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Preface

The pervasive nature of digital technologies as witnessed in industry, services and everyday life has given rise to an emergent, data-focused economy stemming from many aspects of human individual and commercial activity. The richness and vastness of these data are creating unprecedented research opportunities in a number of fields including business, economics, finance, and social science, as well as healthcare and many others. In addition to Analytics- Data-inspired research, businesses have seized on analytics technologies to support and propel growing business intelligence needs. As businesses build out appropriate infrastructure, it becomes increasingly important to anticipate technical and practical challenges and to identify best practices learned through experience. Data analytics employ software tools from advanced analytics disciplines such as data mining, predictive analytics, and machine learning. At the same time, the processing and analysis of data present methodological and technological challenges. The goal of this special issue is to present how analytics is perceived in various business domains using compelling research topics.

This special issue contains 16 papers that provide deep research results.

In summary, the goal of this special issue is to crystallize the emerging Analytics practices and trends into positive efforts to focus on the most promising applications of analytics. The papers provide clear proof that Business Analytics is playing a more and more important and critical role in creating insights for the businesses. It is also believed that the papers will direct further research on best business analytics practices in this emerging research discipline.

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ROLE OF CONSUMER ANALYTICS IN CONSUMER EXPERIENCE ENHANCEMNET

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ABSTRACT
In digital revolution, Consumer analytics role enables the company to become more customer centric focused, understanding the customers, product and purchasing trends. The behavioral analysis leads to consumer insight for their strategic advantage. By understanding consumer changing behavior and identifying opportunities to drive consumer engagement, loyalty and lifetime value. By systematic examination or evaluation of consumer the company enable to segmenting and targeting the right customer which leads to higher degree of consumer experience. The study points how the Consumer experience leads company's brand positioning through artificial intelligence and machine learning. The secondary sources of information have been used here.

Keywords: Artificial intelligence, Consumer analytics, Consumer experience, Digital revolution, Machine learning

INTRODUCTION
In this analytical era, consumer analytics plays an important role in marketing. Consumer analytics is synonymous with customer analytics here. It is also called as data analytics which is the systematic examination of a company's customer information and his behavior to identify, attract and retain the most profitable customers.

With capillary insight of Consumer's behavior and preferences need to personlaising campaigns and communication with AI powered retail analytics. It is considering each and every touchpoints that a consumer interacts through many channels and over time.

In this digital phase customers can get the information so widely for where to purchase, why that brand only, how to purchase, how much pay etc. Consumer analytics makes possible to utilize predictive analytics and data to anticipate customer's interaction with brands.

This analysis provide the single, accurate foresight of a customer to make decisions regarding how to acquire and retain valuable customers and interact with them dominantly.

Every customer is unique in his preferences, lifestyle and buying habits so how large amount of data we accumulated it enables us to identify the right pattern of taking decision for buying the product. It becomes critical day by day. Customers are more brand conscious and empowered as well connected with all other media than ever. They can go very deeply about product details through many sources and it becomes so essential to get more insight about each and every individual thoroughly. The moment you go deeply to interpret the purchasing habits and preference of our customers, we get accurate future buying behavior and can able to focus on productive and potential consumers only with accurate marketing communication.

Every enterprise get advantage of this big consumer data by inductive reasoning than deductive reasoning which boosts it's competitive advantage.

Wherever the ignorance is there they can tap the market. Huge data enables the company radical innovation which create greater value.

Consumer analytics works on a big data revolution which gives detail information about the valued customer in real time.

In this process there are three basic resources included like physical, human and organizational capital. The process of this analytics is collecting and storing the evidence of consumer activity, extracting consumer insight from huge data, utilizing consumer insight to develop dynamic/adaptive capabilities.

In short Consumer analytics is a vital component of any business plan in all stages of growth. Once we are able to analyze the consumer we can target the market and decide how to reach them. From advertising to delivery, consumer analysis and consumer analytics enable the most required information for any business proceedings. So it is very crucial to effective marketing communication and strategy

OBJECTIVES
1. To identify different environmental forces that affect consumer's behavior.

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2. To understand right marketing communication plan for creating these effects.
3. To enhance consumer experience by artificial intelligence and machine learning

Significance of consumer analytics

1. Customer loyalty and response rate have been increased.
2. Targeting the right customers with high relevant offers.
3. Reduce campaign cost by focusing target customers only.
4. Develop the right proactive campaigns to retain the old customer.
5. Enable to do proper customer segmentation so can target the potential customer and get positioning.

How to use customer analytics

In any manufacturing or service oriented companies there are many divisions like advertising, sales and distribution, customer service, business analysis and IT. They have work upon customer relationship management (CRM), desperate enterprise resource planning (ERP) and poor Customer data integration (CDI). To be effective and get more meaningful insights, each group must decide the right business metrics they need to achieve a single view of the customer experience.

Consumer analytics tools to perform the analysis

1. Adobe Analytics: It consists of huge data workbench and called as mobile app campaign tool. It shows live stream with real time events. It is the basic platform for standardized video and ad engagement. Productive workbench through artificial intelligence and machine learning.
2. Google analytics 360: It includes surveys and known as Data studio. It is value of marketing channels through attribution. Tag manager allowing tag updates without editing code. The main function is audience center to match customers with the right message and analytics.
3. IBM Watson Customer Experience Analytics: Role based dashboards are there. Overall consumer journey analysis is there. Customer's mindset analysis has been done here. The site optimization also included in it.
4. SAP hybris marketing cloud : This is the tool for gaining customer insights. It builds customer target groups, triggers successful campaigns and categorizes customers based on score values.
5. SAS Customer intelligence 360: It is digital asset management. This tool is known as customer centric data model and contextualizes captured data. It considered as better business goal creation.

Artificial intelligence and Machine learning in consumer analytics

Machine learning is the branch of artificial intelligence. It is the right source to interact with consumers by brands which helps in formulating the strategies in today's rapidly changing environment and make easy to predict the future trends.

Chatbots on smartphones can have all sort of applications which enable to interact with customers and drive the sales in most efficient manner. These chatbots/ videos connect through auditory or textual methods, consumer data analysis for better target audience and e- commerce plays vital role in engaging more consumers.

Businesses will need to enhance their search engine optimization and content marketing strategies to account for voice search. Huge data always helps in better personalization of marketing messages so retail brands are using AR and VR with great effect especially in Apps. Predictive analytic strategy helps in market campaigning. This application has been used by visitors in 'Search history and usage pattern on e-commerce websites to make product recommendations. Amazon sites booming their sales by recommending products based on specific consumer interest. Machine learning is an extension of predictive analytics and plays very crucial role in marketing operations of real estate, insurance, retail and almost every other sector. AI makes easy to craft more targeted and personalized messages to its mobile users by behavioral trends and patterns which provides consumer insight preferences and the best time for reaching them with those messages. Following survey shows the role of AI in consumer analytics.

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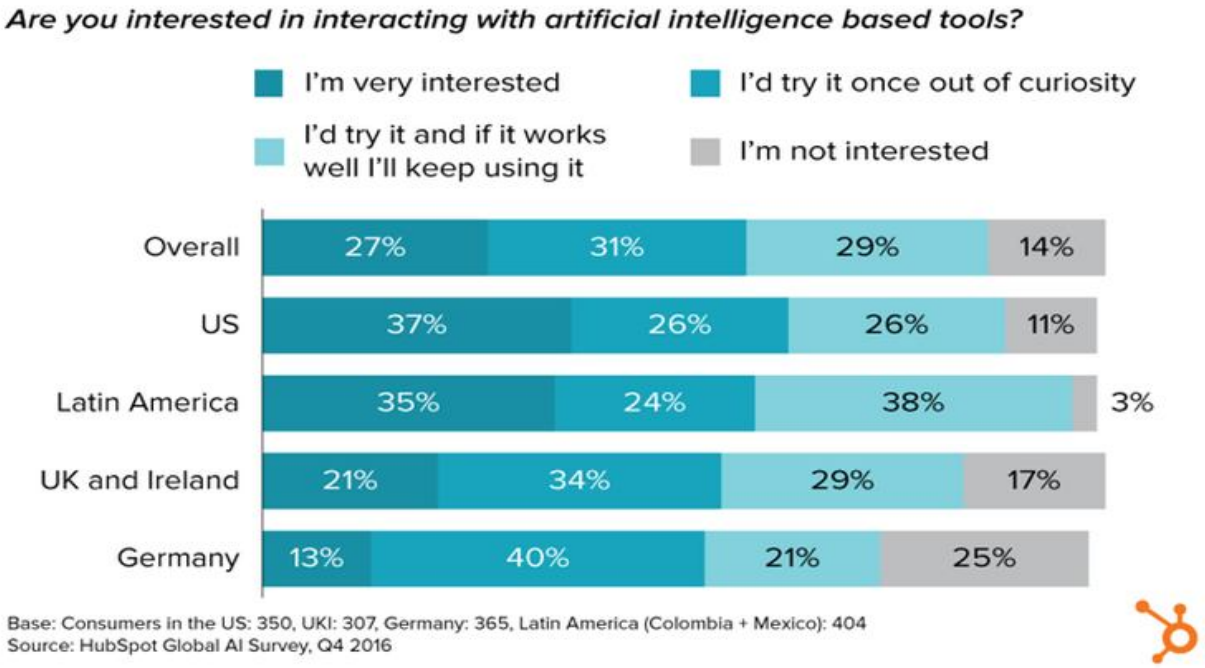

There are specialized Apps for this tools to get deep insight into the customer experience and their frequent purchase behavior which helps in tailor marketing campaigns to specific consumer segment or group.

Some of the tools has different features such as User segmentation for personalized websites and enhance niche marketing campaigns.

If all analytic tools get merged then major software providers will likely improve the wide range of users and add integration and new services. There are many advanced features which will connected systems including Omni channel content management platform.

Customer analytics best practices

There are certain specific metrics by which data can be measured and analyzed through which customer interaction becomes easy. Due to better practices few customer analytics help in right business decisions. It provides following best results which helps in decision making process of business.

1. Analyze each and every customers from all the channels and target them, analyze them about product or service can be distributed.
2. Evaluating and interpreting about the customer and his usage of brand. It is practiced by quantitative and qualitative surveys.
3. Predicting attrition rate or churn rate and try to maintain and extend customer's lifetime value.
4. Entertain the right customer at right time though right channel
5. Spotting trends in big data and analyzing online behavior to increase sales.
6. Provide personalized selling and market segmentation and maximize the customer journey by evaluating one type of product purchaser over another.

A magical fusion of computer and phone created a new fabulous device smartphone. The smartphone was invented 1992and it was IBM Simon. The very premium product like iPhone invention makes the whole more brand conscious which carried status quo. Due to continuous increase in disposable income customer are able to swtich their buying pattern to high end phones and it becomes more vital part of their personal and corporate life.

The youth group is more tended to change their handset within a year as a new model with new features.

Buyers in India, gives more weightage to value for the money though brand conscious.

There are certain external forces influence their buying pattern while they select a handset or smartphone.

For consumer analytics, this behavioral demand is very important while ensuring any publicity or advertising to enhance the consumer experience.

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1. Best handset : It provides their inner satisfaction like smooth functioning. Apple phone were apple of an eye to customers though it was costly and they got switched to their Samsung to iphone during 2016. One Plus, Chinese smartphone suddenly captured the Indian market for its fulfilling the needs of Indian buyers after 2016 onwards.
2. Brand consciousness: Smartphone with high quality and more expensive handset becomes an status of buyer especially the youngsters as well all group customers. Customers are more interested in showing their brand of the phone and it was not luxurious product these days.
3. Requirement of PC in handset: All functions of computer has been expected trough this mobile handset so its screen clarity as well as connectivity with storage all matters while they select a brand of their choice.
4. Time urgency: In this fast paced life customers need smartphone which is accessible very efficiently without reaching home. Different Apps makes their busy life more convenient.
5. High end connectivity: different kind of events or emotions has to get shared by people so they are looking better product to acquire more accuracy and comprehensiveness in their handset.

These ate the basic needs of today's Indian customers and has to analyze it very thoroughly to reach them efficiently. Every individual is unique so this behavioral pattern of every individual become huge data.

So Consumer analytics plays an important role in smartphone too.

By analyzing all the relevant information about Indian market data and customer's choice behavior Chinese Smartphone able to communicate so effectively by their advertisements and campaigns.

OnePlus 6 starts getting OxygenOS 9.0.3 update for the Onre plus 6 useres. It improves camera clarity and audio tuning support Bluetooth earphones. It adds more features like Bluetooth stability and wifi stability.

Certain updates have been implemented on the basis of consumer analysis.

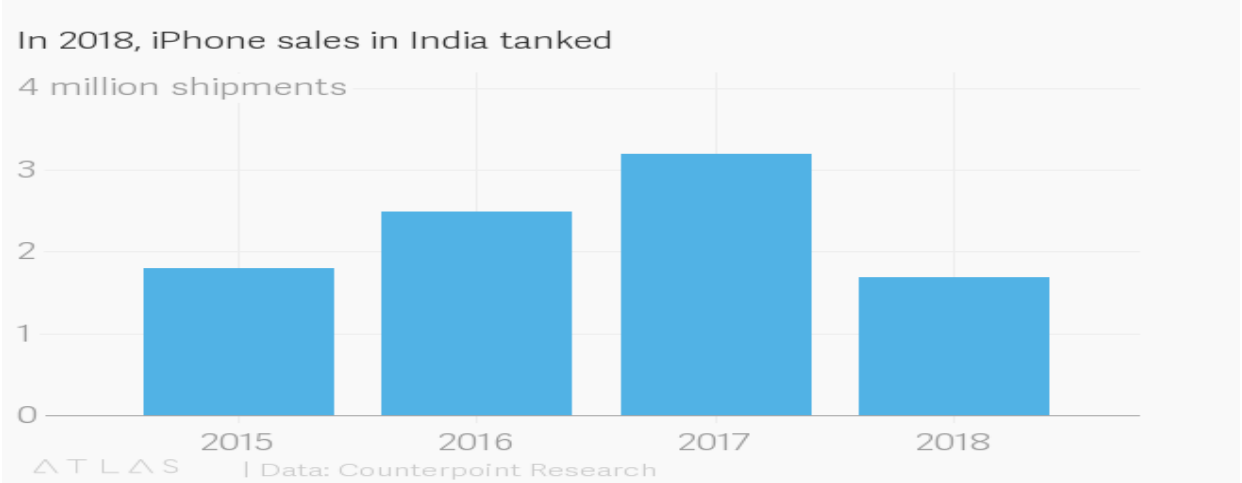
The overall system has been updated which enhances better connectivity and Wi-Fi stability. The android security patch updated to 2018.12. the oveall nightscape performance has been improved. Certain features have been added like optimized image processing and general bug fixes and improvements. The support VoLTE for Bouygues FR.

OnePlus is crushing Apple's iPhone dream in India mentioned by Ananya Bhattacharya in 15-01-2019 as follows;

The drastic change in iPhone sale which shows nearly 50% drop in India on last year 2018. Apple would able to sell 1.7 million smartphone in 2018 as compared to 3.2 million in 2017 as per data from Hong Kong- based Counterpoint Research.

The main reason behind this radical shift was Oneplus game-changer. Apple has brand name but OnePlus captures the Indian market on its best performance in lower price with dual sim.

As Apple lost ground in the over $400(Rs28,310) price band, One Plus clocked its highest ever shipments in a quarter in the three months ending September 2018, pushing the overall smartphone average selling price(ASP) in the online space to $156 in the year prior. The Shenzhen brand hold over 37% of the premium smartphone segment in India now.



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OnePlus is now the most preferred flagship premium smartphone brand in the country, says an IDC (International Data Corporation)report. This is updated in Jan 02, 2019 |18:07 IST| by Moinal pal. The pricing has been the important factor in Chinese smartphone manufacturer's growth in India. India is price oriented country so that is the main component influences the buying behaviour of Indian consumers. The Chinese smartphone manufacturer has beat Apple and Samsung on the basis of pricing and product featuring factors. The IDC report states that OnePlus is now the brand with second highest loyalty at 31 per cent while first place is Apple with 44per cent and third place Samsung with 25 percent brand loyalty .The report also says that word of mouth continues to be the most prominent source which impacts consumer buying behaviour and has positively affected various smartphone manufacturers including OnePlus.

The data reveals that people give preference to high RAM figure and processing power which leads this OnePlus in high level. One more thing is like customer who spends around Rs10k to Rs 20k for their smartphone have been upgraded to Rs 30K.

There is a prominent growth for Oneplus in the under 40 age group,with 15 percent of those shows the interest for their future choice the same smart phone. This updated from The Economic Times (IANS| October 05, 2018,17:10 IST). This indicates that the real threat for other smartphones like Apple and Samsung.

The MICI Survey was conducted across New delhi, Mumbai, pune, Bengluru, Hyderabad and Chennai august 2018. The respondents were students, teenagers and working professionals.

Oneplus becomes digital first brand though its offline footprint, said Vikas Agarwal, General Manager, OnePlus India, which launched its handset four years ago.

Indian buyer mentality is more focus on feel the product benefit at real sense means they preferred to visit physical showrooms over online and that peculiar fact has been tapped by Oneplus and succeeded in consumer experience enhancement.

Consumer experience is nothing but a relationship of consumer with business and his overall experiences based in interactions and thoughts about the business in his journey .

Customer recall the the services and their feelings more than the product sometimes that leads brand loyalty and repetitive purchase orders. There are customer experience management software solutions which enables the system more proactively engage with their consumers.

CONCLUSION

Incorporating AI and Machine learning technology with mobile marketing strategy will be the key to creating value, delighting customers and gaining significant competitive edge. Consumer analytics is the data analysis which results in predictive behaviour and the exact reason behind the switching buying pattern of a customer. People were satisfied with one product but not loyal for long-lasting if it fails to achieve consumer experience enhancement.

Consumer experience is nothing but a relationship of consumer with business and his overall experiences based upon the interactions and thoughts about the business in his journey .

Customer recall the services and their feelings more than the product sometimes that leads brand loyalty and repetitive purchase orders. There are customer experience management software solutions which enables the system more proactively engage with their consumers.

In a dense market the consumer experience is the only key area by which a business can be differentiate easily and able to position in exclusive manner over the competitors.

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A STUDY ON OPPORTUNITIES CREATED BY BIG DATA FOR INDUSTRIES

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ABSTRACT
In today's world data has become important everywhere in industries. Using big data and its analytics, industries are making smart decision, getting new micro markets, smart marketing analytics for long & short term growth. Big data is now reached in every part of modern life & into business area. Companies in any industry can use big data to enhance their effectiveness, their marketing & products which lead the career opportunities in this field are limitless [5]. The capabilities of big data platform creating opportunities for industries like medicine, retail, construction, banking and transportation. By harnessing big data, businesses gain many advantages with increased operational efficiency, informed strategic direction, improved customer service, new products, new customers and markets.

Keywords: Big data, Industries, opportunities, smart decision, improved customer service.

INTRODUCTION
The big data is a general term for any dataset with large volume of data. In business, data is collected from and about customers, about product and competitors. Big data is now reached in every part of modern life & into business. Successful business industries relent on data for their decision making in a competitive global market place. The big data industry is growing fast and is predicated to continuous growth in coming years.

Companies in any industry can use big data to enhance their effectiveness, their marketing & products which lead the career opportunities in this field are limitless [5]. The capabilities of big data platform creating opportunities for industries like medicine, retail, construction, banking and transportation.

Big data & its analytics software's allow industries to look through huge amount of information feeling confident while making smart decisions.

IMPORTANCE OF THE STUDY
This study will helpful to authorities, decision makers in industries, person's wishing to make career in industries by means of business analytics using big data.

SCOPE OF THE STUDY
The scope of the study will be at business industries where sales, marketing and production is at very enormous amount of data is controlled.

HYPOTHESIS OF THE STUDY
1. To study opportunities created by big data for industries.
2. To study how big data and its tools, software's makes bigger transformation in industries by making bigger opportunities.

REVIEW OF THE RELEVANT LITERATURE
5.1. According to McKinsey, the effective uses of big data benefits 180 transform economies & uses in new wave of productive growth [5].

5.2. By harnessing big data, businesses gain many advantages with increased operational efficiency, informed strategic direction, improved customer service, new products, new customers and markets.

5.3. Companies that inject big data & analytics into their operation show productivity rates & profitability that are 6% height than others [5].

5.4. Big data is giving big impact for industries by taking advantage of advancements in analytics & focusing 1 to 2 areas in organization. Industries making use of big data to find out new micromarkets.

5.5. Marketing is under pressure to show results, cut costs & rive growth. Here industries can big data & its tools for smart analytics for their short term & long term growth.

5.6. McKinsey in David court explains how companies can improve their decisions & performance by getting powerful new tools in the hands of front line mangers, companies must focus on big decisions [5].

5.7. Companies can increase their profit margins if they can just get enough with their pricing by making use of big data to make better pricing decisions [3].

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5.8. A new generation of pricing & revenue management practices can lead to meaningful results with help of power of big data & analytics.

5.9. Industries need specialists from big data who can analyze, distill & clearly communicate information of greatest potential value.

5.10. For industries, big data talent is a critical issue, by 2018 the United States alone faced a shortage of 1, 90,000 professionals with deep analytical skills [5]. This indication is for greater opportunities of big data professionals in industries.

5.11. In industries sales targets & leads can proliferate but they are no use if it creates a morass of information for sales person. Here big data allows precise micro-segmentation of sales data.

METHODS OF DATA COLLECTION

1. **Primary Data:** Primary data will be gathered from the respondents at industries which will be used for the primary data collection of proposed study. Along with that, Observation will be used for the effective collection of data.
2. **Secondary Data:** Various sources such as books, journals, periodicals, newspapers, magazines, internet etc. will be used for collecting the secondary data.

METHODS OF DATA ANALYSIS

The following tools and techniques are available for data analysis:

A. Hadoop: Hadoop is an open source project hosted by Apache Software Foundation. It consists of many small sub projects which belong to the category of infrastructure for distributed computing. Hadoop comes with a Distributed File System called HDFS designed for storing very large files with streaming data access patterns, running on clusters on service hardware [6].

B. **MapReduce:** MapReduce is the programming standard allowing massive scalability. The traditional database deals with data size in range of Gigabytes as compared to MapReduce dealing in petabytes. The Scaling in case of MapReduce is linear as compared to that of traditional database.

The collected data will be entered into appropriate categories of above tools for analysis.

RESEARCH METHODOLOGY

This paper is based on secondary data & review of relevant literature points are discussed on the same. The proposed study will attempt to express opportunity created by big data for industries in diverse way.

CONCLUSION

Now a day's data has become important everywhere in industries. Using big data and its analytics industries are making smart decision, getting new micro markets, smart marketing analytics for long & short term growth. Improving pricing & promotions, creating road maps and reacting in time which will lead to better strategy for performance.

At nutshell, big data forcing industries to consider new strategies, technology and talent for excellent productivities.

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HR ANALYTICS: A DREAM AS YET FOR MSMEs

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ABSTRACT
Human Resource is recognized as one of the important inputs in the world of Industries. In fact, it is the only living element of an industrial unit. All other factors of production like- land capital are dry and mechanic. They need somebody to drive them forcefully. India, being over populated nation is dominated as yet by the labor driven industries. In fact, even after 70 years of independence, the network of industries is restricted to metros and big cities. Poor villagers and majority of towns are yet have the thrust of the fruits of economic developments and better standard of living like urbanized educated elites. Business Analytics has been the buzz word in the modern management gorgons, more so , the HR related data is compiled , twisted and utilized to draw meaningful conclusions in multi-nationals (MNCs) and Foreign Collaborations (FCs) and it's a march towards automatically generated HR reporting , claiming transparency of management. However, the researcher has found the in case of small and medium sized industrial Units, HR as such separate department is also, many times not existing. The very total number of employees is restricted to minimum and the whole organization is led by single / few business leaders as proprietor or partners. The present Research paper is based on the Secondary data on modern terminology of Business Analytics and the Primary data shows the long way to go for HR Analytics for them, though will be the buzz word and practice. The researcher has collected the primary data himself by visiting such MSMEs in one of the oldest MIDC areas, MIDC Bhosari, near Pune.

Keywords: MSME, Labor Intensive, HR Practices, Business Analytics, HR Analytics.

INTRODUCTION
Modern business management envisages professionalism in every part of working. The world of industries in India have experienced a sea change, a shift or a drift from textile industry to Chemical Industry and the pharmaceutical to the automobile Sector Industry. In fact, even with in them also, the survival of the fittest has been the order of the nature and the big / giant players have been swallowing the small and younger ones. The entry of Multi Nationals (MNCs) having HO at one place and operations under the Brand, with similar trade practices has been seen. Examples like Coca cola, Godrej, Panasonic and many others show the domination of standardization in all business practices, within the organization. Foreign Collaborations (FCs) as yet have been successful in maintaining their individuality and contribution as a stakeholder in the FCs whether Technical or Financial nature of FC. However, it is a matter of surprise that, MSMEs have yet to adapt themselves to the modern Business Analytics policies. In fact, India is the second largest nation with highest number of population. Many other vices have crippled the industrial progress, among the poverty, ill-health due to unhygienic and mal-nutritious intake and bad habits of the masses. The present Research Paper witnesses and tests the reality of the sample MSMEs particularly into the areas of HR Analytics.

SCOPE OF THE STUDY
In view of the Secondary Data referred by the Researcher, a pilot study was undertaken by the Researcher to understand the extent of the applications of HR Analytics, especially in the MSMEs in a specific band of industrial sector. Formation of the State of Maharashtra in 1960 and the Maharashtra Industrial Development Corporations (MIDCs), in 1962 has led the State of Maharashtra on the Industrial Map of India. Today, there are as many as 282 such Industrial estates formed and promoted by the State Government and a number of industrial unit generating providing employment opportunity to the youth has been a reality. However, this is typically known as unorganized sector. There is no protection what so ever, from the hazardous, uncontrolled working conditions and there is no guarantee of continuity of employment in most of the cases. Today, 90 % of the Industries are of such unorganized Sector and hardly 10 % are the privileged class of employees, most protected. Further, even in the organized class of industrial units, the professionalism and sophistication of transparent and auto-driven culture of records keeping must be yet to develop. Hence, the Researcher has focused on one of the oldest MIDCs – MIDC Bhosari to observe the extent of HR Practices and ahead the thinking of HR Analytics.

BUSINESS ANALYTICS AND HR ANALYTICS
In the modern era of computing a very large data is generated in every such organization. It may be classified as follows: Fact based data, Statistics, Quantitative Analysis, Business Modeling and Data Investigation. Business Analytics is defined as science of analyzing a business with its past performance, using the techniques and methods of Analytics. HR focuses the people side of business and hence the people related data like the salary

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structure, leave records, performance evaluation, opinions expressed and future forecasting of business is undertaken in the process.

The huge data generated in the process of any organization has different facets like its volume, reliability or otherwise, static ness and the value over a period of time. HR Analytics is one of the important areas of Business Analytics to evaluate, interpret and predict the future trends in HR. many important issues like future extent of Labor Turnover, Optimization of Staff, Risk factors in the present workforce, human and mechanical challenges, etc are anticipated and warned to the top management. Business Analytics has been broadly accepted as a modern tool in western culture and hence in industry there. In most of the industrial Units in India the present HR practices are personal, human oriented and subjective nature. A dry, mechanical and further auto driven touch to human element, fortunately yet to flood in to the Indian management scenario.

PRIMARY DATA COLLECTION AND ANALYSIS

On the backdrop of the concept and development of Business Analytics, particularly the HR Analytics, the Researcher collected Primary data with personal visits and through observations in MSMEs. MIDC Bhosari is one of the oldest MIDCs of Maharashtra. Giant Organizations like TATAs and BAJAJ have extended the patronage to most of the Units in this area. Different types of auto components, rubber and plastic parts are manufactured by such MSMEs. Further, servicing, job woks and assembly work of many big companies' products are undertaken here. However, it must be noted that, most of the units are labor intensive, skill oriented and of an unorganized nature. Hence, most of the units have very handful number of workforce.

MAIN OBSERVATIONS, FINDINGS AND CONCLUSIONS

1. Most of the Units visited have very small geographic space of working, far away the HR Department itself!
2. Scientific working conditions are absent in many cases, mere labor law compliances like Factory Act Provisions, are made.
3. In spite of the huge amount of financial turn over , huge size of labor hours spent there is no need felt about HR Analytics.
4. Most of the Units have traditional methods of Employee Records keeping like Attendance Muster, Salary Records, Bonus Records, etc. No much professional approach is seen.
5. Most of the Units have been maintaining very personal relations with labor. They know the family background, needs and problems of each and every labor.
6. No much use of machines are used for such records except the Electronic Attendance replacing Card Punching.
7. Performance Evaluation is no doubt important in every organization, but the same is done by the Proprietor or Partner himself. The very continuation or otherwise of employee largely depends on the vims and wishes of the Employer. It's an Employer Driven Market, not Employee Driven Market. Hence, there is a heavy rate of Labor Attrition in most of the Units.
8. Employers are technology oriented in manufacturing and delivering to the customer, heavily bogged by competitive atmosphere.
9. Though the employers value virtues like honesty , sincerity , modesty, etc, same are judged in a very personalized way, rather than using any scientific method like HR Analytics. In fact, HR Analytics was largely questioned by many.

EPILOGUE

Modern management practices have advocated scientific, paperless, techno-driven methods. Large Data generated in industries need to be compiled, analyzed and interpreted through different tools. Business Analytics is an effort in this direction. HR is the only living element of any organization. More so, in case of the Labor Intensive Organizations, HR plays a yeoman's role. However, in India, in case of MSMEs, as yet, the awareness and therefore usage of HR Analytics is absent. The very nature of MSMEs showing very handful amount of employment, of an unorganized nature restricts the use of HR Analytics. There is a long way to go, for the steps of HR Analytics in MSMEs among MIDC Bhosari Units.

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INFORMATION COLLECTION FOR THE PURCHASE OF CARS IN THE DIGITAL WORLD

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ABSTRACT
Marketing automation in the automobile sector is picking up in India through the digital media. To meet the consumers expectation electronic marketing is adopted through emerging technologies in Information Technology. Digital marketing is a channel of electronic communication used by the marketers to recommend the goods and services in the market. If one wants to influence today's consumers, one must contact them where they enjoy to be, could be on the internet or via their mobile devices or on social media sites. Personalized messages on promotions and tailor made offers and interactive dialogues with customers will only build their trust and drive loyalty towards the brand. This can be accomplished by marketing automation software's that power consumer intelligence, enhance communications across networks, check and reply to fluctuations in customer behaviors. The present study compares various sources of information used by consumers before purchase of cars in Pune region. The objective of the examination is to comprehend the extent of digital media usage as an information source before purchase of a car. A structured interview was conducted and 225 respondents responded for the study.

Keywords: Marketing automation, Consumer intelligence, Customer behaviour, Internet, Mobiles.

INTRODUCTION
The Indian automotive industry is changing in a big way and new players have entered the market. Many of them have set up manufacturing and research / development centers to cater for their global needs. This has created an atmosphere of competition among all the players and their dealers to become the highest-selling all-round best dealer in the local market where they exist. With this it has become vital for all to find new ways to get ahead of the competition and sell more cars. The answer to this can be achieved through digital marketing and can penetrate fast to every part of the country and the world very easily. Media is the answer for this, may be through mobile, internet, websites, and using marketing automation software, collecting consumer intelligence through various social medias etc. Digital marketing isn't new but is one of the best ways to ensure success to achieve fast ahead of others in the ever-changing marketing industry.

India has reached the third position in June 2017 from the ninth position in comparison to 2016 in terms of using Marketing Automation Solution (MAS) as per Zee Business.com. This has become a preferred tool for marketers to increase their productivity and more and more companies are into MAS. About 57% marketers in India have a well-defined marketing budget allocated for marketing technology and 10% of them have allocated more than 8% of their budget allocated for MAS, according to a B2C Marketing Automation Report India 2017 by Research NXT and Netcore.

MAS is used in the form of a software to automate marketing actions and other tasks like sending emails, SMS's to consumers, social media, customer journey mapping and predicting trends, cross channel customer interaction and real time engagement such as the use of artificial intelligence software for chatbots, in-app notifications, geo fencing etc.

STATEMENT OF THE PROBLEM
The consumer buying behaviour has become a need in todays marketing programs as victory or failure depends finally on the purchasing behaviour of the focus group or individuals. Hence in this fast-dynamic era the marketing group needs to understand various factors that influence in the decision-making process of the consumer. In our study we intend to understand the various sources of information wherein the car buyer would look for to gain information on the product. It can be from various sources such as television advertisements, newspaper/ magazines, internet/ emails/ social media/ mobiles etc.

REVIEW OF LITERATURE
As per Wind et. al. (2001) viral marketing is known as the internet type of outdated sampling methods. It is a state-of-the-art way of delivering and endorsing products and services. In this approach the marketers offer free "products" to entice potential customers, leading to test, faithfulness, and word-of-mouth "buzz." The low cost of internet, the speed at which the information or the promotion material reaching the user or the consumer are the additional benefits. Distribution through the internet are important and improves together the economics and efficiency of such materials saving cost, improved quality, timeliness of the product manuals, info on publicity resources, and even training programs. The price of digital technology goes down over a period with respect to

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the gains of digital communication and offers interactivity, flexibility, ability to mix video, audio, text and automatic translation to other languages and automatic tracing of all activities.

As per Pinkley et. al. (2003) digital channels such as the mobile phones, e-mail, internet and digital television in marketing has improved, and marketers need to comprehend how to use these channels for various objectives. Finding the definition of digital marketing from the literatures are difficult as the term is not very commonly used. Companies these days have been adapting the strategy of digital marketing but the success varies on the ease of using the software. Digital Marketing Strategy focuses on creating more real digital technologies since they permit for specific care, enhanced operation administration, and better product, marketing design and implementation.

Vollmer et. al. (2008) has said that for consumer backed communication internet has turned out to be a mass media vehicle. For customers it has now turned out to be the number one source of media at work and at home the number two source of media. The old-style of advertising such as magazines, newspapers, television, radio etc. are being turned down by customers. These day's customers constantly demand extra on their media utilization. They ask for on-demand and instant right to use information at their own ease. Hence, customers are focusing more often to several types of social media to accomplish their knowledge search and to make their buying decisions.

Chaffey et. al. (2008) describes digital marketing as a new marvel of old-style marketing that lets the marketers have quick two-way interaction and communication which are apt and pertinent, tailored service and matter to suit with specific customers. Digital marketing includes any form of online marketing channel through website, blogging, e-mail, database, social network, digital TV and mobile

RESEARCH METHODOLOGY

The data has been collected through primary and secondary sources for the present study. In order to realize the aforementioned research objectives, following research methodology was adopted by the researcher.

OBJECTIVES OF THE STUDY

Source of information collection for the purchase of cars in the digital world.

RESEARCH QUESTION

Will car buyers prefer dealers, family / relatives / neighbours / colleagues and newspaper / magazines over other sources of information before buying the car?

PRIMARY DATA COLLECTION

Structured questionnaire has been used to collect primary data. The study was undertaken for Pune and Pimpri Chinchwad of Pune region. A total of 225 respondents residing in Pune and Pimpri Chinchwad form the sample. Convenience sampling technique was followed for collecting response from the respondents.

SECONDARY DATA COLLECTION

Published data such as journals, periodicals, data from books, reports, etc. have been used for the collection of secondary data.

TOOLS FOR ANALYSIS

1. The statistical tools used for the purpose of this study are simple percentages and graphs.
2. Cochran's Test was done using SPSS version 21 to prove the hypothesis.

Data Analysis and Interpretation

SNo	Respondents source of information before purchase of a car	N = 225	Percentage
1)	Advertisements on T.V.	111	49.33
2)	Magazines / newspapers etc.	138	61.33
3)	Family / relatives / neighbours / colleagues / friends	159	70.67
4)	Emails / Internet / SMS	70	31.11
5)	FM / Radio /public address system etc.	12	5.33
6)	Printed displays / brochures / pamphlets etc.	40	17.78
7)	Wall posters / wall writing / bill board /banners etc.	10	4.44
8)	From dealers	172	76.44
9)	Your own-decision	52	23.11

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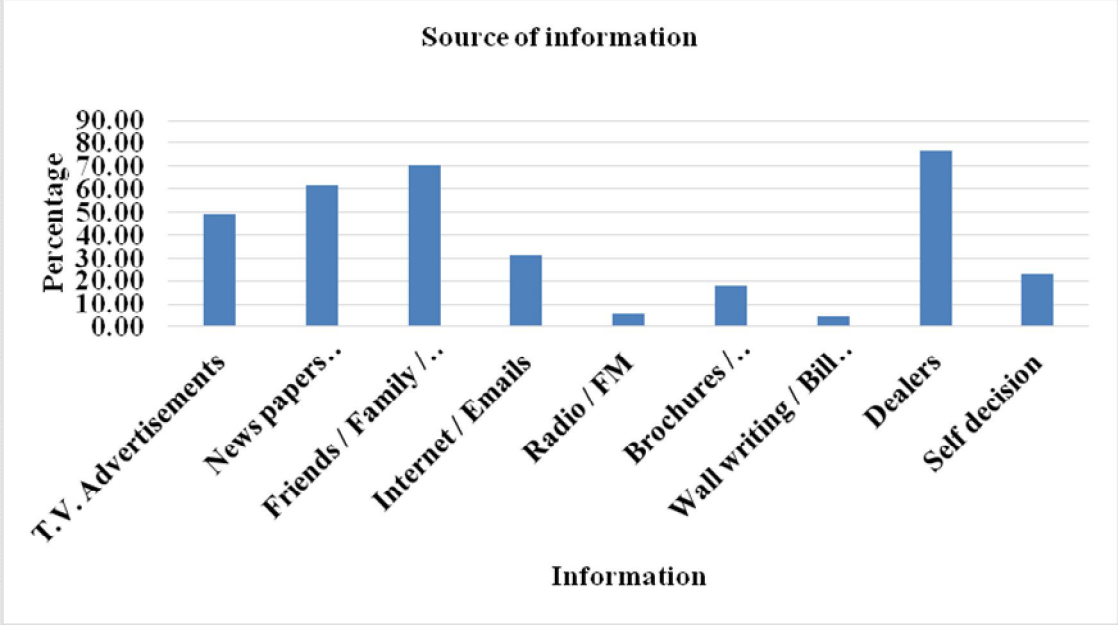

Figure: Respondents' source of information about the car before purchase

Majority (76 %) of the respondents' source of information about the car before purchase was from dealers. A large section (71 %) depended on family / relatives /neighbors / colleagues / friends for information. Only (4 %) depended on wall posters / wall writing / bill board / banners for information.

HYPOTHESIS TESTING

H0: Source of info do not vary in frequency of preference.

H1: Source of info significantly vary in frequency of preference.

Level of significance $\alpha = 0.05$

Shows Test Statistics Derived from SPSS

Frequencies	Value		Test Statistics	
	0	1		
Advertisement on TV	114	111	N	225
Magazines news papers	87	138	Cochran's Q	825.613
Family, relatives, neighbour's colleagues, friends	66	159	df	8
Emails, internet, SMS	155	70	Asymp. Sig.	.000*
FM, radio, public address system	213	12		
Printed displays, brochures, pamphlets	185	40		
Wall posters, wall writing, bill board, banners	215	10		
Dealers	53	172		
Own decision	173	52		

'*' = 3 decimal places are reported since significance value is < 0.1 %

$Q(8) = 825.613$, $P < 0.05$

CONCLUSION

As the P value is lower than the level of significance the null hypothesis is rejected, hence it is concluded that sources of information significantly vary in frequency of preference. To know where the difference lies, the frequency statement table is referred. The table for frequency shows that dealers have a frequency count of 172, families / relatives / neighbours / colleagues / friends have a frequency count of 159, magazines / newspapers etc. have a frequency count of 138, Advertisements on T.V. have a frequency count of 111, internet / emails / SMS have a frequency count of 70, own-decision have a frequency count of 52, printed displays / brochures / pamphlets etc. have a frequency count of 40, radio / FM / public address system etc. have a frequency count of 12 and wall posters / wall writing / bill board /banners etc. have a frequency count of 10. Hence there are top three preferred sources of information during purchase of a car. (Dealers, families / relatives / neighbours / colleagues /friends and newspaper / magazines) Hence the alternative hypothesis is proved / accepted.

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FINDINGS

Majority of the respondents' source of information before purchasing a car was from dealers followed by family / relatives /neighbors / colleagues / friends. Only 31 % source of information were from emails / internet / SMS / mobiles / social media etc.

RECOMMENDATION AND CONCLUSION

Globalization has brought remarkable changes in the marketplace and this has affected the lifestyle patterns of present-day consumers. More people are handling computers, tablets, mobiles etc. on a daily basis and they have become user friendly with the gadgets. It is noted from the research that Indians mostly depend on dealers, family, relatives and friends for the source of information before buying a car. Only (31%) of the respondents opted for digital media as a source of information. Hence, we can say that digital media is picking up and hence the marketers have to educate the consumers that they could get more information on the digital media as 3D viewing of the cars interiors and exteriors and many other authentic information can be got from the manufacturers website. Moreover, people can sit in the comfort of their homes, office or any other convenient place and access the website. Marketing personnel can send links of their company sites to prospective consumers and can also follow up through digital medias like mobiles / SMS / emails etc. The marketing department can also get information about the consumers who view their site for future follow ups through marketing automation software.

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LEVERAGING DATA ANALYTICS IN FAST FOOD CHAINS AND FOOD DELIVERY PLATFORMS

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ABSTRACT
Score years back the conversation containing heavy weight words such as Big Data, Data Analytics, Business Analytics, Data Science, Artificial Intelligence and IoT would have meant to be for very few bigwigs of the business world specially in the Indian scenario. These concepts seem now to be the talk of the town especially because of the huge demand for jobs being created in these fields. The use of data tolimprove business performance is changing the face of many firms with many startups also daring and proving to make it big. Usage of data analytics has been observed in many areas and one amongst them is the food industry. The present study is an explorative search of how various food chains and the food delivery businesses have used data analytics in order to sustain and grow.

Keywords: Big Data, Cloud Kitchen, Data Analytics, Food Chains, Food Delivery

INTRODUCTION
India is a witness to the Information Technology boom and has been a beneficiary since almost one and a half score years. The country is observing yet another big bang of data driven businesses. There are a number of concepts that one keeps hearing in the field of data. Big data is humongous data that is difficult to deal with using traditional data software because of the tremendous volumes and greater complexities. Data Analytics is a process of scanning, processing, sorting and utilizing unrefined data in such a way so as to help in comprehending trends and patterns [1].What data are used and which patterns are extracted depends on the area for which the technique is used. Data Analytics includes techniques such as Data Mining which is the process deducing trends and patterns from huge data, Predictive Analysis that uses data to forecast, Machine Learning that helps to stir out useful information in no time with the use of automated algorithms; many other concepts intertwined with each other with the aim to helping in better and logical decision-making[2]. Business Analytics is the use of data analytics for the purpose of influencing business to progress or improving business statistics.

Today there is no dearth of the amount of data available to the businesses that can and should be utilized in ways that facilitate decision making. There is thus availability of data to all but the firm that has the ability to utilize the data to turn the tide in their favour is the one that gains competitive advantage. The use of data provides businesses a means to understand the market well, save money, generate strategies, improve procurement efficiency, differentiate from the contemporaries and identify the weak links in their business chain. The use of data analytics provides marketers with actionable information.

APPLICATIONS OF DATA ANALYTICS
Data Analytics finds its use not only for specific businesses but in various other fields. Data usage has helped in better administration too. One of the earlier usages of data science has been in the field of finance. Many finance companies had had bitter experiences of being duped by their customers to whom they had lent money. The companies already had access to the data that they had collected from the customers at the time of providing loan. This data helped them to figure the possibility of their customers not paying them the dues. Data such as the customer's profile, spending patterns, recent expenditures gave the companies an insight into finding out the probability of any fraud by the customers.

Data analytics has been used in organizing events that may witness huge crowds. Commuting of large number of people to different locations smoothly has been made possible through using data about the number of people registered for an event and using combinations for making transportation arrangements possible. In travel data analytics has been instrumental in fixing dynamic pricing and also assessing any delays due to traffic or any unexpected events. The use of data helps travel companies to understand the frequency of travels to various locations by tourists. Travel companies use the data to provide personalized recommendations to their customers analyzing their previous decisions.

Data science has helped the administration in security too. By gathering and analyzing historical and geographical data, areas that may witness a peak in crime in particular instances are detected and the security force may be deployed at the identified locations. This has helped in utilizing security resources optimally.

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In Insurance industry too data analytics has helped by providing data through the use of actuarial science , claims data and risk data that is statistically analyzed. Data analysis of such information provides an insight into the risky or fraudulent claims which the company may be alert with.

Provision of internet facilities in specific areas by the government or by companies requires a thorough idea about bandwidth requirements on particular days and at particular timings by users. Web data traffic can be assessed through big data applications and can help in deciding about higher bandwidth to be provided in commercial areas during weekdays and the same during weekends in residential areas[3].

Health care service industry too finds solace in the use of data analytics. Analysing patient data helps in tracking the health status and also provides understanding about utilizing the medicines and equipments for maximum population coverage. Many logistics companies such as FedEx and DHL have given credit to data science for their business performance. A Non Profit Organization- Akshay Patra that provides mid day meals daily to millions of school children in India also claim to use data analytics in helping them in logistics and menu decisions[4].

Data analytics has found its biggest exploitation in something as mundane as 'googling' or in other words, web searching. Search engines make extensive use of analytics and are capable of extracting required information in split of a second.

In today's scenario it is difficult to imagine fields that are surviving without the use of data to help them leverage their businesses. One such filed is the food industry. The emphasis in the present study is on the use of data analytics in leveraging businesses in food industry. Analytics have helped many restaurant owners in various ways. One of the direct ways in which data analytics has been of help is to understand the customers well by trip segmentation and analyzing visit patterns. Trip segmentation involves studying and then classifying customers based on the purpose of the trip to the restaurant. Some are solo trips (only one item ordered), others may be Only Coffee/Tea trip, Drinking trip, Starters trip or Full course trip. Visit patterns pertain to the timings and the duration of visits and their frequencies. This may help in deciding on the stock kept and menu at different timings of the day. Providing loyalty tips to customers, varying prices, removing not so popular items from the menu, bundling items that go together helps restaurants to differentiate. Dashboards providing ready to view statistics may make a huge difference in developing a strategy for changing prices- identifying items for which price should increase/decrease and analyzing the impact of price change on sales.[5] This helps to understand the behaviour of price sensitive customers. The study is an attempt to assess the usage of data analytics for fast food chains such as McDonald's, PizzaHut, Domino's and KFC and food delivery companies such as Zomato, Swiggy, Uber Eats, Fresh Menu, Inner Chef, Faasos and Food Panda.

DATA ANALYTICS AND FAST FOOD CHAINS

The leader amongst the fast food chains, McDonald's is known to be an information centric organization that has been leveraging big data to its advantage. McDonald's uses project development model and creates multi-disciplinary teams that work in phases. In the discovery phase the teams ideate and incubate the ideas. In the development phase they add on the other skills to get the right perspective and in the deployment phase the marketing department too gets involved. A cross functional approach with Data Analytics embedded leads to McDonald being a data driven company. In the past McDonald's used data provided by local stores which was given in averages. That created problems as it could not give a clear picture. That is when instead of average data, trend analysis started to be used which provided actionable information. McDonalds gathers data from all fronts such as customer interactions, PoS data, in- store step ins, ordering patterns and video data[6]. It is vital for any fast food business to keep efficiency high along with keeping costs low. This can be achieved using Artificial Intelligence, Big data and Robotics. McDonald's has been one of the companies that have embraced technology with full gusto. Being the largest fast food establishment operating in the maximum number of countries it is bound to create humongous volumes of data. How the organization utilizes the big data is what makes it so big. McDonald's mobile app is one way to collect data relevant to customer preferences. Customers are encouraged to use the app as they get exclusive and personalized deals on the app. Whenever a customer orders using the app, the next orders can track the previous ones and favourite orders are saved. Digital menus on the app are dynamic and change as per the time of the day and weather conditions. The data from trend analysis helps the company to know the best practices of each franchise which are then shared with the others. The drive-thru experiences of customers are also tracked in order to provide some engagement to keep the experience enjoyable[7].

Pizza Hut has repositioned itself with the extensive use of analytics. The food chain tied up with APT(Applied Predictive Technologies) in the UK to take data driven decisions[8]. The company has been able to achieve

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twelve times Return on Investment with the use of Big Data and Behavioural Intelligence. In the industry Dominos is considered to be the leader in the use of data for transformation. Pizza Hut boasts of have a thorough and comprehensive customer database and keeps them notches higher than Taco Bell and KFC. In India Pizza Hut forecasts to have 700 outlets by the year 2022 and is thus eyeing huge growth[9].

Domino's in the year 2017 has had a share of almost fifty percent from digital channels such as mobile app and online ordering. Domino's Anyware allows customers to order pizza from literally anywhere, be it smart watches, car entertainment systems and social media sites leading to n explosion of information for them to track but that they proudly take as their competitive advantage. Domino's has built the framework to collect data from various customer touch points as well as other data from third parties such as demographic and postal code information. Such comprehensive information enables the company to surge performance through improved logistics and one-to-one buying experience for the customers[10].The group claims to process almost 55% of its total orders through online systems and the remaining through traditional systems which are branch or telephonic orders[11].

KFC India has a vision to reach out to customers on a 1:1 messaging, offering them what they prefer the most thus giving them a totally personalized experience. KFC uses its sales force to capture customer data such as the contact details, their orders and the channels used to order. Most of their campaigns engage customers via emails, messaging or promotion through app. This helps in measuring engagement in a better way[12].

DATA ANALYTICS AND FOOD DELIVERY

The food technology market in India is expected to grow tremendously in the years to come. This growth is attributed to the internet penetration and huge increase in the number of customers using smart phones as well as companies using e-commerce platforms and budding young working population increasing the demand for ready to eat foods.

Zomato with its headquarters in Gurugram, Haryana is a data driven company that uses machine learning and Big Data to provide personalization in online ordering platform.It uses AI/ML to gain an edge over its competitors. With its extensive database Zomato boasts of the personalization leader by being able to provide customers recommendations based on their preference for specific cuisines, their locality and price sensitivity. For those who are new for them they go by the most popular options[13].

Food Panda, another food delivery establishment has in the year 2018 launched a dedicated technology center in Bengaluru. Food Panda that has been acquired by Ola in the year 2017, through huge investment in establishing the technology center has taken the step to reinvent itself and offer personalization to all its stakeholders. In this bid it has hired a team of hundred professionals in the field of machine learning and data science[14].

Inner Chef, the cloud kitchen startup has announced the use of Artificial Intelligence and Data Analytics to expand its horizons. The company states that food delivery platforms do not share data with cloud kitchens and so in order to provide personalized experience to customers there is a need for deep learning techies for the company[15]. Inner Chef also came up with innovative IoT device HungerTap to help customer decide what to eat in accordance with their eating habits[16].

Box8, the Mumbai based food delivery platform utilizes data analytics to mitigate errors claiming that there is 0.5% error in services presently and they are sure to bring it down to no error with the use of analytics in the near future[17].

Faasos, a company that started as a restaurant where people could dine now is an app only food-on-demand platform. Their target customers are students and first time job holders who are tech savvy and require healthy food on demand just on a click. Faasos launched its mobile app witnessing the paradigm shift in the way customers showed in their usage of desktops and laptops to smart phones[18].

Fresh Menu, another startup that started with Bengaluru and has expanded to Mumbai and Delhi NCR is based on the concept of cloud kitchen. The company also claims that data and analysis is a big part of the game because they provide dynamic menu with some items remaining for a longer time on the list if demand persists[19].

Eat fresh, a food tech company banks on the use of technology to keep up their business. The company uses its technology expertise to understand customer's meal preferences and serves top rated meals created by chefs. The company uses technology right from procurement to delivery. Data analytics provides a good flow of information to make appropriate changes to menu and predicted quantities as the order is delivered within half an hour. Extensive use of predictive analysis makes it possible[20].

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Thus Data Analytics and Data Science has made it possible for the food delivery industry to come up to the expectations of the customers who have so much variety to look up to that the competition amongst the players has reached new heights. Embracing technology only can help companies to stay on.

WHAT DOES THE FUTURE HOLD FOR DATA ANALYTICS?

Data Analytics provides a way to companies in varied fields to use something which is already there for their benefit so as to provide both speed and accuracy in the decision making process. Companies embracing technology have shown to benefit and progress. The use of Artificial Intelligence, Machine Learning, Data Analytics and Data Science for empowering businesses is here to stay.

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OPPORTUNITY CREATED BY BIG DATA FOR INDUSTRIES.

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ABSTRACT
To describe the promise and potential of big data analytics in Industries viz Medicine (Nursing, Surgeries Sevier diseases, Physiotherapy& many more branches of the medicines).Marketing –retailers, wholesalers, small traders, Construction, Banking, Transportation many more fields where big data concept is used. But the paper gives the best use of big data analytics in healthcare, discusses the benefits, outlines an architectural framework and methodology, describes examples reported in the literature, briefly discusses the challenges, and offers conclusions. The paper gives the new idea overview of big data analytics for healthcare researchers and practitioners. There will be increase collaboration between National Statistical Institutes, Big Data holders, businesses and universities , lead to a shift in the role of statistical institutes in the provision of high-quality and impartial statistical information to society. For national statistical offices, traditional strengths include, on the one hand, the ability to collect data and combine data sources with statistical products, the expertise analysis it and focus on quality, transparency and sound methodology. 2021 is Big Data era of competing and multiplying data sources; they continue to have a unique knowledge of official statistical production methods, the quality and validity of information of various sources, as key information providers in a changing society

Keywords: Big data, Analytics, Healthcare, Physiotherapy Framework, Statistical tools, testing of Hypothesis

INTRODUCTION
Big data - *It's a noun* Definition of Big Data as per dictionary of English.

1. Extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions." much IT investment is going towards managing and maintaining big data"
2. *Big data* is an evolving term that describes a large volume of structured, semi-structured and unstructured data that has the potential to be mined for information and used in machine learning projects and other advanced analytics applications .By **Margaret Rouse**
3. Big data refers to the growth in the volume of structured and unstructured data, the speed at which it is created and collected, and the scope of how many data points are covered. Big data often comes from multiple sources and arrives in multiple formats. Reviewed by Jake updated Nov 14, 2017

The healthcare as physiotherapy industry historically has generated large amounts of data, driven by record keeping, compliance & regulatory requirements, and patient care. Al most data is stored in hard copy form as different reports x-rays prescriptions' and many more papers & different types. But the current trend is toward rapid digitization of these large amounts of data. Current is the scientific world as 21st century & mandatory requirements and the potential to improve the quality of physiotherapy reducing the costs, these massive quantities of data hold the promise of supporting a wide range of medical and healthcare functions, including among others clinical decision support, disease surveillance, and population health management .As the medicine health care industries as the Physiotherapy. The collection of data for many more days gives Big Data this changes the context in which organizations producing official statistics. Big Data provides opportunities.

METHODS
Using the secondary data analyzed that the Big Data is a concept as the big collection of the data concern with the one subject and use for the inferences drown from that to predict the future decisions. As the reference used the Ancient references and the current data to drown the future decisions. The paper describes the big data analytics in healthcare as for example the only data collected for physiotherapy, discusses the benefits, outlines an architectural framework and methodology, describes examples reported in the literature, briefly discusses the challenges, and offers conclusions. The paper provides a broad overview of big data analytics for healthcare researchers and practitioners. Big data analytics in healthcare is evolving into a promising field for providing insight from very large data sets and improving outcomes while reducing costs. Its potential is great; however there remain challenges to overcome.

Computer-assisted history taking systems have been available since the 1960.As in the field of Gynecology mainly used since it is very personal .But after that the department realized that it is very much useful to store

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the data for each and every possible patient. It help to take the future decisions .The application of big data analytics in Physiotherapy has a lot of positive and also life-saving outcomes. Big data is the collection of the information of the times to in history refers to the vast quantities of information created by the digitization of many more fields everything that gets consolidated and analyzed with the new software by specific technologies. Applied to it will use specific health data of a population (or of a particular individual) and potentially help to prevent epidemics, cure disease, cut down costs, etc. There are many challenges to use and handle the Big Data. There must be the expertise in the Statistics & tools to use for predictions .One of the biggest challenges that statisticians face in their use of Big Data concern methodology. Many Big Data sources, such as social media messages face book ,What's-up are composed of observational data and are not designed for data analysis, and thus do not have a well-defined target population, structure and quality and difficult to apply traditional statistical methods, The unstructured nature of many Big Data sources makes more difficult to extract meaningful statistical information. For many Big Data sources, the interpretation of the data and its relationship with social phenomena of interest is far from reality. The medically relevant complaints were try to solve with the relevant history. One disadvantage of current (2012) medical history systems is that they cannot detect non-verbal communication, which may be useful for elucidating anxieties and treatment plans. Another disadvantage is that people may feel less comfortable communicating with a computer as opposed to a human. In a sexual history-taking setting in using a computer-assisted self-interview, 51% of people were very comfortable with it, 35% were comfortable with it, and 14% were either uncomfortable or very uncomfortable with it. The ever-improving capabilities of big data platforms increasingly create new opportunities for industries with representatives who want to examine analytics to benefit their companies. Here are five sectors with business operations shaped by big data and analytics—and what they have to offer. The medical industry depends on specialized equipment to track vital signs, assist with procedures and make diagnoses. It's also using big data and analytics tools to improve health in various ways. Wearable trackers transmit information to physicians and tell them whether patients took medicines or if they're otherwise following treatment or disease management plans. Compiled data gathered over time provides doctors with comprehensive views of patients' well-being, offering much more in-depth information than brief in-person visits. However, big data, its several kinds of analytics help hospital managers reduce waiting times and improve care. Some platforms look at data in bulk, then find the patterns within it and prescribe recommendations to produce progress.

Challenges and Issues – There are many more Industries preserve the data. It is for many more years so size is much bigger .But that is very useful for the future decision making procedures. To get the reference from this data, have to use Statistical tools. Some of the biggest challenges that statisticians face in their use of Big Data concern methodology. Many Big Data sources, such as social media messages, are composed of observational data and are not deliberately designed for data analysis. Thus do not have a well-defined target population, structure and quality. This makes it difficult to apply traditional statistical methods, based on sampling theory. The unstructured nature of many Big Data sources makes it even more difficult to extract meaningful statistical information. For many Big Data sources, the interpretation of the data and its relationship with social phenomena of interest is far from obvious. Using the information as Data from social Media like face book, Whatsup,Blogs,there is the repetitions so couldn't get the exact count, not perfectly decide the which Statistical method should we use to get the Inference. Moreover, if such data are to be used as a source for a population sentiment indicator, one would like to know the relationship between the populations of person. This is challenging without falling back to surveys, the population of persons using social media is likely to change over time, making a comparison to the population at large evens more challenging. But For social media, more questions arise such as who is the author of a message ,who actually put it and what is the main purpose. While some methodological remedies have already been developed to some extent, such as deriving the gender and age of a social media user by the known correlation between sex, age and choice of words, these still pose a challenge for the Statisticians as experts who try to make the adequate Mathematical Model for the purpose to get the future predictions for the particular situation and also for concern Industry. Privacy and legal issues form another challenge. There is also the legal use to use the privet information about the particular personality and his or hers generations and the ancestors behavioral pattern dealing with the big data .But also have to consider the situations demand for the information use , the legal situation for cases involving Big Data is not always clear. In that cases, may have to consider ethical standards to decide on whether and how to use Big Data. Last but not lest there is also legal issue of the copy rights for that particular data for that problem and the concern Industry may not wants to give the proper information from their Big data. May also not to break the ownership, even if data may legally be used, this does not imply that it is wise use & also appropriate to do so , critical importance is the implication of any use of Big Data for the public perception for the good results . Another obvious challenge is the processing, storage and transfer of large data sets. Technological advances like increases in computing power, larger storage facilities and high bandwidth data channels may partly solve these

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issues. Having data processed at the source, thus preventing the transfer of large data sets and the duplication of storage may also be considered. All these technological challenges include mechanisms for ensuring the security of data, which is of the utmost importance because of privacy and confidentiality concerns and makes, for example, cheap cloud-based solutions less attractive.

Another issue is the possible volatility of Big Data sources, given the fact that official statistics often take the form of time series analyses. For many users, the continuity of these series is of the utmost importance. Still another issue is the skills required for dealing with Big Data. Modern data scientists may be better equipped than traditionally trained statisticians. Probably more important is the need for a different mind-set as the use of Big Data may imply a paradigm shift, including an increased and modified use of modeling techniques.

Big data analytics is used to develop care protocols and case pathways and to assist caregivers in performing customized queries, all over the world Medical Center's analysis of "Relative correlations" of streams of physiological data related to patients with brain injuries. The main goal is to provide physio professionals with critical and timely information to aggressively treat complications. The advanced analytics is reported to diagnose serious complications as much as 48 hours. This insight is reported to have reduced annual hospitalizations by 30% and the number of imaging tests by 60%. It is reported that Sick Kids applies advanced analytics to vital-sign data gathered from bedside monitoring devices to identify potential signs infection as early as 24 hours prior to previous methods .

FINDINGS

Like the Physiotherapy there is also big use of Big Data concept as the useful data Bank to draw the decision for the current situation and also for futures. Nice to had much more data to find the desirable inferences with the help of the Statistical tools like Measures of Central Tendency,- Mean –Average ,Arithmetic, Geometric, Harmonic, Measures of Dispersions- Variance ,Standard Deviation, Coefficient of variations ,Correlation coefficient, Rank correlation ,Hypothesis ,Testing of Hypothesis-Variance Students t test –one way ,Pair ,ANOVA, Chi-Square etc.

Name of the Test	No. of Variables	Formula	Inference
Test of Significance	two	$t = \frac{\text{difference of means of two samples}}{\text{standard error of difference}}$	t (calculated)$> t(table)$ two means are different. So data collected is significant.
t test for paired samples	two	$t = \frac{(\bar{d}\sqrt{n})}{s_{\bar{d}}}$	t (calculated)$> t(table)$ two means are different. So data collected is significant. Null Hypothesis is accepted
F-test	three	$F = \frac{\text{Between treatment mean square}}{\text{Residual mean square}}$	t (calculated)$< t(table)$ The calculated value is not significant. The Null Hypothesis is accepted .The mean of various samples do not differ significantly among themselves.
ANOVA -test	Two way classification	$F = \frac{\text{Between treatment mean square}}{\text{Residual mean square}}$ $F = \frac{\text{Between row means}}{\text{Residual mean square}}$	t (calculated)$< t(table)$ The calculated value is not significant. The Null Hypothesis is accepted .The mean of various samples do not differ significantly among themselves.
F- Coding method		$F = \frac{\text{Between treatment mean square}}{\text{Residual mean square}}$	Coding method gives the same results with reduced calculation work. One can use either of these two methods.
Missing data formula technique for analysis of variance method	One or more observations missing		

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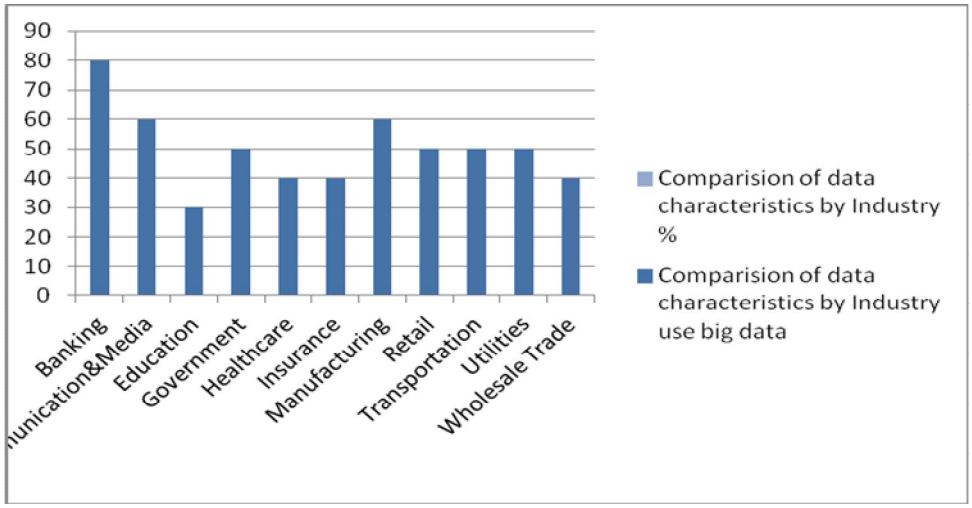
Likewise there are many more tests as a tools of Statistics to give the Inferences for the purpose we are testing the collected data. However to use the previous data and the current for predicting the future results. Obstacles to use the Widespread Big Data Healthcare(Physiotherapy)& also in other all possible Industries like Construction, Banking ,Education.

Comparison of data characteristics by Industry	
Industry	**Use of big data in Percentage**
Banking	80
Communication Media	60
Education	30
Government	50
Healthcare	40
Insurance	40
Manufacturing	60
Retail	50
Transportation	50
Utilities	50
Wholesale Trade	40



Source: www.simplilearn.com

LIMITATIONS

Correlation Data analysts use big data to tease out correlation: when one variable is linked to another. However, not all these correlations are substantial or meaningful.

1. **The Wrong Questions:** It's up to the user to figure out which questions are meaningful. If you end up getting a right answer to the wrong question, you do yourself, your clients, and your business, a costly disservice. Because in Statistics two types of errors used to give the Interpretation.
2. **Security:** As with many technological endeavors, big data analytics is prone to data breach. The information that you provide a third party could get leaked to customers or competitors.
3. **Transferability: Because** much of the data you need analyzed lies behind a firewall or on a private cloud, it takes technical know-how to efficiently get this data to an analytics team. Furthermore, it may be difficult to consistently transfer data to specialists for repeat analysis.
4. **Inconsistency in data collection:** Sometimes the tools we use to gather big data sets are imprecise. For example, Google is famous for its tweaks and updates that change the search experience in countless ways; the results of a search on one day will likely be different from those on another day. If you were using Google search to generate data sets, and these data sets changed often, then the correlations you derive would change, too.

Types of Error	Cause
I Error	Ho true and rejected.
II Error	Ho false and rejected.

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CONCLUSION

Big data may use as predictive analytics with using high performance computing systems, machine learning, and other mechanisms like Statistical tools and the significance of that tests have been used in the past and will continue to be used heavily in the future of computational analytics. By using these big data-related systems, engineers and scientists, expertise in Statistics have been able to more easily design future plans to use in that particular Industries e.g. Healthcare ,Banking ,Education etc. & have also been able to more accurately predict . Big data analytics has affected the field of computational analytics almost since Big data perseverance was created. Computational analytics with Big Data will continue to improve the quality of everyday life even though there will always be challenges to overcome.

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IIoT AND ITS IMPACT ON MANAGEMENT

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ABSTRACT
In the last decade, simple electronic products have been transformed into very advanced devices while simplifying the use of them: in the short time since mobile phones were introduced, for instance, we have already progressed to smartphones – ***which are nothing short of powerful mobile computers.***

The revolution that we see in the consumer ***world is mirrored in the*** *manufacturing industry. The people are the same and as a consumer are demanding the same ease and simplicity in their corporate and work life that they are experiencing in their personal lives. This has led to the advent of Digitalization and IIoT (Industrial Internet of Things) in the Manufacturing industry. While there is a lot of talk and discussions on the subject, this paper aims to understand some of the key impacts that IIoT will have on management in the manufacturing industry in India.*

Keywords: Digitalization, Industry 4.0, IoT & IIoT, Maintenance Management, Reliability

1. INTRODUCTION

While the term Internet of Things (IoT) is quite widespread and has been around since the early 90's, it is just recently that people have started realizing the benefits that it brings to the table. A widespread interconnected matrix of sensors, devices and applications working in synergy with each other creating a higher value than sum of parts, would be one of the easiest ways to explain this.

Industrial Internet of Things (IIoT) is the application of this to the manufacturing industry across the entire value chain from Manufacturing, supply chain logistics, purchasing and marketing functions. While there is still a long way to go, many industrial companies **are undergoing 'digitalization'** in order to boost productivity and efficiency, improve product quality and make supply chain improvements

1.1. Definition: Industrial Internet of Things is the use of IoT specific to the value chain of industrial manufacturing and the effect that this can have on taking management decisions. It can be defined as a Decision Support System that impacts management of day to day working of the numerous machines and process that are used across the value chain.

1.2. Objective of the study

The objectives of the present study are as below

1.2.1.1. To understand the basics of IIoT in manufacturing industry

1.2.1.2. To examine the factors that can impact management decisions

1.3. Limitation of Study: The study is limited to manufacturing industries

2. METHODOLOGY

2.1. Research Methodology

The Process used to collect information & data for making business decisions. The methodology may include publication research, interview, surveys & other research techniques & could include both present & historical information.

2.2. Research Design

The researcher has used both primary and secondary data collection techniques. Prinmary data has been collected over personal interviews and discussions with the relevant referred persons and secondary data been collected from various articles, journals, books, websites etc. It have been used to study the basics of IIoT and also understand the key factors that impact Management decisions. All the data included is the secondary base & proper references have been given wherever necessary.

3. Analysis & Interpretation

In the manufacturing industries Industry 4.0 is the next revolution in manufacturing and bringing about the early adoption for IIoT and digitalization. Digitalization will help companies to prepare for the advent of Industry 4.0 – which will see ever-greater interconnectivity between machines and devices, and ever-increasing use of big data. The eventual aim is to connect the whole value chain together – and this will begin with small steps into digitalization.

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The simplest examples of IIoT is use of sensors and sensing technology on assets to measure production and performance parameters. These can then be linked to

- A software (to give results, recommendations and help machine learning)
- A local display (to show live what is happening and create an alarm if things are not as per plan)
- Create a remote display on other inter connected devices like smart phones, so that multiple people may be able to access and act on the data

While in early stages of adoption there is still a lot of technology that is available and sometimes many companies are tempted to digitalize their entire operations. This can be costly and done without the proper end objective in mind can lead to failure.

IIoT will impact the management decisions when done in a manner that links it to the company goals and KPI's. The three major goals of IIoT for management can be:

- **Reduce costs;**
- **Increase output; and**
- **Comply with legislation.**

Project owners and EPC providers must evaluate and consider the digital maturity in their respective entities and set targets for the nest level since the digital success will depend on success of all Full value chain partners right from manufacturers of equipment's, systems, critical machinery, component suppliers etc to the service industries like logistics, inspection and commissioning, who will all have to dove tail the work on around EPC's

Digital Transformation in the chemical industry will have significant impact on day to day business processes like manufacturing, sales supply chain and R&D. Though the chemical industry is still using digital technologies in silos of manufacturing and supply chain management. It will be able to harness the digital prowess only when the project owners embrace digitalization at the stage of conceptualization of project. Such approach will enable the clients, EPC consultants and stake holders from the functional value chain of this industry to work in an integrated manner for timely completion of projects and leverage the benefits of digital technologies for assent management, operations and maintenance during the entire plant lifecycle. [2]

Another key impact that IIoT will have on management is automation of workflow and building the Reliability Road map in a process oriented manufacturing set up. IIoT and digitalization can help creation of dashboards that link with management KPI's and ensure a regular monitoring and fine tuning of actions that will finally impact asset utilization, cost reduction and higher safety

The need for digitization of workflow exists to automate transactional processes at first stage and then strategic ones. Technologies for digitized workflow may include smart sensors, Applications Integration, Mobility solutions. Based on the Digital Maturity of the organization, the selection of suitable technologies can be made at each stage based on long-term maintenance and plant objectives. Due consideration related to operating context and simplicity will be the key to select the right technology for bringing digitization

Below figure mentions some of the technologies for Automation of workflow.

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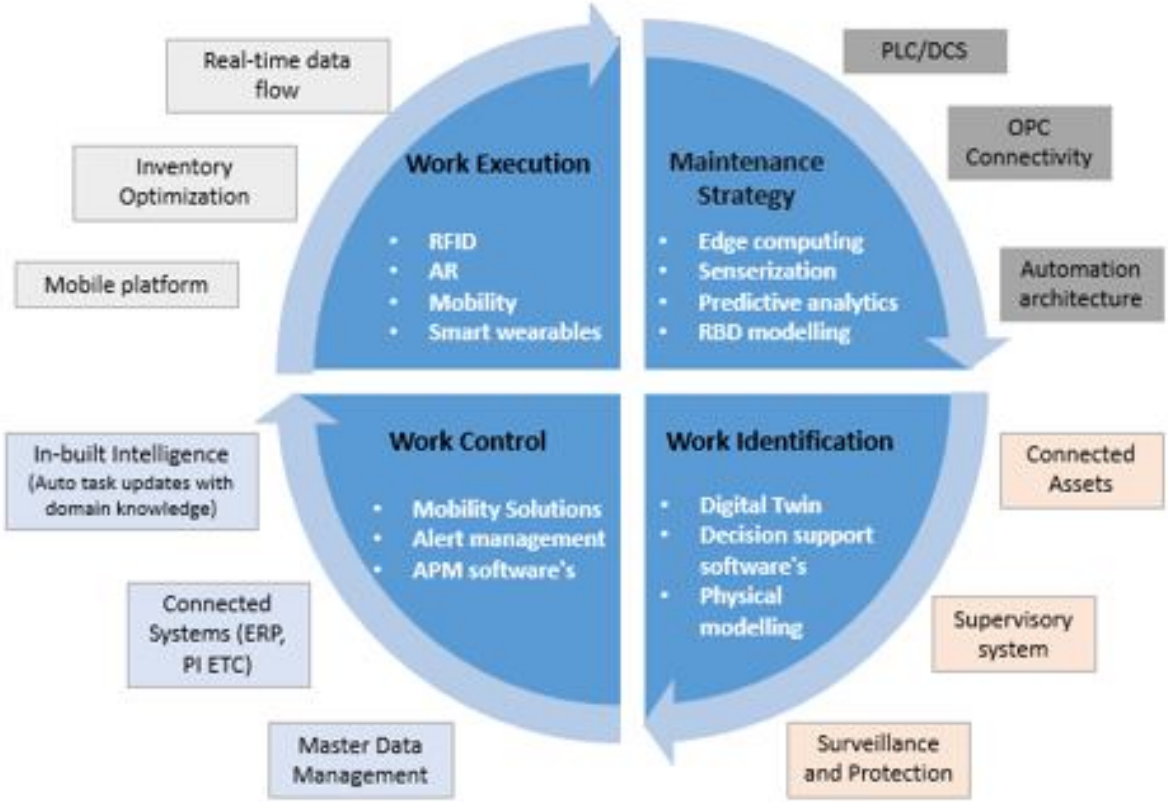

Figure 3: Technology enablers for Digitization of Maintenance Workflow

Typical characteristics of the organization adopting Digitized workflow in Maintenance:

Asset Utilization	Cost Control
Equipment Availability (real time data facilitating quick actions)	Data driven maintenance planning
Auto-categorization of Downtime for continuous improvement	Real time KPI monitoring (Dashboard)
Technology and Analytics deployment for better prediction of Asset life	Control on Re-work and Emergency work

The benefits of leveraging the technologies are immense when used effectively in Maintenance workflow processes. It can streamline the complex workflow, bring data driven maintenance planning with increasing productivity of shop floor technicians and engineers.[3]

With the rapid growth of the Internet of Things in recent years, interconnected machine parts, data streams and mobile smart devices are being used on an industrial scale and impacting the way we work. To implement the Internet of Things effectively, industry must focus on improving analytics – algorithms that can interpret and act on the flow of real-time data from many machines. As it stands now, only a small fraction of the data generated by production machinery is used for decision making. A more systematic and intelligent way of working with analytics will ultimately help companies use more of the information they collect for optimization and prediction.[4]

Thus, while there are a number of methods to assess and collect data from Machines, systems and assets, companies need to identify what they will do or act on from this data. While the technology on collection is vital the amount of data generated is huge and needs to be interpreted in a manner that allows management to take actions which help them increase productivity or reduce cost.

"Many can detect – but I need someone who can analyze" [5]. It is a key action point for people in Maintenance to be able to take concrete actions from the data that is generated by IIoT. Just data availability will not do, management is looking at options that help them interpret, analyze and take suitable actions that will increase asset life and thereby reduce overall cost of ownership of the asset.

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4. CONCLUSION

IIoT is the latest technological trend that has entered the manufacturing industry. It is leading to the concept of Industry 4.0 and Digitalization. IIoT will impact industry in a way that allows it to upgrade from the last industrial revolution and adopt new smart technologies that will reduce total cost of ownership of assets and enable automatic machine learning. It needs to be used effectively across the Full Value Chain of the industry

The key impact that IIoT can have on management are as below

4.1. Increase Productivity: Smart machines and early detection techniques that shall increase MTBF for rotary assets. Higher availability and equipment OEE

4.2. Reduce Cost: Early detection and prognosis linked to a supply chain systems and maintenance planning that ensure minimum MTTR, lesser redundancy of assets and lower lifecycle costs of the plant and machinery

4.3. Higher Safety: Sensor linked systems with localized early warning, self-correction capabilities that will reduce risk to human life.

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ROLE OF RETAIL ANALYTICS IN E-COMMERCE INDYSTRY

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ABSTRACT
E-commerce industry is growing leaps and bound with abundant rise of internet connections every day. Many computing devices are generating humongous data. Retail ecommerce is emerging industry which has its own challenges for growth and sustainability. This growth needs lot of attention. Thick Data & BIG Data are the two sides of same coin which helps many organizations to find solution to their challenges. This Data generated by retail ecommerce is beyond the treatment by traditional tools to handle and derive any inferences for decision making. This brings the necessity of Analytics to treat, test, analyze & use the Data for organizations to arrive decision making. In this paper we have made attempt to understand what is, The Role of Retail Analytics in e-commerce industry and how it is going to benefit.

Keywords: Analytics, BIG Data, E-commerce, Retail, Thick Data

I. OVERVIEW OF E-COMMERCE IN INDIA
Indian e-commerce is expected to surpass United States market and become second largest eCommerce market globally. It is expected to reach $64 billion by 2020 and $200 billion by 2026

India is expecting $700 million internet users by 2020. Rise of mobile penetration in India has propelled growth for m-commerce as well which itself will be $37.96 billion by 2020. Overall of e-commerce share out of internet economy is close to 25 to 30% This is going to be trillion dollar economy by 2025.

Launch of 4G has helped India to progress faster with internet economy. As of June 2018 India's urban population stood at 82.10 % internet penetrated and 19.48% in rural areas.

The online retail market in India is estimated to be worth $17.8 billion in terms of Gross Merchandise Value (GMV) as of 2017. The number of transactions in E-commerce retailing stood at 1-1.2 million per day and overall platform of e-commerce it is 55-60 million per month.

Thanks to GST the transactions within states and cities have been simplified with reduction in the cost of reach. This has opened up further tier II and III cities to e-commerce for further expansion.

Omni-Channel movement in retail industry and Brand awareness due to e-commerce there is quite good demand of branded products even in rural areas now.

Digital India has brought lot of online payment gateways. They are helping to fuel the increasing demands of e-payments for e-commerce. Along with this Logistics is playing very important role in the growth of e-commerce in India. Many e-commerce have set up their own logistic operations to fulfill demands of the customer.

II. BIG DATA
Big data is usually known for Volume, Variety, & Velocity of the data. As mentioned above with world of internet opened up, we are generating tons of the data every day. This data has crossed already from Tera Bytes to many Peta bytes of size. This data carries it with lot of information which is important for decision makers. Concept BIG Data has arrived with this humongous data.

Now there is 4th V added to BIG Data called Veracity i.e. reliability or accuracy of data. While we know the amount of Volume we generate during e-commerce from seller, buyer side every day, it also has variety of data about different products, price, promotions etc. and with 4G coming in along with internet penetration in India the Data generation speed is mind boggling. Unless this data is not properly studied to find the required patterns, information, predictions and suggestions the data will be waste.

Retailers who leverage the BIG Data has scope to increase operating margins by 60% [6 Bernard] This BIG Data is generated in retails of many forms is absolutely import to capture, processed, analyzed and used for business decisions.

Below figure can explain how in Retail the data is generated with various sources.

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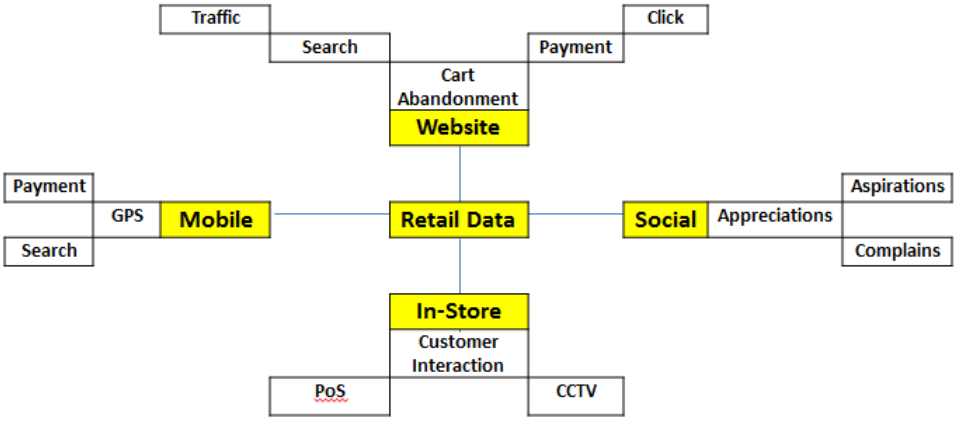
Fig-1: Sources of Data in Retail



Source: QBurst

III. THICK DATA

While we understood what is meant by BIG Data, there are many challenges which makes BIG Data at times difficult for organizations specifically smaller one to practice. Also BIG Data is unstructured data while ethnographers and anthropologists adapt Thick Data. Thick data relies on human learning.

It reveals the social context of connections between data points. If one has to compare Thick data & BIG data is something like difference when we observe our route while travelling against watching it on Google Map. LEGO company is good example who adapted THICK data to understand customer needs.

IV. ANALYTICS

Analytics market is expected to double by 2020, with 24% being attributed to BIG Data. Analytics is nothing but discover data, interpret data, and visualize data.E-commerce contributes close to 15 % of total analytics market.

It's expected to be $56 billion by 2020. Today analytics has become product than just business enabler, the best example is Amazon side bar showing recommendation, it is nothing but tool which discovers user preference, understand the requirements and gives us suggestion what is that we may like or should look as options to buy.

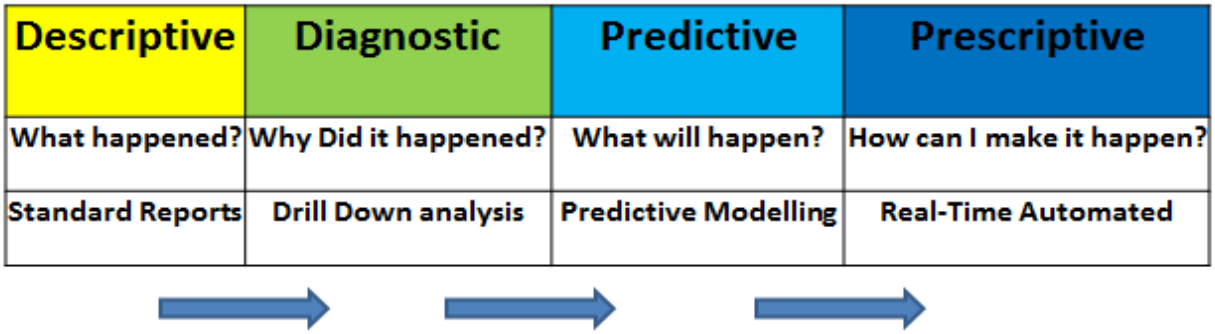
Analytics is not only limited to buyer but even seller gets help of this analytics, for example if there is demand of hockey sticks in a season the same recommendation can be given by Amazon to Cricket bat seller to start keeping stocks of Hockey sticks as well. Now these decisions will be costlier and difficult to seller /Vendor if they didn't had tie up with e-commerce like Amazon who can give analytical feedback which helps in business decision making.

Internet of things has brought in connected devices across the places to bring more and more data. While Artificial Intelligence and Machine learning has the capabilities to query the data in different ways. This intelligent data can be queried over business intelligence tools to find the hidden information.

Business Intelligence helps to answer what happened? How many? How often? Where the problem is? What action to be taken? Whereas Analytics is more ambiguous term since it overlap Business intelligence (BI)

Business analytics maturity level can be best described as below,

Fig-2: Maturity stage of Analytics



Source: Berkeley

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It will only take few days over few weeks to take decisions with analytics

V. ROLE OF RETAIL ANALYTICS IN E-COMMERCE

Recently around 2013 there was defining moment of analytics which exhibited as teen is pregnant even before her father knows it. This was possible due to analytics which traced the pregnancy product bought by the teen.

Knowing the customer better than your competition and making business decisions around the same is new way of doing business today.

These analytics gives deeper knowledge which is required to make business decisions, it finds gaps and let you know what is to be done to correct the same!

- **Build robust supply chain** – This is beyond just delivery of goods in time, as it involves better inventory management. This is very key factor to have right product at right time.
- **Detect Frauds** – With increase in the online transaction through debit/credit cards as well the payment wallets, it is imperative to have much needed strong analytics to detect any frauds happening on the site. E-commerce companies do verification of transaction with user to ensure it is done by him.
- **Promotions** – Big billion day is outcome of Black Friday at US concept , where customer are entice to go shopping for particular period to increase the business.
- **Personalize the recommendations** – As we have seen recommender bar next to the product we are browsing is good example of this.
- **Pricing model optimization** – On the click of button , different sites today gives the easy way to find which site is most competitive site for buying the product we need. This also gives inputs to e-commerce sites whether they need to optimize the product pricing and positioning
- **Strategy and planning** – Overall performance, Key value client analysis, Macro trends
- **Workforce analytics** – This is not limited to sales but even operations efficiency improvement can be done
- **Digital Marketing -** Various program outputs and recommendation, loyalty benefits for customers, market basket analysis. Optimize multi-channel performance. Return on investments for marketing. Demand generations
- **Merchandising** – Accurate demand forecast, improving space allocations, promotional planning
- **Client profiling** – Identify each customer differently and treat him differently is possible today due to analytics
- **Upsell & Cross sell** – The best way to increase the revenue is the existing customers with more products we can sell with help of up sell and cross sell
- **Network Effect** – Network has tremendous potential to help organizations to make their product visible & increase demand

VI. CHALLENGES TO ADAPT ANALYTICS

While the need of Retail analytics is understood very well in e-commerce, it's not that easy to implement. It has its own challenges, specifically for smaller organizations or start-ups it's difficult to invest amount of money to deploy the analytics investment or software to run CRMs.

At same time just for infrastructure/platform also it is huge investments needed. There are challenges like retrain the existing employees or maintain skillful employees to operate the data operations for analytics.

Sensitive data is always challenge & business risk in this. Many times management is also not ready to look this investment value proposition.

Relevant Data generation and curation is a BIG challenge in BIG data being unstructured data its processing to meaningful data is always a challenge. Here comes THICK Data to rescue up to certain extent.

Use of analytics is highly disruptive across global retail industry. This does not only affects revenue and cost structures but also shakes up core business and operating models. Instead of focusing on technology initially the core capabilities dimensions that need to be addressed such as process, culture and resources.

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CONCLUSION

Retails can no longer rely on historical data of shopping behaviors as consumers increasingly expect more personalized. Retail e-commerce has huge potential for business analytics.

Analytics maturity is still low in this segment barring few bigger organizations. India is emerging as one of the top destinations for analytics market. It is very much visible that retailers are going to get benefited with analytics in e-commerce. With increase in Internet of things, mobility, 5G coming in full swing to country we can just imagine what's going to happen next with the data.

While human thoughts are expected to capture further by this intelligent devices. The analytics play a very key role to run successful & profitable business for every organization.

It's now when companies need to take decision for moving towards analytics before it falls behind others. As business competencies will play key role with analytics. Thick or BIG Data, need of analytics is absolutely important for decision making. Many companies have revived them today with help of this.

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REVOLUTION IN ARTIFICIAL INTELLIGENCE

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ABSTRACT
Artificial Intelligence is the capability to think, to understand, to distinguish patterns, to memorize, to make choice from alternative and to learn from experience. Artificial Intelligence is to make duplication of human brain's capability so that the computers start doing all those activities that the human is doing and in much less time. The recent development in AI pretentious games, journalism, politics and public life. Research in AI has build upon the tools and techniques of many diverse disciplines, including formal logic, decision theory, probability theory, linguistics, management science and philosophy. However, the application of these disciplines in AI has necessitated the development of many enhancement and extensions.

Similar to other products of globalization, AI in India is also a side product of globalization, which is becoming extensively available without much political consideration. India is sheathing behind in the development of AI as compared to other nations like US and China. The quite appearance of AI applications in India is not noticed by its policymakers in Government. To take full profit of AI revolution there must be policies for AI innovation and alteration in Government and public sectors. India must launch regional innovation centers in alliance with universities and private start-ups for manufacturing robotics and developing automation.

Keywords: AI, Revolution, Intelligence, AI and Games, AI and People

INTRODUCTION

The capability of an artificial entity such as a computer machine that makes it so intellectual to solve composite problems that is otherwise possible only by human brain is called artificial intelligence. It is the ability to think, to recognize patterns, to understand, to memorize, to make choice from alternatives and to learn from experience. Artificial Intelligence is to make duplication of human brain's capability so that the computers start doing all those activities that the human is doing and in much less time. Artificial Intelligence is the ability of a machine to perform those activities that are otherwise predictable from a human brain. It includes knowledge acquisition, relationship understanding, judgment and produce thoughts.

Artificial Intelligence (AI) is a science and a set of computational technologies that are encouraged but usually operate quite another way from the ways people use their nervous systems and bodies to sense, reason, learn, and take action. While the rate of progress in AI has been irregular and impulsive, there have been noteworthy advances since the field's inception sixty years ago. Once a mostly academic area of study, twenty-first century AI enable a gathering of mainstream technologies that are having a substantial crash on everyday lives.

I. AI REVOLUTION: THE ROAD TO SUPER INTELLIGENCE

Imagine taking a time machine back to 1750, a time when the world was in a eternal power outage, long-distance communiqué meant either yelling loudly or firing a cannon in the air, and all transport ran on hay. When you get there, you recover a dude, bring him to 2015, and then walk him around and watch him react to the whole thing. It's unfeasible for us to recognize what it would be like for him to see shiny capsules race by on a highway, talk to people who had been on the other side of the ocean previous in the day, watch sports that were being play 1,000 miles away, hear a musical performance that happen 50 years ago, and participate with my magical wizard rectangle, which he could use to confine a real-life image or record a living moment, generate a map with a telepathic moving blue dot that shows him where he is, look at someone's face and chat with them even though they're on the other side of the country, and worlds of other unimaginable sorcery. This is all earlier than you show him the Internet or explain things like the Large Hadron Collider, International Space Station, general relativity or nuclear weapons.

This experience for him wouldn't be astonishing or outrageous or even mind-blowing; those words aren't big enough. He might actually die. But here's the interesting thing: If he then went back to 1750 and got resentful that we'd gotten to see his response and decided he wanted to try the same thing, he'd take the time machine and go back the same distance, get somebody from around the year 1500, bring him to 1750, and show him everything. And the 1500 guy would be stunned by a lot of things but he wouldn't die. It would be far less of an insane occurrence for him, because while 1500 and 1750 were very diverse, they were much less different from each other than 1750 and 2015 are. The average rate of progression between 1985 and 2015 was higher than the rate between 1955 and 1985, because the previous was a more advanced world, so much more change occurred in the most recent 30 years than in the prior 30.

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So advances are getting better and better and happening more and more quickly. Our own knowledge makes us obstinate old men about the future. We base our ideas about the world on our personal knowledge, and that experience has entrenched the rate of growth of the recent past in our heads as the way things happen. We're also limited by our thoughts, which takes our experience and uses it to summon future prophecy but often, what we know simply doesn't give us the tools to think precisely about the future. When we hear a prophecy about the future that contradicts our experience-based notion of how things work, our gut feeling is that the prediction must be adolescent. If I tell you, later in this post, that you may live to be 150, or 250, or not die at all, your intuition will be, That's stupid. If there's one thing I know from history, it's that everybody dies. And yes, no one in the past has not died. But no one flew airplanes prior to invention of airplanes either.

II. AI AND GAMES, AI AND PEOPLE

AlphaGo is an AI based machine developed by Google DeepMind. It created a history in the recent months by defeat the world champion of Chinese ancient board game "Go". The world title holder of board game, Lee Sedol of South Korea was challenged by Google DeepMind to five board game series in which AlphaGo conquered the champion by four to one. AlphaGo proved that machines can be made intellectual enough to defeat human brain. They can become skilled from the environment and can forecast more accurately than a human brain can. They can make decisions more quickly and precisely than what is expected from human mind.

Recent AI development affected life of people directly or indirectly. The smart phones now endow with intelligent keyboards which are able to foresee the next words while typing some text that reduces the saddle of typing all the text. Desktop computers and tablets now make available voice activated assistants to help. The tablets and other devices are now intellectual enough to follow voice commands to perform the tasks for users. Use of machine intelligence to incarcerate user interests and online behavior is very familiar now on the web.

III. AI POLICY, NOW AND IN FUTURE

The measure of achievement for AI applications is the value they create for human lives. In that light, they should be intended to enable people to appreciate AI systems successfully, participate in their use, and build their trust. Public policies should help ease society's adaptation to AI applications, extend their settlement, and mitigate their predictable errors and failures. Debate about how AI is deploying, including concerns about how privacy is protected and AI's benefits fairly shared, should be encouraged. Given the speed with which AI technologies are being realized, and associated concerns about their implications, the Study Panel recommends that all layers of government attain technical expertise in AI. Further, research on the security, fairness, privacy, and societal implications of AI systems should be optimistic by removing impediments and growing private and public spending to support it.

Currently in the United States, at least seventeen separate agencies govern sectors of the economy related to AI technologies. Rapid advances in AI research and, especially, its applications require experts in these sectors to extend new concepts and metaphors for law and policy. Who is responsible when a self-driven car crash or an intellectual medical device fails? How can AI applications be prohibited from promulgate racial inequity or financial cheating? Who should gather the gains of efficiencies enabled by AI technologies and what protections should be afford to people whose skills are rendered obsolete? As people combine AI more broadly and deeply into industrial processes and consumer products, best practices need to be spread, and dictatorial regime adapted.

Fortunately, principles that guide successful parameter of current digital technologies provide a preliminary point. In privacy regulation, broad legal mandates united with tough transparency requirements and meaningful enforcement rather than strict control support companies to develop processes and professional staff to implement privacy controls, engage with outside stakeholders, and adapt their practices to technological advances. This in turn supports the progress of professional trade associations and standards committees that spread best practices. In AI, too, regulators can make stronger a upright cycle of activity involving internal and external transparency, accountability, and professionalization, rather than narrow compliance. A dynamic and informed debate about how to best steer. AI in ways that enhance our lives and our society, while encouraging originality in the field, is an urgent and vital need. AI technologies could widen accessible inequalities of opportunity if admittance to them along with the high-powered computation and large-scale data that fuel many of them is unlawfully distributed across society. These technologies will improve the ability and competence of people who have access to them. Policies should be evaluate as to whether they promote self-governing values and impartial sharing of AI's benefits, or concentrate power and benefits in the hands of a privileged few.

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IV. CHALLENGES AND SCOPE OF AI

India is sheathing behind in the development of AI as compared to other nations like US and China. Similar to other products of globalization, AI in India is also a side product of globalization which is becoming extensively available without much political consideration. The necessary AI communications for a revolution of AI in India is almost neglected by Indian policymakers. Infrastructure to store huge amount of data is provided by servers that are mostly situated outside India.

Although, policymakers do not give much significance to these things but global companies like Microsoft and Amazon recently planning to empower in cloud infrastructures in India. Above that there is a lack of the culture of modernism necessary for AI development in India. In India, till now AI developments are focused to consumer products and services only. The development is driven by private sector and is being used for business policies and growth. The quite emergence of AI applications in India is not noticed by its policymakers in Government. To take full benefits of AI rebellion there must be policies for AI innovation and adaptation in Government and public sectors. It must not be bound to private sectors only. India must establish regional innovation centers in alliance with universities and private start-ups for manufacturing robotics and developing automation. Incentives must be presented to manufacturers to inspire them. It must endorse infrastructure for cloud computing capacity inside India.

To encourage culture of innovation, the National Education Policy mush set up alternative models of education which are more suitable for the future of AI in India. To make the programmes such as Digital India and Skill India a perfect success, the current innovations and future of AI perception must not be ignored. Even current developments of AI are not being used in government sectors to take their benefits. Current advancements of AI may be adopted by government sector to take its benefits such as preventing mistreat of subsidy or loan, detecting income tax fraud etc.

V. CONCLUSION

This paper discusses recent advancements in AI at global level and their impact on global as well as local levels. In politics, AI is experimented by Narendera Modi, Hillery Clinton, Barack Obama and Donald Trump and they found it very valuable technology. The use of AI helped to better use of resources, energy and time in the election campaign to reach the target audience. The high computing power is used to scrutinize public opinion and the nature of voters across all regions perfectly. In the recent US presidential elections, AI is used in journalism up to the mark. AlphaGo an AI based machine developed by Google DeepMind, formed a history in the current months by defeat the world champion of Chinese ancient board game “Go”. Use of machine intellect to capture user wellbeing and online behavior is very common now on the web. Information is extracted from the data to make an smart guess to display advertisements of products that are of interest to the user.

India is covering behind in the developments of AI as compared to other nations like US and China. The necessary AI infrastructure for a revolution of AI in India is almost abandoned by Indian policymakers. Current advancements of AI must be adopted by government sector to take its profit. India must establish regional innovation centers in association with universities and private start-ups for mechanized robotics and developing automation.

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ROLE OF FINANCIAL ANALYTICS IN MANAGING PERSONAL INVESTMENT PATTERN OF INDIVIDUALS

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ABSTRACT

Financial analytics enables different and multi dimensional views of a company's financials. It may delve into areas hitherto never explored and effectively lead to views never thought of. Financial analytics can give an altogether new dimension to how the company is to be run. It makes its presence felt on all aspects of the business. It not only helps calculate profits but also helps tackle business problems, answer questions related to business and even forecast the future of the business.

Financial analytics has gathered a lot of importance in recent times and has in a very short span of time become an inseparable part of our individual lives, especially when it involves money.

Financial analytics in investment not only helps identify investment opportunities but it also warns the investors against potent risks. Trends in investment and spending patterns are identified thus helping in understanding consumer behavior with respect to finance. As a result, futuristic prediction to a large extent has been made possible and investors have started reaping benefits by having their portfolio optimized.

The research student has made an effort to explain the concepts of financial analytics related to managing personal investments and its advantages & disadvantages. The paper concludes with conclusions and limitations.

Keywords: Analytics, data, financial, individual, investment.

INTRODUCTION

Today's digital world is creating an explosion of data. This data is being identified to carry a lot of potential and hence a lot of analyzing has been initiated to extract valuable actionable insights. The healthcare and telecom Today's digital world is creating an explosion of data. This data is being identified to carry a lot of potential and hence a lot of analyzing has been initiated to extract valuable actionable insights. The healthcare and telecom industries are the front runners on this new-age revolution. While the healthcare industry has benefitted in reducing the patient mortality by 20%, simply by analyzing the health record data of the patient, the telecom industry, by analyzing the call data and network data, has experienced a whopping 92% increase in processing time.

Discussing on the topic of 'Role of Financial Analytics in Managing Personal Investment Pattern of Individuals', the potential is not any different! There is a large amount of relevant data about each company being traded on the stock market which is simply not being tapped into – something which is still affecting its performance on the stock exchange. While many are simply unaware of this situation, there still are a few investment managers who though aware, are unable to extract the necessary data due to lack of the appropriate analytics tools. Data analytics is nothing short of a powerful weapon which can help investment managers and firms in avoiding mistakes of the past and come out with refined decisions thus creating more and better value for the client. A survey of 400 investment firms, conducted by the Economist Intelligence Unit and State Street, saw that for 91% of the respondents, data and analytics was a strategic priority.

IDENTIFY INVESTMENT OPPORTUNITIES AND RISKS

Data analytics and data interpretation tools not only help investors in identifying the right investment opportunities, they also help avoid the risks associated with it. It facilitates the investors to take smarter and faster decisions and leverage the 'high ticket items' even across a portfolio which has exposure in varied assets like stocks, commodities, real estate, bullion, etc., and redesign their investment portfolio for better returns with minimum exposure.

CONSUMER BEHAVIORAL UNDERSTANDING

Financial Planning, especially in India is a highly emotional subject and hence wealth management firms across the globe are now making use of data analytics leveraging behavioral science to understand the emotions of their customers in a much better way which effectively results in a more profitable venture. Decisions of the customers, their social media activities and spending patterns are being tracked. The intention here is to get a clearer understanding of the attitudes and personalities of the customers so as to design or even customize investment strategies for them. Such an activity is a win-win situation for both, the wealth manager as well as

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the customer as these new-age tools and technologies help bring both of them on the same page and thus help create a conducive work relationship. Data analytics very importantly also helps thwart panic selling and thus prevent losses.

PREDICTIVE ANALYTICS

Data analytics is naturally followed by Predictive Analytics. Simply put, while Data Analytics is about the past trends and behavior, Predictive Analytics is exactly the prediction for the future, based on it. Predictive Analytics has the potential to revamp the investment nature and preference of the investor. It can suggest future purchases as Predictive Analytics helps the investment firms to take better trading decisions and enhance profits. Predictive Analytics, by identifying trends and repeatable events, even has the potential to influence risk/ reward ratios and influence the markets.

PORTFOLIO OPTIMIZATION

Big Data Analytics can help investment firms to quickly test complex scenarios. Using big data analytics, investment firms can quickly test complex scenarios. Understanding portfolio exposures and then designing easy to understand dashboards and graphs and visuals, the investment firms are better placed to help investors earn more profits and reduce risks at the same time. Advanced Data Analytics can actually help the portfolio managers to apply their researched strategy in real-time and effectively reduce the gap between trade origination and execution eg. 'Intra-Day Trading'.

ANALYTICS IMPORTANCE TO QUADRUPLE IN 2018

"Analytics will have an even bigger impact on society in the next twenty years than the Internet did in the last twenty." – Prediction by the renowned analyst, Rita Sallam at the Gartner & Analytics event in Frankfurt, Germany.

She believes that even though there is seen an astounding growth particularly in AI – Artificial Learning as well as machine learning, analytics will supersede them by at least four times in the coming year.

Her reasons being:

1. FASTER INNOVATION CYCLES

The core purpose of analytics has always been to support executive decision-making. According to Gartner, analytics remains the most important technology priority for companies around the world, as it has been for most of the last decade.

Importance of decisions is increasing more and more by the day. Decision-making has always been the very core purpose of analytics. And hence, in this fast paced and fast changing world and its markets, companies which are able to have their analysis ready and then having their strategies based on them in place and then being able to swiftly adapt themselves to the ever changing scenario, are king and rule the markets.

2. FROM A PROCESS-DRIVEN WORLD TO A DATA-DRIVEN WORLD

Gears have fast shifted. From a scenario of data creation through processes which can be used for analysis, times have changed fast and now data is being used to create processes. The world is now surely moving towards digitization wherein process steps keep on constantly changing based on algorithms and real-time data.

WHAT YOU SHOULD DO NEXT?

Research on financial analytics can be aplenty. Without a certain direction chalked out in advance, it is easy to get lost in the woods of the finance world and its analytics. Having said that, the identified realm of research can still be more than a handful and it would always stand one in good stead if he/she carries some basic knowledge on the subject. How, where and when to look up which analysis and data and charts is the key.

Returns from say, the stock market should not be compared with those from the bullion market or the real estate market or the commodities market. All these markets have a different platform of their own. The percentages of returns, the gestation period, etc. vary from each other; it is akin to comparing mangoes with apples!

Imagine if you had a ready-reckoner of the real estate prices across all cities and towns in Maharashtra … or some other state, or even the entire country. Would it not facilitate your decision in making the right investment, assuming there are no other constraints? Now, if detailed information on even one of those constraints is available, say for eg. Information of the various construction companies and their track record, I am sure it would help you better in coming to a decision. Even though not yet available in India, such detailed information of the builder is made available to the public at large in developed markets like Dubai.

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The same goes with stocks and other types of investments avenues. Depending upon one's investment amount, risk bearing capacity, period of willingness to stay invested, etc. there could be stocks and mutual funds available to cater to most people's needs. This has also led to bifurcation of stocks viz. 'Large-Cap', Mid-Cap' and 'Small-Cap'. With the ever growing demand for investment in stocks and mutual funds with even small investors entering the fray, a new segment was born known as the 'Micro-Cap'.

In this digitized age, the investor is spoilt for choice on the analysis with almost every financial advisory firm having its own tables, charts and graphs. The Sensex as is popularly known is one of the primary data analytics work designed and used by the Bombay Stock Exchange. It is the combination of the words SENSitive indEX.

Following are a few popular data reports/ charts widely used in the Indian context.

- Market Monitor
- NSE 50
- BSE 30
- NIFTY
- SENSEX

…more

These are benchmark researches readily available for the investors.

ANALYSIS ON STOCKS IS PRIMARILY CLASSIFIED INTO 2 CATEGORIES, VIZ.

1) Fundamental Analysis

2) Technical Analysis

Both the analysis' are performed on historical data with the intention of making financial forecasts.

While Fundamental Analysis is performed based on financial statements, Technical Analysis is performed using candle stick charts where each candle represents the various prices and volumes of transactions of the particular stock in a given period of time, usually a day, a week or even a month.

Investors on the other hand could surely do themselves a world of good by maintaining their own finances in simple excel forms which could help them monitor the progress and take informed decisions accordingly.

A FEW EXAMPLES OF THE VARIED TYPES OF AVAILABLE DATA ARE ENLISTED BELOW

Table-1: A quick glance at the important figures relevant to the Indian scenario

My Portfolio

International Indices		
DOW	25,411.52	*0.68
NASDAQ	7,402.08	0.74

Commodity Prices		
GOLD (US$/oz)	1,313.3	-0.9
GOLD (Rs/10gms)	33,400.0	+51.0
CRUDE OIL (US$/bl)	53.65	-1.2
Feb 5, 2019		

FIIs	
PURCHASES (Rs m)	39,842
SALES (Rs m)	48,794
NET INV (Rs m)	(8,952)
More	Feb 5, 2019

Currency		
Rs/USD	71.54	+0.26
Feb 5, 2019		

Market Stats
Gainers over 1-Year
BSE FMCG
25 results
3.

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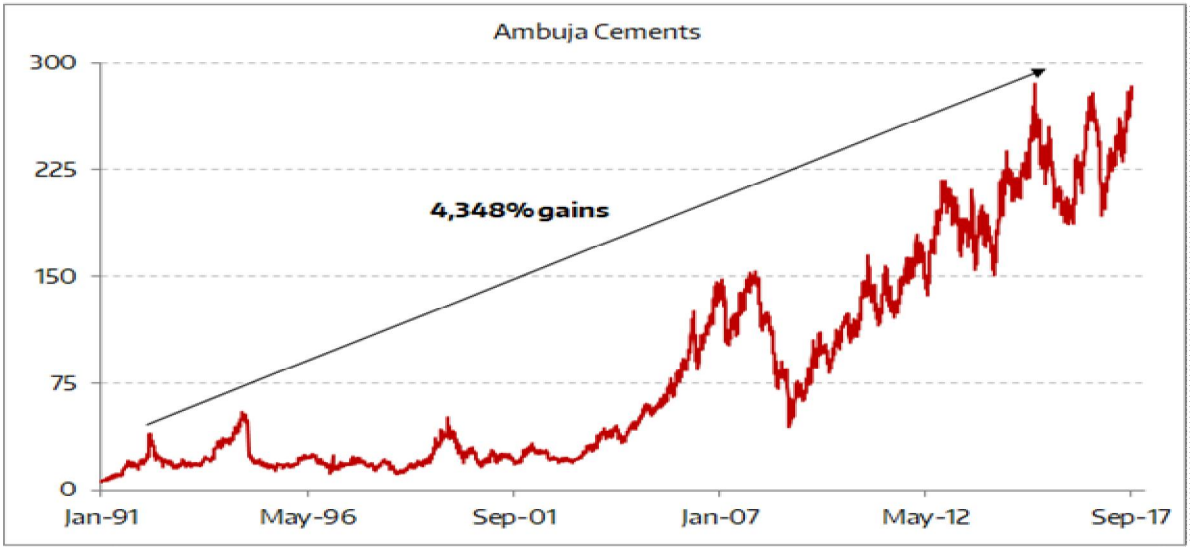
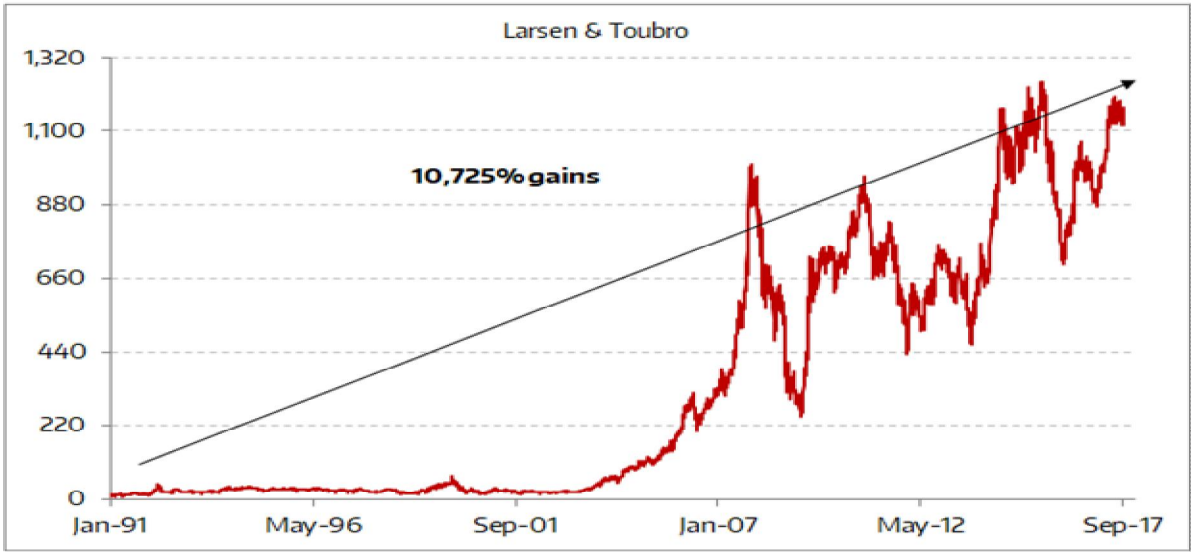
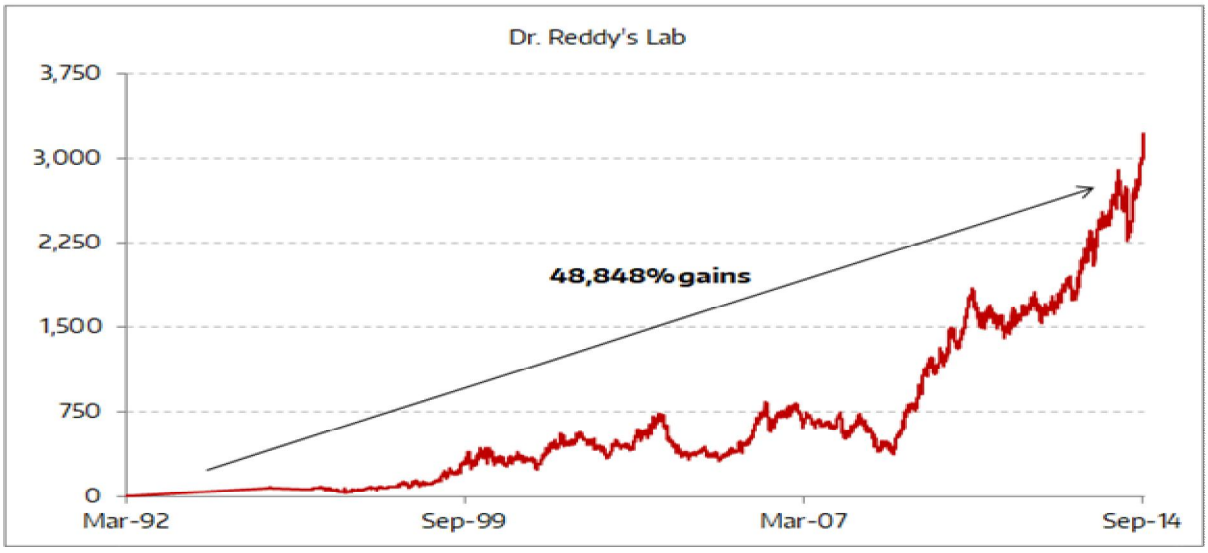
Graph-1: Investing just Rs 100,000 in Ambuja Cements in 1991 would have given Rs 44,48,000 in 2017.



Graph-2: Investing just Rs 100,000 in L&T in 1991 would have given Rs 1,08,25,000 or Rs 1.08 crores in 2017.



Graph-3: Investing just Rs 100,000 in Dr. Reddy's Lab in 1992 would have given Rs 4,88,48,000 or Rs 4.88 crores in 2014.



One of the basic types of data analytics is a detailed write-up on every possible detail of the company, its sector, history, promoters, future plans, government sanctions and provisions and aid if any, etc.

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DATA 1
IDENTIFYING AN ALUMINIUM STOCK: DO'S AND DON'TS

PROFILE
The biggest trait of the aluminium industry, being a commodity, is the **c**yclicality of the industry, wherein there are periodic ups and downs. That said, when compared with cement and steel, aluminium is a value-add commodity. It is **a** highly capital intensive sector (Rs 200 bn required for a 1 million tonne greenfield capacity expansion). Cost efficiency plays a critical role in the survival of a company in the sector for which, control over inputs (say raw material) is of utmost importance….

On basis of scale of operations and level of integration, aluminium producers can be categorized into the following two types:

- Integrated producers/Primary producers: Integrated producers have presence right from the mining of bauxite (raw material) to producing aluminium ingots (finished product). Some companies may even go a step further and ….

Primary producers could either be a company that is just into mining of bauxite and alumina production or pure aluminium ingot manufacturing. For companies, which …….

- **Secondary producers:** For this segment of producers, which are involved in the production of semi-fabricated products, the raw material is acquired from ….. ….. and further.

Data-2

HDFC BANK vs ICICI BANK - Comparison Results
Enter Base Company
HDFC BANK ▾ Change
With 4.2% share of India's total non-food credit disbursements in FY12, HDFC Bank is the second largest private sector bank in the country (after ICICI Bank) in terms of asset size. The bank has tripled its share from 1.2% of total non-food credit in... more
ICICI BANK ▾
Change
Despite being the second largest bank in the country after SBI in terms of asset size, ICICI Bank lost its share of the banking sector's advances from 10.2% in FY07 to 8% in FY12. At the end of March 2012, the bank had assets of over Rs 4.8 trillion ... more

Table-2

CURRENT ALUATIONS		**HDFC BANK**	**ICICI BANK**	**HDFC BANK/ ICICI BANK**	
P/E (TTM)	x	27.0	67.7	39.9%	View Chart
P/BV	x	4.9	2.1	236.0%	View Chart
Dividend Yield	%	0.6	0.4	147.3%	View Chart
EQUITY SHARE DATA					
		HDFC BANK Mar-18	**ICICI BANK Mar-18**	**HDFC BANK/ ICICI BANK**	**5-Yr Chart Click to enlarge**
High	Rs	2,014	362	556.2%	View Chart
Low	Rs	1,425	244	583.3%	View Chart
Income per share (Unadj.)	Rs	328.7	106.7	307.9%	View Chart
Earnings per share (Unadj.)	Rs	71.3	13.2	538.7%	View Chart
Cash flow per share	Rs	176.4	77.1	228.6%	View Chart

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CURRENT ALUATIONS		HDFC BANK	ICICI BANK	HDFC BANK/ ICICI BANK	
(Unadj.)					
Dividends per share (Unadj.)	Rs	13.00	1.50	866.7%	View Chart

DATA 3

SENSEX OPENS MARGINALLY UP; HEALTHCARE & REALTY STOCKS GAIN

Asian stock markets are in a muted mood today and looked set for a sleepy session with China …. While, the US stocks edged …….. Wednesday as ……. gave disappointing revenue forecasts and investors awaited developments on US-China trade relations.

Back home, India share markets opened marginally higher. The BSE Sensex is trading up by 93 points while the NSE Nifty is trading up by 12 points. Both, the BSE Mid Cap index and BSE Small Cap index opened up by 0.1%.

Sectoral indices have opened the day on a …….. with …. stocks and ….. stocks witnessing maximum buying interest. While, telecom stocks telecom stocks and consumer durable stocks have opened the day in ……

The rupee is currently trading at Rs 71.69 against the US$. ….. …. and more

INSIGHTS FROM FINANCIAL ANALYTICS FOR INDIVIDUALS

- Today's investor needs timely information that helps the busy working individual of today to take quick and at the same time, important decisions
- Every individual or business should have a sound financial planning and forecasting to leverage their portfolio
- Emergence of new business model, ever changing needs of the traditional financial dept. and the ever evolving technological advancement have all led to the need and importance of financial analytics
- Financial analytics helps in molding future business goals
- Improvement in decision making strategies is also made possible through financial analytics
- The individual gets a deeper insight about his profitability, cash flows and his net worth
- Financial analytics helps in making smart decisions to increase profits and avoid loss making investments

LIMITATIONS

Limitations of financial analytics especially for managing personal investment pattern of individuals are very few.

- Data analysis is only a means to reach to a conclusion. It is not conclusive in itself and the conclusion depends on how it is interpreted
- Dependence on historical costs is an obvious factor
- Percentage profits and ratios can be misleading especially when the ticket size is small. Due consideration also has to be given to the amount invested simultaneously
- Dependence on numbers. No scope for error is allowable
- Dependence on the analytics data itself which needs to be fool proof

CONCLUSION

Financial Analytics as a whole, is here to stay, at least for the next 20 years. It is being touted as the next big thing and bigger than the internet. Financial Analytics is slated to gain more and more importance day by day and grow exponentially as on one hand, more and more data mining is being carried out and on the other the consumption of this day is increasing by the minute. 25 years ago, investing in shares was considered to be a gamble and only the so-called rich class would dabble in shares. Financial Analytics especially for managing individual investing has opened up a new sector all-together, that of the mass on the country and the world on the larger canvas. An activity which was as good as taboo for the middle class has now become one of the primary activities in major households with even housewives trying their hand in getting to know the nuances of investing and exploring the money markets putting their acquired skills to use.

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Advancement in Financial Analytics and even before that, the very availability of such tools has led to broadening of visions in the Finance sector and at the same time, the earning capability of an individual household and its future financial plans. The common man has now started dreaming big with planning being made for things like a second home, foreign trip, better education for children, better lifestyle, etc.

In conclusion, financial analytics in managing personal investment pattern of individuals has a lot of scope and it is only slated to grow with a large customer base still remaining untapped especially in lesser cities, towns and villages. Further, with more and more analysis on hitherto untapped avenues and deeper analysis would only consolidate the authenticity and reliability of such analysis.

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3. https://www.inteliment.com/blog/our-thinking/business-intelligence-from-big-data-role-of-analytics-in-investment-management/

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ROLE OF FINANCIAL ANALYTICS IN MANAGING PERSONAL INVESTMENT PATTERN OF INDIVIDUALS

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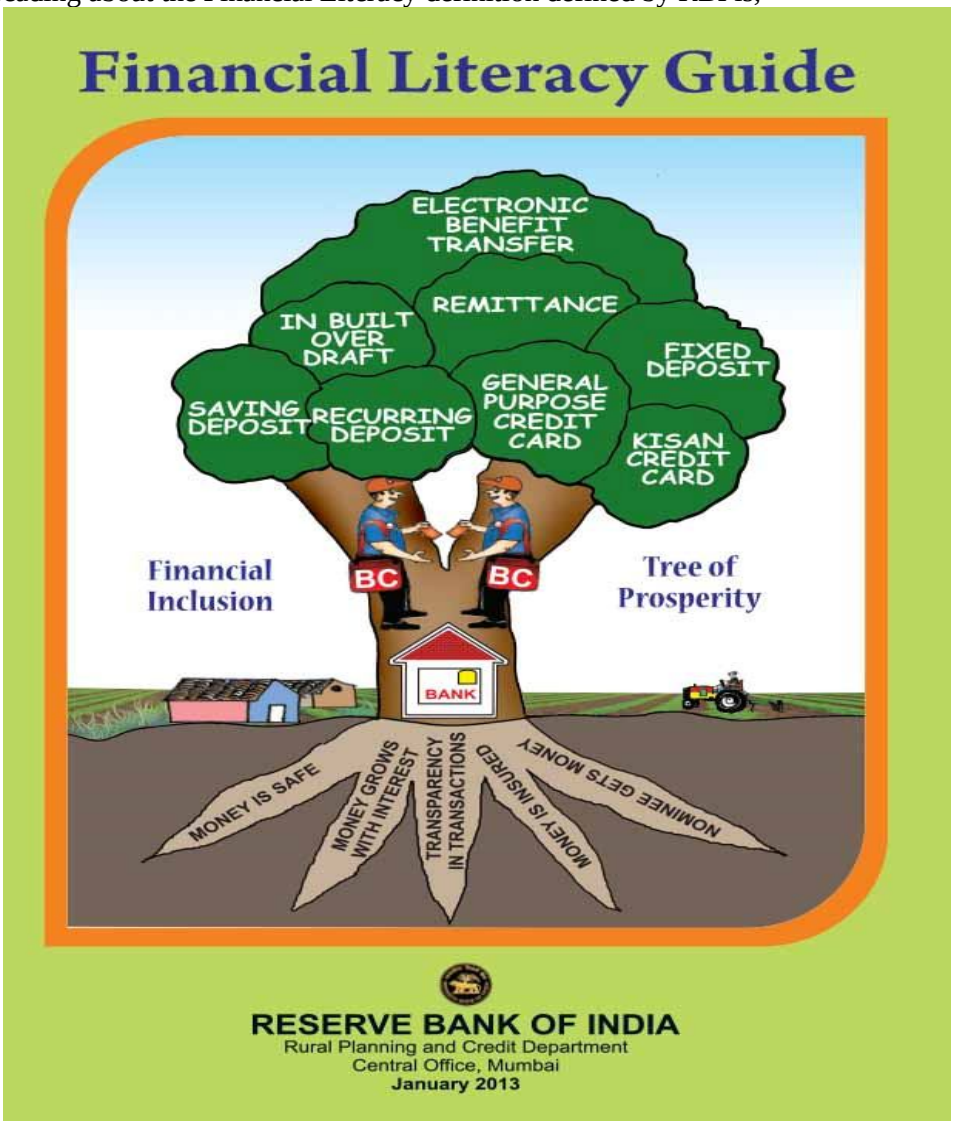
ABSTRACT
This study has been undertaken to investigate the role financial analysis managing personal investment pattern of Individuals. It is for the study of individuals how the financial helps individuals to plan the future planning, why it is necessary for individuals to analyses our income, expenditure and savings. To study the individual financial analytics current and future market trends are studied. Few economic parameters like inflation, oil prices, interest rate, and exchange rate are studied. The study is based on the experience of more than 15 years of Mr Suhas Harshe, as a MoneyCoach,

IndexTerms: Financial, Ananlysis, Macroeconomic parameters

INTRODUCTION
The study of financial analytics in managing personal investment is the outcome of my earlier study in Financial Literacy of Women in Slums. While discussing the subject with many women who are working and earning nice income are also unable to give answers like questions on financial literacy. Financial literacy involves the knowledge, attitude and behavior of the person towards its finance health, growth and need.

When we start reading about the Financial Literacy definition defined by RBI is,



When we go in deep in the study of this paper we found a need to study the financial analysis for investment pattern of an individual.

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OBJECTIVE

1. To study the investment patterns of the individuals
2. To study the role of financial analyst

RESEARCH METHODOLOGY

It is based on secondary research and personal interviews of financial advisors

LITERATURE REVIEW

Many literatures reviewed while studying the objectives of the research. Dr. Sarang S. Bhola (2016) in his study of An Empirical Study on An Investment Pattern of Individual Investors in Pune City had given the various options of investment. His study is based on sample size of Pune City i.e for urban city.

Reserve Bank had published the Annual Report for 2017-18 which had given the individual investment statistics.

The definition of financial literacy is from Reserve Bank of India.

Chapter 5 from Shodhganaga research publishing website is on Investment Pattern which stated the investment instruments, objective of the investment, risk of the investments.

Financial Analysis- A study, by Dr. Donthi Ravinder, Muskula Anitha,(2013) is the paper published in the IOSR Journal of Economics and Finance (IOSR-JEF) has define the definition of the Financial Analysis and the role of Financial Analyst for decision makers. Analysis of investment Patterns of Mutual Funds Investors – An Empirical Study in Orissa, (2013) study doen by SUMAN CHAKRABORTY and DR.SABAT KUMAR DIGAL, the study has the objective to study the investment pattern in mutual funds and the research methodology is used by personal interviews. It has its own limitation due to geographical area.

A book written by Madhu Sinha on Financial Planning, A Ready Reckoner, the book is all about the planning in various goals of an individuals. It has given all instruments about financials.

WHAT IS THE FINANCIAL ANALYSIS?

There are many definitions define for Financial Analysis, but all for an organisation level, as per the business dictionary the definition is,

Assessment of the,

- Effectiveness with which funds (investment and debt) are employed in a firm
- Efficiency and profitability of its operations
- Value and safety of debtors' claims against the firm's assets.

It employs techniques such as 'funds flow analysis' and financial ratios to understand the problems and opportunities inherent in an investment or financing decision.

Or

What is Financial Analysis? As per the Investopedia,

Financial analysis is the process of evaluating businesses, projects, budgets and other finance-related entities to determine their performance and suitability. Typically, financial analysis is used to analyse whether an entity is stable, solvent, liquid or profitable enough to warrant a monetary investment. When looking at a specific company, a financial analyst conducts analysis by focusing on the income statement, balance sheet, and cash flow statement.

What is Individual Financial Analysis? Is it different than above definition? Does all parameters mention in the definition of financial analysis are applicable to individual financial analysis?

We think, Yes; all the parameters are applicable to Individual Financial Analysis. The definition is derived from the discussion with financial advisors.

Financial analysis is the process of evaluating Income Sources, monthly expenditure, liabilities, investments, insurance, other unknown expenses, budgets and other finance-related entities to determine their priority and importance. Typically, financial analysis is used to analyse whether an investment is stable, solvent, liquid or profitable enough to warrant a monetary investment. When looking at a specific individual, a financial analyst conducts analysis by focusing on the income statement, household expenses, liability statement, investments, savings etc.

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What is the definition, (JULIA KAGAN, 2018): A personal financial statement is a document or spreadsheet outlining an individual's financial position at a given point in time. A personal financial statement will typically include general information about the individual, such as name and address, along with a breakdown of total assets and liabilities.

This is the personal financial statement definition, but what we get here is the breakdown of all assets and liabilities and that can be analysed. Financial planning involves the right amount invested should be available at the right time of the goal.

Individual financing involves the,

1. Income
2. Household Needs
3. Short term goals
4. Long term goals
5. Family insurance
6. Health Expenses
7. Retirement expenses – to meet the expenses after 25 years
8. Managing debt
9. Investing to save taxes in an efficient manner
10. Passing the wealth to next generation (Real Estate planning)
11. Making decisions about the jobs
12. Getting most out of other financial resources.

Financial planning is needed to achieve the financial goals, which enable the individual's life goals. Life goals are determined by individuals present situations, status, income levels, wealth, responsibilities, aspirations, risk profile, ability to save, past and present lifestyle.

This requires the lots of analysis. Individual's priority setting is different.

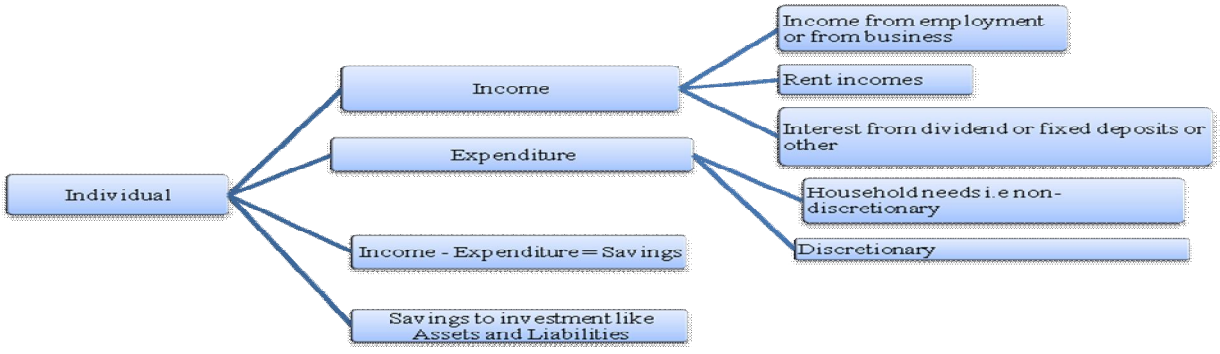
The purchasing power value has been changed from last 25 years. Mr Suhas Harshe,India's registered first Money Coach study said that, 25 years back if Rs 100 is income then out of that Rs 80 was spend on need and Rs 20 was spend on others. In today's days it may be 50% on need based spending and 50% on others. But in next 25 years the pattern will be totally different it may move to 25% on basic needs and 75% on others.

The lifestyle has been changed from last 25 years of Indian family. Small family and many earning members and earning sources have change, the spending structure and also the investment pattern of Indian urban family as well as rural. The effect of change in lifestyle of family is usually effectively seen in urban families.

Individual savings and investment pattern plays important role in any economy since it is a major component of resource market. In the recent past the paradigm shift has been observed in the strategies of service sector in India. With the increase in purchasing power and the demand for a wide variety of products by the consumers, (Sarang Bhola, March 2016)

The individual's financial planning statement has two parts, (the study is based mostly for urban India)

Figure 1



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Further we divide the assets or liabilities in 3 categories (Sarang Bhola, March 2016)

1. Financial Investment
   a. Low Risk-Low Return
   b. Public Provident Fund PPF
   c. Senior Citizen Saving Scheme
   d. EPF-1952
   e. Post office – MIS
   f. GOI (8% taxable bonds)
   g. National Savings Schemes
   h. Kisan Vikas Patra
   i. Bank Fixed deposits
   j. Various insurance policies
   k. Pension Plans
   l. Products of Mutual Funds
   m. Reverse Mortgage
2. Equity Market
   a. High Risk – High Return
   b. Hedge Fund
   c. Share Market
   d. Derivatives
   e. Private Equity
   3. Non-Financial Investment
   a. Real Estate-Flat or Land
   b. Precious Metals like Gold, Silver, Platinum
   c. Commodities
   d. Alternative Investment like Antiques, Art, Diamonds, other precious stones

Before going to any used case we have studied the investment returns from 1981,

Comparison – Different Asset Classes

	Inflation	**Gold**	**Silver**	**FD**	**PPF**	**Sensex**
Year	CII	Per 10gm	Per 1 KG	Rate %	Rate %	Index Value
1981	100	1670	2715	8.50%	8.00%	173
2018	1125	31546	43100	7.00%	8.70%	35423
Investment in 1981	100,000	100,000	100,000	100,000	100,000	100,000
Value in 2018	1,125,000	1,709,820	1,352,486	2,440,457	2,864,059	14,611,393
Return %	6.57%	8.04%	7.54%	8.00%	8.60%	15.03%
Taxation	Taxable	Taxable	Taxable	Taxable	Tax Free	Tax Free

Table-1

Here is the investment statistics, How India Saves or Invest? (India, 2017-18)

- Indian Households save 11.10% of their income in Financial instruments
- Rest is invested in Gold + Real Estate/Land
- Distribution of every Rs. 100 saved in Financial instruments:-
  (a) Cash – Rs. 25.20
  (b) Bank Fixed Deposits – Rs. 26.20

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(c) Govt Small Savings Schemes – Rs. 4.50

(d) Pension Funds – Rs. 18.90

(e) Insurance – Rs. 17.10

(f) Stocks / Mutual Funds – Rs. 8.10

Also, if we observe the inflation which affect the individual person, and based on this the individual may change his or her spending.

Inflation is the amount of money you pay for buying the same amount of material year on year. Investment should always beat inflation.

Inflation affects the family in three ways,

- Increase in Price
- Increase in Consumption
- Change in Lifestyle

While considering all above factors we always have question that What is the role of financial analysis in individual's investment planners?

What is the investment pattern?

"Investment is an activity that is engaged in by people who have savings i.e. investments are made from savings, or in other words people invest their savings. A variety of investment options are available such as bank, Gold, Real estate, post services, mutual funds & so on. Investors are investing their money with the different objectives such as profit, security, appreciation, Income stability." (Sonali Patil, 2014)

To decide the investment pattern, we studied the 2 cases of individuals,

	Particulars	**Case 1**	**Case 2**
Family	Male	32 years	50 years
	Female - Wife	30 years	47 years
	Kid 1	2 years	23 years
	Kid 2		16 years
Income Sorces	Male	Working in Private Company	Businessman
	Female - Wife	Working in School	Working in Private Company
	Kid 1	Planning for School	Higher Education in out of India
	Kid 2		10th standard
Income	Male	Rs. 70,000 per month	Rs 2,00,000 per month
	Female - Wife	Rs. 40,000 per month	Rs. 80,000 per month
	Kid 1		Rs.1,00,000 per month
	Kid 2		No Income
	Assets	Home	Luxurious flat and plot
		4 Wheeler	2 X 4 wheelers
		2 Wheeler	4 X 2 wheelers
	Annual Income of the Family	13,20,000	33,60,000
Expenses	Annual Monthly Expenses	23%	18%
	Insurance, Post Office Recurring, Cash deposits, Health Insurance, Other Expenses	23%	18%
	Loan Home EMI - Annual	27%	21%
	Loan Car EMI - Annual	7%	7%
	Gold Bhishi	3%	4%

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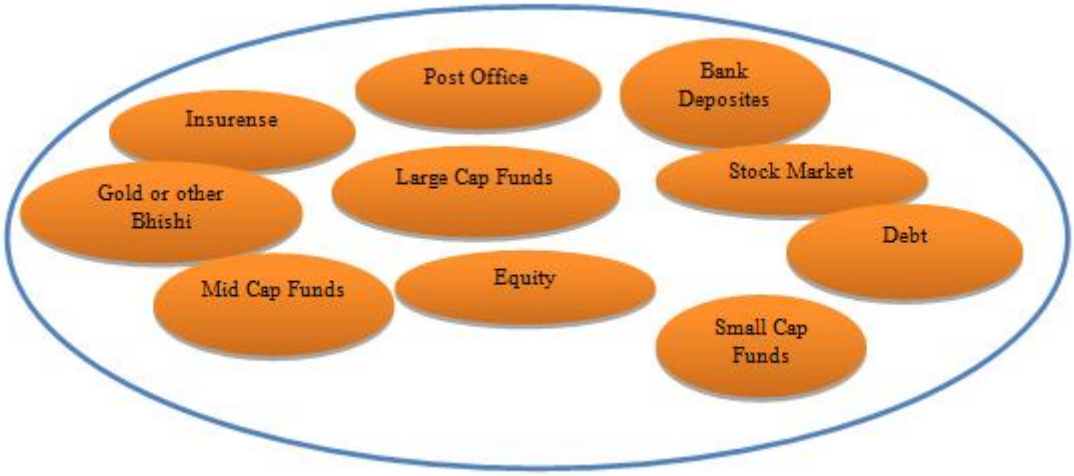
	Income - Expenditure	18%	32%
	Monthly Surplus Amount	19,500	90,000

Table-2

In these two cases goals of the family may be different. The investment pattern of the families is

Figure-2



This is the investment pattern for both the individuals. The financial planner job is to study the current investments and defined the goals of each individuals depend on his family needs, liabilities and pension. The Indian Economy is rapidly changing, so the investors investment pattern is differ. As per todays scenarios of jobs and profile of an individual, there is no guarantee of jobs or business, health expenses, taxable income are increased, home expenses, basic needs have been changed. Buying behaviour of an Indian family has been changed.

Role of financial planner changed to financial analyst. The financial analyst is do the analysis and give approach towards the right decisions and right time.

Figure-3

An investor's plan for investment is developed on the following parameters:-

- Liquid funds – for any urgent needs
- Future needs – fixed deposits and bonds for short term goals
- Pension fund or capital appreciations – for regular income at old age, to get cumulative returns and for the good returns and capital appreciation.
- Diversification fund – This helps to minimise the risks.

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The role of financial analyst comes in to picture because of many reasons,

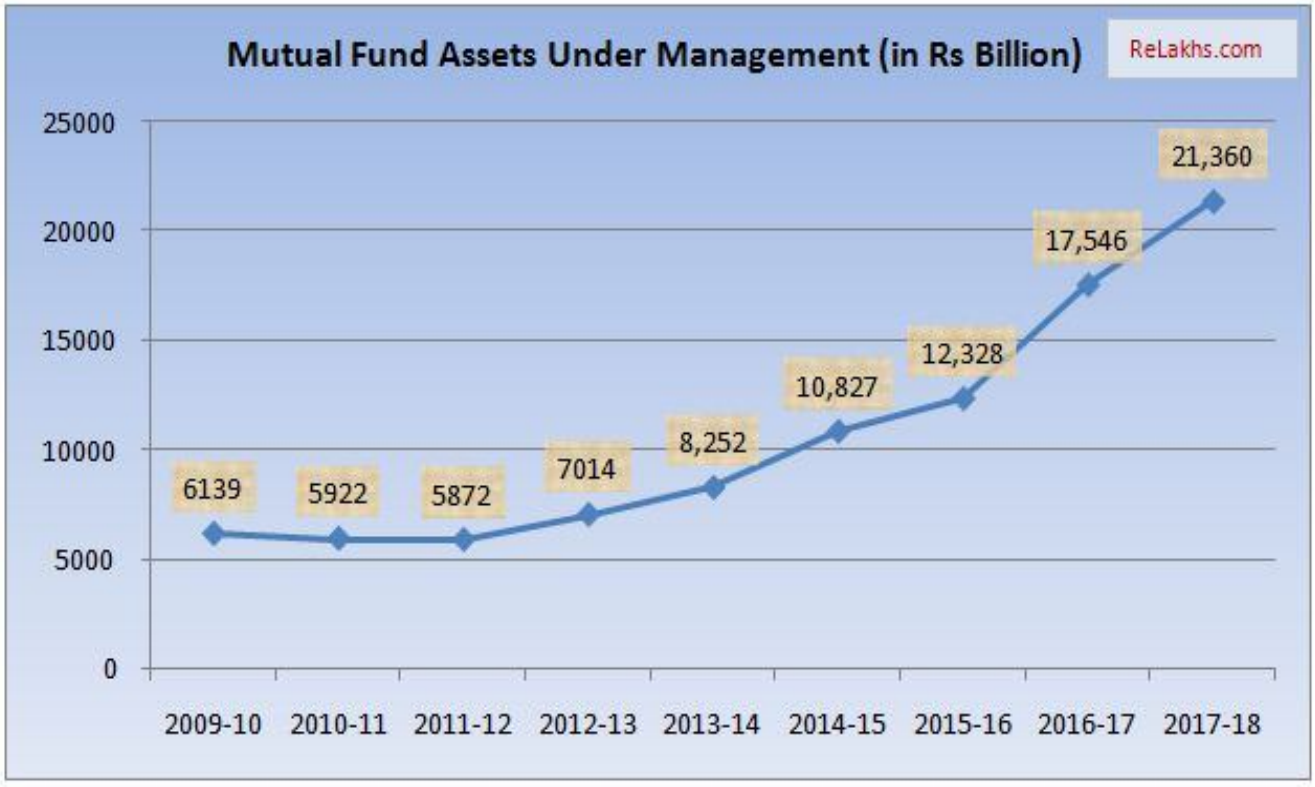
1. Market instability
2. Low Returns on Bank deposits, recurring deposits, post office, PPF, NSC, Government Bonds etc.
3. Gold or any precious metals or stone is not for sales, is the Indian mentality
4. Real Estate is the one of the option but there is limitation and very high investment
5. Mutual Fund is option where the capital is invested in equity, government bonds
6. Stock market is total analysis based market.
7. Gold stock

Complicated options like Mutual Fund study has been given here,

a) Equity
b) Balanced
c) Debt
d) Liquid
e) Gilt
f) Dynamic
g) ETF
h) Speciality
i) FOF

Also, there are Systematic Investment Plan, Systematic Withdraw Plan and Systematic Transfer Plan.

Figure 4



Source: Relakhs.com

The mutual fund is the one of the example. There are many options are available and as investor it is difficult to keep watch on every options or instruments of invetsments.

But the financial analyst studies every part of the investment and gave advice to investors'.

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Figure-5

RECOMMENDATIONS

1. Every induvial should look at the own investment pattern
2. Plan the goals or achievement of own
3. Goal should be SMART (Specific, Measurable, Achievable, Realistic, and Timely)
4. Decide the priority of the family
5. Right advise from the financial planner
6. Analyse the statements of all funds and stocks

The basic questions to the investors are (Study recommended by Mr Suhas Harshe)

1) Do you have six month's expenses handy for an emergency?
2) Do you know exactly how much you spend each month?
3) Do you save at least 20% of your household income each month?
4) Do you invest that sum regularly?
5) Do you know what you earn on your various investments?
6) Do you review your investments at least four times a year?
7) Do you invest beyond what you have to save taxes?
8) Do you know what will you need every month to live on when you retire?
9) Do you have enough life insurance?
10) Do you have medical insurance?

The ratios to be studied for individual financial model are, (Study recommended by Mr Suhas Harshe)

Table-4

Ratio Type	Ideal Ratio (%)
Expenses to Income	30 to 35
All EMI's to Income	40 to 45
Savings to Income	20 to 30
Insurance to Income	10 to 12
Emergency Fund	3 to 6 months

The return on Gold is,

Table-5

Year	Return %
1925 to 2018	8.14%
1986 to 2018	9.06%
1996 to 2018	9.02%

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A comparison of Equity and Real Estate market,

Table-6

Equity	Real Estate Market
Can sell part as per need	Cannot sell part of property
No separate maintenance cost	Regular Maintenance cost per sqft.
No transaction costs	Heavy transaction costs
Easy to Buy / Sell	Not Easy to Buy / Sell
Tax efficient	Not Tax efficient

Role of financial analyst is,

The financial analyst always keep eye on every investment. The monthly statement of NSDL or CAS is to be studied by the analyst. When one should get out of the stock and when one should get in is the role of financial analyst.

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WORKPLACE INNOVATION- A REVIEW

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ABSTRACT
This paper describes the need for workplace innovation policies and practices in India.

The purpose of this paper is to review the need for workplace innovation policies and practices in India and evaluates the same. The author focusses onunderstanding different dimensions of workplace innovation based on the previously published articles in Scopas Indexed journal from year 2016-2018, different programmes implemented at national level to bring innovation and understand different innovative practices implemented by companies.

Keywords: Innovation, workplace innovation, India, Innovative practices.

INTRODUCTION
To overcome challenges due to economic evolution, company's innovation management can be considered as a key competitive point of success (Lendel, 2017). The innovation process at the individual (employee) level is complex, consisting of two major phases – idea generation and implementation – with different demands related to resources, mindsets and required skills (Černe, 2018). innovation is referred as the "stage of implementing ideas towards better procedures, practices or products" (Bamber, 2017). According to research (Sparrow, 2016) HRM issues is linked to the management of innovation at multi-level, and cross from macro-to micro-levels of analysis. Innovation in the workplace have become increasingly important determinants of organizational performance, success, and longer-term survival (Anderson, 2014).

WORKPLACE INNOVATION
There has been an exponential growth in the number of articles published on workplace creativity and innovation specifically over recent years. (Anderson, 2014). Innovation is expressed as a new form of social value – from slightly incremental to radical and breakthrough, it is simply the idea be new to the relevant unit of adoption. One of the characteristics of innovation is describes innovation as a new and creative knowledge, derived from a conscious inventive effort, it expresses the actual utilization and it encompasses a created value (Prus, 2017)

Dimension of workplace Innovation: an overview of literature

Table 1 summarizes the workplace innovation international studies in Scopus indexed journals from year 2018-2014.

(Casini, 2018)	Domiciliary eldercare Satisfaction at work Social enterprises Social innovation Well-being at work
(Wipulanusat, Pathways to workplace innovation and career satisfaction in the public service: The role of leadership and culture, 2018)	leadership for innovation and ambidextrous culture for innovation influenced workplace innovation
(SIMMERS, 2018)	organisational justice has an impact on workplace innovation
(Hamilton, 2018)	HR's recruitment of knowledge stars should be done in partnership with line managers, and in coordination with implementation of workplace innovations
(Jacobsen, 2018)	workplace innovations are not universal in all countries and they could be difficult to apply where resources and commitment are lacking
(Kornelakis, 2018)	employee voice mechanisms are used as an ingredient of workplace innovation
(Dammak, 2018)	Management tools and visualization tools can be used to improve the workplace innovation process to make it more "intelligent" and "creative"
(Lu, 2017)	close intercultural relationships promote workplace innovation along with

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	creativity and entrepreneurship-outcomes vital to individual and organizational success.
(Wipulanusat, Workplace innovation: exploratory and confirmatory factor analysis for construct validation., 2017)	Workplace innovation enables the development and improvement of products, processes and services leading simultaneously to improvement in organisational performance.
(Muenjohn, 2017)	leadership behaviour mediates between workplace values ethic and workplace innovation
(Furmańska-Maruszak, 2016)	workplace innovation give rise to positive employee relation
(Brown, 2016)	Workplace Innovation is outlined as a new teaching initiative, pilot project, and learning in an authentic environment.
(Jilcha, 2016)	Workplace innovation brings radical change in the workers' environment, thereby enhancing the profitability of companies.
(Oeij, 2016)	Workplace innovation is defined as a strategic renewal in organising and organisational behaviour
(Howaldt, 2016)	Workplace innovation is complementary to technological and business model innovation, and a necessary ingredient for success.

COMPANIES PRACTICING INNOVATIVE ACTIVITIES AT WORKPLACE

Author gives some examples of companies that are moving in that direction of bringing innovative practices at workplace.

Mahindra & Mahindra Automotive & Farm Equipment gives employees a chance to explore and test out the off-road capabilities of Mahindra vehicles. With a series of popular off-roading events, the Great Escape, and several Adventure Challenges & multi-Day Escapes, the Company delivers its promise of providing adrenalin-pumping challenges. (Kulkarni, 2018) Hardcastle Restaurants (McDonald's) celebrates Thanks-Giving week as a part of which employees and their families are not only thanked for their contributions but one of the days is a role reversal day at the stores when all the Crew Members are Managers and all Managers become Crew Members. The other days of the week are filled with celebrations, gifts, competitions etc. (Kulkarni, 2018) Oberoi Hotels gives award to all employees who find a mention in the Leading Quality Assurance (LQA) reports for delivering exceptional service and adhering to the service standards. LQA is an independent agency that carries our mystery audits in hotels by posing as regular customers (Kulkarni, 2018).

PROGRAMMES FOR INNOVATION AT NATIONAL LEVEL

According to The Global Innovation Index (GII) report India has made significant improvement in with respect to innovation. India ranks 57th in 2018 as per GII (THE GLOBAL INNOVATION INDEX, 2018). To enhance expertise India launched its innovation programme, Atal Innovation Mission, focused on scaling start-up incubation centres and promoting innovation culture among schoolchildren by providing them with hands-on experience in 3D printing, the internet of things (IOT) and robotics in the year 2016 (Pachouri, 2018). In the year 2017 India promoted bilateral investment and cooperation in the area of innovation, launched India-Israel Industrial R&D and Technological Innovation Fund, hosted Global Entrepreneurship Summit (convened by the US) (Pachouri, 2018). The Government of India announced some key programmes that will support India's innovation capabilities: For promoting Industry-Academia collaborations: UchchatarAviskhar Yojana (UAY) (2015), Impacting Research, Innovation and Technology (IMPRINT) (2015), Skill India (2015), Start-up India (2016), and Industry Relevant R&D (IRRD) (2016) (Next Steps in India's Innovation Journey, 2018)

CONCLUSIONS WORKPLACE INNOVATION

it is difficult to draw general conclusions from the research that the researcher has presented because of different concepts and measures referred. Nevertheless, our study concludes thatworkplace innovations have significant practical implications. Based on the studies reviewed we conclude that workplace innovation is positively associated with leadership, job satisfaction, technology, employee voice etc. Human Resource has a prominent role to play.

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ROLE OF ANALYTICS IN DIGITAL MARKETING (CASE STUDY: AADYAA ORIGINALS PRIVATE LIMITED)

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ABSTRACT

Aadyaa Originals Private Limited ("Aadyaa") is a jewellery studio based in Pune, India which has a focus on handmade jewellery in metals like Sterling Silver, Brass and Copper. Established in 2013, Aadyaa has shipped more than 30,000 orders thus far within and outside India.

In this journey, Aadyaa has used Digital Marketing Media solely to cross milestones with regard to turnover, branding, presence in the market. Aadyaa started with a Facebook page wherein friends and family members were the first ones to like the page and become followers. With the increased interaction on Facebook page, Aadyaa launched its own website www.aadyaa.com to ensure a seamless shopping experience for its customers. While the website continues to be the only place where Aadyaa products can be bought online, the traffic to this website is still led by leaders in the digital marketing media like Facebook, Instagram and Google.

Based on a research paper published by Economic Times, online jewellery market in India is expected to reach a mark of INR 5300+ crores by 2020. This signifies a huge potential and to tap into the tier 2 and tier 3 markets, digital marketing media looks to be the most cost-effective marketing and branding channel. Digital marketing media can be used to create your audiences, target segments based on past data and get a boundary-less group of followers who are together only based on interest in a particular brand. All digital marketing media have evolved over a period of last 8 to 10 years and now offer a very powerful analytics dashboards to create your own'what-if' scenarios. Analytics algorithms are based on the numerous datapoints gathered from publicly shared information of users over internet as well as specific information they have shared with a particular brand.

Aadyaa has created analytics based complex marketing campaigns on these digital media during new collection launches, events, and exhibitions. The results have been stupendous thus far. As of now, Aadyaa boasts a fan following of over 400,000 on Facebook and over60,000 users on Instagram. Analytics backed digital marketing media remains Aadyaa's only channel for marketing and branding. Digital marketing contributes to over 75 percent of Aadyaa's turnover now.

This paper delves deep into Aadyaa's usage of analytics in their marketing strategy which has delivered business growth over a long period and continues to remain the strongest pillar in their marketing strategy.

INTRODUCTION – ANALYTICS IN DIGITAL MARKETING

As a definition, we can assume that "Analytics" is a process that involves studying past historical data to research potential trends, to synthesize or ascertain the effects of certain decisions or events, or to evaluate the performance of a given event or scenario. The goal of analytics is to improve the business by gaining knowledge which can be used to make improvements or changes.

Today's customer leaves enormous data footprints wherever s/he goes today. This includes physical movements as well as person's usage of internet, emails, social media platforms, various mobile applications on smartphones, GPS devices, tablets, desktops, laptops etc. Datapoints could be related to:

- Health (steps taken, heart rate, body fat),
- Shopping patterns (items purchased, brands chosen, method of payment, frequency of shopping, usage of loyalty cards, discounts availed etc.),
- Advertisements connected to (on social media, TV, mobile apps etc.),
- Dining (places of interest, cuisines, modes of payments, ways to book a table etc.),
- Travel (booking tickets, hotels, visa appointments, buying foreign exchange, modes of transport chosen etc.)
- Financial transactions (remittances received or made, spending patterns, modes of spends, patterns in repaying debts/credit card bills etc.)
- Finding directions (usage of online maps to travel, looking for eateries, fuel stations en-route)

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The list mentioned above is indicative only but still gives a good perspective in understanding the abundance of data that gets generated across the world every second. Various stakeholders are involved with this data and are working hard to make the best use of this data for benefitting their customers as well as the enterprises they represent. Whenever the customers' give their consent to use their data footprints, they get benefit of being served with the right set of products / services / assistances. Enterprises benefit in managing their resources and allocating them at the right place at the right time. This helps in growing the business combined with customer satisfaction.

In this research paper, we are looking at the analytics combined with digital marketing mechanisms for their benefits, and shortcomings too. To understand this further, we look back at the evolution of digital marketing field itself and introduce usage of analytics in it.

Launch of Google search engine in 1998 could be considered as the start of digital marketing. Although, digital billboards and hoardings were used in the industry even before that, those are the examples of static dynamic content without much of intelligence. Search engines like Alta Vista, WebCrawler, Yahoo existed before Google's search engine, however, their operation was limited to only providing the references over web for the searched term. They never collected the data being searched nor really tried to implement a ranking mechanism for search results.

Google launched it's one of the most successful products called 'Ad-words' in 2000 and it proved to be the gamechanger in the digital marketing arena. They followed it up with content marketing tools a few years after that. Around same time, in 2004, Mark Zuckerberg found Facebook in the US, the social giant, which connects with over a few billion people today across boundaries of nations. The idea behind Facebook was to introduce a tool for people to peep into other people's lives and share their own stories.

Good creative design, clarity of the message, usage of language and words, localized themes have all maintained their stay in digital marketing. But over a period of time, it was understood that data is like a gold-mine and one needs to carefully analyze it to delight your customers as well as grow the businesses. Concepts such as SEO (Search Engine Optimization), SEM (Search Engine Marketing), traceability of users' path on internet, users' acceptance to share their certain personal information over internet are the outcomes of analytics' penetration in digital marketing.

AADYAA – THE CASE STUDY FOR ANALYTICS IN DIGITAL MARKETING

When Aadyaa launched its operations in 2013, it started with a Facebook business page wherein post can be created, photos can be shared and information about the products, services and about the brand can be displayed. Soon after, its Facebook page (www.facebook.com/aadyaaoriginals) gathered momentum and started going viral.

Team Aadyaa then decided to make use of analytics dashboards offered by Facebookon the business marketing page and started creating various campaigns. These campaigns led to increased revenue, increased number of followers across the globe, and a platform to interact with its customers. Later on, Aadyaa spread its marketing portfolio in other digital marketing channels such as Instagram, Google products, and Twitter. Analytics was and will always remain an integral part of it's digital marketing strategy.

As of 10th February 2019, Aadyaa's fanbase on Facebook had crossed the milestone 400,000 people while on Instagram, it has already crossed 60,000 mark. These numbers are quite staggering considering the other jewellery brands operating in India and their years of establishment. While Aadyaa is still a startup employing a team of 10 members, all other brands have huge infrastructure setups and have employee base of at least 500+

Brand	Year of Establishment	Followers on Facebook (in '000)	Followers on Instagram (in '000)
PNG Jewellers	1832	731	26.5
Amrapali	1978	233	375
Bluestone	2011	1000	32.7
Caratlane	2008	2000	158
Aadyaa	2013	413	60.3

A quick snapshot of Aadyaa's Facebook page followers for last 2 years is given below. Growth is 1.5x in last 2 years which could not have been achieved without help of analytics in digital marketing media.

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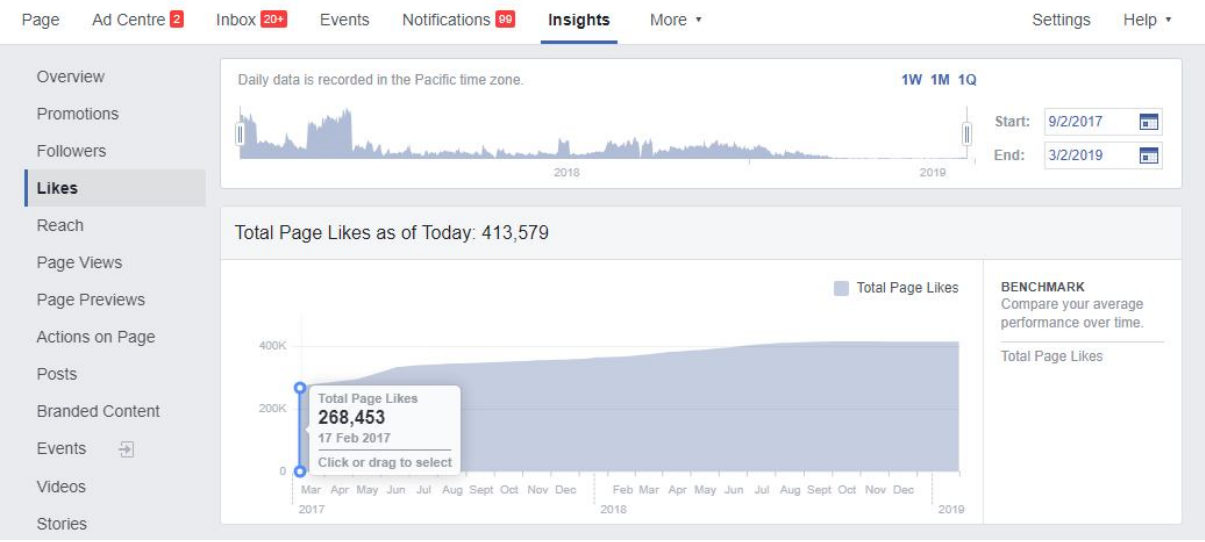
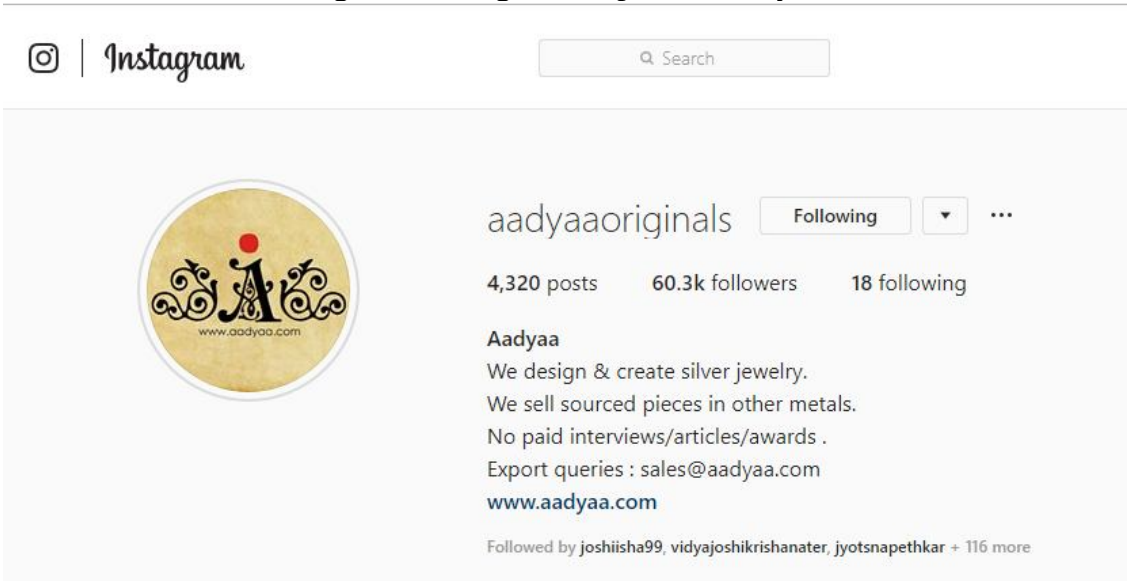
Figure-1: Facebook Dashboard of Aadyaa



Source: Facebook.com

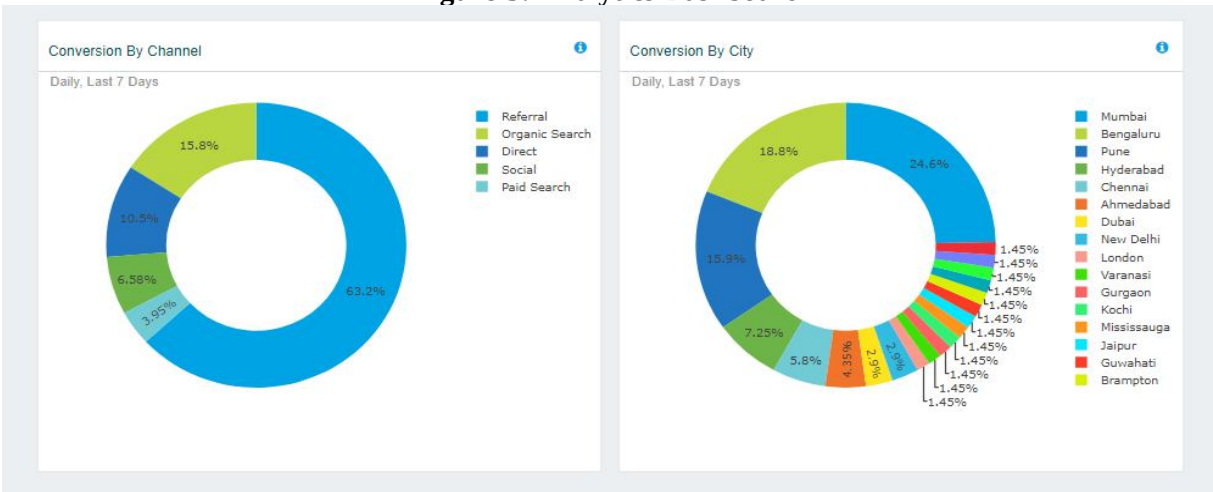
Figure-2: Instagram Snapshot of Aadyaa



Source: Instagram.com

When we delve deep into the analytics dashboards, there are various insights that help in creating the campaigns in digital marketing. This data can also provide insights on conversion ratios, bounce rates, orders missed, revenue missed due to bounce rate and orders misses etc.

Figure-3: Analytics Dashboard



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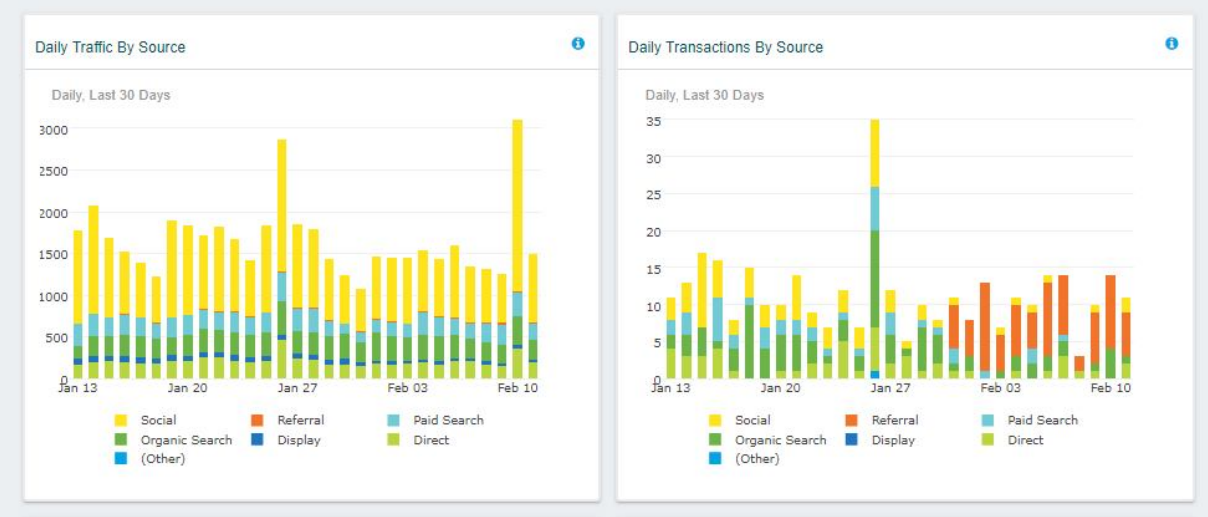

Source: Aadyaa's analytics engines

Note: Dashboards related to financials of Aadyaa and it's customer data have not been published here due to sensitivity and confidentiality of users' and enterprise data.

In general, following datapoints have been considered by Aadyaa's analytics masterminds while targeting their products to consumers:

1. How many users have connected through the campaign? How many of them had not liked the official page of Aadyaa before?
2. How many conversions have happened through the spend of a particular campaign?
3. What is the cost at which conversions are taking place?
4. How many concurrent users are connecting to portal of www.aadyaa.com through the marketing campaigns?
5. Where are the users based? City and country
6. How users are connecting to the campaigns – desktops/laptops, mobiles, apps, tablets
7. Is there any particular pattern in the buyers' age group / gender / ethnicity?

ICING ON THE CAKE – ADVANCED ANALYTICS

In today's world, it is important to understand that a customer may be reaching out to your brand through multiple channels (store, social media, website, exhibitions) and it is the responsibility of that brand to collate the data footprints left by that customer to find patterns or draw some meaningful insights. While digital marketing has been the core of the marketing used by Aadyaa, it is essential to understand that they have not left out the other data points for their analytics engines.

Also, it is important to find out outliers through analytics engines and consider their effect with corrected factors so that digital marketing campaigns are not skewed. For Aadyaa, example for such outlier situation occurs when celebrities like Vidya Balan, Shraddha Kapoor, Sonali Kulkarni, Spruha Joshi, Parna Pethe, Mithila Palkar, Anumolwearand flaunt Aadyaa's creations. The popularity gain in these instances is huge but it is important to note the celebrity effect and not purely the effectiveness of the marketing campaigns.

Thanks to advanced analytics algorithms developed and deployed at Aadyaa, they can not only recognize outliers but also understand sentiments of users through their comments and feedback.

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CONCLUSION

In conclusion, we can see that there is an ever-increasing scope for analytics in digital marketing field in India as well as abroad. While Aadyaa has tried to implement their analytics engines for delighting their customers and maximizing their revenues in the jewellery sector that they operate, it is quintessential to interpret the outputs of analytics engines. Advanced analytics is the future for all industries and it will amalgamate digital as well as non-digital aspects of any industry for betterment of ecosystem. Data sharing restrictions by users, governments will always be a major threat to analytics; however, it is believed that with implementation of right techniques and respecting privacy & confidentiality, users will not mind sharing their data to get benefits.

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EFFECT OF PROFITABILITY, LIQUIDITY AND ASSETS STRUCTURE ON THE COMPANY DEBT POLICY

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ABSTRACT
This paper examines effect of profitability, liquidity, and assets structure on the debt policy in companies categorized within retail trade sector listed on the Indonesia Stock Exchange over period of 2011-2014. As many as 22 companies being taken as population of this study. Using secondary data obtained from the companies' annual financial report that has been audited and published, and after applying selection criteria, a set of sample consisted of 12 companies is determined, with total of 48 observations. We employ multiple linear regression analysis and hypothesis test using t-statistic and F-statistic with 5%level of significant. The result indicates that profitability and liqudity have significant negative effect on debt policy. While other variable, assets structure, has no significant effect to debt policy. This studyis expected to be useful for companies planning to raise funding externally through debt policy to take notice of other factors having effects to the debt policy, so that the decision taken will be more appropriate and effective.

Keywords: Profitability, Liquidity, Assets Structure

1. INTRODUCTION

The sources of company funding may be derived from its internal as well as external. External funding sources usually in the form of loans or by issuing shares and bonds, while internal funding sources may come from owners' equity and or retained earnings (Haruman, 2008). Financing policies applied in a company are aimed to maximize the prosperity of the company itself. Debt policy is included in external source company funding policies, that the determination is related to capital structure as the debt is one of the compositions in the capital structure (Narita, 2012).

The pecking order will firstly issues securities as the safest way. Steps of issuing securities will start from theory stated that companies prefer to have internal funding, if external funding is required, a company the issuance of bonds, and then bonds that can be converted into own capital, and finally the issuance of new shares (Brealey& Myers, p.500 in Husnan & Pudjiastuti, 2006). In a company there can be problems of agency (agency theory) between the company's management as the manager (agent) and the capital owners or shareholders (principal). The problem occurs due to the separation of the ownership function and the management function of the company that cause difference of interest between management and shareholders. Debt policy can be an option to address the agency problem. A company that implement debt policy as one of the funding strategies in the operation activities should remain alert to the risk that may arise such as the risk of bankruptcy, where the company that issues debt certainly bear the risk when the debt reach the due date. If the company is unable to pay debts to its creditors, on that condition the company may be forced to declare bankruptcy (Brealey et al. 2008, p. 27).

Various researches have been conducted regarding the Debt Policy and the results were quite inconsistent, among which the research of Narita (2012), which stated that the profitability has significant negative effect on debt policy and liquidity has significant negative effect on debt policy. Ramlal (2009), stated that profitability does not significantly influence the debt policy and liquidity has significant negative effect on debt policy. Indriani&Widyarti (2013), stated that the profitability has significant negative effect on the debt to equity ratio and liquidity has no significant effect on the debt to equity ratio.

Hardiningsih and Oktaviani (2012), stated that the profitability has significant positive effect on debt policy and assets structure has significant positive effect on debt policy. Yuliarti (2013), stated that the profitability has significant positive effect on debt policy and the assets structure has no significant effect on the debt policy.

2. LITERATURE REVIEW

Agency Theory

Problems of the relationship between agents and principals will arise because of interest difference of respective parties (Sitanggang 2012, p. 9). A trigger of this agency conflict is when a company have a very large free cash flow (Syahrial, 2012, p. 5). At the moment a company have a large cash flow, there is a chance management side will use it for their own interests, therefore the debt policy is possible to minimize the cash flow available. This makes debt policy to be an option to minimize the agency conflict within the company.

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Pecking Order Theory
The pecking order theory explains that companies prefer internal funding, if external funds are needed, companies will issue debt first and only issuing equity as a last resort. The pecking order emerged since the issuance of the debt is not overly considered as a bad sign by investors compared to the Published by Asian Society of Business and Commerce Research issuance of equity (Brealey et al, 2008. Pg. 25). If a company does require external funding, according to this theory, a funding policy through debt issuance is the best option. The amount of debt being issued in accordance with the needs of external funds by the company.

Funding Decision
The funding decision is a decision that could indicate the source of the funds distributed to finance company assets (Sitanggang, 2012, p. 4). Companies may choose or decide to merge internal and external corporate funding in accordance with the desired composition of the companies.

Debt Policy
Debt is the obligation of the debtor (borrower) to implement something to creditor (lender) in a certain period of time (Nafarin 2013, p. 342). Debt has several types, it can be classified as short-term debt and long-term debt, which has the characteristic differences between each type. The use of debt by company depending on the requirements, agreements, and problems faced by the company itself.

Debt policy categorized in external company funding policy. The determination of this debt policy with regard to capital structure as debt is one of the compositions in the capital structure (Narita, 2012). Debt policy is a funding decision through external source intended to fund the company‟s assets and operational activities in order to enable company to improve performance and profits. To find out the portion of financing debt as well as the company‟s ability to meet its obligations can be done through financial ratio.

Profitability
One of the most important goals of the establishment of company is to gain profit. To measure the company‟s ability to gain profit can be done by using profitability ratio. This is the ratio to evaluate the ability of a company to gain profit in a certain period of time (Kasmir, 2014, p. 114). Profitability is a depiction to measure a company‟s ability to profit from the various capabilities of the company in terms of sales, assets and capital. The higher the profitability ratio, the higher profit gained by the company.

Liquidity
A debt will be related to the due date. The due date is when the debt must be repaid or the return of certain sums of funds to creditor as the funder. The fund is the amount of money that previously lent by the creditor to company in need. Liquidity is an aspect that shows the company‟s ability to meet the obligations that must be met (Narita, 2012).

Assets Structure
Assets are properties or resources owned by company, either in a given time or a certain period (Cashmere, 2014, p. 39). Assets structure is an aspect related to the company‟s resources that describe the composition of each type of asset, such as current assets, fixed assets and others in a total assets owned by the company. It also to assess the kind of asset that dominates out of the total assets owned by the company which can be used as security.

2.1. Hypothesis Development
The Influence of Profitability on Debt Policy
Profitability is a depiction of the way to measure a company's ability to gain profits out of its various capabilities such as in terms of sales, assets and capital. A company with high profitability will have and use small debts (Brigham & Houston, 2011, p. 189). A company with high level of profitability will earn high profits. This will also increase the retained profits. And in turn, in financing the operational Published by Asian Society of Business and Commerce Research activities, company can optimize this internal sourced fund and that will lower the company's intention to issue debt. On the other hand, if a company has low level of profitability, there will be a tendency the company requires additional funds for the profits are insufficient. This will increase the chance for the company to issue debts for financing its activities. Previous researches, such as Soesetio (2008), Steven &Lina (2011), Narita (2012), Susilawati et al. (2012), Yuniarti (2013), and Indriani & Widyarti (2013) consistently stated that profitability has significant negative effect on debt policy or debt to equity ratio. From the explanation above, the formulation of the first hypothesis is:

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H1: Profitability has significant negative effect on debt policy

The Influence of Liquidity on Debt Policy

A company with high level of liquidity, means that the company is able to immediately repay its debts (Narita, 2012). When a company has a high level of liquidity, it can be said that the company has the ability to always pay off its debts. This ability is a good thing when the company wants to have external funding through debt, because the company will won the trust of creditors. A high liquidity level of the debtor company will reduce the risk of loss of the creditors that could arise because the funds can not be returned. On the other hand, if the liquidity level is low, it shows the lack of ability of company to pay off its debts before the due date, which will decline the trust of creditors to provide funds for the company, making it difficult to get such external funding through debt. Previous researches, such as Narita (2012) stated that liquidity significantly influence debt policy. While the research of Indriani&Widyarti (2013) stated that liquidity positively effectdebt to equity ratio. From the explanation above, the formulation of the second hypothesis is:

H2: Liquidity have significant positive effect on Debt Policy

The Influence of Assets Structure on Debt Policy

Companies that the assets are sufficient to be used as security for loans tend to be pretty much using debt (Brigham & Houston, 2011, p. 188). If assets structure of a company are dominated by assets that can be used as a security, such as fixed assets, it will be good at the time of debt agreement or applying for funds from the creditors. This is because one of the factors of creditors' trust to provide loan funds to a company is the availability of security for the funds, wherethe security can be in the form of fixed assets. On the other hand, if the assets of a company are less able to be security for loans, the company will find it difficult to get funds from creditors. Previous researches, such as research Steven &Lina (2011), Hardiningsih & Oktaviani (2012) and Susilawati et al. (2012) stated that the Assets Structure has significant positive effect on Debt Policy. From the explanation above, the formulation of the third hypothesis is:

H3: Assets Structure have positive significant effect on Debt Policy

3. METHODOLOGY

Dependent Variable

Debt policy is measured by Debt to Equity Ratio (DER) using data scale of total debt ratio toward total equity by decimal data unit. Reason for the use of (DER) is to know the amount of funds provided by creditor and company, so that it can be figured out how big the role of debt in financing the assets of a company. It is formulated as follows:

$$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Independent Variables Profitability

Profitability is measured by Return on Assets (ROA) using data scale of profit ratio after tax toward total assets of the company by decimal data units. Reason for the use of (ROA) is to know the rate of return from the use of company assets. It is formulated as follows:

$$ROA = \frac{\text{Earning After Tax}}{\text{Total Assets}}$$

Liquidity

Liquidity is measured by Current Ratio (CR) using data scale of current assets ratio toward current liabilities by decimal data units. Reason for the use of (CR) is to know the company's ability to pay for the short-term obligations or in other words to find out how liquid a company is. It is formulated as follows:

$$CR = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Assets Structure

Assets structure (AST) measured by the ratio of fixed assets toward total assets of a company by decimal data units (Susilawati et al, 2012). Reason for the use of (AST) is to know the composition of fixed assets' amount of all assets owned by a company that can be used as security. It is formulated as follows:

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3.1. Population and Sample

The sample used in this research is companies classified in retail trade sector listed in Indonesian Stock Exchange (BEI). Sample determination technique in this study uses purposive sampling that is a sampling technique based on certain required criteria related to the research topic. The criteria are as follows:

a. Companies categorized in retail trade sector which are listed in the Indonesian Stock Exchange during the period of 2011-2014.

b. Companies that successively consistent reporting the annual financial statements on 31 December during the period of 2011-2014 in full set which can be accessed through the official websites.

c. Companies categorized in retail trade sector that provide complete data needed for the research on each of their annual financial statements.

d. Companies categorized in retail trade sector which recorded a positive return consistently in their financial statements in the period of 2011-2014.

3.2. Analysis Method

In this research, the regression model used is multiple linear regression analysis. The use of multiple linear regression analysis is to examine the influence of the independent variables (profitability, liquidity and assets structure) toward the dependent variable (Debt Policy) in companies categorized in retail trade sector listed in Indonesian Stock Exchange during the period of 2011- 2014. The multiple linear regression analysis equation expressed in the following forms:

$DER = \alpha - \beta\ 1ROA + \beta\ 2CR + \beta\ 3AST + \varepsilon$

Explanation:

DER = Debt Policy (Y)

ROA = Profitability (X1)

CR = Liquidity (X2)

AST = Assets Structure (X3)

α = Constants

$\beta 1, \beta 2, \beta 3$ = The regression coefficient for each independent variable

ε = Error

4. EMPIRICAL RESULTS

Data Analysis

The sample used in this study is companies categorized in retail trade sector listed in Indonesian Stock Exchange (BEI) during the period of 2011-2014. Selection of the samples used in this research based on predetermined criteria as described in following table:

Table-1: Criteria-based Sample Selection

No	Research Sample Criteria	Total
1	Companies categorized in retail trade sector listed in Indonesia Stock Exchange duringperiod of 2011-2014	22
2	Companies inconsistently reporting its annual financial report to Indonesia Stock Exchange during 2011-2014 in a row	(4)
3	Number of companies suffering loss or has no positive gains on its financial report during 2011-2014	(5)
4	Number of companies unable to provide required data completely on each of its annual financial report	(1)
Number of companies being taken as sample		12
Number of year		4
Number of total sample during research period		48

Based on the criteria selection established by purposive sampling method, as many as 12 companies are selected to be sampled in this study in the observation period of 2011-2014 or (4 years), so that the total overall sample is 48 samples.

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Table-2: Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Debt Policy	48	.1777	3.6540	1.454990	1.1274107
Profitability	48	.0053	.2237	.071408	.0484631
Liquidity	48	.6821	9.0361	2.300990	1.7862954
Asset Structure	48	.0132	.5558	.236375	.1272570
Valid N (listwise)	48				

Source: Secondary data, processed

Based on the above table it can be seen that the number of samples used in this research are 48 samples. Table 2 shown the average Debt Policy of retail trade companies listed in Indonesian Stock Exchange during the period of 2011 to 2014 was 1.4549. That meant, the average of retail trade companies listed in Indonesian Stock Exchange used a larger proportion of funds from external sources in the form of debt compared to internal sources funds in the form of capital for the operational activities of companies. It can be said that the average of retail trade companies registered in Indonesian Stock Exchange were highly dependent on loans. Debt Policy minimum value were of 0.1777, while the maximum value were of 3.6540.

The profitability average of the retail trade companies listed in Indonesian Stock Exchange during the period of 2011-2014 amounted to 0.0714 or 7.14%. That meant, the average retail trade companies listed in Indonesian Stock Exchange has been good enough in generating profits. This was because the positive value of profitability indicated that companies does not lose and by the value of 0.0714 or 7.14%, it can be said that the average retail trade companies listed in Indonesian Stock Exchange could optimize the assets owned to gain profits and that optimization assets use has a contribution of 7.14% of the total net profit earned by the companies. Profitability minimum value of 0.0053 or 0:53% and maximum value of 0.2237 or 22.37%.

Average liquidity in retail trade companies listed in Indonesian Stock Exchange during the period of 2011-2014 amounted to 2.3009. That meant, the average retail trade companies listed in Indonesian Stock Exchange has good liquidity because that amount of current assets were 2 times the amount of current debt, so it can be said that companies were able to pay off the debts at the time of billing or the due date for assets the companies can cover the amount of the debt on the due date. Liquidity minimum value were of 0.6821, while the maximum value were of 9.0631.

The average assets structure of retail trade companies listed in Indonesian Stock Exchange during the period of 2011-2014 amounted to 0.2363 or 23.63%. That meant, retail trade companies listed in Indonesian Stock Exchange in the period 2011-2014, on average, in terms of the assets structure were not dominated by fixed assets as the proportion of total fixed assets amounted to 23.63% of total assets owned by companies. The minimum value of 0.0132 or 1.32% and the maximum value of 0.5558 or 55.58.

Table-3: Normality Test Result
Table-3: Normality Test Result

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		48
Normal Parameters[a,b]	Mean	0E-7
	Std. Deviation	.78635019
Most Extreme Differences	Absolute	.085
	Positive	.085
	Negative	-.077
Kolmogorov-Smirnov Z		.592
Asymp. Sig. (2-tailed)		.875

a. Test distribution is Normal.

b. Calculated from data.

Source: Secondary data, processed

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Based on the above table, the One Sample Kolmogorov Smirnov test result shown the Kolmogorov Smirnov value of 0.592 with significance level of dependent and independent variables more than 0.05 (0.875> 0.05). From the normality test result above can be concluded that the data are normally distributed, the distribution model of this research found to comply with the normality assumptions.

Multicollinearity Test

Table-4: Multicollinearity Test Result

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Profitability	.747	1.338
	Liquidity	.706	1.416
	Assets Structure	.934	1.071

a. Dependent Variable: Debt Policy

Source: Secondary data, processed

Based on the above table, multicollinearity test result shown each independent variable that consists of profitability, liquidity, and assets structure has a value of Variance Inflation Factor (VIF) ≤ 10 and Tolerance value ≥ 0.10. It can be said that there were no multicollinearity symptoms or problems, which means there were no relationship between the independent variables.

Autocorrelation Test

Table-5: Autocorrelation Test Result

Model Summary[b]

Model	Durbin-Watson
1	.777

a. Predictors: (Constant), Assets Structure, Profitability, Liquidity

b. Dependent Variable: Debt Policy

Source: Secondary data,processed

Based on Table 5 above, autocorrelation test result shown the DW value 0.777, where the value is in between -2 ≤ 0.777 ≤ +2. It can be said that the regression model is free of autocorrelation problem.

Heteroscedasticity Test

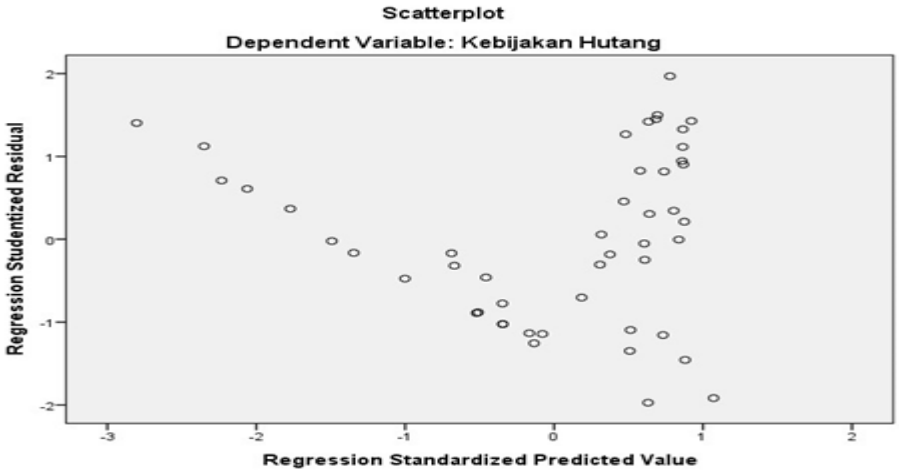

Figure-2: Heteoscedasticity Test Result (Scatterplot chart)

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Based on Figure 2 above, scatterplot chart test result shown that there were no heteroscedasticity because of no clear pattern, the dots also spread above and below the 0 number on Y axis. Based on the figure above there is no specific pattern, like existing dots to form certain regular patterns (wavy, widened then narrowed), it indicated that there were no heteroscedasticity.

Hypothesis Test

Simultaneous Test (F-test)

Table-6: Simultaneous Test (F-test) Result

ANOVA[a]

Model		F	Sig.
1	Regression	15.482	.000[b]
	Residual		
	Total		

a. Dependent Variable: Debt Policy

b. Predictors: (Constant), Asset Structure, Profitability, Liquidity

Source: Secondary data, processed

Based on the above table, the result of simultaneous test (F) indicated that the F_{count}value 15.482 with a significance level of 0.000. With significance level of 5% or 0.05 where the amount of variable-1 (df1) is 4-1 = 3, and df2 (n-k-1) is 48-3-1 = 44, (n = number of samples and k = number of independent variables), then obtained F_{table} by 2.82. Because the value of F_{count}>F_{table} is 15.482 > 2.82 with a significance level of 0,000 smaller than the significance level (α) of 5% or 0.05, then H0 rejected and Ha accepted, so it can be concluded that Profitability, Liquidity and Assets Structure simultaneously has a significant influence on Debt Policy

Determination Coefficient Test (R^2)

Table-7: Determination Coeficient (R^2) Test Result

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717[a]	.514	.48	.812716

a. Predictors: (Constant), Asset Structure, Profitability, Liquidity

b. Dependent Variable: Debt Policy

Source: Secondary data, processed

Based on the above table, the determination coefficient test result shown the value of Adjusted R Square 0.48. It was concluded that 48% of the Debt Policy variable can be explained by the independent variables consisted of Profitability, Liquidity and Assets Structure. While the remaining 52% (100% -48%) were explained by

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variables or other factors outside of the examined variables in this research, such as Managerial Ownership, Institutional Ownership, dividend policy, company size, and Free Cash Flow.

Partial Test (t-test)

Table-8: Partial Test (t-test) Result

Coefficients[a]

Model		T	Sig.
1	(Constant)	8.594	.000
	Profitability	-2.485	.017
	Liquidity	-4.273	.000
	Asset Structure	-1.085	.284

a. Dependent Variable: Debt Policy

Source: Secondary data, processed

Based on t-test result table above, noted that profitability has t_{count} -2.485 (in t_{count} minus sign is not considered, just as a sign of the influence direction) while t_{table} 1.6802 so that $t_{count} > t_{table}$ (2.485 > 1.6802), whereas the significance level of the profitability variable were of 0,017 less than 0.05 significance level of or (0.017 <0.05). Based on the test result in this research, it shown that the first hypothesis (H_1) in this research was accepted. It can be concluded that Profitability has significant negative effect on Debt Policy. The results of this research supported the researches of Soesetio (2008), Steven &Lina (2011), Narita (2012), Susilawati et al (2012), Yuniarti (2013), and Indriani & Widyarti (2013).

On the liquidity variable t_{count} value -4.273 (in t_{count} minus sign is not considered, just as a sign of the influence direction) while t_{table} 1.6802 so that $t_{count} > t_{table}$ (4.273 > 1.6802), whereas the significance level of the Liquidity variable 0,000 less than the significance level 0 05 or (0.000 <0.05). Based on the test result in this research, it indicated that the second hypothesis (H_2) in this research was rejected. It can be concluded that Liquidity has significant negative effect on Debt Policy. The results of this research did not support the research of Indriani & Widyarti (2013) which stated that liquidity has positive effect on Debt Policy and the test results were not consistent with the hypothesis made.

On Asset Structure variable t_{count} value -1.085 (in t_{count} minus sign is not considered, just as a sign of the influence direction) while t_{table} 1.6802 so that $t_{count} > t_{table}$ (1.085 <1.6802), whereas the significance level of assets structure variable 0.284 greater than 0.05 significance level or (0.284> 0.05). Based on the test result in this research, it indicated that the third hypothesis (H_3) in this research was rejected. It can be concluded that assets structure did not significantly influence the Debt Policy. The results of this study did not support the researches of Steven &Lina (2011), Hardiningsih & Oktaviani (2012), and Susilawati et al (2012) that consistently stated the Assets Structure has significant positive effect on Debt Policy.

5. CONCLUSIONS

a. In this research, Profitability has significant influence toward Debt Policy with negative relationship direction. The result of the test affirmed the first hypothesis stated that the rise of profitability level will allow the company to lower the desire to commit funding through debt policy. Thus the initial hypothesis formed in this research were proved.

b. In this research, Liquidity have significant influence toward Debt Policy with negative relationship direction. Result of the research rejected the second hypothesis stated that companies with high level of liquidity tended to implement debt policy more, because when liquidity is high there will be a guarantee that the companies can pay off their debts. This will make the companies to gain the trust of creditors to lend funds in the form of debts. Thus, the initial hypothesis formed in this research were not proven.

c. In this research the assets structure has no significant effect on Debt Policy. Result of the research rejected the third hypothesis stated that large assets structure of companies or dominated by fixed assets to make the implementation of debt policy to be great as well. Thus, the initial hypothesis formed in this research was not proven.

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GROWTH IN BANKING

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ABSTRACT
In order to improve the customer service, book-keeping and MIS reporting, the need for computerization was felt in the Indian banking sector in late 1980s. Reserve Bank of India set up a Committee headed by Dr. C. Rangarajan on computerization in banks in 1988.

In addition, until the past few years, banks were not visualizing the tremendous shift in consumer behavior that occurred as a result of the millennial generation now become the largest consumers of financial products. With the increasing usage of smart-phones, digitization of banking sector is predictable to catch up the increasing expectations of the world. It indeed reduced human errors and increased convenience. Now, cyber threats are on the rise hence, banks must be very vigilant and should be prepared to handle cyber-attacks.

Keywords: Online Banking, Mobile Banking, Internet banking

I. INTRODUCTION
Digitalization is the process of transforming information into a digital format, in which the information is organized into bits. The result is the representation of an object, image, sound, document or signal (usually an analog signal) by generating a series of numbers that describe a discrete set of its points or samples. The result is called digital representation or, more precisely, a digital image, for the object, and digital form, for the signal. The digitized data is in the form of binary numbers, which simplify computer processing and other operations. Digitizing simply means the transformation of analog source material into a numerical format; the decimal or any other number system that can be used instead.

Digitization is of vital significance to data processing, storage and transmission, because it "allows information of all kinds in all formats to be carried with the same efficiency and also intermingled". Unlike analog data, which typically suffers some loss of quality each time it is copied or transmitted, digital data can, be transmitted with absolutely no deprivation.

Diagram-1:5: Key Banking Technology Trends

Information Technology was implemented by banks initially with the introduction of standalone PCs and voyaged to Local Area Network (LAN) connectivity. Further, Core Banking platform was adopted by banks. Thus branch banking changed to bank banking. Core Banking Solution (CBS) facilitated banks to increase the comfort feature to the customers as a encouraging step towards improving customer accessibility through anywhere and anytime banking.

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Different Core banking platforms such as Finacle designed by Infosys, BaNCS by TCS,FLEXCUBE by i-flex, gained popularity. In 1991-92, with the opening of the economy, the process of Computerization gained a leap. Several commercial banks started moving towards digital customer services to remain economical and significant in the race.

Dan Jones, partner and head of Capco's UK Digital practice, says convenience, speed and flexibility are no longer considered attractive add-ons, but have become a standard expectation of the rapidly changing customer-bank relationship. According to Mr Jones, successful organizations will be those that can keep pace with customer needs and demands, and implant appropriate services into the wider ecosystem of digital products.

II. RESEARCH METHODOLOGY

Research paper is based on secondary data obtained from various sources like

I) Earlier paper published.

II) Websites

III) Articles published in Research magazines.

IV) Articles appeared in news paper.

Current status in the Digital Space

Indian Government is aggressively promoting digital transactions. Some of the significant steps for innovation in the Payment Systems domain are the launch of United Payments Interface (UPI) and Bharat Interface for Money (BHIM) by National Payments Corporation of India (NPCI). UPI is a mobile interface where people can make immediate funds transfer between accounts in different banks on the basis of cybernetic address without mentioning the bank account. Today banks aim to provide fast, accurate and quality banking experience to their customers. Today, the topmost agenda for all the banks in India is digitization.

Difference between Online and Digital Banking

For the most part, these two words are alternatives. But, online banking can be defined a bit more narrowly as- online banking primarily emphases on money transfers, bill pay, remote deposits, and basic online management of accounts. Other synonyms for online banking include virtual banking, internet banking, and e-banking. So, online banking focuses on digitizing the "core" features of banking, but digital banking incorporates digitizing every program and activity undertaken by financial institutions and their customers.

Banks play a significant role in our daily lives. For countless people, at least a single financial transaction is been done in a single day.Thus banks always try to implement latest technologies to enhance customer experience. Digitization is not achoice for banking industry, rather it is certain because every industry is being digitized and banking sector is no exemption. .Mobile banking is increasing at a fast pace more than online banking.

Advantages of digitization in banking

- Reduction of costs for banks and customers as well by using cashless transactions, ATMs, etc.
- With more digital data available with banks, they can take data-driven vibrant decisions by using digital analytics. This benefits both customers and banks.
- Number of customers will be amplified for banks because of the increased convenience of banking.
- Digitalization decreases human error.
- Need of handling large amounts of cash will be reduced.
- Rural and urban gap will be eliminated.
- Fake currency threat will be reduced, with the increasing cashless transactions.

Disadvantages of digitization in banking

- Digitalization shrinks the effort of employees and hence results in loss of jobs.
- Some bank branches may conclude to exist with the increasing use of online banking.
- Banks will be more vulnerable to cyber-attacks.
- No one can hide crores of rupees in banks and just act middle class. Privacy may have to be compromised.

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III. TECHNOLOGICAL DEVELOPMENTS IN INDIAN BANKING

Digital Collaboration

We will be part of our not-so-distant future when we expect driverless cars and robots, it should be equally direct for us to visualize a future banking system with its own form of artificial intelligence (AI).

AI-enabled tools such as chatbots have been already implemented by banks to interact with customers, but that is just the point of what is to come.AI has the potential to modify organizations on an extraordinary scale, from virtual financial assistants to computerized credit scoring and predictive analysis.

Mr. Jones explains: "From a customer point of view, machine-learning is starting to enhance their experience in smart ways, quickly and efficiently resolving their problems.

Machine-learning and AI will allow banks to spot outlines and solve customer problems at a segment of the current speed in a very cost-efficient manner. This second wave of interruption will have a powerful influence, transforming the banking industry and with it the customer journey. Banks should seize the opportunities,when technology presents to shift to the next gear. Because time does not wait for any organization, people including banking sectors.

Few Trends and Opportunities

1Unpenetrated areas and government initiatives

Around 50% of the non-banked population is directed and developing towards the goal of financial presence. Due to some government initiatives, banks have incredible opportunities and advantages in implementing digital infrastructure.With Rs. 500 billion being targeted to be transmitted directly under DBT (Direct Benefit Transfer), around 160 million accounts have been opened under PMJDY (Pradhan Mantri Jan DhanYojna).

2. Leveraging increased smartphone usage and mobile penetration

Mobile phones are likely to lead the digital growth in India, because the youth of India prefer to use smart phones rather than stand in long queues to avail banking services.Mobile perception of around 90% is likely to drive financial insertion.The existing and predictable widespread reach of smart phones in the country provides a disruptive and low-cost medium, to extend the reach of banking and payments services. Refer the graphs below:

Some Challenges

- As per the report of FICCI, BCG, and IBA; 17% of the users were unaware about bank's digital offerings, 35% were aware but were not using, 7% were unhappy user and 42% were fulfilled users. The challenge here is to convert alertness into practice.
- 24% do not know how to use Mobile banking apps, 16% don't know about bank's app and 12% of them have fear of hacking.

Despite the huge possible and well-established promise of digital financial services, there is a need for the users to adopt a general approach on -going digital and combining business strategy with all the elements of their operating ecosystem to create a significant customer experience.

Indigenous Banking

The exact date of presence of indigenous bank is not exactly known. But, it is sure that the old banking system has been functioning for centuries. Some people suggests the presence of indigenous banks to the Vedic times of 2000-1400 BC. It has excellently fulfilled the needs of the country in the past.

The main defects of indigenous banking are

(i) They are disorganized and do not have any communication with other sections of the banking world.

(ii) They associate banking with trading and commission business and thus have presented trade risks into their banking business.

(iii) They do not differentiate between short term and long term finance and between the purposes of finance.

(iv) They do not give receipts in most cases and they charge out of proportion interest in regard with other banking institutions in the country.

Suggestions for Improvements of indigenous banking are

(i) The banking practices need to be upgraded.

(ii) These banks should be connected with commercial banks on the basis of certain understanding in the respect of interest charged from the borrowers, the confirmation of the same by the commercial banks and the passing of the discounts to the priority sectors etc.

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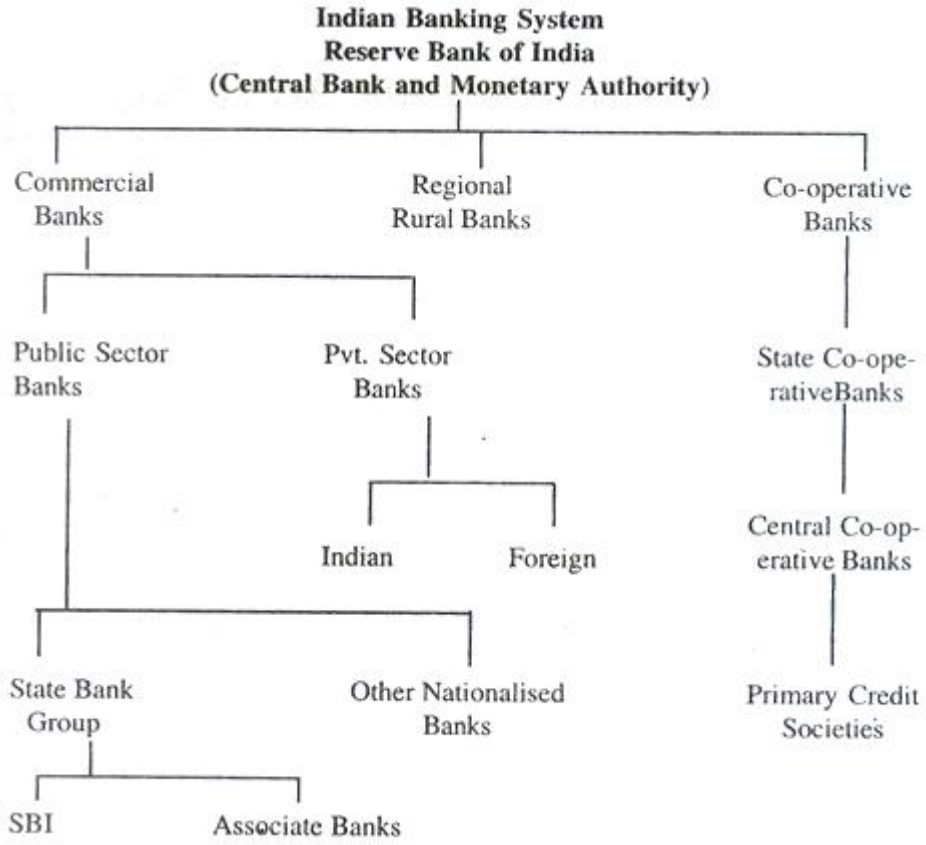
(iii) These banks should be stimulated to become corporate bodies rather than continuing as family based enterprises.

IV. STRUCTURE OF INDIAN BANKING SYSTEM



Reserve Bank of India (RBI)

The country had no central bank earlier to the establishment of the RBI. The RBI is the supreme regulatory and banking authority in the country and controls the banking system in India. It is called the Reserve Bank' as it keeps the reserves of all commercial banks.

Commercial Banks

Commercial banks organize savings of general public and make them accessible to large and small industrial and trading units mainly for working capital requirements.Commercial banks in India are private sector with a few foreign banks and largely Indian-public sector and. The public sector banks account for more than 92 percent of the entire banking business in India—occupying a leading position in the commercial banking. The State Bank of India and its 7 associate banks along with another 19 banks are the public sector banks.

Scheduled and Non-Scheduled Banks

The scheduled banks are preserved in the second schedule of the RBI Act, 1934. These banks have a paid-up capital and reserves of acombined value of not less than Rs. 5 lakhs, they have toplease the RBI that their affairs are carried out in the interest of their depositors.Allregional rural banks, commercial banks (Indian and foreign), and state cooperative banks are scheduled banks. Non- scheduled banks are not involved in the second schedule of the RBI Act, 1934. At present there are merely three such banks in the country.

Regional Rural Banks

The Regional Rural Banks (RRBs) the newest form of banks, came into presence in the middle of 1970s (these are sponsored by individual nationalized commercial banks) with the objective of developing rural economy by providing credit and deposit facilities for agriculture and other productive activities of all kinds in rural areas.The importance is on providing such facilities to small and marginal farmers, rural artisan's, agricultural laborers, and other small entrepreneurs in rural areas.

Cooperative Banks

Cooperative banks areorganized under the provisions of the Cooperative Credit Societies Act of the states. The major recipient of the Cooperative Banking is the agricultural sector in particular and the rural sector in

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general.Long-term agriculture credit is provided by the Land Development Banks. The funds of the RBI meant for the agriculture sector actually pass through CCBs and SCBs. The cooperative credit movement has now spread to urban areas also and there are many urban cooperative banks coming under SCBs.The cooperative credit institutions operating in the country are mainly of two classes: agricultural and non-agricultural. There are two separate cooperative agencies for the provision of agricultural credit: one for short and medium-term credit, and the other for long-term credit.

Expanse of digital banking

According to the RBI Report in 2016-17 there are 2,22,481 Automated Teller Machines (ATMs) and 25,29,141 Point of Sale devices (POS). Implementation of electronic payment system such as ECS (Electronic Clearing Service),NEFT (National Electronic Fund Transfer), RTGS (Real Time Gross Settlement), Mobile banking system, Debit cards, Prepaid cards, Cheque Truncation System, Credit Cards, have all gained wide recognition in Indian banks. These are all notableinnovations in the digital revolution in the banking sector. Online banking has changed the face of banking and brought about a notablechange in the banking operations.

National Electronic Funds Transfer (NEFT) is the most frequently used electronic payment method for transferring money from any bank branch to another bank in India. It operates in half hourly batches.Real Time Gross Settlement (RTGS) is largely used for high-value transactions which are centered on 'real time'. The smallest amount to be remitted through RTGS is Rs. Two Lakhs. There is no upper limit. Immediate Payment Service (IMPS) is an immediate electronic funds transfer facility presentedby National Payments Corporation of India (NPCI) which is available 24 x 7.

The usage of Prepaid payment instruments (PPIs) for purchase of goods & services and funds transfers has improvedgreatly in recent years. The value of transactions through PPI Cards (which include gift cards, foreign travel cards,mobile prepaid instruments, & corporate cards) & mobile wallets have jumped drastically from Rs.108 billion and Rs. 85 billion respectively in 2014-15 to Rs. 279 billion and Rs. 535 billion respectively in 2016-17

Table below shows Increase in volume related to RTGS,RECs, Debit card, Credit cards, prepaid payment instruments and Mobile banking:

Volume (Million)					
Year	**RTGS**	**Retail Electronic Clearing (ECS, NEFT, IMPS)**	**Cards (Debit, Credit)**	**Prepaid Payment (m-Wallets, PPI Cards, Paper Vouchers**	**Mobile Banking**
2015-16	98.4	3141.5	10038.7	748.0	389.5
2014-15	92.8	1687.4	8424.0	314.5	171.9
2013-14	81.1	1108.3	7219.1	133.6	94.7
2012-13	68.5	694.1	6174.5	66.9	53.3
2011-12	55.1	512.4	5731.6	30.6	25.6

Table-1: Increase in volume related to RTGS, RECs, Debit card, Credit cards, prepaid payment instruments and Mobile banking

V. LIMITATIONS

- **Security Risks -** External threats such as hacking, spoofing and sniffing expose banks to security risks. Banks are also exposed to internal risks especially frauds by employees in collusion with customers / employees.
- **Financial Knowledge / Customer Awareness -** Lack of knowledge amongst people to use e-banking facilities is the major limitation in India.
- **Fear factor -** One of the biggest obstacle in online banking is inclination to conventional banking method by older generation and mostly people from the rural areas. The fright of losing money in the online transaction is a wall to usage of e-banking.
- **Training -** Lack of suitable knowledge and skills is a major constraining for employees to deal with the innovative and changing technologies in banks. Training at all levels on the changing trends in IT is the requirement of the day.
- The high speed internet connectivity at rural places in India is big challenge. Experience shows that we have failed in providing 24x7 internet connectivity in rural and remote places.

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VI. CONCLUSION

The mobile and wireless market has been one of the fastest growing markets in the world. The arrival of technology and the escalating use of mobile and smart phone devices, has given the banking industry a new platform. Connecting a customer anytime and anywhere to their money and needs is a must have service that has become an unstoppable necessity. This worldwide communication is leading a new generation of strong banking relationships. The banking world can achieve superior interactions with their public base if they accommodate all their customer needs. They have a unique challenge to keep their customer alliances and keeping up with the new technologies, and competitive strategies that other banks also have to offer the public. Conveniences of services plus outside locations like ATMS are crucial to every banks success. Meeting all challenges including safety and security are perfect examples of good banking strategies. In order for the financial institutions to effectively grow they must embrace the new technologies and customize them to suit their economic success and the public's success.

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HOW HR JOB IS CHANGING DUE TO ARTIFICIAL INTELLIGENCE

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Abstract
Artificial intelligence is a wide-ranging tool that enables people to rethink how we integrate information, analyze data, and use the resulting insights to improve decision making and already it is transforming every walk of life.. Human resources management is the key for the success of any organization but recent technology will help the human resource to operate with the help of machine which will reduce their work and help them to concentrate more on other aspects of the organization. Artificial intelligence is an emerging area in the field of HR Technology which can replace or enhance the effectiveness of human resource management processes. As we move towards building smart organizations, Artificial Intelligence plays a fundamental role towards the success of transforming human knowledge into organizational knowledge. It can be applied to HR policies, procedures and HR perspective and can enhance the effectiveness of human resource management. This paper aims to analyze the intersection of Artificial Intelligence with HRM and the potential benefits of artificial intelligence through secondary data... This paper highlights the shift in recruitment industry caused due to the adoption of AI in the recruitment process.

Keywords: Artificial intelligence, Recruitment, Human resource management

Introduction

Artificial intelligence is everywhere today, and there are many aspects to consider as to how it will impact the future of work. "It's now popping into almost every piece of software," said Josh Bersin, principal and founder of Bersin by Deloitte. Based on research by Bersin by Deloitte, nearly 40% of companies are using some form of AI in HR alone. According to Personnel Today, 38% of enterprises are already using AI in their workplace with 62% expecting to start using it as early as this year. According to Bersin by Deloitte, 33% of employees expect that their jobs will become augmented by AI in the near future. Artificial intelligence is present in virtually every major industry from healthcare to advertising, transportation, finance, legal, education, and now also inside our workplaces.

AI has an immense impact on our daily working lives already. For most of us, AI technology is helping us do our jobs more efficiently and it's generally making our lives – and jobs – easier.As such, AI plays a big role today in transforming HR and the workforce; reducing human bias, increasing efficiency in candidate assessment, improving relationships with employees, improving compliance, increasing adoption of metrics, and improving workplace learning are some of the benefits organizations are experiencing today. When it comes to AI in HR, "The applications of AI basically are analytics applications, where the software is using history and algorithms and data to be smarter and smarter over time," as per Bersin. The most interesting part of people analytics is the interface between AI and human proficiency.

Definition and meaning of Artificial intelligence

Techopedia explains Artificial Intelligence (AI) as "a branch of computer science that aims to create intelligent machines."Artificial intelligence (AI) is "an area of computer science that emphasizes the creation of intelligent machines that work and reacts like humans." Computers with artificial intelligence can perform activities like Learning, Planning, Speech recognition and Problem solving**.**

Artificial intelligence (AI) refers to technology used to do a task that requires some level of intelligence to accomplish — in other words, a tool trained to do what a human can do. Why is AI different than ordinary software? Three core components — high-speed computation, a huge amount of quality data and advanced algorithms differentiate AI from ordinary software. Core AI technologies provide better accuracy and stability to everyday processes using an algorithm that connects quality data with fast computation services.

The Intersection of Artificial Intelligence and Human Resource

HR departments are always challenged with an overwhelming task that is extremely time and energy consuming, right from finding the right candidate to onboard, managing payroll, benefits to off-boarding an employee. Technology can accomplish many of those cumbersome tasks faster, cheaper and better than before.HR professionals have started to realize the advantages of a data-driven decision. Data-driven technology such an Artificial intelligence is all about analyzing the huge pile of data to predicting trends and provide suggestions in a humanized format. AI using workforce data will help HR professional to better understand their workforce and to foresee problems and trends in advance. AI tools will solve all the cumbersome of manual

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analysis and time-consuming task in HR and thus enable workforce to work on a more productive task. AI will also help HR executives to formulate and implement strategies effectively. Further, using historical data and predictive analytics AI can provide insight to HR on best practices, associated problems and impactful actions to grab the opportunity. HR professionals are organizational focused and said to be biased in many activities. The employees often feel HR activity and strategies favor more to the organization than employees. This biased nature of HR is prevailing in every HR activity. This major issue will be swiped out by AI and will provide a more transparent workplace that would breed happy employees free from biased decisions.AI will turn the HR function into more of people oriented.

How Artificial Intelligence Can Revolutionize HRM Process

Artificial intelligence is proving to be a game changer to revolutionize any industry. Artificial intelligence can process a high amount of data with the greater level of accuracy in less time by following the AI tools. Cognitive computing system is used in many artificial intelligence (AI) applications, including expert system, natural language programming, neutral networks and virtual reality. By leveraging the use of number of AI tools, the company can engage the candidate more effectively both before and after they enter the organization. Fast paced digitization helps in integrating different systems and can provide unified platform that can support full range of HR function starting from recruitment, selection, training, development, compensation and performance management.

By amassing data from an automated performance appraisal software to determine engagement levels, feedbacks and insights on why employees leave, AI can provide predictions at the click of a button at team as well as company levels. The predictions can include anything from giving out names of employees that are worth retaining and the ones who are most likely to quit or the employees that will come up with the most innovative solutions. Artificial intelligence systems identify patterns and create connections that would be intricate as well as time-consuming for humans to unravel. Such level of predictive intelligence report would allow HR professionals to become strategic and proactive. Further, AI powered suggestions or prescriptive intelligence would forerun predictive analytics. It uses historical data and recommends best practices as well as tools before coming up with the most impactful actions for resolving predicted or identified problems. This would help HR leaders and managers to get good insights into the areas of opportunities as well as the ones that need attention.

AI shuns the cumbersome task of manual analysis associated with developing people management programs and offers suggestions based on intelligent data rather than relying on gut feelings. It helps HR people to make sound and less-biased decisions. The power of AI is not only useful in fetching optimum return on investment (ROI) or predicting future trends, as the real advantage seeps in when artificial intelligence leverages this data to interpret insights into actions. All the in-depth and instant insights offered by AI equips HR managers and leaders with the right set of data to recruit, retain and motivate employees for the long run.

AI powered tools combined with human touch would render more powerful and intelligent HR solutions in future. AI has the potential to create more people-oriented workplaces that would breed happy and contended employees minus biases. As human resource functions are turning more and more accountable for driving business outcomes since the last few years, harnessing the power of AI is one of the crucial and life-changing tech trend that HR managers and leaders can embrace to drive people management.

Role of AI in HR

There has been a never-ending debate that HR is a very subjective function and there is not much data / analytics involved in the work and hence the output is also subjective. With the help of AI, HR function can get the objectivity in the work and can change the face of the function et al. Humans and learning machines are working together to produce an ever-increasing amount of HR data in the cloud, and the use of artificial intelligence analyses offer better insight into how to execute and operate. The success of any organization depends on how effectively it combines people, process and technology intelligently to deliver transformational value at optimized cost

AI can contribute greatly in almost all HR functions. Some of the following examples are:

1) In recruitment

In Hr most of the decisions are based on gut feel. According to the studies most hiring managers make a decision on a candidate within the first 60 seconds of meeting a candidate, often based on look, handshake, attire, or speech. Does we really know what characteristics, experiences, education, and personality traits guarantee success in a given role? No we don't. Managers and HR professionals use billions of dollars of

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assessment tests, simulations, and games to hire people – yet many say that they still get 30-40% of their candidates wrong.

Algorithms based on AI can weed through resumes, find good internal candidates, profile high performers, and even decode video interviews and give signals about who is likely to succeed. AI can also help do away with the subjective bias involved in selection by a panel, however experienced in the art.

The entry of Google Hire, targeted at the recruitment function in HR, may revolutionise the way selection is made. Introduced abroad very recently, it will surely make its way to India shortly. Once fully utilised, Google Hire may develop a unique HR ecosystem.

2) In employee development and learning

Rather than the functional heads recommending training needs for their teams, AI can individualize training needs, based on the interests, previous track record and even the browsing history of the employee. Thus an employee who is in sales may be more interested in academics based on what he or she browses and may be better utilized as a trainer after adequate training in the given area. Do you as an individual know what you "need to learn" to be better at your job? We all have a pretty good idea, but what if we had algorithms that monitored and studied the skills, behaviors, and activities of the highest performers in our teams and then just told us how to be more like them? These kinds of "Netflix-like" algorithms are now entering the world of learning platforms, making learning as useful and fun as watching cable TV. Again the market is young, but the opportunity is massive. Our research shows that the average employee has less than 25 minutes a week to train and learn; if we make that time more relevant everyone will perform better.

3) In management and leadership

We operate like Zen masters. We read books, we go to workshops, we copy the bosses we admire, and we glorify the successful leaders of the day. Most studies find that there are dozens of management and leadership traits that define success, and each of us brings a slightly different and unique combination of them. Organizational leadership is evolving with changes in technology. Leaders realize that they must adapt to these changes faster. New technologies like Artificial Intelligence (AI) have changed the nature of leadership. The use of robust data analytics grounded in AI and machine learning techniques reveal new insights for business applications. An advanced online degree in organizational leadership can help future managers and leaders navigate the modern dynamics of the corporate landscape. A Harvard Business Review (HBR) reports that as AI makes more decisions, the nature of leadership will continue to adapt. The purpose of AI is to replace some of the decision-making that fell under the purview of company managers and executives. This will streamline and improve the decision-making processes. A shift in leadership decisions is on the way. With the use of AI, leaders will focus less on the cognitive processing of facts and information. They will focus more on the human aspects like personality characteristics and behaviors. This will help improve the engagement and performance of staff and increase operational efficiencies in order to improve the company's bottom line.

4) In fraud and compliance

According to the studies employees who steal or commit crimes are "contagious" to their peers (people who work with them pick up bad habits). AI can look at organizational network data (email traffic, sentiment of comments) and identify areas of stress, areas of possibly ethic lapses, and many other forms of compliance risk, and point out the "red areas" to HR or compliance officers so they can intervene before bad behavior occurs. E.g TrustSphere, Keencorp, Volley, Cornerstone, and more.

5) In well-being and employee engagement

AI is now being used to identify behaviors that cause poor work performance. In safety AI can identify behaviors and experiences that lead to accidents. A new breed of survey tools can identify patterns of stress and bad behavior and alert HR or line managers.

6) In Automation of 'Repetitive, Low-Value Add Tasks'

Kate Guarino, director of human resources operations for Pega systems, said AI presents an opportunity for HR to automate "repetitive, low-value add tasks" and increase the focus on more strategic work. She cited the example of HR spending time processing the steps of onboarding a new employee (allocating space, provisioning a laptop, etc.). Saving time in those arenas can help HR teams pivot to making sure they focus on "value-add work like mentoring and continuous feedback."

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7) Smarter People Analytics

For years, companies have been collecting data on their customers to gain insights to predict future behavior. HR teams have a lot of catching up to do in leveraging these people analytics. "Determining what data to track, analyze, manage and protect will enable AI to play a larger role within HR. In the never-ending war for talent, companies will look to find innovative ways to attract top talent. Technologies that enhance the candidate experience and meet the candidate's digital expectations will help distinguish companies from one another. In addition, a stronger digital IQ will bring a business deeper into what is referred to as an "unconscious level" of information. By consolidating and comprehensively analyzing people's statements, mood and intentions on social media, along with other public data sources, human behavior can be simulated by autonomously learning machines. This makes it possible to validate the employee experience on a day-to-day basis. HR performance and succession data provide information on which employees are engaged and challenged. That gives a new dimension to strategic workforce planning to reduce employee attrition. It is a helpful tool to find the right mix of man and machine in the workplace, which skills and talents are key to maintain balance, and the best-fit candidates for the internal or external hiring process.

8) Removing Biases

In the survey by the Human Resources Professional Association, researchers found that even when employers strive to be inclusive, they may subconsciously lean toward candidates who are most like them, or what they call "unconscious bias." Another bias, language bias, has been discovered by a psychological tool called the Implicit Association Test (IAT) that shows that people's subconscious word associations indicate bias. "These biases find their way into job descriptions, as well as resume selections. Now, thanks to AI, algorithms can be designed to help employers identify and remove these bias patterns in language they use to improve their hiring communications and welcome diverse applicants. AI could also present managers with candidates who may have been screened out due to human tendency to favor candidates with similar traits or competencies.Tom Marsden, CEO of Saberr, told HRPA researchers algorithms are free of those tendencies, which allows managers to go beyond gut feelings and rely on data-driven assessments instead.

9) Identifying Employees On the Way Out

Veriato's AI platforms are designed to single out employees that may be heading for the exit door. It tracks employee computer activity emails, keystrokes, internet browsing, etc. and stores it for one month and implements an AI system that analyzes the data to determine a baseline of normal activity patterns in the organization. "Based on that knowledge," HRPA researchers noted, "it flags outliers and reports them to the employer and also detects changes in the overall tone of employees' communications to predict when employees might be thinking of leaving."

Conclusion

AI-based HR applications have strong potential to raise employee productivity and help HR professionals become knowledgeable consultants that boost employee performance. HR applications empowered by AI have an ability to analyze, predict, diagnose and become more powerful and capable resources. While Artificial Intelligence may at times feel like a two-edged sword, it ultimately serves as a tool to achieve maximum efficiency of business. The purpose of AI is to augment human capabilities instead of completely replacing it. For instance, AI tools compliment HR capabilities but do not design the structure as that will require strategic human planning and vision. AI has a direct tangible impact on productivity by making HR processes agiler & proficient whereas it has an indirect intangible impact on morale, motivation, and degree of engagement for Human Resources. Jobs that do not involve human thoughtfulness, reasoning, and people skills are more likely to be replaced by AI technologies in the future as opposed to jobs that require human soft skills and Strategic planning as well as possessing a human instinct for creative solutions.

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1. Manuscripts should be submitted preferably through email and the research article / paper should preferably not exceed 8 – 10 pages in all.
2. Book review must contain the name of the author and the book reviewed, the place of publication and publisher, date of publication, number of pages and price.
3. Manuscripts should be typed in 12 font-size, Times New Roman, single spaced with 1" margin on a standard A4 size paper. Manuscripts should be organized in the following order: title, name(s) of author(s) and his/her (their) complete affiliation(s) including zip code(s), Abstract (not exceeding 350 words), Introduction, Main body of paper, Conclusion and References.
4. The title of the paper should be in capital letters, bold, size 16" and centered at the top of the first page. The author(s) and affiliations(s) should be centered, bold, size 14" and single-spaced, beginning from the second line below the title.

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5. The abstract should summarize the context, content and conclusions of the paper in less than 350 words in 12 points italic Times New Roman. The abstract should have about five key words in alphabetical order separated by comma of 12 points italic Times New Roman.
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EXAMPLES OF REFERENCES

All references must be arranged first alphabetically and then it may be further sorted chronologically also.

- **Single author journal article:**

Fox, S. (1984). Empowerment as a catalyst for change: an example for the food industry. *Supply Chain Management*, *2*(3), 29–33.

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7. The submission implies that the work has not been published earlier elsewhere and is not under consideration to be published anywhere else if selected for publication in the journal of Indian Academicians and Researchers Association.

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