budgets and fiscal anxiety. The graph also demonstrates the negative correlation between the level of education and herd mentality. All the correlations are greater than or less than 0, indicating a relationship between the variables. Hence, we reject the Null Hypothesis ( $H_0$ ).

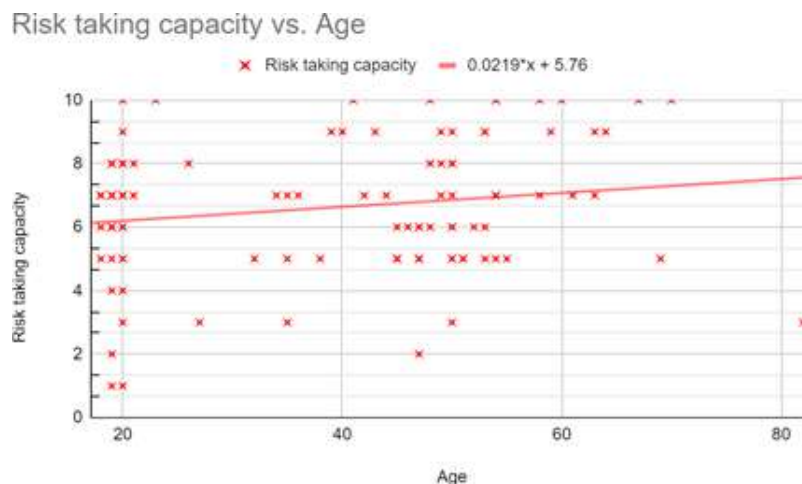
**Table 1.1:** Chi-Square Statistics Table to identify the association between gender and emotional response to financial losses or setbacks, in the city of Mumbai

Chi-Square Results			
	Emotionally Impactful	Growth Opportunities	Row Totals
Male	32	15	47
Female	20	37	57
Column Totals	52	52	104
Chi-square statistic		11.2191	
P – value		.00081	

**Source:** Compiled from the questionnaire

Table 1 demonstrates the chi-square test of independence performed to examine the relation between gender and the emotional response to financial losses or setbacks. The p-value of the data is  $< \alpha$ , where  $\alpha = .05$ , the p-value being .00081. Thus, a significant relationship exists between the two variables of gender and emotional response, and the variables are dependent. Conclusively, the Null Hypothesis ( $H_0$ ) can be rejected.

**Graph 1.2:** Scatter Chart with linear regression line, comparing age and risk-taking capacity of individuals, in the city of Mumbai.



**Source:** Compiled from the questionnaire



Table 2 illustrates the linear regression line, demonstrating the trend between the two independent variables. The upward trend of the regression line shows that as an individual's age increases, there is an increase in their risk-taking capacity. The existence of an upward-sloping trend line establishes the existence of a relationship between the age and risk-taking capacity of an individual. Hence, we accept the Alternative Hypothesis ( $H_1$ ).

### Hypothetical Analysis

1. Pearson's Correlation Coefficient suggests a relationship between an individual's level of education and five personal finance attitudes.
2. The correlation between the level of education and risk appetite and self-imposed budgets is  $0 < r \leq 0.19$ , i.e. 0.0619 and 0.1570 respectively, indicating a very low yet positive correlation. Thus, as the level of education increases, the risk appetite of an individual also increases but at a lower rate. This is likely because of an individual's willingness to take financial risks and confidence in managing financial risks.
3. Correspondingly, the correlation between the level of education and financial confidence and financial anxiety is  $0.2 < r \leq 0.39$ , i.e. 0.2667 and 0.3194 respectively, indicating a moderate yet positive correlation. This could be due to a better understanding of financial management, budgeting and feeling anxious about financial matters despite having financial management skills.
4. While the correlation between the level of education and herd mentality attitude is  $0 > r \geq -0.19$ , i.e.  $-0.0316$ , indicating a very low yet negative correlation. Thus, as the level of education increases, the tendency to follow the herd mentality reduces but at a lower rate. This could stem from an individual's ability to analyse and critique information.
5. This correlation is pivotal when establishing the influence various psychological factors have on the personal finance attitudes of individuals. In this case, experience and peer influence in the expressed form of the level of education is analysed against various personal finance attitudes. (Mariam et al., 2022)
6. The chi-square statistics table determines whether there is an association between the categorical variables of gender and emotional response to financial setbacks.  $X^2(\text{degrees of freedom, } N = \text{sample size}) = \text{chi-square value, } p = \text{p-value gives}$

$$X^2(1, N = 104) = 11.2191, p = .00081$$

Here degree of freedom = 1, the significance level is considered as 5% and thus, the critical value of the chi-square distribution table is approximately 3.841 which is greater than the chi-square statistic of 11.2191. Thus, we reject the Null Hypothesis ( $H_0$ ).

7. Based on the results in Table 1, as the significance level is lower than the calculated p-value (i.e.  $.05 > .00081$ ), there is enough statistical evidence to indicate a significant association between gender and emotional response to financial losses. As a result, we can reject the Null Hypothesis ( $H_0$ ) in favour of the Alternative Hypothesis ( $H_1$ )
8. The scattered chart with the linear regression line compares an individual's age against their risk-taking capacity.
9. The regression line shows an upward trend with 0.0219 as the gradient and 5.76 as the intercept. The gradient is the measure of steepness of the line and denotes the degree at which the risk-taking capacity increases with age while the intercept is a point on the x-axis (age) and represents the lowest aggregate risk-taking capacity of an individual when age is considered 0. The graph shows that as the age of an individual increases, there is a linear upward trend in their risk-taking capacity which can be denoted as

$$y = a + bx = 5.76 + 0.0219x$$

Where  $y$  = The risk-taking capacity of an individual.

$a$  = The intercept where the regression line meets the x-axis. (age = 0)

$b$  = The gradient of the regression line.  $x$  = The age of the individual.

10. This regression line is representative of the linear relation that exists between experience in the form of age and the psychological factor of risk perception (Firli et al., 2021). This could be because as individuals age, they may become better equipped to manage their risk perception due to the knowledge gained through experience.



11. The tests suggest that individuals' psychological characteristics are connected to their approach to handling money in Mumbai. This strengthens the notion that psychological factors influence people's financial attitudes.

## CONCLUSION

From Pearson's Correlation Coefficient test and Chi-Square Statistics tests, it can be concluded that psychological factors such as emotional responses, risk perception, personal bias, and previous experience influence an individual's attitude towards personal finance, in the city of Mumbai. Further, it can be illustrated that these psychological factors shape an individual's financial outlook and subsequent behaviour, including influencing their decision-making process. The research is indicative of the complex nature of economic decision-making and emphasises that alongside logic, cost versus benefit analysis, etc. psychological factors play a significant role in this process. It is also observed that analysing these factors can be crucial for developing effective financial education programs and public policies promoting financial well-being.

## FURTHER SCOPE OF STUDY

1. The study can further explore how geographical, cultural, and social contexts moderate the relationship between psychological factors and personal finance attitudes.
2. Further exploration could suggest policies for financial institutions and government entities to develop specific actions that target recognized psychological biases and enhance financial welfare.
3. Research could be expanded to encompass finer demographic elements like levels of income, professional backgrounds, and marital status to comprehend how these factors interplay with psychological factors that impact financial attitudes.

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## A STUDY ON EVALUATING THE IMPACT OF NOSTALGIA MARKETING IN BRAND CAMPAIGNS INTEGRATED WITH INDIAN OTT SERIES (2022-23)

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### ABSTRACT

*This study explores the impact of nostalgia marketing within brand campaigns integrated into Indian OTT series during 2022-23. The focus is on evaluating the effectiveness of nostalgia marketing strategies, understanding the factors that enhance consumer perception of nostalgia-driven marketing, and investigating how nostalgia marketing impacts brand affinity and consumer loyalty.*

*This study aims to evaluate the impact of nostalgia marketing tactics on consumers in 2023 and 2022 and identify specific nostalgic characteristics that viewers recall from brand campaigns in Indian OTT series. In marketing, nostalgia utilizes themes or products from the past to evoke unique feelings in consumers, connecting goods with their pleasant emotions. The study demonstrates that nostalgia marketing is effective when utilized by well-known*

*Indian Subcontinental companies like Rasna and Tang. This study looks at the direct effects of nostalgia marketing on consumer spending, loyalty, brand trust, and product recommendations. It also looks at how age, gender, and celebrations of faith affect nostalgia marketing.*

*This research delves into the dynamic relationship between nostalgia - based marketing and consumer perception, specifically examining its influence on consumer attitudes, preferences, and purchase intentions. A comprehensive analysis was conducted using a sample of 100+ respondents. This study underlines the strategic significance of nostalgia - based marketing in consumer engagement, offering valuable insights for marketers aiming to create deep emotional bonds with their audience. Recognizing the emotive impact of nostalgia stands as a crucial element in enhancing brand loyalty and strengthening a brand's market position in the evolving landscape of consumer preferences.*

**Keywords:** Indian OTT, Nostalgia marketing, Consumer engagement, Brand loyalty, OTT Series

### INTRODUCTION

The rapid growth of the Indian OTT (Over-the-top) industry has provided brands with new opportunities for innovative advertising. Platforms like Netflix, Amazon Prime, and Disney+ Hotstar have become central to modern media consumption, making them ideal for integrating brand campaigns. Nostalgia marketing, which leverages consumers' fond memories to create emotional connections, has emerged as a significant strategy within this space. With the speeding pace of modern life, recalling the past is also a kind of luxury. Someone went straight ahead, someone stopped to look backward, also some people indulge in the past sadness and joy. Stopping to look back occasionally, complex emotions will fill atrial—this is nostalgia. Nostalgia is a hot topic in today's society, and also widely exists as an emotional experience. Today nostalgia is playing an important role in marketing. Through nostalgia, we can effectively communicate with consumers, in this way we can achieve the purpose of marketing. In fact, in the marketing practice at home and abroad, more and more companies use nostalgic psychology of consumers as a marketing strategy. Through market segmentation and nostalgic strategy implementation, we can use nostalgic marketing as a medium to express and promote.

### Real-Life Examples

1. **Classic Candy Comeback:** Campaigns featuring iconic candies like Parle-G in "Yeh
2. **Meri Family" evoke childhood memories, increasing brand recall and purchase intent. Retro Reboots:** Shows like "Panchayat" feature vintage items, enhancing brand affinity through nostalgic connections.
3. **Music and Memories:** Nostalgic music in "Family Man" creates positive associations with brands, boosting engagement. o Vintage Vehicles: Classic cars featured in "The Test Case" resonate with viewers, leading to higher brand engagement. o Old School
4. **Toys:** Retro toys in "Tripling" create a nostalgic link, enhancing brand loyalty. o Classic Bollywood References: "Sacred Games" uses classic movie scenes to engage viewers through nostalgia.
5. **Iconic Fashion:** Retro clothing styles in "Stranger Things" positively influence viewers' perceptions.



6. **Memorable Meals:** Nostalgic food brands in "Kota Factory" trigger positive emotions, increasing brand recall.
7. **School Days Nostalgia:** "Yeh Meri Family" uses school-related nostalgia to connect deeply with viewers.
8. **Holiday Memories:** Festive nostalgia in "Made in Heaven" enhances brand affinity and engagement.

Nostalgia marketing taps into consumers' emotional responses by invoking past experiences, memories, and cultural touchstones. The effectiveness of this strategy is amplified when applied within popular media formats such as OTT series, where viewers are already emotionally invested. Understanding how nostalgia marketing works in this context can provide valuable insights for brands looking to enhance their engagement and build lasting relationships with their audience.

## REVIEW OF LITERATURE

### Sharma, R., Kapoor, A., and Joshi, P. (2022)

In their research paper explored the integration of nostalgia marketing in Indian OTT (Over-The-Top) series and its effect on brand campaigns. The study analysed how nostalgia, when effectively incorporated into brand messaging within OTT content, can enhance consumer engagement and brand loyalty. The researchers examined several Indian OTT series released in 2022-23, identifying specific instances where brands used nostalgic themes and evaluating their impact on viewer response and brand recall. Their findings suggest that nostalgia marketing, when aligned with culturally resonant themes, significantly boosts emotional connection and consumer preference for the advertised brands.

### Mehta, A., Gupta, R., and Bhatnagar, S. (2022)

Examined the strategic use of nostalgic elements in OTT series to reinforce brand identity and foster customer loyalty. Their research identified key factors that make nostalgia marketing successful, such as the relevance of nostalgic cues to the target audience and the authenticity of the nostalgic narrative. The study included case studies of successful brand campaigns integrated into Indian OTT series, demonstrating how these campaigns leveraged nostalgia to create a compelling brand story that resonates with viewers on a personal level.

### Nair, S., Patel, D., and Singh, V. (2023)

Conducted a comprehensive study on the role of nostalgia in advertising within Indian OTT platforms. Their research focused on the psychological mechanisms through which nostalgia influences consumer behaviour and brand perception. By analysing viewership data and conducting surveys with audiences of popular OTT series, the study found that nostalgic content leads to higher levels of emotional engagement and positive brand associations. Furthermore, the researchers highlighted that nostalgia-driven campaigns are particularly effective among older demographics who have a stronger connection to the cultural references used in the advertisements.

## RESEARCH METHODOLOGY

### Objectives of the Study:

1. To identify specific nostalgic elements that viewer's recall from brand campaigns in Indian OTT series.
2. To evaluate the impact of nostalgia marketing strategies employed in brand campaigns integrated with Indian OTT series during 2022-23 on consumers.

## HYPOTHESIS

**H0:** There is a negative impact of nostalgia marketing strategies on consumers.

**H1:** There is a positive impact of nostalgia marketing strategies on consumers.

**Survey Design:** A detailed questionnaire was crafted to gather comprehensive data on consumer perceptions and behaviours related to nostalgia marketing in Indian OTT series.

## SOURCE OF DATA

1. **Primary Source:** Questionnaire- filled by consumers using online applications for buying purposes.
2. **Secondary Source:** Websites and Books on nostalgia marketing.

## RESEARCH DESIGN

- This is an Exploratory Research



### SAMPLING PLAN

- This research is carried on with Convenience Random Sampling technique.

### SCOPE OF RESEARCH

- This research is limited to Mumbai due to place limitation.
- Further the secondary data is collected from only 100 consumers due to time limitation.

### SAMPLE SIZE

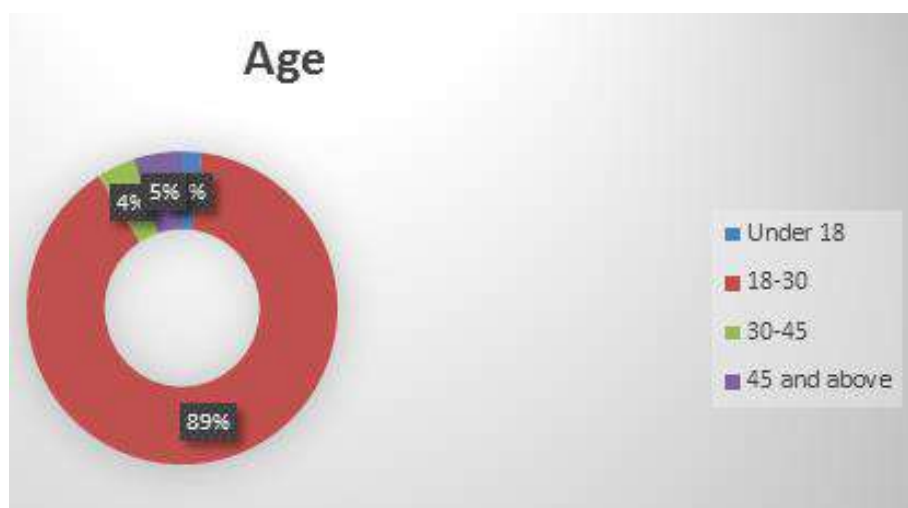
A sample size of 106 consumers is taken into consideration for research purpose.

### LIMITATIONS

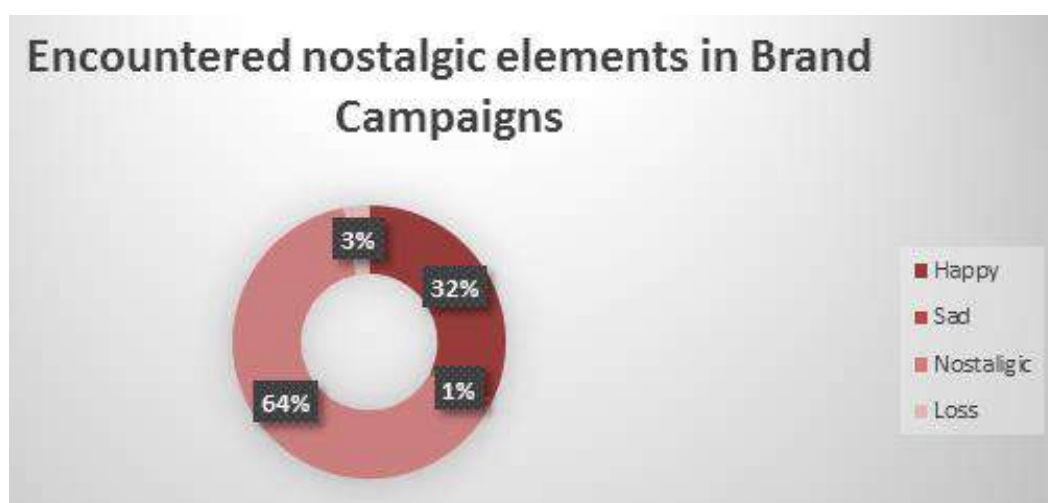
1. This research is limited to the city of Mumbai due to geographical limitations.
2. Further the secondary data is collected from only 106 consumers due to time and cost limitations.

### DATA ANALYSIS AND FINDINGS

The study employed chi - square tests, revealing statistically significant associations between participants' perceptions of the ads and their intentions toward the respective products, explaining the power of nostalgia - based marketing.

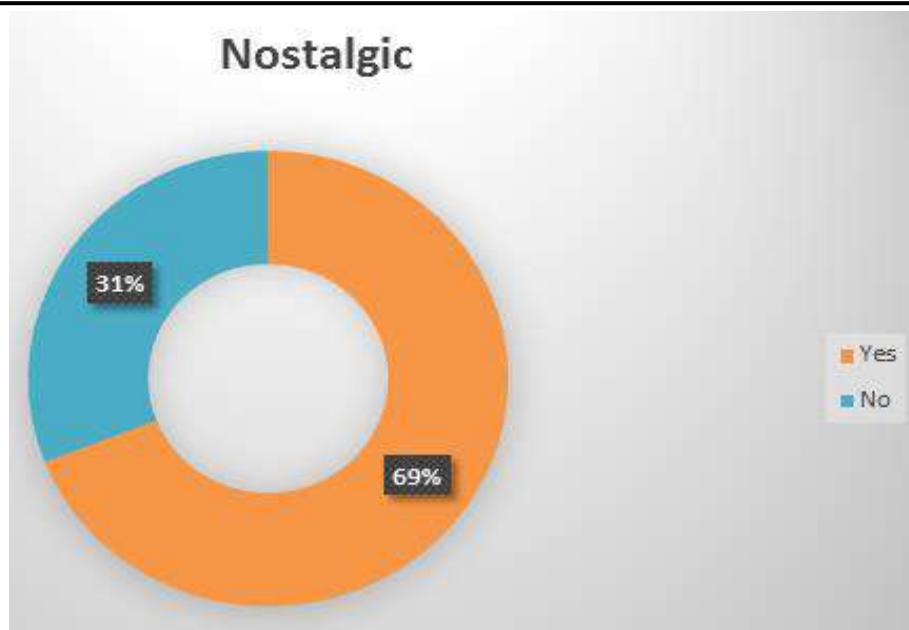


- The data shows that most of the participants are in the age group between 18 to 30 that depicts highlighting a strong representation of young adults in the study.



- According to survey results, most consumers have bought a product because the advertisement brought back memories of their childhood or made them feel nostalgic.





- As shown by most of the consumers have purchased a product because the advertisement made them feel nostalgic or was related to their early age.

### PROOF OF HYPOTHESIS

**H0:** Specific nostalgic elements used in brand campaigns within Indian OTT series are not effective in enhancing brand recall and consumer engagement.

**H1:** Specific nostalgic elements used in brand campaigns within Indian OTT series are effective in enhancing brand recall and consumer engagement.

To compare the proportion of Yes and No we used the Chi-Square test. The results of the test are as follows:

### Chi-Square Results

Yes	No	Row Total	
18-30	18	36	54
30- Above	35	17	52
Total Column	53	53	106

### Interpretation:

The chi-square statistic is 12.2308 with a p-value of 0.00047. Since the p-value is much less than 0.05, the results are significant, we reject the null hypothesis (H0).

### CONCLUSION

Nostalgia marketing within Indian OTT series proves to be a highly effective strategy for enhancing consumer engagement and fostering brand loyalty. By tapping into positive memories and emotional connections, brands can create impactful campaigns that resonate deeply with their audience.

According to the study, a significant proportion of participants reacted favourably to marketing strategies that inspired nostalgia. A lot of respondents said that nostalgic themes in commercials are a good way to draw them in. In addition, a significant proportion of participants expressed experiencing nostalgia when observing nostalgic themes in advertising campaigns. Due to this emotional bond, many people bought things to relive treasured experiences from the past. Additionally, a sizable segment of participants thought that nostalgic marketing had a significant impact on their purchasing decisions, indicating the potent influence of nostalgia on consumer behaviour.

**Impact of Nostalgia Marketing:** Nostalgia marketing is a valuable tool for brands seeking to build stronger emotional connections with consumers. Future Directions: Continued research and experimentation will help refine and enhance the effectiveness of nostalgia-driven strategies. Nostalgia marketing offers a powerful tool for brands looking to enhance consumer engagement and loyalty. By leveraging cultural touchstones and personal memories, brands can create compelling campaigns that resonate deeply with their target audience.



### Effectiveness of Nostalgia Marketing Strategies

The data analysis revealed that campaigns employing nostalgia marketing strategies significantly impacted consumer engagement. Participants reported higher levels of attention and recall for nostalgic advertisements, indicating that these campaigns are more effective in capturing and retaining viewers' interest.

### SUGGESTIONS AND RECOMMENDATION

**Experimental studies:** Experiments were conducted to test the impact of different types of nostalgic content.

**Cultural Comparisons:** Examine how nostalgia marketing performs in diverse cultural settings.

**Long-Term Effects:** Investigate the long-term impact of nostalgia marketing on brand loyalty and consumer behaviour. Why does the nostalgia marketing strategy work?

Nostalgia marketing works because consumers often make purchase decisions based on emotion. A *Frontiers in Psychology* study about the influence of social media brand marketing on consumers' emotions says, "Consumers tend to choose products according to their own preferences and values, paying attention to emotional satisfaction and psychological recognition, so that enterprises can gain higher brand loyalty."

In other words, we cling to positive memories, so when a brand, event or product is a part of that memory, they're at an advantage. Nostalgia enables us to indulge in familiarity and comfort. We can reminisce on the laughs, the vibes, the memes—you had to be there to understand the cultural impact. Or do you?

Campaigns that incorporate nostalgia marketing aren't limited to the people who have those emotional heartstrings attached to a memory. They have an opportunity to use nostalgia as a mechanism for brand storytelling and longevity by nurturing long standing fans while also attracting new prospects, especially from younger generations.

### FUTURE SCOPE OF STUDY

An excellent starting point for examining the effects of nostalgia marketing in Indian OTT series is provided by this research report. Here are some possible directions for further study, given the results and constraints:

#### 1. A Further Examination of Consumer Psychology

**Neuromarketing** Examine how the brain reacts to OTT ads that evoke nostalgia. What effect does nostalgia have on buying intent and brain activity?

**Segmenting Consumers:** Examine the effects of nostalgia marketing on various customer groups, such as age, gender, and socioeconomic status, to determine the most effective target audiences.

**Nostalgia and Brand Personality:** Examine how matching nostalgic components to a brand's personality might improve the efficacy of marketing campaigns.

#### 2. Assessing Brand Loyalty for Long-Term Impact:

To evaluate the long-term effects of nostalgia marketing on consumer retention and brand loyalty, conduct longitudinal research.

#### 3. Ethical Issues:

-Authenticity vs. Exploitation: Examine the ethical concerns of nostalgia marketing, paying particular attention to the possibility of taking benefit from customers' feelings. -False Nostalgia: Examine the effects and moral ramifications of fabricating feelings of nostalgia.

**4. Technological Developments:** Virtual and Augmented Reality: Examine ways these advancements might be used to create nostalgic, immersive experiences.

**AI and Personalization:** Look at how AI can be applied to customize nostalgic content to specific users.

Future study may strengthen our understanding of nostalgia marketing and its ability to influence customer behaviour and brand success.

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**A STUDY ON ADOPTION TRENDS OF ELECTRIC CARS AMONG DIFFERENT INCOME GROUPS OF MUMBAI**

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Nowadays, people have become more aware of how certain things they use can affect the environment. They constantly look for sustainable alternatives. This has also become a marketing strategy in many industries. The automobile sector is one of them. EV cars are being promoted all over the world. There are various factors that affect one's decision to purchase an EV. This research studies these factors in relation to people in Mumbai. Despite the efforts taken by the government to promote EV cars, many people still hesitate to buy them. The research uses both primary and secondary data. The primary data were gathered through a structured questionnaire circulated to 98 respondents in Mumbai and secondary data were collected through newspaper articles, websites and journals. The key findings of the paper indicate that although there are several environmental and economical benefits of EV cars, there are significant barriers such as higher upfront cost, insufficient charging infrastructure, fear of running out of range and lack of awareness about the various government incentives that prevent people from buying them. Chi-square testing was used to test the hypothesis. The study suggests the need to improve public awareness, build more charging stations, provide more financial incentives and invest in R&D to foster innovation. By addressing these issues, policymakers can facilitate a shift towards EV adoption, ensuring a sustainable future for India. Key words: EV cars, Awareness, Mumbai, Barriers, Incentives

**INTRODUCTION**

India's road mileage has increased significantly from 170,000 to 6 million kilometers between 1947 and present, making many places earlier isolated, easily accessible. The Pradhan Mantri Gram Sadak Yojana plans to provide roadways to all the villages in the country by 2027. The ever growing roadways makes people lean on four wheelers more, increasing their demand. In urban areas, as people grow richer, they feel the need to buy a four wheeler to maintain their status quo. However, with an increase in the demand for four wheeler vehicles, another major challenge arises, i.e., greenhouse gas emissions. To mitigate this issue, EV or hybrid cars need to be adopted (Visualizing Climate and Loss, n.d.).

The history of EV cars dates back to the 1800s but why are people only talking about it now? Earlier, vehicles were available in three forms – steam, gasoline and electric. Steam vehicles weren't apt for personal use as they required quite a lot of time to start, especially during winters. Gasoline vehicles did not have that problem but they were difficult to drive as they required a lot of manual effort to change the gears. The electric vehicle, on the other hand, was easy to drive, did not make any noise and was convenient for short distances. They also did not emit any pollutants. There was a surge in the demand for EV cars, making many innovators try to find ways to improve the technology. However, Henry Ford's 'Model T' introduced in 1908 made the gasoline car more easily affordable for the people, causing a drop in the EV sales (The History of the Electric Car, n.d.).

For a long time, there was little improvement in EV technology. Fast forward to today, with the soaring oil prices and people being more aware about the harmful effects of the emissions caused by conventional vehicles on the environment, the focus is back on EV vehicles. Countries all over the world have started coming up with new initiatives to promote them. India has been implementing similar measures. To encourage the Indian masses, the Government has provided various incentives and tax benefits that a buyer can get when they purchase an EV. There are several state wise benefits available to consumers as well manufacturers.

The FAME India Scheme (Phase I and Phase II) started in 2015 and extended in 2019 until July 31, 2024, aimed at reducing the purchase cost of EV cars to make them affordable for the buyers. FAME 3 is in the talks but not yet out. The PLI Scheme was introduced to boost domestic manufacturing of the EV cars and its components by providing financial assistance to the automobile manufacturers. The Maharashtra EV policy offers incentives up to Rs. 1,75,000 on electric four wheelers. The Government's new EV Policy aims at encouraging global manufacturers to invest and set up facilities in India by providing a reduction in the import duties. The GST on EV cars was also reduced from 12% to 5% and several income tax benefits on interest of loans taken for the purchase of EVs is also granted to the buyers.



These initiatives aim to create a favorable environment where both adoption and manufacturing of electric vehicles can take place side by side, enabling a brighter and healthier future for the cities and the country. However, despite so many measures taken, the EV penetration of EV cars remains below 5%. Main reasons for it are poor charging infrastructure, fear of running out of range, expensive purchase cost and unawareness about the incentives (Briefing, 2024).

### **REVIEW OF LITERATURE**

Many researchers have studied the various factors that affect the adoption of EVs among the moderate-income group in Mumbai. Tupe et al. (2020) explored consumer perceptions of EVs in India pointing out the problem of low market penetration of EVs despite the government incentives and subsidies. Their findings tell us that consumers are aware of the environmental benefits of EVs and are willing to switch from conventional vehicles but only if proper infrastructure is provided. Key barriers mentioned are high initial purchase cost, limited charging stations, and long charging times. The study supports enhanced government and manufacturer collaboration for increasing EV adoption rate.

Purohit (2021) analyzed the attitudes of metropolitan consumers towards EVs, revealing a positive inclination towards EV adoption, provided that economic and infrastructural challenges are addressed. No significant differences in attitudes across gender and income groups were found in this study indicating a broad acceptance of EVs. However, the research suggests that with advancements in technology and appropriate legislative measures, EVs can soon replace conventional vehicles.

Bhosale et al. (2022) compared the total cost of ownership (TCO) of battery electric vehicles (BEVs) and internal combustion engine vehicles (ICEVs) in India to find out the most cost-effective option. The study found BEVs to be not economically competitive due to its higher upfront cost, finance interest rates, and battery replacement expenses. However, the study highlights that greater incentives or lower interest rates could be beneficial, and in order to make EVs more economically viable in India, they suggest a strategic combination of these two to make BEVs more competitive.

Sachan and Singh (2022) focused on the planning and development of EV charging infrastructure in India. The main problems identified were anxiety over charging times and driving range. The study highlights recent developments in this planning and the need for a robust, secure, and suitable charging network to promote EV usage. Suggestions include cooperative charging strategies and secure charging architecture to address privacy concerns and improve user experience.

Dhillon et al. (2023) discuss how financial incentives and socio-economic factors are affecting EV adoption in India. According to this study, operational and fiscal factors such as vehicle performance, financial capacity, and access to infrastructure play a significant role and should be addressed by policymakers in order to enhance EV penetration. Policies focused on security, insurance, and consumer preferences to boost EV adoption are emphasized here. The results of this study do not support the idea that environmental concerns majorly influence Indian consumers' decisions regarding EV adoption, which is a very different point compared to other studies.

Arseni (2023) investigated strategies to support the growth of EVs in Mumbai by changes in policies. The study identified several barriers, including the lack of environmental considerations in policy design, low car ownership preferences, and high upfront costs. Drawing on lessons from the United Kingdom and China, the study recommends including more environmentally concerned policies, informing consumers about the total cost of ownership of EVs, developing charging infrastructure, and implementing uniform charger standards. These strategies are crucial for creating a favorable environment for EV adoption in Mumbai.

### **EVALUATION AND CRITIQUE OF EXISTING RESEARCH**

The study on electric vehicle (EV) adoption in Mumbai provides a comprehensive overview of the economic, infrastructure, and policy issues. However, a number of gaps are visible. Firstly, deeper analyses of regional economic disparities and their implications for the cost-effectiveness of electric cars are needed. Furthermore, research could benefit from looking deeper into how public perception, misinformation, and regional mindsets impact EV adoption. Infrastructure research should consider the integration of charging networks and urban planning, as well as the potential impact of technological innovations. Additionally, a more in-depth examination of demographic-specific concerns and the practical challenges of implementing international strategies in the local context could provide more useful information. Addressing these gaps is critical for developing effective policies and strategies to increase EV adoption in Mumbai.



**RESEARCH METHODOLOGY****1. Sources of Data Collection -**

**Primary Data** - The primary data was collected through a standard questionnaire circulated among the target group for our study.

**Secondary Data** - The secondary data was collected through news articles, journals, official government websites, etc.

**2. Objectives**

**The objective of the study is to:**

- Evaluate the level of awareness among people in Mumbai regarding EV Cars.
- Analyze the influence of Government incentives on the decision-making process of purchasing an EV.
- Identify factors influencing the purchase of EV.
- Make appropriate suggestions to promote EVs among the mentioned demographic.

**3. Scope of Study**

To achieve the objectives of the paper, the research study was restricted to the city of Mumbai, covering people from different income groups and of age above 18 who are settled in Mumbai. The research is further restricted to only one segment of electric vehicles i.e cars. A total of 98 responses were received.

**4. Research Design**

Our research is Exploratory research and Applied research aiming to provide suggestions to the existing problem of low penetration of EV Cars.

**5. Statistical Technique:** The statistical technique used to prove the Hypothesis is Chi-Square Testing.

**6. Research Instrument:** A structured questionnaire was circulated among the target group through google forms. It included both open ended and close ended questions. Questions asked were in relation to the objective of the study.

**HYPOTHESIS TESTING**

**A) Evaluating the level of awareness among people of Mumbai regarding government incentives for EVs**

**H0:** There is awareness of EVs among people. **H1:** There is unawareness of EVs among people.

Table.1

	<b>expected</b>	<b>actual</b>
Aware	49	20
Unaware	49	78

- **Chi-Square Statistic:**

$$\chi^2 = \sum [(O-E)^2/E]$$

$$\chi^2 = [(20-49)^2/49] + [(78-49)^2/49] = 17.16 + 17.16 = 34.327$$

- **Degrees of Freedom (df):**

$$df = (r-1) \times (c-1) = (2-1) \times (2-1) = 1$$

- **Critical Value and Conclusion:**

The chi-square statistic is 34.327. The  $p$ -value is 4.659693e-9. The result is significant at  $p < 0.05$  hence we reject the null hypothesis. There is a significant level of unawareness regarding EVs among people.

**B) Determining the Association Between Awareness of Government Incentives and Perceived Impact**

**H0:** There is no significant association between awareness of government incentives and the perceived impact of those incentives on the adoption of EVs.

**H1:** There is a significant association between awareness of government incentives and the perceived impact of those incentives on the adoption of EVs.



Table.2

	High impact	Moderate impact	Low impact	Total
Aware	10	7	3	20
Unaware	16	41	21	78
Total	26	48	24	98

### • CALCULATIONS

$$E_{\text{Aware,High}}=20 \times 26/98=5.306 \quad E_{\text{Aware,Moderate}}=20 \times 48/98=9.796 \quad E_{\text{Aware,Low}}=20 \times 24/98=4.898$$

$$E_{\text{Unaware,High}}=78 \times 26/98=20.694 \quad E_{\text{Unaware,Moderate}}=78 \times 48/98=38.204 \quad E_{\text{Unaware,Low}}=78 \times 24/98=19.102$$

### • Chi-Square Statistic:

$$\chi^2 = \sum [(O-E)^2/E]$$

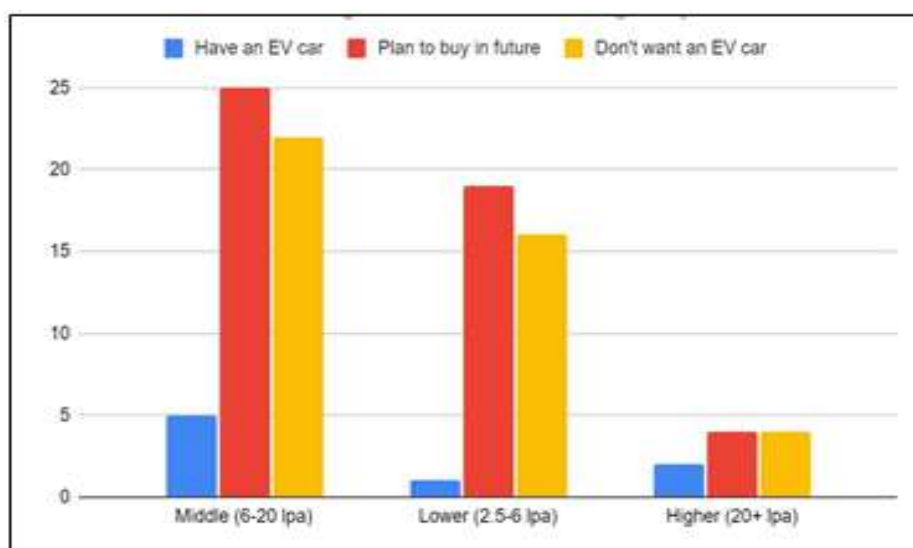
$$\chi^2 = 4.152 + 0.798 + 0.735 + 1.065 + 0.205 + 0.189 = 7.1436$$

### • Critical Value and Conclusion:

The chi-square statistic is 7.1436. The  $p$ -value is 0.028105. The result is significant at  $p < 0.05$  hence we reject the null hypothesis. There is a significant association between awareness of government incentives and the perceived impact of those incentives on the adoption of EVs.

### DATA ANALYSIS AND FINDINGS

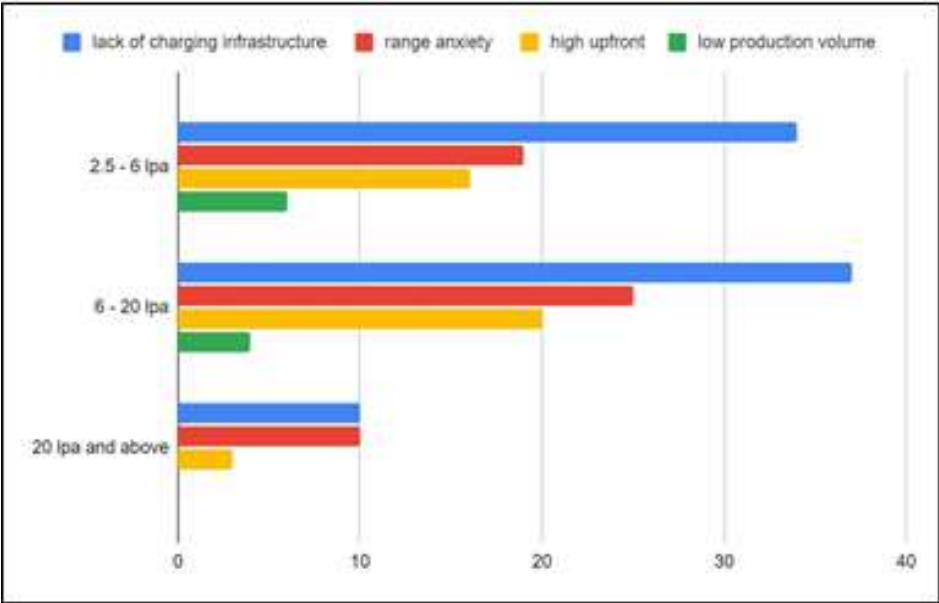
The sample size of our research paper is 98 respondents out of which 52 (53%) belong to the moderate income category (6 - 20 lpa), 36 (36.7%) belong to the lower income category (2.5 - 6 lpa) and 10 (10.2%) people belong to the higher income category (20 lpa and above).



**Figure 1.** What are the buying plans of people for an EV in different income groups?

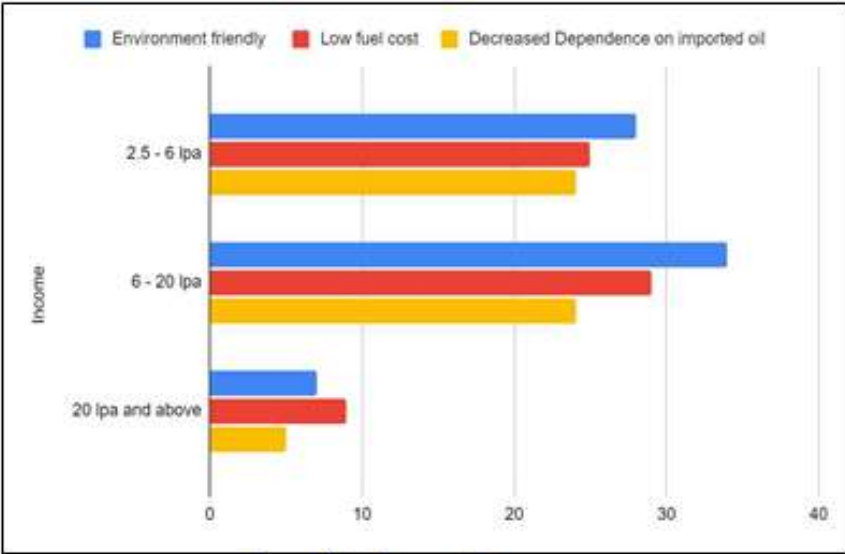
The above chart shows what people from different income groups plan regarding buying EV cars in future. Very few respondents were there who already have an EV car, 2.78% from the lower income group, 9.62% from the middle and 20% from the higher income group. Most people from each group say they plan to buy an EV car in the future, 48.08% middle income, 52.78% lower income and 40% higher income individuals. Though fewer than future buyers, there is a significant number of people who do not wish to buy an EV car, 42.31% from middle income, 44.44% from lower and 40% from higher income group.





**Figure 2.** What are the barriers that prevent people from buying an EV?

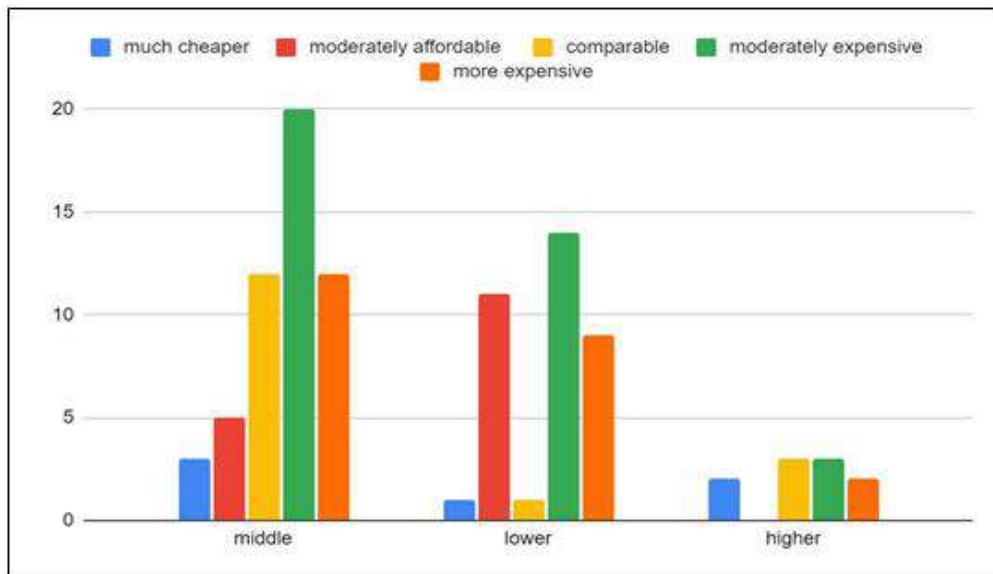
The above chart shows us that lack of charging infrastructure and range anxiety are major concerns among the people from all income groups. High upfront cost is also an issue for all the income groups except for the higher income group. Although they do consider it expensive, it doesn’t affect many of them. Low production volume is also a concern for lower and middle income groups but not for the higher income group.



**Figure 3.** How are EVs beneficial to society?

The above chart shows, the most common perceived benefit of EV cars from lower and middle income groups was them being environment friendly followed by low fuel cost and decreased dependence on imported oil respectively. But in the higher income group the most common answer was low fuel cost followed by environment friendly and decreased dependence on imported oil.





**Figure 4.** How expensive are EVs as compared to traditional cars?

From the above chart we found that among middle-income respondents, 61.54% find EVs moderately or more expensive, while 63.89% of lower-income and 50% of higher-income respondents agree. Only a small number of people in each group believe EVs are much cheaper or moderately affordable: 15.39% in the middle-income group, 33.34% in the lower-income group, and 20% in the higher-income group. Additionally, 23.08% of middle-income and 30% of higher-income respondents think EVs are comparable in cost to traditional cars.

#### DATA INTERPRETATION AND DISCUSSION OF RESULTS

As mentioned earlier, the penetration of EV cars is very low (less than 5%) in India. However, based on our findings (Figure 1), it is clearly visible that some people don't wish to purchase an EV but a significant amount of people wish to buy EV cars in the future showcasing a bright future for the Electric Vehicle Market in Mumbai especially among the moderate and lower income groups but there are multiple factors that affect their decision to purchase them. This interest in EV four wheelers among Mumbai's moderate and lower-income groups aligns with the current data of EV adoption in the city. According to the recent data, the majority of Maharashtra's EV cars come from Mumbai, i.e., 33% of the total, totaling up to 10,893 EVs. This number tells us that there is growth in the EV 4 wheeler acceptance rate. The secondary data findings also suggests that the EV registration has increased among the residents of Mumbai by 112% due to the government support to install charging infrastructure in housing societies at a subsidized rate.

The major drawbacks of EV cars that prevent people from buying them are shown in Figure 2. The chart highlights the deal breaking factors of EV cars in Mumbai such as lack of charging infrastructure, high upfront costs and range anxiety. For some people in the lower and middle income groups, lower production volume is also a concern. This is probably because lower production leads to a higher cost of the vehicle and low economies of scale which, as seen in the chart, does not seem to be an issue for the higher income groups. Thus, a higher production will help in bringing down the overall cost of EV cars, making it affordable and easily available for the lower and middle income groups.

There are many barriers to EV cars but one cannot overlook its benefits (Figure 3). The most commonly voted of all is them being environmentally friendly. Apart from that, other perceived benefits include low fuel cost and a decreased dependence on imported oil. According to the NITI Aayog's E-Amrit portal, the environmental benefits of EVs are an important factor in their advantage as they reduce greenhouse emissions and air pollution, helping in making our cities cleaner and healthier. The report also highlights the fact that the operational cost of EVs is relatively lower than traditional conventional cars despite their high upfront costs. This makes them cheaper in the longer run. The decreased dependence on imported oil will help the country protect itself from the price fluctuation of oil prices and encourage a self-reliant economy.

A higher percentage of respondents from all the three income groups said that EV cars are expensive as compared to the traditional cars. Lower and middle income groups are more cost sensitive and price plays a crucial role in their decision making to purchase an EV. However, the price does not really affect the higher income groups. Some of them consider it to be expensive but they are more willing to accept the high price than the other two income groups. An article from Bajaj Allianz supports these findings by providing a comparative analysis of the ownership costs of an EV car and a conventional car.



He compared the cost of Tata Nexon EV and Tata Nexon XM, a petrol car. The EV costs around Rs. 16.5 lakhs with an annual total cost of approximately Rs. 8,634 whereas the petrol car costs around Rs. 8.9 lakhs but has an annual cost of approximately Rs. 67,000. This adds to our research that EV cars are relatively cheaper in the long run than conventional cars.

Our first hypothesis talks about the level of unawareness among the people. This lack of awareness can hinder the decision making process of the people and prevent the potential buyers from considering EVs as a viable option. Thus, it is very important that more and more people learn about the various financial benefits they can get while purchasing an EV car.

Our second hypothesis talks about the association between awareness of government incentives and the perceived impact of those incentives on the adoption of EVs. This indicates that people who are aware about the various incentives provided by the government are more likely to perceive these benefits to be impactful during their decision making process. Hence, it is important to keep the audience well aware about the incentives that they can receive to improve the adoption rates of EV cars.

In our research, a significant portion of each income group found the government incentives to be moderately impactful. A small percentage of people found them to be highly impactful, suggesting that maybe incentives are beneficial but the current form might not be motivating enough to drive people to buy EV cars.

SECONDARY DATA FINDINGS

The secondary data findings also support that there are various factors that hinders growth among EV adoption despite many measures taken by the government. An article by the Economic Times highlighted that the majority of survey respondents wished to have better charging infrastructure (Singh, 2024). This issue was also put forward by some industry experts who argued that a better charging technology are crucial steps to improve EV car adoption (Chugh, 2024; Kholkar, 2024).

Financial incentives also play an important role to promote EV car adoption. The Maharashtra EV policy offers substantial subsidies of up to Rs. 1 lakh on a purchase of EV four wheelers, two wheelers and three wheelers (Kumar & Kumar, 2024). An additional tax break and a Rs. 50,000 crore fund has also been introduced by the Indian Government to promote manufacturing (Economic Times, 2024).



India imports most of its Lithium batteries from China and Japan and is the biggest importer of the world. This turns out to be a key barrier in decreasing the EV prices. India should invest in research and development for lithium extraction. It should encourage academic and industrial research to develop cost- effective and environmentally sustainable methods for lithium extraction from various sources, such as pegmatites, brines, and clay deposits (Icwa, n.d.).



Another challenge faced by the EV market is battery degradation and lack of standardized quality assessments. This affects both the consumer confidence and the EV market (Singh, 2024). Even a gap in consumer understanding of the various benefits and operational aspects of EVs is a major issue. Without a proper understanding and knowledge about EV cars, the people will hesitate to shift to EVs (Vadera, 2023). Hence, it is very important to bridge this gap through various awareness campaigns. All these findings indicate that a focused strategy needs to be formulated to encourage people as well as the manufacturers to adopt EV four wheelers. Figure.5

The graph above shows a positive trend for E-4W registration from May 2023 to May 2024. However, despite the positive trend, the growth has been very slow as compared to E-2W and E-3W. It shows that people have a higher acceptance rate towards E-2W and E-3W than E-4W. This again suggests that the government needs to formulate focused plans and strategies to increase the adoption of E-4W and match the momentum with E-2W and E-3W (Anuradha, 2024).

An article titled "Which is better for India - Hybrid or BEV?" published by Autocar Professional (2024) examines the benefits and challenges of hybrid vehicles (HVs) versus battery electric vehicles (BEVs) in India.

Hybrid vehicles combine an internal combustion engine (ICE) with an electric motor, offering the advantage of longer range by switching between the two power sources. This helps overcome the range anxiety problem faced by BEV owners. Additionally, hybrids don't rely on charging infrastructure as much, making them more practical in areas with limited charging stations.

On the other hand, BEVs are entirely electric, offering zero tailpipe emissions and a more environmentally friendly option. However, they are still constrained by the availability of charging stations and longer refueling times, which can deter potential buyers. Despite this, BEVs offer significantly lower operational costs compared to hybrids and conventional vehicles, due to cheaper electricity and fewer moving parts.

The article suggests that while BEVs align with global environmental goals, hybrids provide a practical middle ground, especially in regions where charging infrastructure is not yet fully developed. The upfront cost of BEVs is typically higher, while hybrids are more affordable but still require petrol or diesel, limiting their environmental benefits.

In conclusion, both BEVs and hybrids have their roles in India's transition to electric mobility. While BEVs are the long-term solution, hybrids can serve as a useful bridge, allowing consumers to gradually adopt electric mobility. The government's support in improving infrastructure and offering incentives for both vehicle types is crucial for accelerating adoption (Autocar Professional, n.d.).

## LIMITATIONS

There were some limitations that we faced while conducting our research. They are as follows:

1. **Sample size:** The study involves only a small sample size, i.e., 98 respondents which may not represent the diverse demographics of Mumbai.
2. **Geographical Limitation:** The study only focuses on factors that affect EVs in Mumbai which may not be applicable to other cities or countries.
3. **Questionnaire Constraint:** The structured questionnaire might not capture all the factors or variables that might affect their decision making.
4. **Respondent Biases:** Since the data was self reported, there are high chances that the respondent might have misunderstood the question or may have provided a biased answer.

## CONTRIBUTION AND SUGGESTIONS OF OUR STUDY

The paper studies consumer behavior towards EV car adoption, focusing on their awareness, monetary benefits, and high upfront costs. By identifying the barriers, we can figure out how people make their decision to buy an EV. We found out that due to unawareness about the government schemes, people were hesitant to buy an EV. This tells us that even though the government might come up with good incentives, awareness plays a major role. It also supports the existing research of how EVs can be a viable option in the long run. Our findings also emphasize on the importance of building robust policies and the role of financial incentives on the adoption behavior of the people. Based on this, there are multiple suggestions that can help shift the focus on EV car adoption. They are:



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## SUGGESTIONS TO THE GOVERNMENT

- **Increase Charging Infrastructure:** Invest in expanding the EV charging network to reduce range anxiety among consumers.
- **Awareness Campaigns:** Launch targeted campaigns to educate the public about government incentives and subsidies for EV purchases.
- **Simplify Policies for Global Manufacturers:** Streamline policies and reduce complex regulations to encourage foreign EV manufacturers to establish production facilities in India.
- **Financial Incentives and Policy Support:** Develop robust policies that provide consistent and attractive financial incentives to consumers and manufacturers.

## SUGGESTIONS TO DOMESTIC MANUFACTURERS

- **Scale Up Production:** Increase production volume to meet growing demand and reduce manufacturing costs through economies of scale.
- **Cost-Benefit Analysis Tools:** Provide consumers with detailed cost-benefit analysis tools to demonstrate long-term savings and benefits of EVs.
- **Investment in R&D:** Focus on research and development to improve battery technology, enhance charging speeds, and lower production costs.

## SUGGESTIONS TO GLOBAL MANUFACTURERS

- **Engage with Policy Makers:** Work collaboratively with the government to understand and adapt to the Indian market by providing input on policy simplification.
- **Local Partnerships:** Form partnerships with local suppliers and manufacturers to reduce costs and comply with local market requirements.

## SUGGESTIONS TO RESEARCH INSTITUTIONS AND TECH STARTUPS

- **Innovation in Battery Technology:** Prioritize innovations in battery technology, improving energy efficiency, lifespan, and reducing charging time.
- **Smart Charging Solutions:** Develop smart charging infrastructure and grid management solutions to support the growing EV ecosystem.

## CONCLUSION

While EVs offer significant environmental and economic benefits, it is important to address barriers such as limited charging infrastructure, range anxiety, high upfront costs, and lack of awareness to boost adoption in India. The government must enhance public outreach strategies, ensuring people are informed about the financial incentives and long-term savings associated with EVs. Additionally, consumer confidence can be boosted through increased investments in R&D to advance battery technology and charging solutions, reducing costs. Strong collaborations between the government, private sector, and global manufacturers can also enhance production and infrastructure. By creating a favorable ecosystem, India can position itself as a global leader in sustainable transportation. This shift towards sustainable transportation will lead to a future of sustainable India.

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**PRESERVING ANCIENT INDIAN TRADITION OF EDUCATION THROUGH MORAL VALUE  
TEACHING IN REFERENCE TO NATIONAL EDUCATION POLICY 2020**

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**INTRODUCTION**

Education on the moral values as a core methodology facilitates for the comprehensive personality development of an individual besides the cognitive skills to see the individual through to be an ethical person. With the conviction that education should help in the amelioration of the society, the process, which must contain the values such as truthfulness, integrity, compassion, and respect, has been retained.

The very foundations of education through moral values getting into the essence of human relation are based on the fact that just knowing something just isn't enough, it is what you actually do with it that matters. Through uniting moral values in diverse coherence and interiority of the curriculum which include classroom discussions, extracurricular activities, and experiential learning, educators are likely to heighten a culture of empathy, accountability, and a broader awareness of society.

In addition to the fact that education morally may encourage people to think critically and reflect, it gives us chance to be reflecting our actions and think of the consequent of our choices. Employing ethical cases and moral dilemmas, students devise more nuanced perspectives and acquire the aptness to negotiate moral obscurity by abiding the principle of integrity and empathy.

First, beyond the school classroom through values-themed education, the emphasis is put on community involvement and service learning. Students not only apply their moral values in real-world contexts but also establish their will to be involved in governmental affairs and learn to empathize with others when actively joining in initiatives that are aimed at fighting social injustices and amplifying positive change.

Hence, education of moral values has the capacity to provide information, skills, and ethics frame for people to make their life in this competitive and complicated modern world in accordance with morality, kindness and wellness of other people and the whole of the society. It acts as the philosophical compass in helping to raise individuals who avail to serve their society in the most conducive ways possible and are not driven by selfish ambitions but rather seek to preserve the most basic principles of what is good and just for everyone.

**MORAL EDUCATION IN ANCIENT INDIAN SYSTEM**

In the ancient times of India, moral education was a vital portion of the learning processes and closely connected to its profound philosophical and spiritual ties. By the name of 'Dharma', the moral training in ancient India implied unity between righteousness, duty, and ethical conduct, and ethical life-style. It served the growth of noble people who were in happy cooperation with other citizens and spiritually developed.

This advanced educational system of olden days in India was transmitted through the Gurukula system in which the students would live with their mentor, Guru, in an austerity colony known as hermitage or ashram. Except the matter of physical subjects, the moral education took the centre stage in this course. That's what he used to teach as the sacred lessons that were contained in the Vedas, the Upanishads, Ramayana and Mahabharata epics.

Ahimsa (non-violence), satya (truthfulness), dharma (righteousness), and karma (action and consequences) are some of the key concepts that acted as the solid pillars behind moral education in ancient India. Students were taught to manifest these virtues in their personal lives, this is an essential way to develop their character and mature to be responsible members of society.

Furthermore, the moral education that ancient India values so highly is highly centered on self-discipline, self-introspection, and self-realization. The students learned to develop the essential qualities including humility, compassion, and selflessness while understanding that all creatures are interconnected and the hidden obligation to serve one another arises from this.

The communication of moral principles was not limited only to formal teachings but was also present in narratives, rituals, and the behavior of chief religious leaders and noble ones. Through Equations Memoirs of moral figures and influential right from wrong values, children acquired timeless wisdom and hengology and non-community discrimination.



Eventually, moral education of ancient India unequivocally acted as a beacon, not only promoting educationally wise but also being a carrier of the highest ideals in humanity, thus leading to the betterment of society and the growth of individuals spiritually.

### **NEP AND MORAL VALUE EDUCATION**

National Education Policy (NEP) of India, which was launched in 2020, has given much significance to the general development of the learners and it is hereby through it that moral value education has been incorporated in to the educational curriculum. Highlighting the fact that students should not only learn values but be taught ethics too, NEP focuses primarily on the values of compassion, integrity, and social responsibility for the students right from the beginning.

One the Nevizniy vashiegokh sposob is the Igor of NEP - the transformation of learning from memorization-based to the mastering of content. In solving this, the policy includes the teaching of moral education in all levels of the school, from primary to tertiary schools. It is achieved through subject-integrated ethics education, that is, inclusion of ethical principles and value-laden activities into various disciplines, which cultivate a conscious-values-based attitude and ethical discernment among scholars.

As well, the NEP lays retail on the teacher's responsibilities as the facilitator of moral value education and expects him or her to be a morally upright role model or an advisor himself who values what he teaches. Teacher training programs are conducted to render teacher's proficiencies which they will need in order to integrate moral value education into their instructional methodologies successfully.

NEP will have besides the classwork also the experiential learning opportunities where students can put the moral values practically in common sense frames. Examples can range from volunteering in a local community organization, dealing with ethical challenges, and joint efforts to build understanding, teamwork and responsible behavior.

India is striving for education in moral values through the lens of NEP so that it can grow a generation of the people who not only have a good academic performance but also display outside to their immediate environment • integrity, compassion and ethical conduct. This balanced approach to education is as crucial as others, if we want to have a just community with compassion and social harmony.

### **MORAL VALUES IN EDUCATIONAL CURRICULUM**

Introducing moral values in the school curriculum should be one of the primary focusses as this is the way of developing people who are not just academically competent but also demonstrate moral behavior and high social responsibility. Through the infusion of moral standards into the curriculum, teachers will no longer wonder how to develop character, empathy and civic responsibility in a pedagogically secure atmosphere.

Including moral values in the curriculum entails imparting moral principles and morality into all kinds of subjects and learning activities. Another example could be that literature is a place where one can go to discover about themes like justice, kindness, and moral dilemmas. However, history underscores the consequences of ethical vs. unethical activities by showing both the positives as well as negatives we face in life. Also, science education can place a huge priority on the relevance of reliability and faithfulness in research and experimentation.

In addition, moral instruction can be done more precisely through dedicated courses or modules, which can cover topics, for example character education, ethics or citizenship. Discussion about values, thinking morally, and decision-making process is covered in these courses to prepare their students for making hard moral choices.

Teaming-up projects with the community, peer leadership courses, and group problem-solving challenges are effective real-world scenarios where students can implement their morals. These encounters teach the students to value empathy, cohesion, and social justice, what will help to form them as empathetic and responsible members of the community.

Additionally, good character teacher training courses contribute in imparting knowledge and skills necessary for responsible and successful implementation of moral values during teaching. As role models and mentors, teachers not only teach the minds but also bring out the value of ethics and higher principle in interacting with students. Also, properly incorporated moral values in the school curriculum will create the base on which young people will be able to build their characters and make good decisions, influencing their lives to positivity and eventually the world in general.



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**IMPACT OF MORAL EDUCATION ON STUDENT DEVELOPMENT**

The moral education is, in fact, one of the most important shaping factors in the multifaceted development of the students, having a multi-dimensional impact on the cognitive, emotional, and social growth of each human being. Moral education achieves this through the inculcation of moral principles and values, which furnishes these young ones with the requisite instruments and attitudes that they require for effective navigation of daily life challenges with honesty, empathy, and responsibility.

Although there are a lot of aspects in which moral education influences individuals, the development of morality and virtuousness is probably the most important of all. They learn about the right and wrong of the society and the society itself through explicit instruction such as the experiential activities in the society and examples of the teachers and mentors that are honest, fair, respect, and compassionate. It is not only the moral guide of cloak behavior but reflect on who they are and their value system.

In other words, the moral education of the person helps the development of social and emotional skills - empathy, perspective taking, proper bordering on and interpersonal skills. Students gain an ability to comprehend and respect all viewpoints within a group. This attitude is a strong foundation for them to show their empathy and acceptance. A better emotional perception that comes with age gives students the capabilities to build stronger relationships, resolve conflicts peacefully, and communicate more effectively in teamwork.

On the one hand, moral education improves students' judgement of making right and wrong suggesting also their ethical thinking. It is by experiencing dilemmas, quandaries and demanding decisions that students take a step back and analyze their options, and then pick out the ones that are in perfect harmony with their values and beliefs. By cultivating this competency for ethical reasoning, students are prepared to confront the often-complex moral terrain with confidence and to act and lead as ethically conscious citizens of their communities.

Cumulatively, it is observed that the effects of moral instruction on student development exceed the wall of a classroom to change their attitudes, behaviors, and convictions even after their learning years. Through moral education, we can foster ethical awareness and character development in students. This enables them to grow into mature and noble individuals who are willing and able to work for the well-being of both the global and local societies. In addition, they can uphold the fundamental standards of human existence including dignity, justice, and humanity.

**TEACHERS ROLES AND CHALLENGES**

Teachers have been a primary factor that is considered to be particularly important when it comes to the teaching of ethics and the imbibing of basic moral values among students by serving as role models, mentors, and facilitators of character development. This influence goes much beyond academics influencing students' attitude, behaviors, and their overall ethical decision making. Nevertheless, educators face certain hurdles in morally teaching student which should be overcome efficiently.

Values are generally learned by example, and teachers serve as positive role models for their students. Through manifesting the rightfulness, humanness and moral behavior, teachers provide a good example of moralness for students to imitate such values in their lives.

Teachers are the ones who would have to weave ethics and morals into the subject matter and teaching techniques compatibly. This refers to the selection of teaching resources, as well as the implementation of engaging activities that support ethical awareness and critical thinking. Nevertheless, teaching academics together with moral education requires stamina, particularly when the standardized tests come into the picture and the measurable results are of greater sensitivity than the holistic development.

In addition to this, instructors may face the task of combining different cultural and religious backgrounds of students and at the same time respecting their individual beliefs but emphasizing common principles of morality and ethics. It involves caring, cultural sensitivity, and creating an enchanting and inclusive classroom environment where all learners are seen as valuable and important. Instructors might go up against student, parental, or administrator resistance or refusals to embrace the moral development more than the academic performance. Solving these problems is done through responsible leadership, good communication skills along with a passion advocating for moral upbringing to produce balanced citizens and mature leaders.

However, teachers occupy a significant position in molding the students' characters to prepare them for the problems of life; and in doing so they inspire them to lead with virtues, empathy, and a social conscience. In addition to their moral education role, teachers become active members of the community, cultivating a society based on morality and compassion one student after the other.



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**INSTITUTIONAL SUPPORT AND POLICY IMPLICATION**

Institutional support and policy implications are very important in fostering education based on moral values because they create the environment and provide the instruments to embed ethical values in curricula in a proper way. Ethical sensibility can further be instilled among students through the top-down approach of governments and learning institutions who should then give moral education a due consideration.

The contribution of institution in education through moral values is highlighted in the provision of resources including financing, personnel, and infrastructure to facilitate the rolling out of moral education programs. That is, staff training, curriculum modelling, and provision of extra curriculum activities that focus on ethical leadership and civic engagement activities might be implemented.

Furthermore, institutional leadership should occupy the frontline in advancing moral education as a crucial part of the school curriculum. School principals and legislators need to bring down a standard for moral teaching, address policies and procedures of its implementation, and offer long-term oversight and support for both educators and learners.

Collaboration among stakeholders like the government agencies, the educational institutions, community groups, and civil society groups is extremely crucial for developing a holistic and unified way of imparting moral education. Through joint action, participants can share their good experiences, pool their resources and synchronize their efforts to handle shared challenges and foster ethical ideals in different situational environments.

In addition to that, the role of policy making in education through moral values is not limited to the schools; rather, it is focused on the social issues of achieving social justice, human rights, and environmental sustainability as well. Politicians have to pass laws and formulate policies that cherish ethics in all parts of the state, for example, education, media, business governance.

In essence, institutional support and policy recommendations are instrumental factors responsible for effective education through moral values, by creating the right condition, leadership and teamwork to build ethical awareness and character traits among students. Through focusing on the moral education from every level of society, policymakers and institutions can jointly call for the growth of a more just and compassionate world.

**CONCLUSION**

In short, education through ethical values is an integral aspect of the educational context, influencing student development, social cohesion and ethical citizenship. Through the integration of ethical values into the curriculum, educators play a central role in shaping students' character, values, and moral reasoning skills. By embodying the virtues, they seek to impart and creating a supportive learning environment, teachers serve as strong role models and facilitators of moral development.

However, education based on ethical values faces various challenges, including finding a balance between academic content and ethical teaching, accommodating diversity in students' cultural and religious backgrounds, as well as overcoming resistance from stakeholders who prioritize academic achievement over well-rounded development. Addressing these challenges requires institutional support, policy implications, and collaboration among stakeholders to allocate resources, provide leadership, and advocate for the importance of education. moral education. Institutional support for education through ethical values includes investments in teacher training, curriculum development, and extracurricular activities that promote ethical awareness and character development. Additionally, policymakers must adopt laws and policies that prioritize ethics education and support the integration of ethics education into the broader education system and social framework.

Ultimately, values-based education promises to produce individuals who not only excel academically but also demonstrate integrity, compassion, and commitment to ethical behavior. By helping students navigate the complexities of life with empathy, responsibility, and a sense of social justice, ethics education contributes to creating a more just, compassionate, and ethical society where individuals strive to respect the universal principles of humanity and human dignity.

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**RETHINKING EMPLOYMENT: A STUDY ON THE GIG ECONOMY'S IMPACT ON 21<sup>ST</sup> CENTURY WORK PARADIGMS**

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**ABSTRACT**

*The gig economy marks a paradigm shift in employment, typified by short-term contracts and freelance work. This research delves into intrinsic motivations for choosing entrepreneurship or freelancing over conventional 9-to-5 jobs, emphasizing desires for autonomy, creativity, work-life balance, and personal passion. It identifies key skills for income generation outside traditional employment, noting a surge in demand for digital, technical, and creative proficiencies.*

*The societal repercussions of this transition are significant, influencing job markets, economic stability, and social welfare. This study scrutinizes these impacts, recognizing both opportunities and challenges within the gig economy. It also explores technology's pivotal role in enabling independent skill monetization, highlighting how digital platforms and tools empower gig workers.*

*The paper emphasizes employment trends and skill utilization, considering technological and societal evolutions. Demographic preferences and motivations for self-employment versus conventional employment are compared, offering insights into varied perceptions across different age groups, genders, and socio-economic backgrounds.*

*The research findings highlight that the gig economy, driven by technological advancement, offers flexibility and diverse opportunities in independent work, yet presents challenges like job security and access to benefits. Younger workers favor autonomy, while older individuals prioritize stability, underscoring the need to balance innovation with financial security in this evolving employment landscape.*

**Keywords:** Gig Economy, Freelancing, Independent Work, Skill Monetization, Technology, Employment Trends

**INTRODUCTION**

The gig economy, derived from the term "gig" originally referring to temporary musical engagements, has evolved into a significant force reshaping the global labor market. This shift away from traditional employment to project-based work is driven by technological advancements and changing worker attitudes favouring autonomy over the rigidity of conventional jobs.

At its core, the gig economy represents a departure from long-term employment in favour of freelance or contract work. Motivations include the promise of autonomy—setting one's own hours and choosing projects aligned with personal passions. The flexibility to manage work schedules and personal commitments is especially attractive in a world prioritizing work-life balance. However, gig work also presents challenges such as irregular pay checks and the absence of benefits like healthcare and retirement plans, raising concerns about its long-term viability.

Technological advancements, like platforms such as Uber and Upwork, have made it easier for workers to find clients but have also led to lower wages and job insecurity due to price competition. While technology democratizes access to work, it has concentrated power in the hands of a few platform owners, raising questions about fairness in the gig economy.

In India, the gig economy is rapidly growing, driven by the country's young, tech-savvy population. Gig work provides opportunities in urban areas, offering a lifeline to those facing limited traditional employment opportunities. However, challenges like regulatory uncertainty and lack of social protections persist, and discussions on labor laws and social safety nets are ongoing.

The gig economy offers opportunities but can also exacerbate economic inequality and exploitation. It requires a revaluation of labor laws and social protections to ensure fairness. Despite its challenges, the gig economy continues to grow, driven by a workforce valuing flexibility and autonomy over stability.



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**OBJECTIVES OF THE STUDY**

1. Identify preferred skills for income generation outside typical employment.
2. Analyse societal impacts of the shift to independent work on job markets, economy, and social welfare.
3. Explore technology's role in skill monetization.
4. Forecast employment trends and skill utilization.
5. Compare demographic preferences for self-employment vs. conventional work.
6. Evaluate economic factors driving independent work.

**HYPOTHESIS****Null Hypothesis ( $H_0$ )**

The employment structure in India is not significantly shifting towards the gig economy and remains predominantly traditional.

**Alternative Hypothesis ( $H_1$ )**

The employment structure in India is significantly shifting towards the gig economy, indicating a departure from traditional employment models.

**LITERATURE REVIEW**

**Möller (2021)** emphasizes the impact of automation and digitalization, displacing traditional jobs while creating demand for new, tech-savvy roles. However, **Bell and Blanchflower (2019)** highlight a mismatch between skills and job opportunities, leading to persistent unemployment even during economic growth. Their research underscores the need for targeted policies, such as reskilling programs and educational reforms, to bridge this gap and reduce long-term unemployment.

**Friedman (2014)**, in his work, observes a significant shift in the U.S. labor market. More workers are transitioning from traditional, long-term employment to gig work, typically as independent contractors or consultants. While the gig economy fosters entrepreneurial workforce, Friedman argues that businesses aim to reduce wages, benefits, and legal liabilities. He emphasizes that this shift places greater economic risk on workers, who are often excluded from social insurance programs, underscoring the need for updated social policies.

**Bhandari and Yadav (2021)** examine the impact of COVID-19 on employment in India, highlighting severe disruptions caused by the pandemic. Their study found widespread job losses, especially in the informal sector, affecting migrant workers. They argue that the pandemic exposed structural weaknesses in India's labor market, calling for robust social security measures and policies to protect vulnerable populations.

**Kannan and Raveendran (2009)** note that while economic liberalization has spurred growth in the formal sector, the informal sector still dominates, employing most of the workforce. **Papola (2012)** highlights those structural changes, such as increased service sector employment, have not translated into better employment conditions for the majority.

**Katz & Krueger (2019)** argue that the gig economy has revolutionized the modern economic landscape by shifting from permanent employment to task-based allocation, maximizing efficiency and quality. **Collins & Halverson (2018)** note that the transition to a gig-based educational model raises logistical concerns, including matching students with expert teachers and ensuring equity in education. **Williamson (2017)** stresses the need for careful planning and policy support to ensure access to high-quality education for all students.

**RESEARCH GAP**

The identified research gap lies in the limited studies focused on the gig economy within India, particularly concerning its recent acknowledgment and evolving nature. There is a notable scarcity of research exploring future trends from the perspectives of students, early-career professionals, and mid-to-senior-level professionals, each representing different stages of the workforce.

**RESEARCH METHODOLOGY****SCOPE OF THE STUDY**

This research examines the gig economy, focusing on intrinsic motivations, preferred skills, societal impacts, technological roles, and economic factors driving independent work. It analyses demographic preferences and forecasts employment trends.



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**The study targets three groups:**

1. **The Future Working Population:** Students and recent graduates, representing the emerging workforce.
2. **The New Working Population:** Early-career professionals considering gig work as an alternative.
3. **The Well-Established Working Population:** Mid-career and senior professionals who may have experience in both traditional and gig work.

**TYPE OF STUDY**

The research is **descriptive and exploratory**, providing a detailed account of the perspectives and experiences of gig and non-gig workers in Mumbai and Navi Mumbai.

**DATA COLLECTION METHODS**

The data is **primary**, collected directly from individuals in Mumbai and Navi Mumbai. It employs both quantitative and qualitative methods:

- **Quantitative:** A structured questionnaire with closed-ended questions was distributed to gather data on workers' motivations and preferences.
- **Qualitative:** Focused interviews with 4 individuals provided deeper insights into personal experiences.

**STEP-BY-STEP PROCESS**

1. **Questionnaire Design and Distribution:** The questionnaire, featuring closed-ended questions, was distributed via Google Forms.
2. **Sampling and Survey:** A sample of 71 individuals was surveyed using structured questionnaires, and 4 focused interviews were conducted for qualitative insights.

**TOOLS AND MATERIALS USED**

- **Questionnaire:** Structured with closed-ended questions for consistency.
- **Focused Interviews:** Conducted to supplement quantitative data.
- **Sampling Methods:** A combination of **convenience sampling** (for accessibility) and **purposive sampling** (targeting gig and non-gig workers) was used.

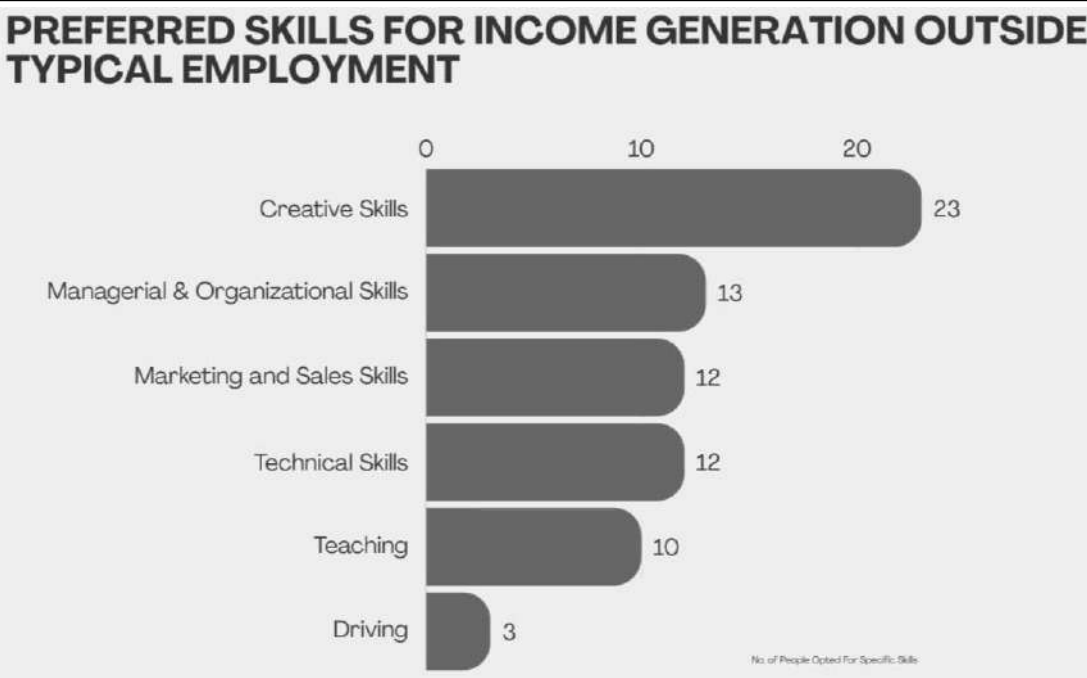
**LIMITATIONS OF THE STUDY**

1. The focus on Mumbai and Navi Mumbai limits the generalizability of findings to other regions.
2. A small sample size (71 respondents and 4 interviews) may not capture full diversity.
3. The study overlooks other stakeholders like policymakers or employers.
4. Data accuracy may be influenced by subjective interpretations.

**ANALYSIS AND FINDINGS****PREFERRED SKILLS FOR INCOME GENERATION OUTSIDE TYPICAL EMPLOYMENT**

1. **Technical Skills:** These are frequently mentioned, particularly by individuals with higher education and technical backgrounds, especially those aged 25-34 with a Master's Degree or higher. These skills are common among full-time employees and self-employed individuals. High demand is seen in roles IT related roles, underscoring the value of technical expertise in the gig economy.
2. **Creative Skills:** Often cited by self-employed or gig workers in creative fields such as design, content creation, and multimedia. Creative skills are especially significant for women aged 35-44 with advanced degrees. Skills like graphic design, writing, and video production are in high demand for their flexibility and ability to work on diverse projects.
3. **Managerial and Organizational Skills:** Highlighted by individuals aged 45-54 with advanced business degrees. These skills are important for roles in project management, business consulting, and organizational development, where experience in managing teams or operations adds value.
4. **Marketing and Sales Skills:** Noted by those with marketing or sales experience, particularly in business development. Individuals aged 45-54 with backgrounds in marketing are key contributors in areas like digital marketing, sales consulting, and brand management, where these skills play a critical role in business growth.



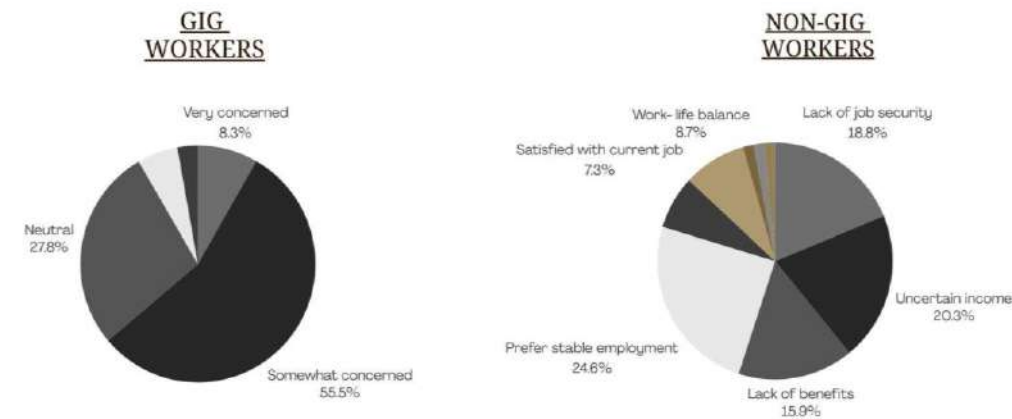


**SOCIETAL IMPACTS OF A SHIFT TOWARDS INDEPENDENT WORK**

- 1. Job Security Concerns:** Across all age groups, there is significant concern about the lack of job security in gig work. This concern is particularly emphasized by older respondents and those who have never worked as gig workers.
- 2. Access to Benefits:** Many respondents believe that self-employed individuals and gig workers lack adequate access to essential benefits, such as healthcare and retirement plans. This concern is prominent across all demographics, especially among those who have engaged in or considered gig work.

**SOCIETAL IMPACTS OF A SHIFT TOWARDS INDEPENDENT WORK**

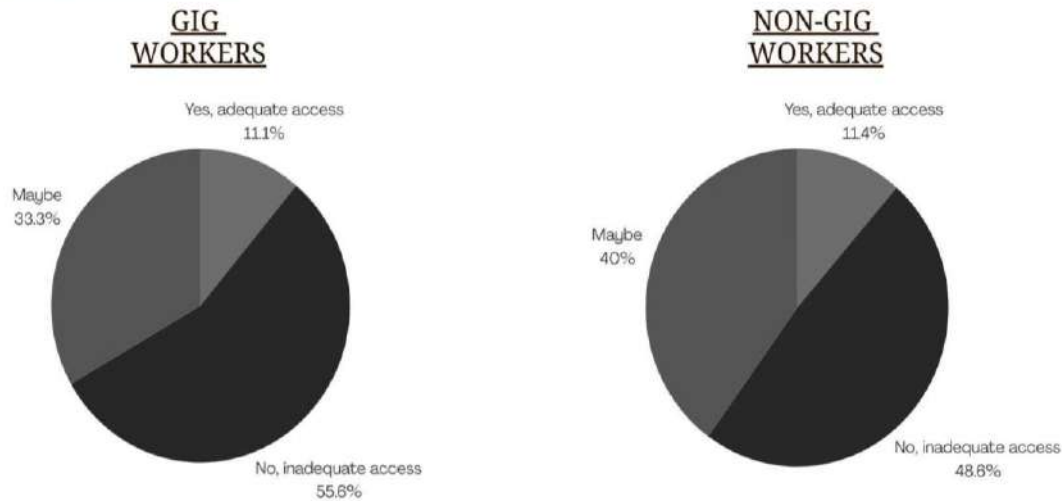
Job Security Concerns





## SOCIETAL IMPACTS OF A SHIFT TOWARDS INDEPENDENT WORK

### Access to Benefits

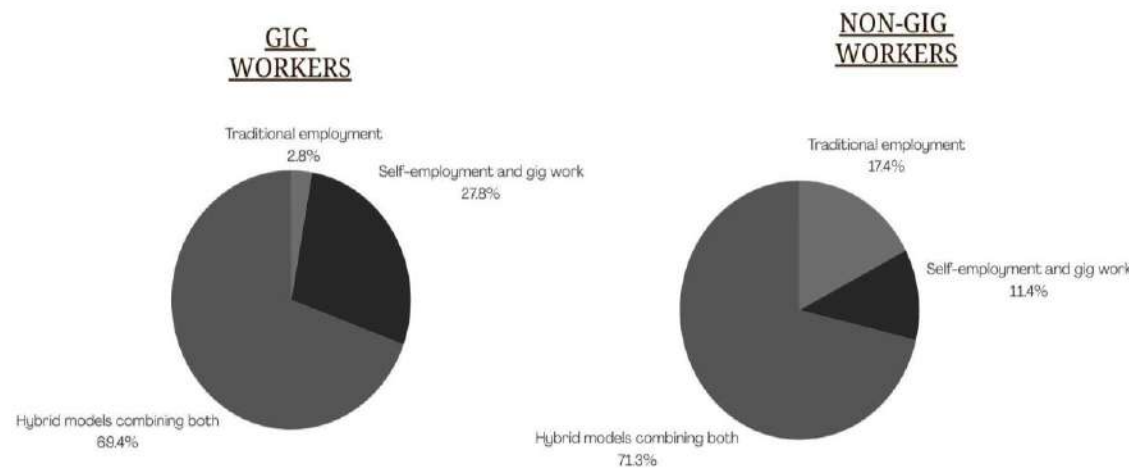


## TECHNOLOGY'S ROLE IN ENABLING INDEPENDENT SKILL MONETIZATION

- Impact of Technology:** Technological advancements are widely viewed as beneficial to the gig economy, enabling remote work, expanding market reach, and facilitating efficient skill monetization. This positive perspective is consistent across various age groups and educational backgrounds.
- Importance of Economic Factors:** Financial security is a critical factor in deciding to pursue independent work, with many respondents prioritizing opportunities where there is significant demand for their skills.

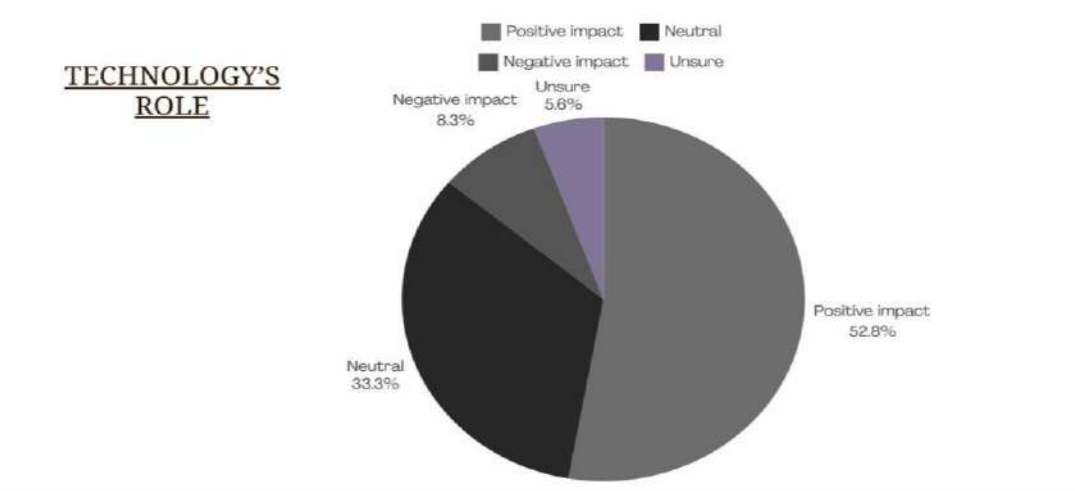
## FORECASTED EMPLOYMENT TRENDS AND SKILL UTILISATION

### Predominant Work Form





TECHNOLOGY'S ROLE IN ENABLING INDEPENDENT SKILL MONETIZATION

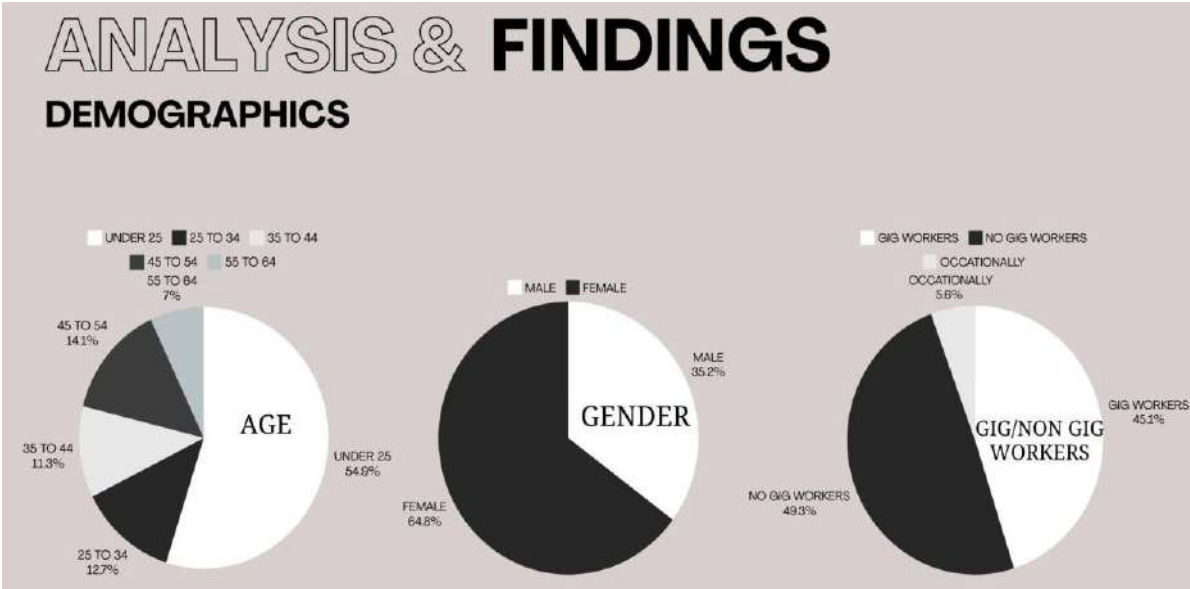


FORECASTED EMPLOYMENT TRENDS AND SKILL UTILIZATION

- Predominant Work Form:** The future of work is expected to be dominated by a hybrid model combining traditional employment with gig work, balancing stability and flexibility.
- Technology Impact:** Technological advancements will improve access to gig work opportunities and enhance efficiency, increasing its attractiveness.

DEMOGRAPHIC PREFERENCES AND MOTIVATIONS FOR SELF-EMPLOYMENT VERSUS CONVENTIONAL EMPLOYMENT

- Younger Respondents (25-34):** This group values autonomy, skill utilization, and higher income, prioritizing flexibility and personal fulfilment over job security and benefits. They are more willing to embrace the risks of gig work for independence.
- Older Respondents (45-54):** They prioritize job security, benefits, and stability, favouring traditional employment due to concerns over the risks, uncertain income, and lack of benefits in gig work.



ECONOMIC FACTORS DRIVING INDEPENDENT SKILL MONETIZATION OVER CONVENTIONAL EMPLOYMENT

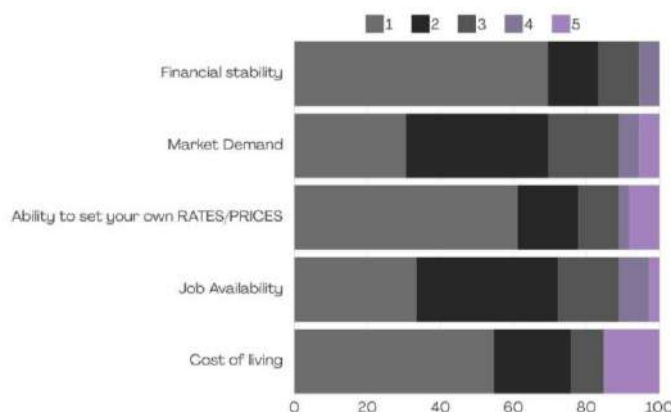
- Financial Stability and Market Demand:** Financial stability and market demand are crucial for independent work. The ability to secure income and find demand for skills drives individuals across demographics, emphasizing financial security and market viability.



2. **Cost of Living and Ability to Set Rates:** The ability to set rates and manage living costs is vital for financial viability. Flexibility in pricing helps individuals maintain control over earnings and stability while working independently.

## ECONOMIC FACTORS DRIVING INDEPENDENT SKILL MONETIZATION OVER CONVENTIONAL EMPLOYMENT

### Financial Stability and Market Demand



## CONCLUSION

The shift towards independent work is reshaping the employment landscape, with technical, creative, managerial, and marketing skills in high demand. While technical expertise drives software development and data analysis, creative skills fuel content creation and design. Managerial skills are crucial for project oversight, while marketing acumen propels brand visibility.

However, the transition to gig work presents challenges. Job security remains a concern, particularly for those unfamiliar with the gig economy. The unpredictability of income and lack of long-term employment guarantees make self-employment less appealing. Additionally, the absence of benefits like healthcare and retirement plans is a major issue for many gig workers.

Technology plays a key role in this shift, enabling remote work and skill monetization. While it opens new opportunities, it also amplifies the financial uncertainties associated with independent work.

Demographically, younger individuals (25-34) are attracted to gig work for its autonomy and potential higher income, while those aged 45-54 tend to favour traditional employment for stability. This generational divide highlights the coexistence of flexible work desires and the need for security.

In conclusion, while the gig economy offers exciting opportunities, balancing flexibility with financial stability and ensuring adequate support systems will be key to its success.

## RECOMMENDATION

Based on the analysis of skills, societal impacts, technology's role, and economic factors driving the gig economy, several strategic recommendations emerge to guide individuals and policymakers in navigating the evolving employment landscape.

### Enhancing Skill Development Programs:

Given the high demand for technical, creative, managerial, and marketing skills, specialized skill development programs are essential. Governments, educational institutions, and private organizations should collaborate to offer training in high-demand areas like IT, digital marketing, and project management. These programs should be flexible, offering online courses and modular learning to accommodate different demographics and work commitments.

### Expanding Access to Benefits for Gig Workers:

The lack of benefits like healthcare and retirement plans is a significant concern for gig workers. Policymakers should consider introducing regulations that incentivize or mandate benefits for independent workers.

One solution could be portable benefits schemes, allowing workers to carry their benefits across jobs. Encouraging gig platforms and employers to offer benefits packages could improve job security and attract more workers.



**Leveraging Technology for Greater Opportunities:**

Technology plays a crucial role in enabling skill monetization and expanding market reach. Continued investment in digital infrastructure, such as improving internet access in underserved areas and enhancing cybersecurity, is vital. Governments and tech companies should also collaborate to reduce the digital divide and create new opportunities in AI and automation for independent workers.

**Promoting Financial Literacy and Stability:**

Financial literacy is essential for gig workers. Educational programs on budgeting, tax planning, and investment strategies can help them manage finances effectively. Additionally, creating financial products tailored to gig workers, like flexible loans and affordable insurance, can provide a safety net and promote financial stability.

**Encouraging Hybrid Work Models:**

Organizations should explore hybrid work models that combine traditional employment with freelance work. Offering employees the option to take on gig projects alongside their regular jobs or creating hybrid roles can attract a more diverse talent pool.

**Policy Support for a Balanced Gig Economy:**

Policymakers must ensure that the rise of the gig economy doesn't undermine traditional labor markets. Regulations that protect gig workers' rights while encouraging entrepreneurship will create a balanced ecosystem where both traditional and independent work can thrive.

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**NAVIGATING THE DIGITAL AGE: A STUDY ON TECHNOLOGY'S ROLE IN REDEFINING THE INDIAN CAPITAL MARKET**

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**ABSTRACT***Ease of technology making tremendous changes in Finance. Fintech creating boom in Indian Stock Market.**The top players such as Zerodha, Upstox, Groww, Paytm Money, AngelOne and ETMoney has achieved immense popularity among the retail investors by providing a seamless trading experience with advanced tools and features, simplicity and making its appeal to educate investors. Investors are easily access stock trading services, market research which help them to manage portfolios due to its user friendly apps.**The Researcher interested to study in detail the growth and success of these fintech companies to transform the traditional services of buying and selling of stock to a smartphone penetration and its impact on young generation as an investors.***Keywords:** *Indian Stock Market, Technology Revolution***OBJECTIVE**

To study the online stock trading platforms in India and its key features

To understand the effect of online trading Apps and its contribution to educate investors

To know investment behavior and preference of the 20-40 Age group in India

To study challenges faced by young investors in a tech-driven market.

**HYPOTHESIS****Ho:** *The rise of online trading apps has not positive impact towards educating young investors about stock market concepts and investment strategies.***H1:** *The rise of online trading apps has positive impact towards educating young investors about stock market concepts and investment strategies.***Ho:** *Young investors do not face significant challenges in a digital powered stock market***H1:** *Young investors face significant challenges in a digital powered stock market***INTRODUCTION**

Financial technology i.e. Fintech companies bringing a remarkable transformation in the Indian stock market. Stock market plays very important role in providing capital to the companies and the investors enjoys fractional ownership and dividend income by investing in the stock market. The history of stock market tell us that the evolution of stock market began as East India company issued shares and bonds to raise the funds in the late 18<sup>th</sup> century to pay for the trade outposts and for sending ships with crews.

Year 1830s, witnessed as trading on corporate stocks, shares in bank and cotton presses, it took place in Mumbai (called Bombay) where informal group of stock holders began trading under a banyan tree. The year 1875 witnessed the birth of Bombay Stock Exchange where informal group of brokers organised formally (Earlier known as the **Native Share and Stock brokers Association**)

(Reference <https://enrichmoney.in/knowledge-center-chapter/indian-share-market-history>)

The main role of Securities Markets is to provide flow of funds to the business and ensuring that the markets are transparent and fair which motivate the investor to invest. Securities markets are key players which contribute for the economic development of the country.

**CONVENTIONAL AND MODERN OF TRADING**

Before computers and internet, trading was conducted physically where buyers and sellers gather together at an exchange place. The limitation of conventional trading was time consuming and expensive, limited access to information, paper based records and limited tool for risk management.



The invention of computers and internet brought tremendous changes in trading where one can easily trade without geographical boundaries and now a days various fintech apps provides stock services as well as financial education of listed companies.

## THE TOP FINTECH PLAYERS IN STOCK MARKETS AND THE FEATURES

### 1. Zerodha

Founded in 2010 by Mr. Nithin Kamath, Nikhil Kamath. Zerodha transformed the outlook of the Indian broking industry. Zerodha introduced '**Kite App**' which streaming market data, financial information. This App contains 'watch list' where one can check the current share price, Companies fundamentals, technical analysis, bid chart, day's range, option chain (Call and Put) orders which reflect the executed orders, GTT, Baskets, SIP's, Alerts, Bids (IPO's, Govt Securities and Auctions) portfolio where it displays current investment and under connected apps it provides information about **small case** Gateway which contain baskets of stock and ETFs offers retail stock brokerage facilities at discounted rates along with other opportunities for currency and commodity trading, mutual funds, and bonds.

### 2. Groww Stock

'**Customers first, Simple is beautiful, Honesty & integrity**' with these core values and strong principles '**Groww**' founded in 2016 by Mr. Lalit Keshre, Mr. Harsh Jain, Mr. Ishan Bansal and Mr. Neeraj Singh. The founders experienced that the process of investment in financial products in India is too complex so after so many brainstorming sessions these 4 founder members left their job and decided to start a company with a aim to easy, simple and transparent process of trading. Groww started to provide the necessary information, resources to the investors. It started with free Demat account and trading services through app at a low brokerage rate.

The key features of Groww app that it offers various online trading and investment services such as investment in shares, mutual fund, digital gold etc., moreover it also provides trading services for US Stock, IPO, derivative trading etc. '**Groww Calculator**' is a very popular which contains SIP, SWP, Lump sum, FD, RD, PPF, EPF, Income tax, MF Returns and Sukana Samruddhi Yojana Calculator where the investor and the broker easily calculate the return rewards. '**Groww academy**' and '**Groww Digest**' are the remarkable feature which provides free stock market learning platform. it caters services to beginner to advanced level and helps to gain knowledge about stock selection, its analysis, current news related to corporate actions and its impact on economy, top gainers & losers, companies' financial results, etc.

**3) Upstox App-** A startup story of Upstox is very motivating and interesting, the three founder members Mr. Ravi, Mr. Shrini and Mr. Raghu in their annual family trip to India in 2009 realised that the percentage of investors in securities were very less in India and they found a significant opportunity in the Indian Market and Mr. Ravi with his brother cofounded 'Upstock'. It is the 2<sup>nd</sup> largest brokerage company in India. The key features of Upstox trading platform are easy accessibility, traders can invest in a wide range of assets classes and most important it provides responsive customer support within 30 seconds through "raise a Ticket" System.

**4) AngelOne** – formerly known as an Angel Broking, 'AngelOne' well-known as a largest listed retail broking in India. It started in the year 1996 as a traditional stock brokerage firm. The firm has always focusing on customer satisfaction and they have adopted digital platform in the year 2019 and tapped tier-2, tier-3 cities by offering digital investment solution through AngelOne App. The key features of AngelOne app is that it provides personalized advisory, Access to Ledger and funds reports, Intraday charts with indicators etc., AngelOne is most popular because of its Research & Analysis service where the companies dedicated team works on a variety of reports on the market, securities and economy which guide investors for their financial goals.

**5) 5Paisa.com-** With a Remarkable quote 'A paisa saved is a paisa earned' 5Paisa.com was launched by Mr. Prakash Gajdani and Mr. Nirmal Jain in the year 2016. The key feature of 5Paisa.com app is it provides customizable watch list where investors get information like price movement, growth of the stock and related data, the users can create and edit watch list to track the stocks. The app has feature of 'Option Strategies Wizard' which provides the top option strategy.

## LITERATURE REVIEW

**1. Fintech and the Future of Financial Services: What Are the Research Gaps? (Anil Kavuri and Alistair Milne 2019)** The researcher has highlighted 7 research gaps such as 1) changing industrial structure and organization of financial services, 2) new forms of financial intermediation (alternative finance) such as loan-based and equity-based crowdfunding, 3) changing payments mechanisms including central bank digital



currencies and the shift to a cashless society, 4) reaching vulnerable and excluded customers in both developed and developing countries, 5) computation, artificial intelligence and large-scale data processing in finance, 6) the relationship between the new financial technologies and financial regulation, 7) identity, security, data privacy and their regulation in financial services moreover researcher has studied three critical areas i.e. Fintech and financial stability, role of government and the policy and Reg tech

### 2. A study of online trading system in India: (Prof.Nilesh Anute and Mr.Sandeep Sharma, 2021)

In this paper researcher has noticed that there is remarkable change in trading platform after covid, it was examined that the no. of investors increased and it is good sign with economic development but there is need of security, have adequate backup and transparency.

3. A study of the rise of Trading apps since COVID-19: (Prof. Jyotsna VishwambharTorane, 2023) The researcher has explained the top five stock brokers according to their client base and top five trading apps as per rating base in India and concluded that the investors have to use right app which will unable to grow wealth and meet financial goal with minimize loss. Researcher further explained that due to easy access and friendly users' facility the no.of users are increasing and it is good sign for growth.

### 4. Fintech Research: Systematic mapping, Classification and future direction (Qianhua Liu, Ka-Ching-Chan and Ranga Chimhundu 2024)

Researcher has focused to re-evaluate the direction and scope of future fintech research. Researcher has highlights on the future direction and growth opportunities in fintech.

### 5. Challenges in Fintech Security (Dr.C.H.Patil, Prof.S.B.Bhoite, Prof.Harshali Patil 2023)

Despite having so many entries of fintech, Researchers has pointed out the challenges in fintech regarding the security of data

#### The gaps include the following:

1) shifting the industrial structure and organization of financial services; 2) new forms of financial intermediation (alternative finance), such as loan-based and equity-based crowdfunding; 3) shifting the payment mechanisms, including the shift to a cashless society and central bank digital currencies; 4) reaching vulnerable and excluded customers in both developed and developing countries; and 5) computation, artificial intelligence, and large-scale data processing in both of these areas. Security is one of the biggest holes. With no overarching research aim, current research is only tangentially related. Our goal is to present comprehensive research agendas that might serve as the basis for upcoming scholarly work in this field. We believe that by filling in these gaps, this field will establish itself as a legitimate academic discipline.

#### RESEARCH GAP

Existing research highlights the general trend of technology's influence on Indian Capital market. The Literature review showcase that there is need of comprehensive studies that analyze the impact of these online trading apps on the education of young investors.

#### The following areas have notable gaps:

1. **Challenges within Tech-Driven markets-** There is insufficient research on the challenges such as technical problems, security risks, information/data overloaded that young investors face while engaging with digital platform.
2. **Investors Behavior-** There is absence of studies aims on how young investors are adapting their investment choices and strategies.
3. **Financial Literacy and Investment Education** – There is limited research on how effectively online trading platform and trading apps contribute investor education through Technology to young investors
4. **Indian online Trading apps and its role** – There is insufficient research on key features and functionalities of these trading plats and their role in enhancing the young users' investment experience.

#### RESEARCH METHODOLOGY

##### Type of Data –

1. **Primary data** – The primary data collected by using polls system where the information collected from the age group of 20 to 40 years old trading investors.

##### Method of collection data –

- A) **Poll System** – A survey was conducted targeting trading investors in the age group of 20-40 years old.



2. **Secondary data** - The secondary data collected from source the fintech companies website, reputed journals,academic,industry reports etc.,
3. **Data Sources** - Financial Publications and Fintech website
4. **Data Collection** - The information collected from the year 2008 about inception of fintech companies, its progress.
5. **Sample Size – 100**

## RESEARCH DESIGN

A) **Descriptive research** - To study the current scenario of online trading among young investors the research adopted a descriptive research design and the study focus on collecting quantitative data to know the preferences and challenges related to technology's role in the Indian capital market.

### B) Sampling Method:

1. **Convenience sampling method** used to select participants as targeted participants selected in the age of 20 to 40 years old.

2. **Sample Size – information collected from 100 online trading app users**

### C) Data Collection:

1. The Primary data collected by using an online survey questionnaire by using Likert scale. The responses collected by distributing Google forms among the students and professionals.

### D) Data Analysis:

1. The data analyzed by using descriptive statistics method. Percentage analysis preferred to understand the trends in online trading behavior.
2. To know correlation between the variables such as age, trading platform usage, the data analyzed by SPSS tool.

## FINDINGS

Researcher has collected the information by poll system from 100 respondent in the age of 20-40 years old.

Survey Question	Response	Percentage
Use of online trading apps regularly to stock investment	84% of users highly engaged in managing stock investments regularly through mobile app. 16% trade through consultants.	84% strongly agree (Mobile App) 16% agree (Consultant)
Satisfaction with an education that these trading apps provides	76% responded positively and they are satisfied with the information which is provided on these apps. 14% agree with the statement and responded that there is need of more simplicity and users friendly apps.	76% strongly agree 14% agree but not fully satisfied
3. Satisfaction with real-time market updates	72% of users believe the platform provides accurate, timely, and reliable real-time market updates that help them make informed investment decisions. 14% find it helpful, but are less satisfied with frequency or accuracy.	72% (Strongly Believe) 14% (Helpful, but not fully satisfied)
4. Confidence in making informed investment decisions using online platforms	66% of users strongly agree that the platform provides all necessary tools, insights, and resources effectively for making informed decisions. 24% feel additional resources or suggestions are occasionally needed.	66% (Strongly Agree) 24% (Occasionally Need More Resources)
5. Helpfulness of educational content regarding company financials, revenue details, and other stock market concepts	82% of respondents find the educational content on online platforms highly helpful for both beginners and advanced learners. 4% agree that the content is helpful, offering easy access to a wide variety of topics.	82% (Helpful for Beginners & Advanced Learners) 4% (Agree, Helpful)



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**SUGGESTION**

Though the digital app's playing a vital role to educate the young investors and providing robust platform for online trading but there is need of deep study regarding the stock market and be certain to stay attentive and keep the disclaimer in mind before making any investment decisions."

Online trading platforms can increase user satisfaction, cater to a broader range of trading experiences and help users feel more empowered and confident in their investment decisions.

**LIMITATIONS OF THE STUDY**

The use of convenience sampling may limit the diversity of the sample, especially in terms of socioeconomic background and geographical distribution.

The study might not capture changes in user behavior over time, as it reflects responses based on a one-time survey.

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**MULTIDISCIPLINARY APPROACH WITH REFERENCE TO CORPORATE SOCIAL RESPONSIBILITY (CSR)**

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Email- nagadiyatrpti@gmail.com, Email- mmadlani@gmail.com**ABSTRACT**

*Out of numerous opportunities to enhance upon the image of an organization, applying CSR practices still remain to be explored at the fullest due to the concept's complex nature.*

*The ways in which these practices can be applied at various areas of business have to be identified by the concerned teams in such a manner that brings about the maximum possible benefit to various sections of society; being the primary aim of CSR. The said domain is still largely untapped which makes it an interesting study with reference to the methodologies used to incorporate the said activities in right manner.*

*Keywords -Integrarion, Engagement, Ethics, Compliance Accountability Community Transparency Sustainability Strategic Governance Social impact Trust*

**INTRODUCTION**

CSR has been one of the recent and most beneficial long term strategies adopted by smarter manufacturers; very aptly ensuring management of 'Touch Points' of their MVCs (most valued consumers). Enhancing upon the corporate image of the organizations, the conscious practice of associating themselves with socially beneficial practices and activities plays a pivotal role. The paper brings about the competitive advantage felt by big names in business community when they put in efforts to join in efforts that are essentially directed towards contributing to society's well-being in all possible manners including sharing profits with loyal consumers, association with nonprofit organizations, usage of environment friendly products and carry bags etc.

This clearly puts forth the idea that underpins the holistic approach of practicing CSR in its entirety things in more than one ways providing a competitive edge to the institutions following it.

**REVIEW OF LITERATURE**

The evolution of Corporate Social Responsibility (CSR) in India has paralleled the nation's economic and societal development. Historically, Indian businesses engaged in CSR through philanthropic endeavors, with family-owned companies often supporting charities or social causes. A notable shift occurred in 2013 with the enactment of the Companies Act, which made CSR mandatory for businesses of a specific size. The Act outlines eligible CSR activities such as education, healthcare, environmental sustainability, rural development, and social welfare. This legal framework has facilitated a more organized, strategic, and accountable approach to CSR. Scholars like Nair and Kapoor (2017) note that this transition has bridged the gap between corporate objectives and societal concerns, advocating for a holistic CSR approach that integrates law, economics, and ethics.

**OBJECTIVES OF THE STUDY**

- 1) To study the provisions of CSR in India.
- 2) To analyse the contribution of corporations to CSR in India.
- 3) To understand the relationship between CSR and community Welfare.
- 4) To suggest measures to improve the social welfare through CSR activities.

**RESEARCH METHODOLOGY**

The study is descriptive in nature. Research has used a case study approach to attain the objectives of the study. Researcher has used a convenience sampling method to select a sample. 10 corporations have been selected for the study. Researchers have collected required data from the sampled corporations about their CSR contribution in the previous years. Research have made comparative analysis for different years CSR contributions made by the sample corporations. After analyzing the data collected findings and discussion have been made and thereafter recommendations have been given to improve the social welfare through CSR activities.

**Analysis Companies in India with Notable CSR Activities:**

**Reliance Industries:** Spent Rs. 1186 crores on CSR in FY2021-22, exceeding its required amount. **Tata Consultancy Services:** Spent Rs. 727 crores on CSR in FY2021-22, supporting education, healthcare, and



digital inclusion. **HDFC Bank:** Invested Rs. 736.01 crores in CSR initiatives, including education, skill training, and disaster response. **ICICI Bank:** Spent Rs. 266.62 crores on CSR, supporting socio-economic development. **Infosys:** Spent Rs. 344.91 crores on CSR, focusing on education, healthcare, and rural development. **Hindustan Unilever:** Spent Rs. 157.58 crores, focusing on sustainability, water conservation, and rural development. **State Bank of India:** Invested Rs. 204.10 crores in CSR, with a focus on healthcare, education, and community development. **HDFC Ltd.:** Spent Rs. 194.03 crores on education, healthcare, and environmental initiatives. **Adani Enterprises:** Spent Rs. 12.87 crores, with an emphasis on sustainability and community outreach. **Bharti Airtel:** Contributed Rs. 16.43 crores to CSR, primarily supporting education for underprivileged children.

### MULTIDISCIPLINARY APPROACH TO CSR

The multidisciplinary approach to CSR integrates knowledge and practices from various fields to create sustainable, impactful solutions for complex social challenges. This approach enables businesses to go beyond basic compliance and charity, transforming CSR into a strategic, stakeholder-focused endeavor.

- **Economic Perspective:** The economic viewpoint on CSR emphasizes aligning corporate efforts with creating shared value. Porter and Kramer (2011) introduce the concept of Creating Shared Value (CSV), which connects business success with societal well-being. Companies like the Tata Group have adopted CSV, launching initiatives that simultaneously benefit both the community and the business, focusing on education, infrastructure, and economic opportunities for marginalized groups.
- **Management and Strategic Perspective:** From a management perspective, CSR is seen as a strategic tool for improving corporate reputation, brand loyalty, and long-term sustainability. According to Chandani and Patro (2019), CSR in India is often embedded in business strategies to align corporate goals with social objectives, fostering relationships with internal and external stakeholders and ensuring long-term success. This approach helps businesses monitor and report their social and environmental impacts, making CSR investments more justifiable to shareholders.
- **Ethical and Moral Perspective:** Ethics play a central role in CSR. The ethical perspective aims to balance profit generation with social responsibility. Theories like stakeholder theory and business ethics guide companies to make decisions that account for the broader consequences of their actions. Bhattacharya and Kundu (2021) argue that CSR in India has evolved from charity-driven models to those that emphasize ethical decision-making and corporate governance, with increasing pressure on businesses to consider the social impact of their operations.
- **Legal Perspective:** The legal framework for CSR in India offers a structured system to ensure businesses fulfill their obligations. Scholars like Raghuvanshi (2017) argue that mandatory CSR laws have improved the implementation of CSR programs, although concerns persist regarding enforcement and whether these laws address the root causes of social issues or simply encourage symbolic philanthropy. Thus, the law presents both opportunities and challenges for CSR practices in India.
- **Social Sciences Perspective:** Disciplines such as sociology, anthropology, and political science contribute to CSR by focusing on community impact, social justice, and the role of corporations in societal transformation. Bhandari (2020) emphasizes the importance of understanding the socio-cultural context when designing effective CSR programs, especially in rural or underdeveloped areas. A multidisciplinary approach ensures that CSR initiatives are tailored to local needs while respecting cultural sensitivities.

### CSR AND STAKEHOLDER ENGAGEMENT

Stakeholder engagement is a critical component of CSR in India. While traditional CSR often focused on philanthropy and donations, modern CSR emphasizes building relationships with diverse stakeholders. Companies are now expected to collaborate with communities, NGOs, employees, government agencies, and other groups to develop and execute CSR programs. The stakeholder theory, which has had a significant influence on CSR research, posits that businesses must serve the interests of all stakeholders, not just shareholders. This approach prioritizes corporate governance, ethics, and transparency. Singh and Soni (2022) note that Indian companies are increasingly recognizing the importance of stakeholder engagement, particularly after the 2013 Companies Act, which mandates transparent reporting of CSR activities and their outcomes.

### How Various Disciplines Contribute to a Multidisciplinary CSR Approach:

#### 1. Business and Management:

- **Strategic CSR:** Incorporating CSR into corporate strategy aligns social responsibility goals with business objectives, ensuring that CSR contributes to long-term business value beyond philanthropy.



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- **Corporate Governance:** Effective management structures and decision-making processes impact CSR outcomes. A robust governance framework ensures CSR is integrated into the company's culture, not just a top-down initiative.
  - **Stakeholder Engagement:** This discipline highlights the importance of analyzing and engaging stakeholders, emphasizing the consideration of not just shareholders but also employees, customers, and affected communities.
2. **Ethics and Philosophy:**
- **Business Ethics:** Ethical standards shape CSR strategies, ensuring that business actions reflect moral principles, such as fair labor practices, environmental sustainability, and transparency.
  - **Philosophical Frameworks:** Moral philosophies like utilitarianism and deontology guide businesses in understanding their ethical obligations towards stakeholders when making CSR decisions.
  - **Sustainability Ethics:** This field explores businesses' ethical duties to future generations, focusing on environmental sustainability and the long-term well-being of society.
3. **Law and Public Policy:**
- **Regulation and Compliance:** Legal frameworks influence CSR practices by ensuring compliance with local and international standards, covering labor laws, environmental regulations, and consumer protection.
  - **Advocacy and Lobbying:** Understanding legal structures helps businesses in advocating for public policies that promote broader social responsibility goals.
  - **Corporate Accountability:** Legal perspectives guarantee businesses are held responsible for their CSR commitments, with mechanisms in place to monitor and enforce compliance.
4. **Environmental Science:**
- **Sustainability Practices:** Environmental science plays a vital role in CSR initiatives aimed at reducing environmental footprints, addressing climate change, resource depletion, waste management, and energy consumption.
  - **Conservation and Green Technologies:** CSR can focus on adopting renewable energy, investing in green technologies, and promoting biodiversity conservation.
  - **Life Cycle Assessment:** Analyzing the environmental impact of products and services throughout their lifecycle helps businesses make sustainable decisions from design to disposal.
5. **Sociology and Anthropology:**
- **Social Impact Assessment:** Sociological approaches help understand the effects of corporate actions on communities and social structures, ensuring CSR efforts address the diverse needs of stakeholders, especially marginalized groups.
  - **Community Engagement:** These disciplines stress the importance of cultural sensitivity and local community involvement, ensuring CSR initiatives respect local customs, traditions, and social dynamics.
  - **Corporate Social Capital:** Sociology and anthropology guide businesses in building trust with communities, enhancing their reputation and social license to operate.
6. **Economics:**
- **CSR as a Business Opportunity:** Economics explores how CSR initiatives, such as sustainability efforts, can provide long-term profitability and reduce risks.
  - **Shared Value Creation:** The concept of shared value, introduced by Michael Porter, highlights that businesses can improve their competitiveness while advancing social and environmental conditions in their communities.
  - **Cost-Benefit Analysis:** Economics provides tools for assessing the effectiveness of CSR programs, ensuring that investments result in measurable social benefits and returns.
7. **Communication and Media Studies:**
- **Public Relations:** Effective communication of CSR efforts enhances brand reputation. Media studies offer strategies for conveying CSR initiatives to the public and stakeholders.
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- **Transparency and Reporting:** Good communication ensures transparency in CSR activities. Accurate, honest reporting helps companies share their CSR performance with stakeholders through sustainability reports or third-party assessments.
- **Consumer Engagement:** In an age of heightened consumer expectations, communication studies help businesses craft messages that resonate with socially conscious consumers, fostering brand loyalty.
- 8. **Psychology:**
  - **Employee Engagement:** Psychological insights are crucial for ensuring employees adopt and support CSR strategies. Organizational culture and leadership can foster internal motivation and commitment to CSR.
  - **Consumer Behavior:** Understanding consumer perceptions of CSR helps businesses design campaigns that appeal to ethical preferences, promoting loyalty and influencing purchasing decisions.
  - **Behavioral Change:** Psychology informs CSR programs aimed at encouraging pro-social behaviors both within organizations and in broader communities.

#### **Benefits of a Multidisciplinary Approach:**

1. **Holistic Solutions:** Drawing on multiple disciplines allows organizations to create CSR strategies that are comprehensive, nuanced, and impactful.
2. **Increased Innovation:** Collaboration between disciplines fosters creative CSR practices that might not emerge from a single field.
3. **Better Risk Management:** Insights from various disciplines help companies identify and mitigate potential risks from social, environmental, legal, and financial perspectives.
4. **Enhanced Stakeholder Trust:** A well-rounded CSR approach builds trust with diverse stakeholders by addressing their concerns in an integrated way.
5. **Sustainability:** Multidisciplinary CSR strategies are more likely to result in sustainable solutions that meet both business and societal needs in the long term.

#### **Suggestions for Corporate Social Responsibility (CSR) activities to promote social welfare**

##### **Education**

1. **Scholarships:** Provide financial aid to support the education of underprivileged students.
2. **Digital Literacy:** Organize programs to enhance digital skills among disadvantaged groups.
3. **Infrastructure Development:** Fund the construction of schools, libraries, and other educational facilities.

##### **Healthcare**

1. **Health Camps:** Host free medical check-up and treatment camps for underserved communities.
2. **Health Awareness:** Run campaigns to promote preventive healthcare and healthy practices.
3. **Support for Healthcare Facilities:** Partner with hospitals to improve infrastructure and services.

##### **Environment**

1. **Tree Plantations:** Conduct drives to plant trees and promote environmental conservation.
2. **Waste Management:** Develop systems to manage waste through reduction, reuse, and recycling initiatives.
3. **Renewable Energy:** Invest in renewable energy projects to minimize carbon emissions.

##### **Community Development**

1. **Community Infrastructure:** Assist in building community centers, roads, and essential infrastructure.
2. **Disaster Relief:** Provide support and aid to communities affected by natural disasters.
3. **Women Empowerment:** Initiate programs to support women's education, skill development, and economic independence.



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**Livelihood**

1. **Skill Development:** Offer vocational training to enhance employability.
2. **Microfinance Support:** Provide small loans to empower entrepreneurs and small businesses.
3. **Job Creation:** Launch initiatives to generate employment opportunities.

**Disability and Inclusion**

1. **Accessibility Programs:** Promote accessible infrastructure and technology for people with disabilities.
2. **Inclusive Hiring:** Encourage employment opportunities for individuals with disabilities.
3. **Disability Support:** Offer resources and assistance for individuals with disabilities.

**Additional Initiatives**

1. **Employee Volunteering:** Foster a culture of social responsibility by encouraging employees to volunteer in CSR projects.
2. **CSR Transparency:** Publish annual reports detailing CSR activities and their impact.
3. **Stakeholder Engagement:** Actively involve stakeholders to address concerns and align CSR initiatives with community needs.

**CONCLUSION**

With big business houses being in constant association with CSR activities related to societal development, we may conclude that possibilities of witnessing sustainable success without these efforts are very meek. Hence, as mentioned in the research paper, almost all those who follow Strategic Management as against Traditional one essentially incorporate CSR activities in their operations to ensure retention and also creation of corporate image. These companies must allocate sufficient funds towards CSR in perfect sync with government norms and investors and stakeholders' interests. The concept however throws light also on its shortcomings as put forward by critics stating that there is a serious lack of proper implementation that needs to be dealt with, that actually shows results in terms of its benefits to society and its inhabitants at large. The onus still remains on large and reputed companies to instill the kind of corporate atmosphere that supports concept of CSR.



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**BIG DATA ANALYTICS IN LIBRARIES: ENHANCING COLLECTION MANAGEMENT AND USER EXPERIENCE**

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**ABSTRACT**

*With Big Data analytics providing substantial opportunities to improve both collection management and user experience, libraries are changing from static information repositories to dynamic, user-centric spaces in the digital age. Big Data approaches can assist libraries in analyzing the massive volumes of data they produce from user interactions, circulation trends, digital resources, and multimedia engagement to make well-informed decisions. With a focus on three main areas improving collection management, customizing user services, and increasing operational efficiency this paper investigates how Big Data analytics can optimize library operations. Libraries can make data-driven decisions about the acquisition, retention, and disposal of resources by examining user behavior and resource usage. Libraries can improve digital platforms and suggest pertinent materials with personalized services driven by data insights, increasing user engagement. Additionally, Big Data tools can optimize budget allocation, staffing, and space utilization, resulting in more effective library management. Notwithstanding its potential, implementing Big Data in libraries is fraught with difficulties, such as resistance to change, integration of disparate data sources, data privacy issues, and technological hurdles. This essay addresses these difficulties and provides strategies for resolving them. The paper illustrates this by using case studies, including the New York Public Library and other academic libraries.*

**Keywords:** Big Data, Libraries, Collection Management, User Experience, Data Analytics, Library Services, Personalized Learning

**1. INTRODUCTION**

Libraries are evolving from static information repositories to dynamic information hubs in the digital age. Big Data analytics presents libraries with a previously unheard-of chance to improve decision-making, optimize user experiences, and strengthen collection management. To better understand user behavior, manage collections more effectively, and provide individualized services, this paper investigates how libraries can use big data. The research explores data-driven tactics, obstacles, and possible fixes for incorporating Big Data analytics into library operations. Many industries, including healthcare, finance, retail, and education, have been significantly impacted by the emergence of big data. Traditionally regarded as the repositories of knowledge, libraries increasingly use Big Data techniques to meet the demands of the digital age. As it relates to libraries, Big Data describes the enormous amounts of data produced by user interactions, digital catalogs, borrowing trends, e-books, and multimedia materials. Better decisions in areas like resource allocation, user engagement, collection development, and user experience enhancement can result from the analysis of this data. This study explores the use of big data analytics in libraries to improve user experiences and collection management procedures. It lists the main applications for big data, such as reso, personalized user services, and predictive analytics.

This study explores the use of big data analytics in libraries to improve user experiences and collection management procedures. It lists the main applications of big data, such as performance metrics, resource allocation, personalized user services, and predictive analytics. The article also addresses the difficulties libraries encounter when implementing Big Data and provides advice on how to get past these obstacles.

**2. OBJECTIVES OF THE STUDY**

**The following particular goals have been determined to accomplish this overall objective.**

1. To examine the role of Big Data analytics in enhancing collection management.
2. To explore the impact of Big Data on user experience personalization.
3. To assess the potential benefits of Big Data for improving operational efficiency.
4. To identify the challenges and barriers in implementing Big Data analytics in libraries.
5. To explore real-world case studies of Big Data implementation in libraries.
6. To provide recommendations for the future adoption of Big Data in libraries



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### **3. RESEARCH METHODOLOGY**

With an emphasis on collection management, user experience, and operational efficiency, the research methodology for this study aims to thoroughly investigate the function of big data analytics in libraries. Secondary data forms the basis of the study. This is collected through various publications, books, the Internet, and articles. To obtain a comprehensive grasp of the topic, the study uses a mixed-methods approach that blends qualitative and quantitative research techniques. This mixed-methods approach will contribute to the scholarly conversation on the future of library management and user experience, give a comprehensive understanding of the potential of Big Data to improve library services and offer practical recommendations for libraries looking to implement such technologies.

### **4. THE ROLE OF BIG DATA IN LIBRARIES**

Libraries have access to vast amounts of data, from user interactions, digital resource usage, and circulation statistics to more complex data like web analytics and social media engagement. Libraries can use big data analytics to examine this data and extract valuable insights that can help them make better decisions. The following are the main areas where big data analytics can make a big difference. Big Data improves user experiences and collection management, which revolutionizes contemporary libraries. It makes data-driven acquisitions possible and optimizes resources according to borrowing patterns and user preferences. Budget allocation and the removal of underutilized materials are made easier with the help of predictive analytics. Big Data provides users with better search capabilities, tailored suggestions, and real-time support via AI chatbots. Additionally, it facilitates accessibility improvements and event planning. Operationally, libraries gain from knowing how many people use the facilities and how many people walk through them. But issues like cost and data privacy need to be addressed. Libraries can become more effective, user-focused knowledge centers by utilizing Big Data. (Azam & Ahmad, 2024)

#### **4.1. Collection Management**

One of the main responsibilities of libraries is collection management, which includes material acquisition, cataloging, preservation, and disposal. By offering insights into user requirements, content gaps, and resource usage patterns, big data has the potential to completely transform this process. Libraries can make informed decisions regarding the acquisition, retention, and disposal of materials by analyzing usage statistics. For instance, libraries can determine popular books, hot subjects, or even the kinds of resources (e.g., circulation data) by examining these data. G. e-books, audiobooks) that are becoming more and more well-liked. Future trends can be predicted and library collections kept current with the help of predictive analytics.

#### **4.2. Personalization of User Experience**

Libraries are not an exception to the growing trend of personalized digital services. By examining user conduct (e.g. G. Libraries can provide personalized books, journals, and other resource recommendations based on factors like borrowing history, search queries, and interactions with digital resources. Furthermore, user preferences can influence library interface design by recommending layouts, filters, and content that suit the interests of specific users. To increase patron satisfaction and engagement, a library might, for example, employ machine learning algorithms to recommend pertinent books based on a user's reading history. Libraries could become an essential part of student's academic experiences as a result of the expansion of personalized content delivery to online learning platforms.

#### **4.3. Operational Efficiency and Resource Allocation**

Libraries can optimize staffing, scheduling, and space utilization with the aid of big data analytics. For example, using sensors or smartphone apps to analyze foot traffic data can reveal information about peak usage times and space requirements. To improve access to resources that are in high demand, this data can be used to schedule events, modify staffing levels, or even redesign physical spaces. By determining which resources are most frequently used and making sure that money is allocated to acquisitions with a high impact, libraries can also use data to optimize budget allocation.

#### **4.4. User Engagement and Interaction**

Libraries have long served as centers of the community, but in the era of big data, they can use analytics to improve user engagement. It is possible to assess user sentiment, find new trends, and pinpoint areas where user engagement can be enhanced by analyzing social media interactions, website clicks, and other online activities. By keeping an eye on attendance and feedback, libraries can also assess the success of events and programs, which helps them improve their services and foster greater community involvement.



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**5. CHALLENGES IN IMPLEMENTING BIG DATA ANALYTICS IN LIBRARIES**

Libraries face some obstacles when implementing big data analytics. To protect user information, data privacy and adherence to laws like GDPR are essential. Budgets may be strained by the high expenses of software, infrastructure, and qualified staff. Complex datasets are challenging to handle and interpret due to a lack of technical expertise. Complexity is increased by integrating data from various sources and legacy systems. Algorithm bias can also affect how fairly recommendations and decisions are made. To guarantee that employees and stakeholders adjust to new technologies, change management is required. It will take investment, strategic planning, and an emphasis on moral, user-centered solutions to overcome these obstacles. Big Data analytics has a lot of potential for libraries, but implementing these technologies is not without its difficulties. These difficulties can be roughly divided into three categories: organizational, ethical, and technical. (Silva, 2021)

**5.1. Data Privacy and Security**

Libraries manage private user data, such as academic records, reading preferences, and personal information. Privacy laws, such as the General Data Protection Regulation (GDPR) in Europe or comparable legislation in other nations, must be followed when collecting and analyzing this data. Sustaining user trust requires making sure that data is anonymized and stored securely.

**5.2. Technical Barriers**

Many libraries may lack the technical infrastructure required to deploy Big Data solutions. Libraries may lack the resources or experience to invest in the required technologies, such as data storage, processing power, and analytical tools, especially those in smaller institutions. Training expenditures, alliances with tech firms, and perhaps cooperation with academic institutions to exchange resources and expertise are all necessary to get past these technological obstacles.

**5.3. Data Quality and Integration**

Libraries gather data from a variety of sources, such as digital resources, websites, social media, and in-person checkouts. It can be very difficult to combine these various data streams into a cohesive system. Making wise decisions also depends on guaranteeing the accuracy and quality of this data.

**5.4. Resistance to Change**

Due to a lack of knowledge or worries about losing their jobs, library employees and stakeholders may be reluctant to embrace Big Data-driven practices. Clear communication about the advantages of big data and how it can complement library professionals' roles rather than replace them is necessary to overcome this resistance.

**6. CASE STUDIES AND APPLICATIONS OF BIG DATA IN LIBRARIES**

Numerous libraries have already started using big data analytics, with encouraging outcomes. Here are a few noteworthy instances. Big Data is being used by libraries all over the world to enhance their offerings. Analytics are used by the New York Public Library to customize acquisitions and maximize collections. Big Data is used by the British Library to examine how digital resources are used, improving resource allocation and accessibility. Predictive analytics is used by academic libraries, such as the University of Michigan, to make tailored resource recommendations that enhance student outcomes. Public libraries create inclusive programs by examining community demographics and borrowing trends. Big Data also drives chatbots, such as those found in Singaporean libraries, which provide round-the-clock customer service. These applications demonstrate how libraries use data to enhance user engagement and adjust to changing user needs. (Jones & Simmons, 2022)

**6.1. The New York Public Library (NYPL)**

Big Data tools have been integrated by the NYPL to monitor circulation trends, examine the use of digital resources, and improve user engagement. More effective collection management has resulted from the library's use of data analytics to forecast demand and direct acquisitions. Additionally, user satisfaction has increased thanks to data-driven suggestions for customized reading lists.

**6.2. University Libraries**

Data analytics are used by many university libraries to monitor how students are using their resources. University libraries can identify underutilized resources and make changes to increase visibility by examining user data. The demand for e-learning materials and textbooks has also been predicted using predictive analytics.

**7. FUTURE DIRECTIONS**

Libraries have a fantastic chance to improve their services even more as the Big Data space develops. Here are some potential future trends.



- **AI-Powered Search Engines** AI could be used by libraries to enhance search capabilities, enabling users to locate resources more quickly and effectively.
- **Natural Language Processing (NLP):** NLP could be used to provide more individualized results and a deeper understanding of user queries.
- **Real-Time Analytics:** With real-time data analysis capabilities, libraries may be able to adapt their services quickly to user behavior changes as they occur.

## 8. CONCLUSION

The management of collections and the patron experience in libraries could both be greatly improved by big data analytics. Libraries can make better decisions regarding resource allocation, acquisitions, and user engagement by employing data-driven insights. However, obstacles about infrastructure, privacy, and change aversion must be overcome for Big Data to be implemented successfully in libraries. Big Data will be crucial in determining libraries' future and ensuring they continue to serve as essential information hubs for people all over the world as they continue to adapt to the digital age. Libraries are being transformed into dynamic, user-centered knowledge centers by Big Data Analytics. Libraries can maximize collection management and make sure resources meet user needs while reducing waste by utilizing data-driven insights.

Libraries become more relevant in the digital age through deeper user engagement fostered by personalized recommendations, improved search capabilities, and customized services. Big Data improves operational efficiency by optimizing space, allocating funds, and performing predictive maintenance. However, there are obstacles in the way of complete implementation. For Big Data to be used ethically and effectively, concerns like algorithmic bias, cost, technical know-how, and data privacy must be properly addressed.

Libraries that use Big Data Analytics stand to gain a great deal despite these obstacles. They can improve accessibility, serve a variety of communities more effectively, and quickly adjust to shifting information needs. Its potential to enhance user experiences and institutional effectiveness is demonstrated by success stories from organizations such as the New York Public Library and academic libraries around the world. Big Data will continue to be a key component of innovation as libraries adopt new technologies, enabling them to flourish as essential hubs for education and community involvement in the twenty-first century. To realize its full potential, strategic investments, and a user-focused approach are essential.

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**A CONTEMPORARY ANALYSIS OF DETERMINANTS AND THEORETICAL FRAMEWORKS OF ESG DISCLOSURE IN HIGH -IMPACT POLLUTING INDUSTRIES**

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**Purpose** – Environmental, Social, and Governance (ESG) factors have emerged as crucial contemplations for businesses and investors seeking to achieve sustainable and responsible outcomes. Understanding the determinants of ESG performance is essential for organizations to effectively address these factors and make informed decisions. This study aims to study the various corporate attributes namely the firm's economic performance, profitability, leverage, ownership, advertisement intensity, cross border listing etc and its impact on the ESG performance of the polluting companies. The study also examines the theoretical paradigms underpinning the relationship between these determinants and ESG disclosure.

**Design/methodology/approach** – The study employs 90 articles published between 2014 -2024 on the Scopus platform for finding out the integrated results of the previously available literature. The search string has keywords including “ESG”, “attributes”, “Determinants”, “Characteristics” and “ESG Scores”.

**Findings** – The findings of the study emphasize the need of harmonized reporting standards, robust control and independent auditing to enhance the creditability of ESG disclosures across polluting companies. The findings of this paper are important for firms, stakeholders and policymakers that will help them to formulate ways to improve ESG reporting which will help them to compete in the international market.

**Keywords:** Environmental, Social, Governance, Disclosure Scores, Corporate Attributes, Determinants

*Paper type Literature review*

**INTRODUCTION**

Over recent decades, unchecked economic expansion, environmental degradation, and soaring energy consumption have drastically increased global greenhouse gas emission. Meng-Tao et al., (2023). This has intensified climate change, causing rising temperatures, extreme weather conditions, biodiversity loss, rise in the sea level, threatening ecosystems, human livelihoods and planetary health (Zhang ,2022). According to a 2019 report by the Centre for Science and Environment, the number of polluting industries in India has more than doubled since 2011, marking a staggering 136% increase (Pandey, 2019). The Businesses are increasingly becoming intertwined with the world around them, both internally and externally. This trend has highlighted the polluting industries, which are the largest contributors to the degradation of the environment and are widely considered for the climate change. These industries face the pressure from stakeholders, investors, consumers as well as environmental activist to be more accountable about the ESG and sustainability practices adopted by them. These challenges underscore the importance of ESG frameworks in fostering sustainable development (Lian et al., 2023).

The ESG principles were formally proposed in 2004 (Li et al., 2021). Financial Institutions are influencing the corporates to incorporate ESG practices in their core business activities (Joshi &Joshi 2024). This interconnectedness is having a profound impact on the growth, performance, and structure of companies across all industries (Kumar et al., 2021). ESG criteria, encompassing Environmental, Social, and Governance factors, have emerged as a vital guiding principle for socially conscious investors evaluating potential investments. Consequently, a significant amount of investment has been directed towards the ESG stocks, Hence, making them an important portion of the global equity portfolio (Daugaard 2020). ESG offers a comprehensive insight into a company's opportunities and risks hence offering its stakeholders, including the investors with a full perspective of the company's management response towards the opportunities and risk associated with the ESG (Cochran & Wood, 2017). ESG disclosures are becoming an integral and important part for evaluation of the financial and profitability position of the companies as well as making the day to day business strategies and operations carried by the business (Kumar et al., 2021). These standards delve into a company's impact beyond its financial bottom line, scrutinizing its environmental stewardship, social responsibility, and corporate governance practice (Artiach et al., 2010).

An asymmetric information gap is always identified between the company and its stakeholders with reference to the ESG practices. This gap can be reduced or closed by disclosing the various ESG strategies and activities which are being adopted by the companies (Malik 2015). ESG reporting has become an integral part of the



policy -making and an important part of the practices of the corporation. The growing awareness among the society and rise in the public awareness level has also made a social pressure on the companies to report the various activities they carry for the benefit of environment as well as society and how it is leading to impact on the performance of the company (Muttakin and Khan 2014). Businesses are now subject to constant observation from various stakeholders, including consumers, activists, and regulatory bodies. This increased scrutiny translates to heightened accountability, forcing businesses to address concerns and demonstrate responsible practices (McPhee 2014).

The requirement of the ESG disclosure is gaining more insight in context of the increasing financial scandals, recent financial crisis, government pressure, change in regulatory policies and change in the perspective of the consumers, stakeholders and shareholders (Majumder et al., 2019). It requires firms to address and include sustainability in their business strategy (Hilman et al., 2001; MCPhee 2014).

Businesses and societies are inextricably linked by the social contract, a complex tapestry of laws and a shared understanding of their interdependence. This contract outlines the obligations and expectations of both entities, paving the way for a collaborative and mutually beneficial future (Buchholtz and Carroll 2018; Jha et al., 2020).

Investors prioritize companies with transparent and accountable governance processes, mitigating risks and ensuring long-term financial stability. However, striking a balance between these short-term pressures and long-term sustainability goals presents a significant challenge for companies. Investors demand strong financial performance, while simultaneously expecting adherence to stringent ESG criteria. This necessitates a strategic approach that prioritizes both profitability and responsible practices (Kumar et al., 2021). Fortunately, companies are increasingly recognizing the potential benefits of integrating ESG into their core business strategy. By embracing sustainable practices, companies can enhance their brand reputation, attract and retain talent, minimize risk, and ultimately create long-term value for shareholders Berg et al., (2022). The rise of the interest of stakeholders in the implications of ESG can be linked with reduction in the cost of capital of company (Chouaibi et al., 2021), increasing the profitability of the business (Miller et al., 2020) and helps in reducing the information asymmetry and leads to increase in the confidence of the investors. Therefore, it is important for the firms to identify the corporate attributes that influence the ESG reporting and how these attributes effect the ESG disclosures of the firm. (Haniffa & Cooke, 2005; Said et al., 2009).

It has been established by several studies that the companies that have improved ESG performance by reducing their carbon emission, promoting equality in terms of gender and race have experienced a rise in the value of firm (Berg et al., 2022), better credit ratings (Diaye et al., 2023), enhancement in production and increase in overall financial performance (Jamal et al., 2024).

ESG Comprises of three pillars; Environmental criteria assess a company's performance as a responsible steward of the planet. This includes its approach to climate change, resource utilization, pollution control, and waste management. Investors seek companies committed to environmental sustainability, recognizing the long-term risks associated with environmental degradation. Social criteria examine how a company interacts with its stakeholders, including employees, suppliers, customers, and the communities where it operates. This involves analysing labour practices, diversity and inclusion initiatives, supply chain ethics, and responsible marketing activities. Investors increasingly value companies that foster positive social impact and contribute to a more equitable and just society. Governance criteria delve into a company's leadership structure, executive compensation, audit practices, internal controls, and shareholder rights. Investors are of the opinion that governance related disclosures have a more significant impact on the financial performance of the corporates (Saygili et al. (2022).

The present study introduces a novel approach in evaluating the recent surge in ESG from the year 2014-2024. The present study puts together an advanced and comprehensive methodology for evaluating the recent escalation in ESG disclosure. The methodology undertakes a detailed analysis of the contemporary research techniques and systematically identifies high impact publications, that focus on the specific thematic areas and chronological intervals. The study offers an exhaustive review of the determinants that influence the ESG disclosures and provides a valuable insight about the corporate attributes which have an effect on ESG reporting practices. By addressing existing literature gaps, this study systematically surveys and scrutinizes the pivotal variables that impact sustainability, ESG reporting, and ESG disclosures, with a particular emphasis on high-emission, polluting firms. Furthermore, the study meticulously evaluates these variables to ascertain their role and influence on corporate performance. The analysis aims to clarify the multifaceted interplay between ESG determinants and firm performance, thereby offering valuable insights into how these factors drive or encumber sustainability efforts within the corporate sector. Through this comprehensive examination, the study



contributes to a deeper understanding of the dynamics underpinning ESG disclosures and their implications for the performance of firms, particularly those with significant environmental impacts. The research articles covered have also been analysed based on different parameters. Therefore, this study examines the following research questions:

RQ1: What is the key industry specific and firm characteristics that act as the determinants of ESG disclosure in polluting firms?

RQ2: What are the theoretical frameworks used to explain the relationship between determinants and ESG disclosure in polluting firms?

After the introductory section the paper is subdivided into the following sections. Section 2 is devoted to the background and review of literature. Section 3 presents the discussion and findings while section 4 concludes the paper by presenting the implications and limitations of study.

## **2. Background and Review of Literature**

The literature review furnishes the core of previously available and published research work. The present review of literature is divided into two sections. Section 2.1 discusses the key industry specific and firm specific characteristics which are the key determinants of ESG performance disclosure and also discusses the significant role played by these attributes in evaluating the sustainability performance of the companies. Section 2.2 describes the various theories underlying ESG disclosure. The review of literature gives a wide overview of the both mainstream and niche theoretical perspectives supporting the accounting studies focused on ESG disclosures.

### **2.1 Part 1**

The integration of ESG issues into the corporate strategic activities and disclosures have attracted a lot of academicians to carry research in this area. ESG was first used in the global compact report which was published by the United Nations in the year 2004 in 'Who Cares Wins: Connecting Financial Markets to a changing world'. ESG can be studied from the two perspectives, i.e. the investor's perspective and corporates. However, it is studied that both viewpoints eventually come together over time, revealing a shared understanding that businesses and corporations should contribute to the improvement of society. This convergence suggests a growing awareness of the interdependence between business success and societal well-being. Contemporary business approaches often emphasize on social and environmental considerations can not only benefit society but also contribute to long-term business success. This changing perspective may be influenced by factors such as increased awareness of social and environmental issues, evolving consumer preferences, and the realization of the lasting advantages associated with responsible business practices. While diverse opinions may still exist among stakeholders, the overall trend leans toward recognizing the significance of businesses actively promoting societal welfare.

As mentioned by (Cunha et al.,2021; Yadav et al.,2023) the realm of sustainable finance involves three key participants: providers, encompassing investors and financial institutions; recipients, referring to companies; and supporters, including entities such as stock exchanges, government bodies, non-governmental organizations, and academia. (Gillan et al., 2021; Yadav et al.,2023) highlight the interchangeable use of the terms ESG and CSR in literature, but emphasize nuanced distinctions between the two concepts. Crespi et al.,(2020) in their study disclosed a significant and positive relationship between the sustainability information and percentage of independent directors. The study disclosed a significant inverse relationship between sustainability disclosure level and presence of the female director.

Fahad et al., 2019 investigated the impact of seven firm characteristics, including firm age, leverage, firm size, foreign ownership, promoter ownership, export performance, and firm popularity, on corporate social responsibility (CSR) practices. The results showed a positive association between environmental, social scores and age and leverage while both had a negative effect on governance score. The foreign ownership had a positive influence, while promoter's ownership showed a negative influence towards the environmental and social disclosures and showed no association with governance scores.

Hidaya et al., 2019 disclosed a significant and positive effect of the size of the firm on disclosure of the company's sustainability and the study also revealed a negative association of the presence of the governance committee and type of industry on the company's sustainability report.

Orazalin and Mahmood 2020 in their study reported that the level, nature and quality of the reporting of the sustainability information is influenced by the presence of standalone report, the language used, profitability and size of the company



Ong and Djajadikerta 2020 disclosed a significant relationship between ESG disclosure and various corporate governance attributes namely the percentage of independent directors, presence of female directors on the board.

Sharma et al., 2020 constructed an ESG disclosure index to study the relationship of various corporate characteristics and ESG Disclosure Scores. The empirical analysis showed a significant relationship between ROA, ROCE and ESG Disclosure Scores implying that the higher profitability of a company has major impact on disclosure. However, other characteristics studied such as market performance, foreign institutional investors' stake and leverage have negative and insignificant association with ESG disclosures.

Kumar et al., (2023) studied the explanatory and dichotomous variables influencing the CSR disclosure practices of top listed Non-Banking companies on NIFTY 100 Index. The empirical results provided that explanatory variables firm size, free cash flow capacity, age and dichotomous variables government ownership and GRI usage are positively related to the sustainability disclosure. Contrary to the expectations, financial leverage and profitability was found to be negatively related to the sustainability disclosure of companies in India.

Narolia et al., (2023) studied the influence of environmental reporting practices of companies classified under the red category industries in India based on Global Reporting Initiative (GRI) guidelines. The study revealed statistically significant differences in the disclosures levels of companies based on the size, industry and environmental certifications

## **Part 2**

In the present scenario, ESG disclosure is an emergent jargon which is an eye-catching topic of interest for capital market players, accounting scholars, corporate leaders. (Del and Lodhi 2024). The major theories associated and employed in the ESG domain can be grouped into two categories, once that explain the disclosures theories that support the investigation of the factors influencing the ESG reporting. Shareholder theory (Friedman 1970,) Stakeholder theory (Freeman ,1984), Signalling theory (Spence ,1973; Santamaria et al., 2021), institutional theory (Campbell et al., 1991) and agency theory (Ho and Taylor 2013) are all the examples of the theories which help explaining the disclosures and can be used to evaluate the determinants effecting ESG disclosures.

The once that favour ESG have their notions based on the stakeholder, legitimacy theory and signalling theory while the one who oppose the ESG hold the evidences linked with shareholder theory. Bartolacci et al., 2022 reviewed theories popularly used in the sustainability reports till the year 2019 and underpinned the utilization of the legitimacy, institutional and stakeholder theory as the major theoretical foundations to report the ESG matters. Many academicians use these theories to determine the various corporate attributes that act as determinants of ESG disclosure. Marquis and Qian (2014) used institutional theory to explain how government dependency and monitoring affect the effectiveness of sustainability reporting. Jizi et al. (2014) used the agency theory to determine the relationship between board independence, size and CEO duality positively impacted the sustainability disclosure. Diversity theory and critical mass theory are some uncommon theories that are used to show a positive influence of board diversity on ESG disclosure (Austin et al., 2021 ;Suttipun 2021)

Simpson et al., (2022) used the strong structuration theory that uses the dual role of both structure and agency in shaping the societal patterns based on the external structures, active agency and outcome.

## **DATA AND METHODOLOGY**

This section provides an overview of the methodology and sources which were used to gather the data and were used to direct this study. Academicians and researchers have always highlighted the use of literature reviews to produce results, leveraging the existing knowledge, advancing the research and offering an evidence based on the professional judgement and experience. (Rousseau, 2012). A systematic literature review study is carried using a qualitative approach and is mainly concerned with the content analysis which helps to identify select and critically appraise the research in order to answer the formulated research question (Rother 2007). Scopus and Web of Science databases are widely used for reliable articles in the social science domain. As Scopus is known for its comprehensive coverage (Kumar et al., 2021). This review includes only those indexed articles in Scopus.. A total of 1780 documents have been published under the initial search string. The keywords used were “ESG” OR “Environmental, Social, Governance” OR “Environmental, Social and Governance” OR “Environmental, Social and Governance” OR “Social Responsibility”, “Corporate Performance” OR “Corporate Financial Performance” OR “Firm performance” OR “Theories” OR “Determinants”. The present study



revolves around the field of business , sustainability , management; hence , only domain specific papers based on business or business finance management were considered after considering the above filter the left out articles were 425. After using more filters by including only articles and review articles and English as medium of language the number was reduced to 217. The abstracts of articles were reviewed and the once that were directly linked with ESG , theories and its determinants were considered. As a result of the same 90 articles were retrieved and reviewed and used in present study.

## **FINDINGS AND DISCUSSION**

This research paper delves into the multitude of studies that identify the internal and external determinants influencing ESG outcomes in corporations. These determinants encompass regulatory frameworks, board characteristics, stakeholders' pressures, firm size and ownership structure that drive and shape the ESG performance. Furthermore, the analysis synthesizes the findings of prior research to uncover the theoretical frameworks that are utilized to examine corporate attributes and the drivers of ESG performance.

## **DETERMINANTS OF ESG PERFORMANCE**

The body of literature reveals that the corporate attributes governing ESG disclosures can be categorised country wise, industry wise, firm and individual level (Seow 2024). The other factors include natural disasters (Huang et al., 2022), Legal frameworks (Barakat et al., 2014; Miniaoui et al., 2019), Cultural norms (Adnan et al., 2018; Lu & Wang 2021). Baldini et al., 2018 emphasized the role of political environment, legal frameworks, level of corruption as the country level determinants that have a significant impact on ESG disclosure practices. As per his study the countries with robust legal system tend to have higher levels of ESG disclosures. The study also discussed the role of labour and culture systems that can enhance or reduce the level of ESG disclosures. The sustainability disclosures are also dependent on the type of industry for example, the environmentally sensitive industries are required to report more information hence leading to extensive sustainability reporting (Ali. et al., 2018). On the other hand, the study of Alkayed and Omar (2022) reveals that service sector tends to disclose less sustainability reporting information.

Previous studies are more focused on the firm level determinants which are linked with various types of ownership based on institutional ownership (Ahmed et al., 2022), family ownership (Biswas et al., 2019), promoter ownership (Kumar et al. 2021) foreign ownership (Fahad and Nidheesh 2020) and Government ownership (Kumar and Prakash 2020). Janggu et al., 2014 discussed that how the promoters tend to invest in sustainable business activities to build the positive image of the business and to meet the social expectations of other stakeholders.

Kumar et al., 2021 found a positive relationship between government ownership and ESG reporting. The study stated that the government owned companies act as social institutions, giving the government a powerful tool to promote sustainable development. Some of the other key attributes available in literature is linked with the size and age of firm (Bhatia and Tuli 2017) as per the previously available literature larger and aged firms tend to more information than the younger ones.

Scholars have acknowledged a wide range of corporate governance attributes which are key factors that have an impact on ESG performance. These attributes are board size, board independence, number of foreign members on board , tenure and age of board members , board culture , diversity of board gender , board educational backgrounds ( Pham & Tran, 2019; Gallego-Álvarez & Pucheta-Martínez, 2022; Guping et al., 2020; Ratmono et al., 2021 ; Swardani et al., 2021).

Furthermore the presence and absence of various committee namely audit (Alkayed & Omar, 2022), CSR (Gallego-Álvarez & Pucheta-Martínez, 2022) which can significantly have both positive as well as negative impact on the sustainability reporting practices followed by the firms .

The individual level determinates are also available in literature. The academic literature reveals personal attributes such as attitude of top management and CEOs, including their concerns and perceived behavioural control also influence the ESG practices (Seow 2023 , Pirani and Patil 2024).

## **Theoretical frameworks used for determining the determinants of ESG**

Theoretical frameworks play a crucial role in exploring the determinants influencing ESG practices and disclosures. These theories help in identifying the factors that drive organizations to engage in ESG activities ranging from institutional pressures and stakeholder expectations to internal corporate strategies and governance mechanisms. These theoretical perspectives provide a comprehensive lens to analyse how internal and external factors shape the adoption and quality of ESG initiatives enabling a deeper understanding of their implications for corporate sustainability and broader societal outcomes.



These theories are generally categorised into two primary groups, those that explain corporate motivations for sustainability disclosures and others that justify the determining factors being investigated (Ahmed et al., 2022). Each theory provides a valuable insight into the sustainability disclosure and no single theory can be used alone to explain its role in ESG performance analysis (Dobbs and Van Staden 2016). The various theories used by academicians are discussed as follow.

As per the study of Rezaee (2016) *legitimacy and institutional theories* are the prominent theories used by the researchers to determine the positive association between the size of firm, profile of industry, leverage and the sustainability disclosure.

Arif et al. (2020) in their study examined the role played by the legitimacy theory to help the organizations to gain the acceptance and support of public by aligning their behaviour with the societal norms and values. Baldini et al. (2018) identified the crucial role played by the institutional theory which argues that the societal institutions which makes law, norms and culture values help in shaping and influencing the behaviour of organization towards the reporting of information linked with ESG.

Li et al., 2018 discussed the use of Freeman's stakeholder theory to explain the positive relationship between ESG disclosures level and value of the firm. The stakeholder theory emphasizes the accountability of the organization to various stakeholders hence influencing the operations and value creation of the organization. Haque 2017 in his study integrated the use of agency theory that examines the relationship between the executives of organisation popularly known as management and the owners of business known as the shareholders to determine the positive association between the board independence, gender diversification with carbon reduction initiatives as well as between ESG based compensation policies. Katmon et al., 2019 used resource-based view theory to explain the positive influence of board education, tenure on sustainability disclosures. Melloni et al., 2017 evaluated the use of signalling theory also known as disclosure theory that suggest how organizations use credible signs to showcase their qualities which help them to stand out positively and address the information asymmetry by effectively conveying essential information to others, The theory is use to assess the completeness of ESG topics in the integrated reports of companies and concluded that financially weak firms have less concise and completed ESG reports. The findings of the study also argue that companies with high ESG performance remain motivated to signal their outperforming sustainability performance to the market through sustainability reporting practices. Meng-Tao et al., 2023 used the concept of reputation theory that showcases how the investors get the positive signals in developing countries when the positive information is presented through the sustainability and ESG reports by the company. The theory purposes the outperforming role of the ESG in building the market reputation of the company.

Resource dependence theory and resource-based view theory emphasize the strategical importance of the resources for the long-term existence and survival of the business. The resource dependence theory is more based on the external resources their availability and utilization as the key driver of the success of organization while the resource-based view is more dependent on the internal resources. Many researchers use the combination of resource-based theory and institutional theories to identify the response of management towards the external environmental pressures (Aureli et al., 2020 ;Katmon et al., 2019).

The other prominent theory is the slack resource theory , the perspective of this theory is based on the utilization of the surplus resources owned by the company to engage them in ESG disclosure hence leading to reduction in the investment risk by diversifying the portfolio.

Li. et al., 2018 used the affordability theory to demonstrate the effect of superior ESG disclosures in increasing the value of firm. The shared value theory emphasized the synergy that exists between profitability and sustainability practices followed by the concerns (Alsayegh et al., 2020). Tsang et al., (2023) used social movement theory to explain ESG disclosure as an outcome of societal pressure.

Islam et al., (2018) emphasized the role played by the collaboration theory in completing the transparent social disclosures. A philosophical foundation to the ESG disclosure is given by the social contract theory which states that ESG disclosures are a way a company addresses the broader societal concerns and stakeholder's requirements. Stakeholders Saliency theory have been used by (Thijssens et al., 2015) to examine the influence of the secondary stakeholders on the environmental disclosures of the company.

Melloni et al., 2017 using the voluntary disclosure theory to report that companies who voluntarily disclose the information which is not required legally tend to gain higher trust of the stakeholders. The reputation theory works in consistence with the impression management theory which states that firms good ESG reputation helps in shaping the perception of the public (Bartolacci et al., 2022). The Upper echelons theory (Hambrick et al.,



1984) states that the success of an organization depends on the characteristics of the top management. Diversity and Critical Mass theory showcased the significant impact of diversity in the board on the ESG disclosure. Murphy and McGrath (2013) used the avoidance aspect of deterrence theory to explain motivations of ESG reporting. They argued that organizations engage in ESG reporting to avoid financial penalties and to mitigate the risk associated with non-compliance.

### CONCLUSIONS AND IMPLICATIONS OF THE STUDY

The review of literature offers valuable insights on the industry specific and firm specific characteristics that act as determinants of ESG disclosures in polluting company. It also offers a picture of possible theoretical frameworks that are used to explain the above relationship. Hence offering the academicians to determine the association between ESG and various corporate attributes using the niche theories for prospective research in the future. The study provides the strategic implications for the companies associated with the polluting industries such as cement, paper, pesticides and fertilizers, chemical, refineries and others can leverage the insights from the above study and incorporate them to improve their reporting practices. Understanding the impact of various corporate attributes namely the economic performance, profitability, leverage, ownership structure, cross listing opportunities will help the companies to refine their strategies for boosting ESG performance. The landscape of ESG reporting remains fragmented with firms across various sectors having differing levels of discretions regarding the type and extend of the disclosure information (Abdual et al., 2021). This leads to pressing the need for the policy formulation and its adaption. The present study highlights the creation of the tailored mandates which help in enforcement of better ESG practices by the companies. It also extends the need of greater harmonization, Stricker implementation (Zhang et al., 2023).

In the present dynamic environment, new imperative frameworks of ESG disclosures are emerging which are shaped by both mainstream and niche theories which are playing role in determining the various corporate attributes that are playing a significant role in interpreting the ESG performance (Abeywardana and Panditharathna 2016). These theoretical perspectives are paving the path for the development of new strategies that not only meet the regulatory requirements but are delivering the tangible value to the business.

Furthermore, as ESG disclosure practices are expanding they are offering new opportunities to achieve the sustainable development goals by promoting sustainable practices and mitigating the environmental risk. By observing the real world practices and the linked outcomes the researchers and academicians can enhance these conceptual frameworks ensuring they remain relevant and play a significant role in addressing the complexities of sustainability reporting.

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**IMPACT OF VIRAL MARKETING ON BRAND AWARENESS**

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**ABSTRACT:**

*Viral Marketing is a dynamic tactic that harnesses the power of captivating and share-worthy content to swiftly disseminate a message or advertise a product. By utilizing social media and word-of-mouth, viral marketing strives to reach a vast audience as individuals pass on the content through their personal networks. The secret to its triumph lies in the content's innate allure, which motivates people to voluntarily share it, leading to exponential reach and recognition for the brand. This modern marketing strategy can be incredibly impactful, taking advantage of the influence of online communities to rapidly and naturally propagate a message. Viral Marketing thrives on captivating content that triggers a strong urge to share, whether it's through humour, evoking emotions, or showcasing novelty. In today's digital landscape, this approach harnesses the power of connectivity to yield massive exposure and amplification for brands and marketers, without having to rely solely on conventional advertising methods.*

**Keywords:** *Viral Marketing, Brand awareness, technology*

**INTRODUCTION**

Viral marketing term derives its name from the fact that material is disseminated from individual to individual in a manner analogous to how a virus moves through a population.

A company may have to pay upfront costs to create and produce content for viral marketing. Viral marketing campaigns use social channels to distribute content rather than a paid distribution model. This is one of the characteristics that sets viral marketing apart from other types of marketing campaigns.

It is possible for a piece of material to "go viral" when a well-known social media personality or celebrity shares it. This can result in hundreds or millions of views, shares, and other sorts of engagement with the content. The more quickly and frequently a piece of material is shared, the greater the likelihood it will go viral and garner notice on a national or international scale.

Viral marketing uses fast-moving communications that pass from one individual to another to increase interest in a company or product and, subsequently, potential sales. Therefore, a piece of content with a high possibility of being shared and presented by social media users with a high networking potential should be the target of any viral marketing campaign.

**RESEARCH PROBLEM:**

- 1) To understand the potential of Viral marketing & its far reaching impact
- 2) Growing awareness of Viral marketing & importance of social media.
- 3) Effective content formulation for quick promotion.

**OBJECTIVES OF THE STUDY:**

- 1) This study aims to examine the influence of viral marketing strategies on brand recognition and brand preference by developing a framework for the effectiveness of viral marketing (7I's) in social media contexts and testing the associations among the 7I's, brand recognition and brand preference.
- 2) Use of marketing mix & other promotion tools to enhance impact of Viral marketing on consumer brand awareness.

**LITERATURE REVIEW:**

**According to Reece et al. (2010)**, in order to be considered a viral marketing, marketing campaigns need to be associated with a value for sender and receiver, they need to be free and reproducible and marketing campaigns need to be spread exclusively via the internet.

**Zarella (2010)** specifies the goals of viral marketing strategy as customer attraction, increasing the level of customer loyalty, and achieving a higher level of brand awareness.

**Anjum (2011)** divides the costs of engagement in viral marketing into three categories: free, indirect, and direct. Viral marketing can be automatically facilitated free of charge when the product is innovative or it offers



competitive benefits that are appreciated by consumers. In such occasions innovative features of the product or its competitive benefits become a viral marketing message to be spread by internet users with no costs for the manufacturer.

Literature review has identified numerous attempts of comparing viral marketing to alternative marketing strategies. **Mackay and Willmshurst (2012)** offer a detailed comparison of such a nature that is illustrated on the following table:

	<b>Believable</b>	<b>Two-way</b>	<b>Fast</b>	<b>Cheap</b>	<b>Controllable</b>	<b>Action</b>
<b>Viral marketing</b>	Yes	No	No	Yes	No	Yes
<b>Personal selling</b>	No	Yes	No	No	Yes	Yes
<b>Seminars</b>	Yes	Yes	No	No	Yes	Yes
<b>Advertising</b>	No	No	Yes	Yes	Yes	No
<b>Sales promotion</b>	No	No	Yes	Yes	Yes	Yes
<b>Public relations</b>	Yes	No	No	Yes	No	No

Comparison of marketing methods

**Source: Mackay and Willmshurst (2012)**

Generally instruments employed for viral marketing have been found to include customer recommendations, newsletters, utilisation of search engines, the use of affiliation programs, the use of online chats and sweepstakes, maintaining online communities and others (Beneke, 2010, Schneider, 2011).

The issue of marketing mix for viral marketing has been comprehensively addressed by secondary data authors in the following manner:

**Product element of marketing mix** includes products that are sold over the internet. According to **Anjum (2011)**, until only a few years ago the ranges of products sold online were mainly limited to books, gadgets and other tangible products of smaller sizes. However, in present, Anjum (2011), convincingly argues, most of the products that are available offline can be purchased online as well, including perishable products such as fresh food and flowers.

**Wirtz (2012)** argues that the development of internet has given rise to a wide range of new products that are available only online such as applications on portable electronic devices, search engines, anti-virus programs, and data bases.

**Price element of marketing mix in viral marketing** is different form price element in traditional marketing mix in a number of ways. For example, in viral marketing, some products such as e-books or downloadable software products might be provided free of charge in order to motivate individuals to spread the viral marketing message (Anjum, 2011).

According to **Kabani (2012)**, price is not the primary focus in viral marketing, as the primary objective of viral marketing is closely associated with the spread of the message at a global scale.

**Place element of marketing mix** in viral marketing is fundamentally different from place element in traditional marketing in a way that a universal virtual marketplace represents trading place for viral marketing (**Lilien and Grewall, 2012**). Anyone with the access to the internet has an access to virtual marketplace. Moreover, virtual marketplace operates in 24/7 basis, and requires minimum or none transaction costs.

**Promotion element of the marketing mix** in viral marketing adopts individuals as integral element of the promotion strategy. **Waldow and Falls (2012)** confirm that if people like a marketing message, it gets spread and may achieve its objectives.

According to **Middleton (2012)**, viral marketing can prove to be highly effective in following circumstances:

Firstly, viral marketing works well for new type of products and services that are innovative in some ways. Specifically, the innovative feature of the new product or service can serve as a powerful marketing message with the potential of going viral.

Secondly, the potential benefits of viral marketing are further increased when the benefits associated with the use of products or services are real. Similarly to the point above, Middleton (2012) argues, specific benefits associated with the use of product or service has the potential of being an effective viral marketing message.



Thirdly, viral marketing can also prove to be highly effective in situations where product or service being promoted caters for the needs of specific group of people. In other words, members of such groups can facilitate the spread of marketing message within the group.

**RESEARCH METHODOLOGY & DESIGN:**

To study the impact, the researcher had interviewed respondents to understand the statistics. The sample represents men and women employed in various private companies, in suburbs spread across Mumbai.

**Sampling method :** Random sampling method

**Sample size:** 100 respondents

**Data Type:** Primary data

**Questionnaire:** Structured Questionnaire

**Area of Study:** Mumbai Suburbs

**LIMITATIONS:**

While viral marketing can be a powerful tool for increasing brand awareness, there are several limitations to its impact:

**1. Measuring Success**

- ❖ Difficulty in tracking ROI: It can be challenging to measure the return on investment (ROI) of viral marketing campaigns.
- ❖ Limited control over messaging: Once content goes viral, it can be difficult to control the narrative and ensure that the intended message is conveyed.

**2. Reach and Engagement**

- ❖ Limited reach: Viral marketing campaigns may not reach the intended target audience, and may instead appeal to a broader, less targeted audience.
- ❖ Short-lived engagement: The engagement generated by viral marketing campaigns can be short-lived, and may not lead to long-term brand loyalty.

**3. Authenticity and Credibility**

- ❖ Authenticity concerns: Viral marketing campaigns can be perceived as inauthentic or manipulative, which can damage brand credibility.
- ❖ Over-commercialization: Viral marketing campaigns can be over-commercialized, leading to a decrease in their perceived authenticity and credibility.

**4) Risk of Negative Backlash**

- ❖ Negative publicity: Viral marketing campaigns can backfire and generate negative publicity, damaging brand reputation.
- ❖ Unintended consequences: Viral marketing campaigns can have unintended consequences, such as offending certain groups or perpetuating negative stereotypes.

**5) Dependence on Platforms**

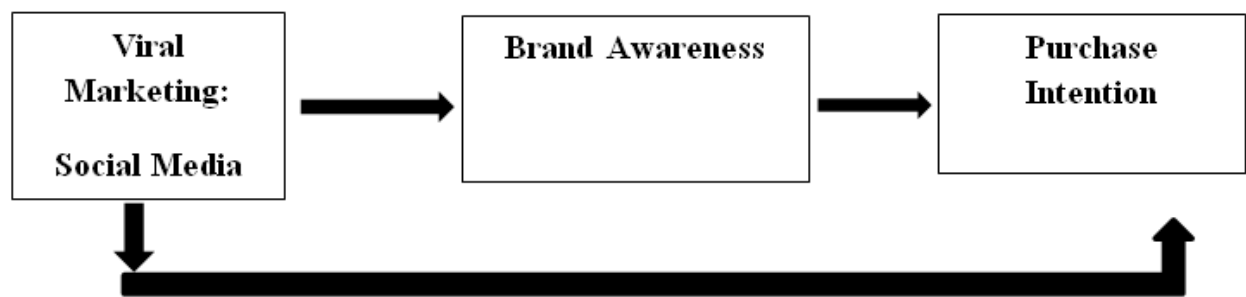
- ❖ Platform dependence: Viral marketing campaigns are often dependent on social media platforms, which can change their algorithms and policies at any time.
- ❖ Limited shelf life: Viral marketing campaigns can have a limited shelf life, as platforms and consumer attention spans are constantly evolving.

**Conceptual Model and Hypothesis Development**

According to the literature and this conceptual framework, viral marketing dimensions i.e social media usage is independent variable how it effects the brand awareness and purchase intention.



Figure 1: Conceptual Model.

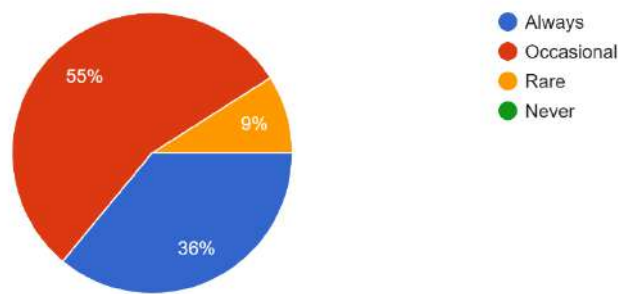


❖ Hypothesis

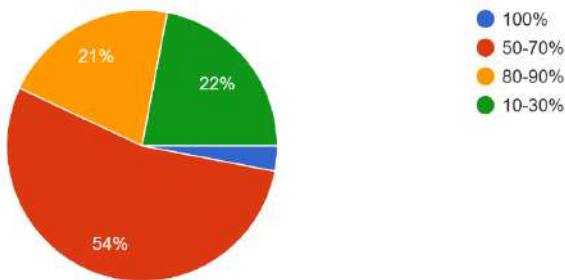
- **H1:** There is positive relationship between social media and purchase intention.”
- **H2:** Social media has positive impact on brand awareness.”
- **H3:** Brand awareness has positive impact on purchase intention.”
- **H4:** Brand awareness mediates the relationship between social media and purchase intention.”

DATA ANALYSIS & INTERPRETATION:

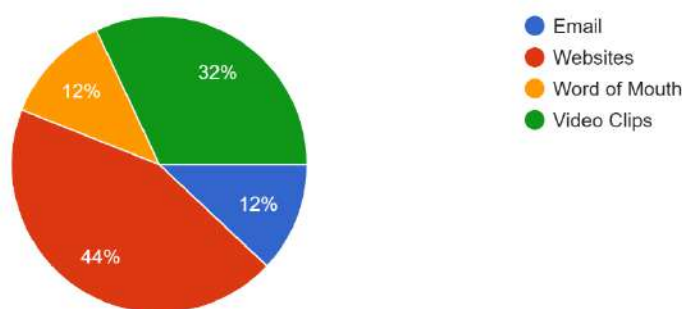
How often do you refer to online shopping & purchases?  
100 responses



How safe do you feel Viral marketing is in terms of data sharing & privacy?  
100 responses

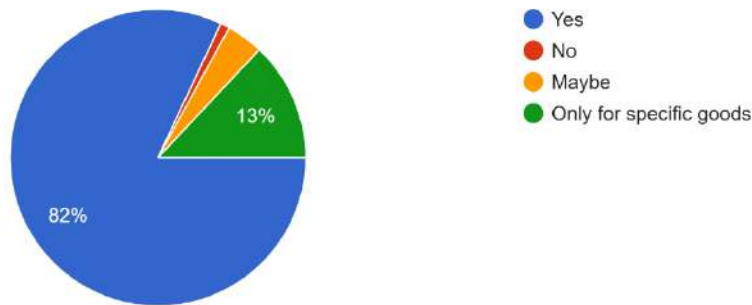


Which tool do you use the most in Viral marketing?  
100 responses

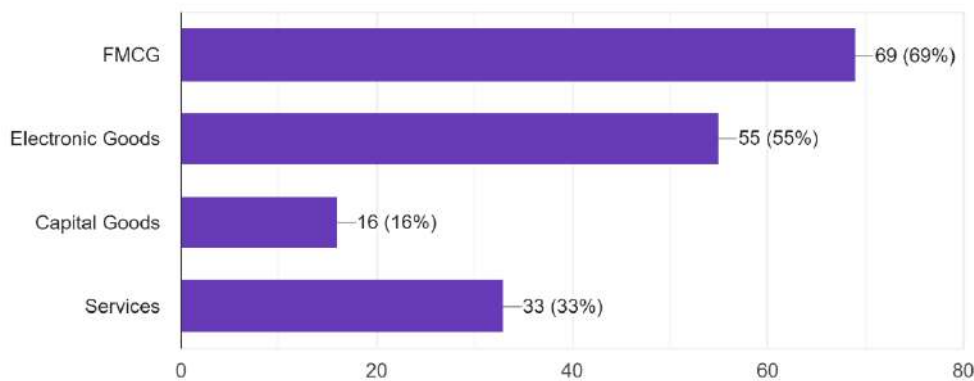




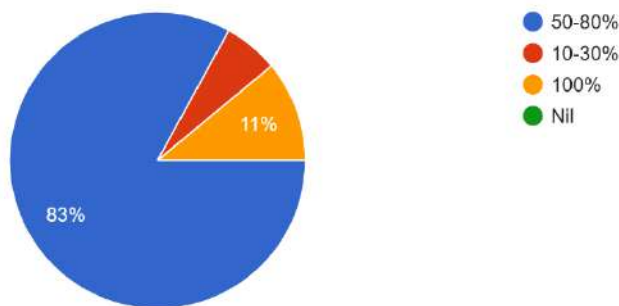
Do you feel brand promotion is successful via social media platforms?  
100 responses



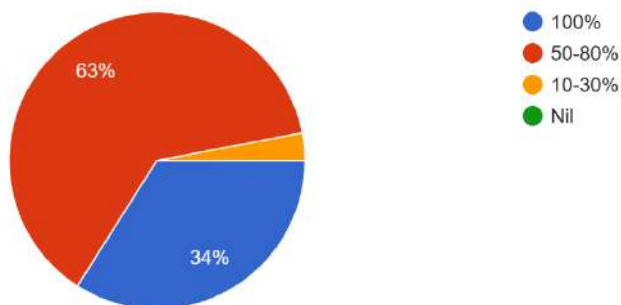
Which brands gain a lot of attention or Sale via online platforms.  
100 responses



To what extent does Viral Marketing help consumers in brand recall, brand loyalty, brand awareness?  
100 responses



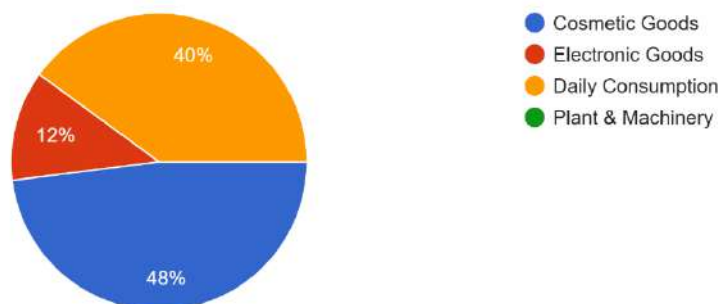
To what extent does viral marketing create competition among the brands ?  
100 responses





In which market do you feel viral marketing can achieve success?

100 responses



### CONCLUSIONS & FINDINGS:

1. Viral marketing has a significant positive impact on brand awareness, increasing recognition, recall, and perception of the brand.
2. Viral marketing campaigns can reach a large audience, generate buzz, and create a lasting impression on consumers.
3. Through Viral marketing not only awareness but brand promotion can be achieved in seconds.

### CASE EXAMPLES SUPPORTING THE FINDINGS :

Successful viral marketing campaigns and how they were measured are:

- **Dove Real Beauty Sketches:** This campaign aimed to challenge the perception of beauty and self-esteem among women. It featured a video that showed how women describe themselves to a forensic artist, and how different their sketches are from how others see them. The campaign reached over 200 million people in 25 languages, generated over 5 billion media impressions, and increased sales by 6% in the US and 9% in Canada. The campaign also measured the engagement and influence of the video by using tools such as YouTube Analytics, Facebook Insights, Twitter Analytics, and Google Trends, as well as surveys and interviews that captured the emotional reactions and responses of the viewers.

- **ALS Ice Bucket Challenge:** This campaign aimed to raise awareness and funds for amyotrophic lateral sclerosis (ALS), a progressive neurodegenerative disease. It involved people dumping a bucket of ice water over their heads, nominating others to do the same, and donating to the ALS Association. The campaign reached over 440 million people, generated over 17 million videos, and raised over \$220 million for ALS research. The campaign also measured the engagement and conversion of the participants by using tools such as Facebook Insights, YouTube Analytics, Twitter Analytics, and Google Analytics, as well as tracking the donations and registrations on the ALS Association website.

- **Old Spice The Man Your Man Could Smell Like:** This campaign aimed to rebrand Old Spice as a modern and appealing product for men and women. It featured a video that showed a charismatic man performing various feats and delivering humorous lines, while promoting Old Spice products. The campaign reached over 40 million people, generated over 1.8 billion media impressions, and increased sales by 107%. The campaign also measured the engagement and influence of the video by using tools such as YouTube Analytics, Facebook Insights, Twitter Analytics, and Google Trends, as well as surveys and interviews that captured the feedback and opinions of the viewers.

### KEY DRIVERS:

1. Emotional connection, social sharing, and authenticity are key drivers of viral marketing success.
2. Campaigns that evoke emotions, are easy to share, and resonate with the target audience are more likely to go viral.

### RECOMMENDATIONS FOR MARKETERS:

1. Develop campaigns that create an emotional connection with the target audience.
2. Encourage social sharing and user-generated content.
3. Ensure authenticity and transparency in messaging.
4. Monitor and measure campaign success using relevant metrics.



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**FUTURE RESEARCH DIRECTIONS:**

1. Investigate the impact of viral marketing on brand loyalty and customer retention.
2. Examine the role of influencers and user-generated content in viral marketing.
3. Develop more effective methods for measuring and predicting viral marketing success.

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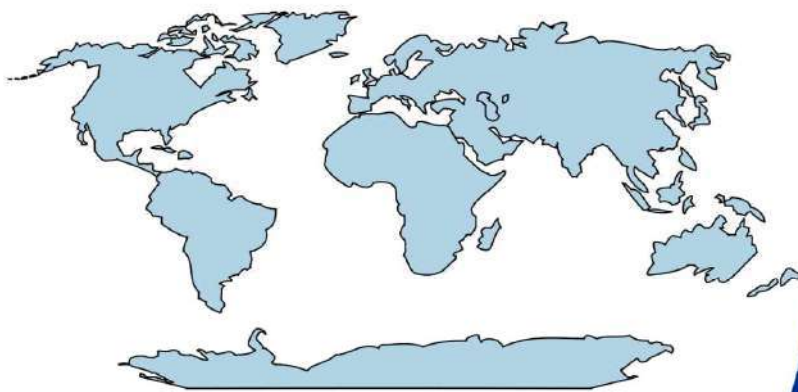


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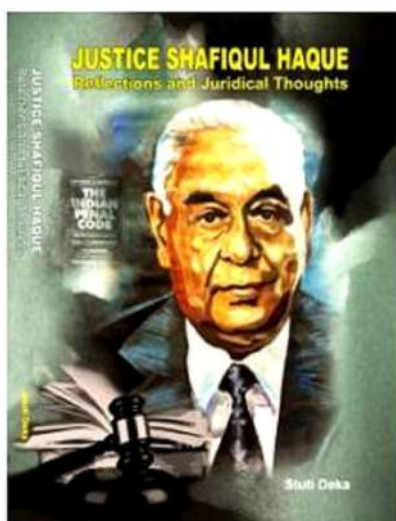


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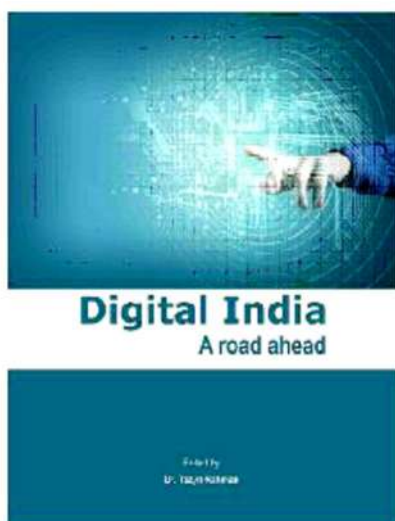
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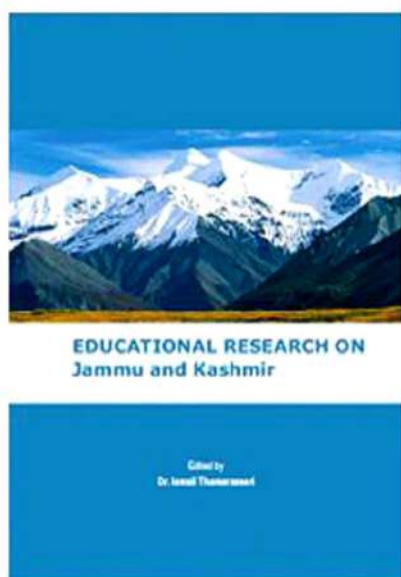
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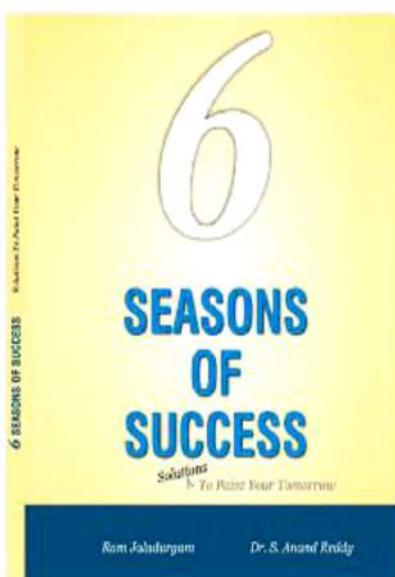
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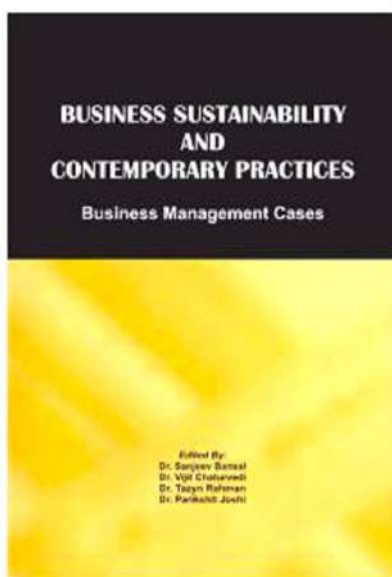
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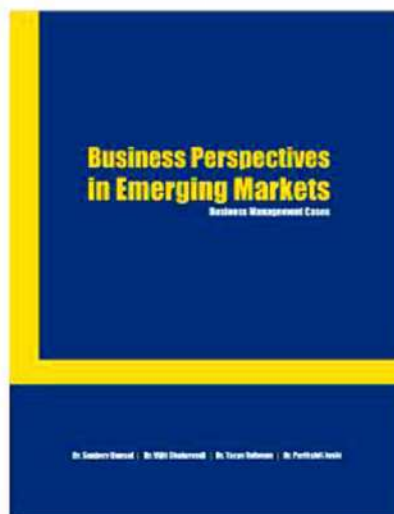


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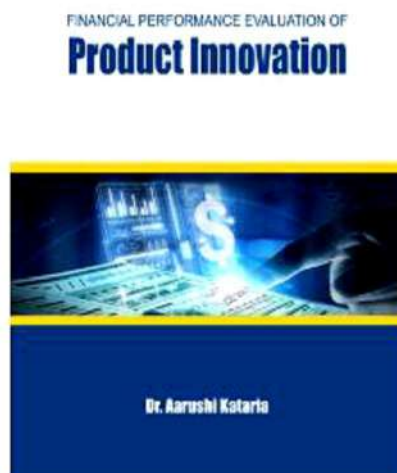
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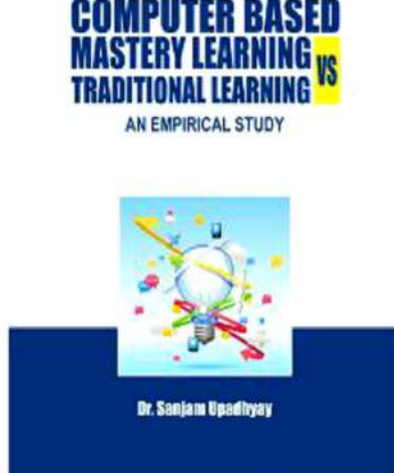
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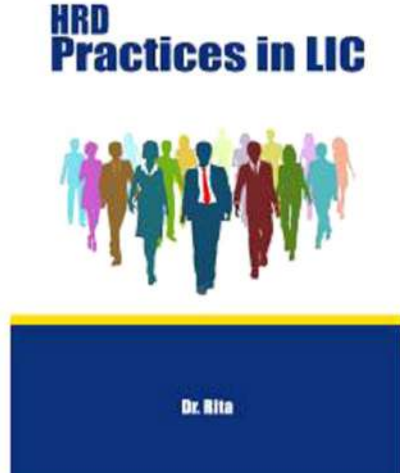
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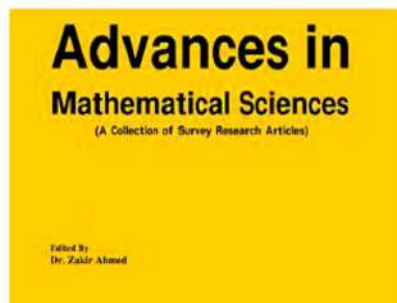
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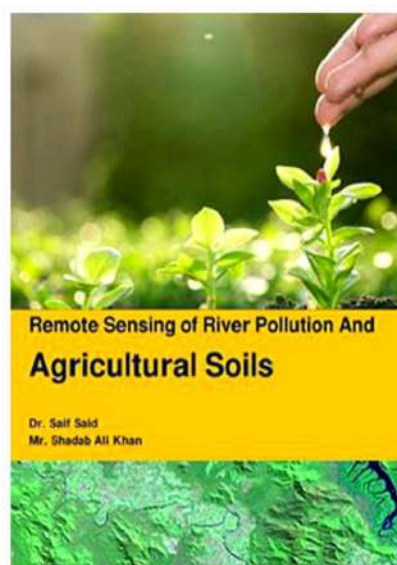
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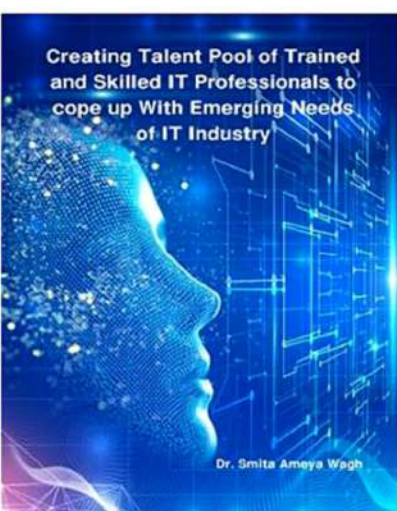
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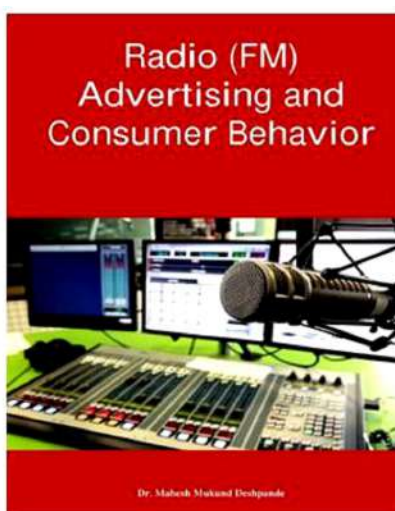
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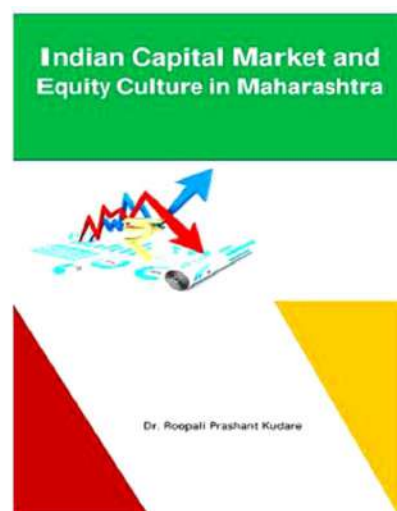
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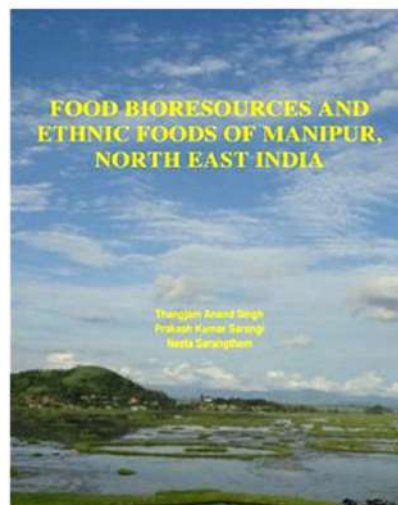
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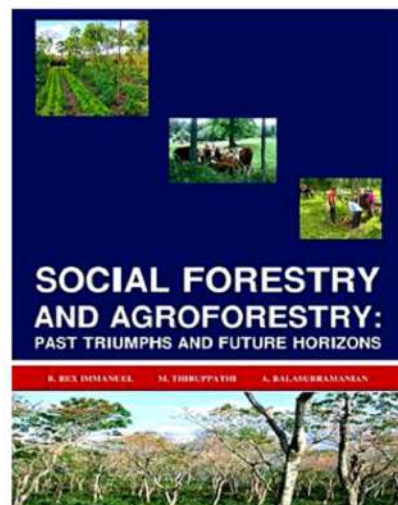




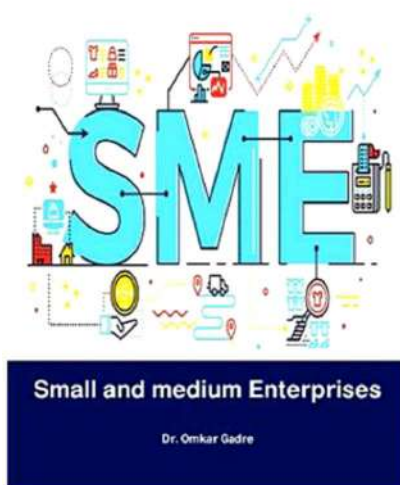
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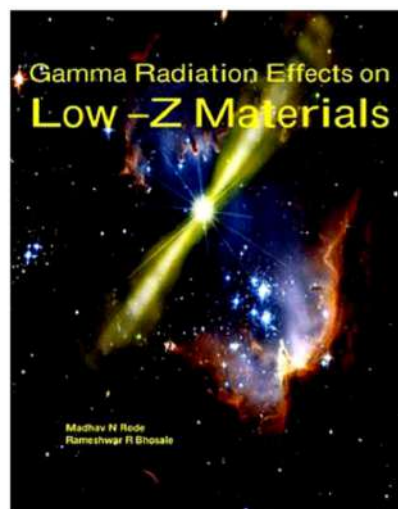
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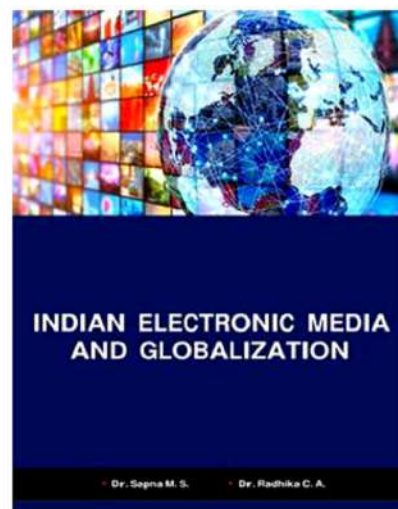
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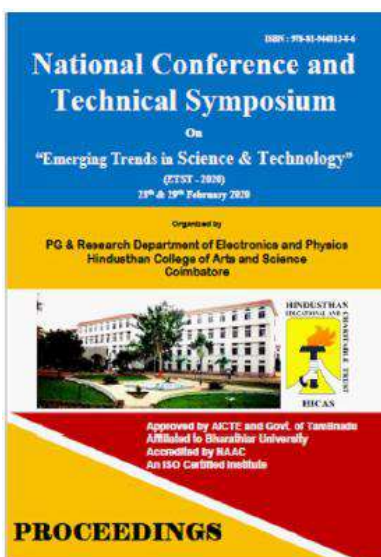
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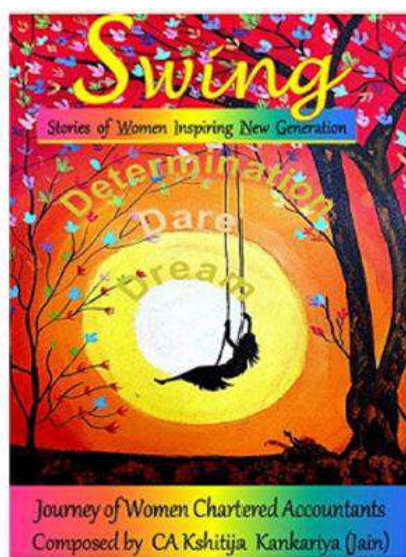
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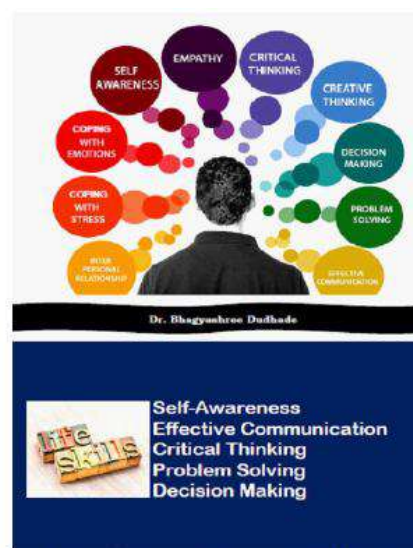
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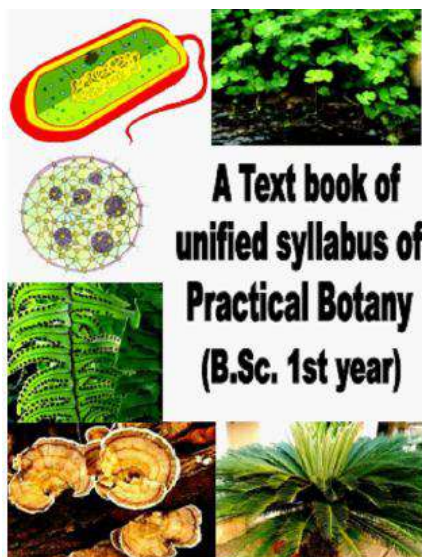


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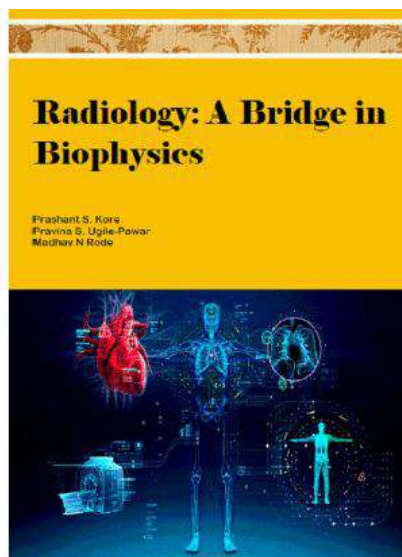




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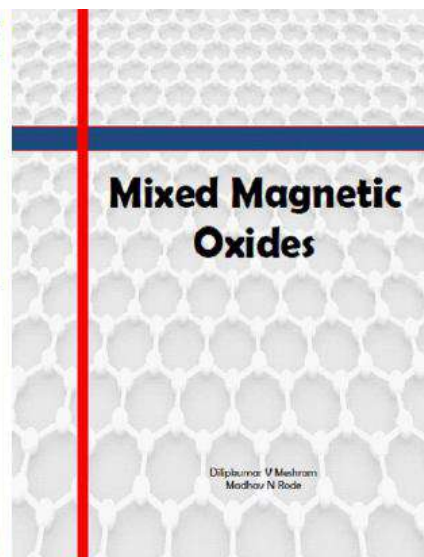
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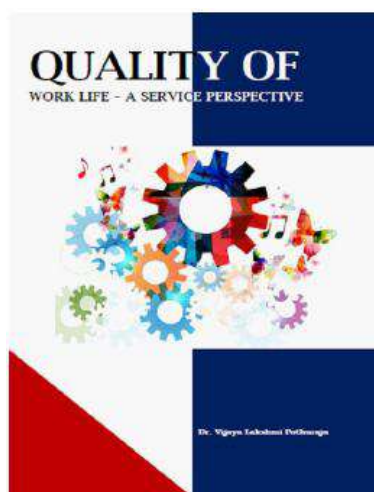


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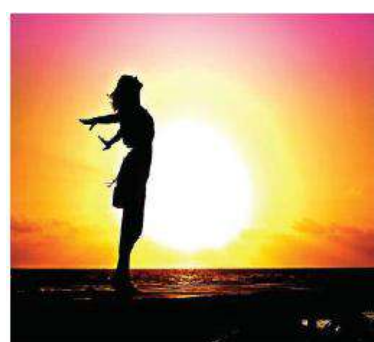
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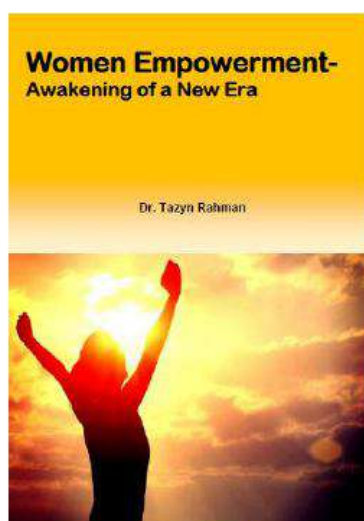


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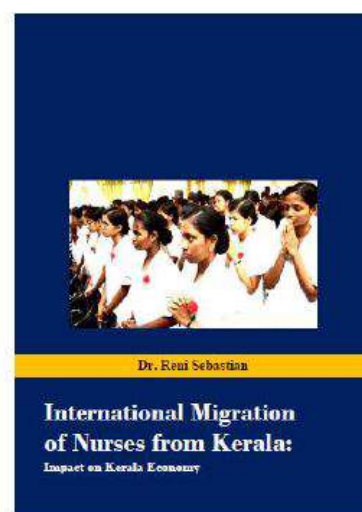


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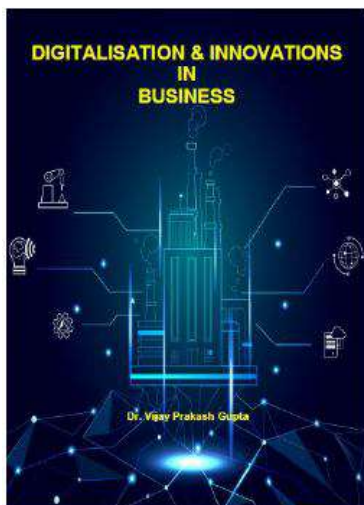
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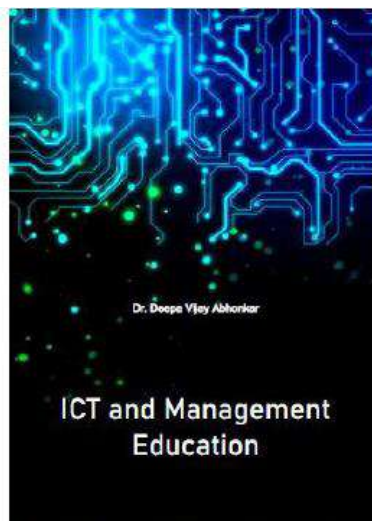
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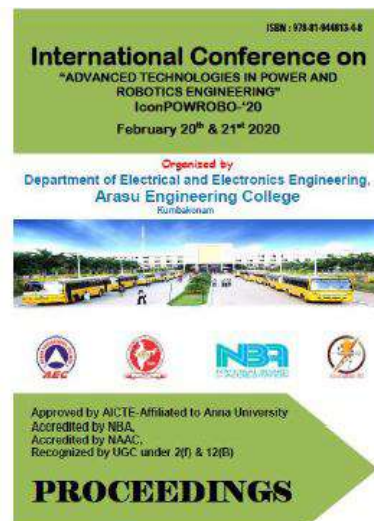




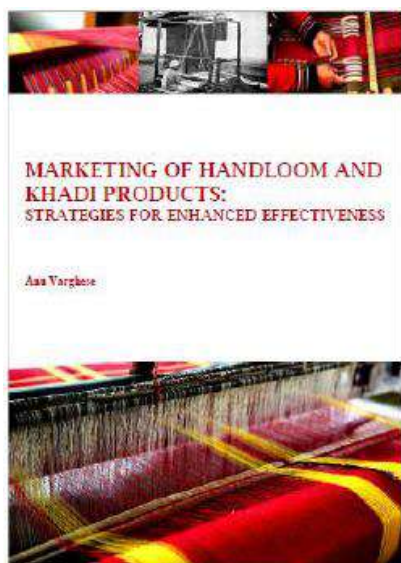
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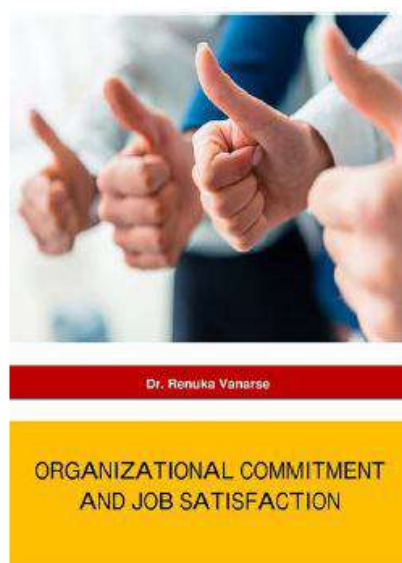
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