

DATA GOVERNANCE FOR SUCCESSFUL BUSINESS TRANSFORMATION REFERENCE TO TOP 5 MANUFACTURING COMPANIES IN DUBAI (UAE)**Prof (Dr) Sangeeta N Pawar¹ and Sanyog Suresh Chavan²**¹Professor and Research Guide, Department of Commerce, University of Mumbai, Mumbai, Maharashtra, India
sangeeta.pawar@commerce.mu.ac.in²Research Scholar, Department of Commerce, University of Mumbai, Mumbai, Maharashtra, India
chavan.sanyog@gmail.com**ABSTRACT**

The digital maturation of the manufacturing sector is increasingly predicated on the treatment of data as a strategic enterprise asset. This study investigates the impact of data governance (DG) frameworks on business transformation initiatives within five prominent manufacturing entities in Dubai, UAE (Nestlé, Unilever, Afia, P&G, and Henkel). Adopting a quantitative research design, data were gathered via a structured Likert-scale instrument from 50 cross-functional management professionals. The findings reveal that while foundational governance frameworks are established, significant "governance-to-execution" gaps persist—specifically regarding data interoperability and real-time accessibility. While Unilever and Afia demonstrated the highest relative maturity, all surveyed firms face challenges in aligning data stewardship with the velocity of digital transformation. The paper concludes by proposing a localized data governance roadmap designed to enhance operational resilience and competitive advantage within the Middle Eastern industrial context.

INTRODUCTION

Manufacturing in Dubai has emerged as a core pillar of the emirate's economic diversification agenda, contributing significantly to GDP, employment generation and export capacity. As this sector adopts Industry 4.0 technologies (The transition from traditional assembly to IoT-enabled smart factories), data generated from production, inventory, logistics and customer interfaces has become central to business transformation strategies. However, many firms still treat data management as a technical afterthought rather than a governed, enterprise-wide capability, leading to inconsistent data, fragmented systems and missed first-mover advantages in competitive markets.

Data governance provides the structural and procedural backbone to ensure that data is accurate, secure, accessible and aligned with business priorities throughout its lifecycle. In the context of Dubai's manufacturing sector, effective governance can enable better planning, optimized inventory, predictive maintenance, compliance with regional regulations and more agile decision-making in transformation programs. This study focuses on five leading manufacturing companies in Dubai and investigates how their data governance practices facilitate or constrain business transformation initiatives, using a quantitative, questionnaire-based approach.

OBJECTIVES OF THE STUDY

The study pursues the following specific objectives, aligned with the broader research theme of **data** governance for business transformation:

- To study the data governance practices adopted by top manufacturing companies.
- To examine the prospects and challenges faced by these companies in implementing data governance.
- To conduct a comparative assessment of data governance maturity across the five companies i.e. Nestlé, Unilever, Afia, P&G, and Henkel.
- To investigate business transformation problems and lapses that are attributable to weaknesses in data governance.
- To provide analytical reasons and practical solutions for strengthening data governance practices in the manufacturing sector.

SIGNIFICANCE OF THE STUDY

Manufacturing in Dubai is undergoing a rapid shift towards digitalized, data-intensive operations, yet academic and applied research on governance of this data in the local context remains limited. By concentrating on five leading manufacturing companies, this study offers context-specific insights for managers, policymakers and technology partners about how governance can unlock or constrain transformation benefits.

For practitioners, the findings help clarify where gaps exist between formal policies and day-to-day data usage, especially in areas such as data ownership, integration and cross-functional coordination. For researchers, the

study extends the emerging body of work on data governance in manufacturing by adding evidence from Dubai, a region that is rarely featured in mainstream governance and digital transformation literature.

REVIEW OF LITERATURE

Recent studies on data governance in manufacturing emphasize that structured policies, clearly defined roles and standardized data models are prerequisites for leveraging analytics, automation and AI at scale. Governance is shown to enhance data quality and consistency, which then supports better production planning, inventory optimization and supply-chain collaboration.

Manufacturing-specific research also identifies pervasive challenges: data silos between plants and corporate functions, difficulties in integrating legacy systems, and limited data literacy among operational staff. Scholars and industry reports agree that aligning data strategy with business strategy, appointing accountable data stewards and instituting data lineage and audit capabilities are critical for regulatory compliance and for enabling smart factories and predictive maintenance.

Illustrative data governance best practices in manufacturing

Across the literature, several best practices recur:

- Establishing enterprise-wide data ownership and stewardship roles.
- Standardizing data formats and naming conventions across systems.
- Implementing robust data quality rules, profiling and cleansing processes.
- Ensuring traceability through data lineage, logs and audit trails for compliance.

These practices collectively create a governed environment in which transformation initiatives can rely on trustworthy, timely and fit-for-purpose data.

- **Data Governance as Strategic Enabler:** Otto (2011) emphasized governance as a mechanism to align data management with organizational strategy.
- **Manufacturing Transformation:** Davenport & Westerman (2018) highlighted digital tools as catalysts for operational efficiency, stressing the need for governance to prevent data silos.
- **Challenges in Data Quality:** Redman (2017) argued that poor data quality undermines transformation, requiring systematic monitoring and stewardship.
- **Regional Context:** Al-Khouri (2015) examined governance in Gulf economies, noting limited adoption of structured frameworks in manufacturing.

Research gap

Despite a growing body of global literature on data governance, detailed empirical studies focusing on manufacturing companies in Dubai or the wider UAE are very scarce. Existing works tend to be either global conceptual pieces or sectoral case studies in North America, Europe and East Asia, leaving the Gulf manufacturing context under-examined.

There is also limited elaborative review of how specific governance practices—such as stewardship models, issue-resolution processes or integration approaches—are actually implemented inside manufacturing units, especially in emerging digital hubs like Dubai. Furthermore, few studies from Indian or regional universities systematically compare multiple manufacturing firms within Dubai itself, despite the emirate's prominence as a manufacturing and logistics hub.

RESEARCH METHODOLOGY

This study employs a **Quantitative Research Design**.

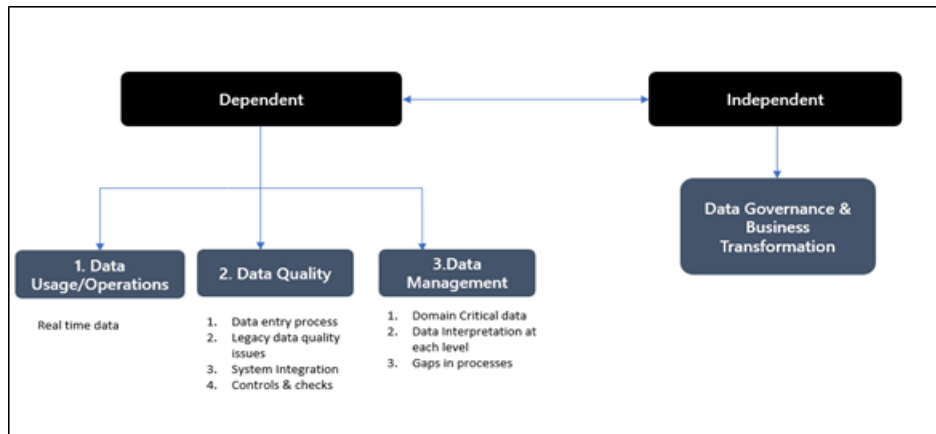
- **Target Sample:** Employees from Nestlé, Unilever, Afia, P&G, and Henkel (10 respondents per company, total 50).
- **Tool:** Structured questionnaire covering four domains—Usage/Operation, Data Quality, Data Management, Governance Strategy. A structured 5-point Likert scale questionnaire (1 = Strongly Disagree, 5 = Strongly Agree).
- **Approach:** Data was collected regarding DG awareness, policy implementation, and perceived impact on transformation.
- **Design:** Quantitative, descriptive study.

- **Data Collection:** Online survey.
- **Analysis:** Frequency distribution, comparative analysis, and thematic interpretation.

To mitigate selection bias, respondents were selected across different departments (IT, Finance, Operations) to ensure a holistic view of the data lifecycle.

RESEARCH DESIGN AND SAMPLE

The study adopts a descriptive and analytical, cross-sectional research design focusing on five leading manufacturing companies in Dubai (Nestlé, Unilever, Afia, P&G, and Henkel). A structured questionnaire was administered to employees at three managerial levels—top management, middle management and operational staff—with a total of 50 valid responses analysed quantitatively.



Source: Self compiled

Research instrument

The research tool is a close-ended questionnaire built on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), containing 20 statements covering:

- Existence and clarity of data governance frameworks, policies and roles.
- Data quality, accessibility, integration and security practices.
- Management support, training and cross-functional coordination.
- Perceived impact of data governance on business transformation, efficiency, inventory management and competitive advantage.

Illustrative items include: “Our company has a clearly defined data governance framework”, “Data used for decision-making is accurate and reliable”, “Integration of data from different systems is a major challenge in our company”, and “Data governance has improved operational efficiency”.

Category	Pain Points
Usage /Operations	<ul style="list-style-type: none"> • Inaccessibility to real-time data • Systems with overlapping purpose
Data Quality	<ul style="list-style-type: none"> • Inconsistent field usage, data entry processes and system integration • Legacy data containing known, unknown quality issues
Data Management	<ul style="list-style-type: none"> • No single source of truth universally agreed • Master data duplicated across systems and hierarchies undefined across organisation
Governance Strategy	<ul style="list-style-type: none"> • Lack of ownership and / or awareness of ownership roles around data • Lack of supporting artefacts and processes to drive communication and consistency e.g. data dictionary, consistent issue resolution process

DATA ANALYSIS & FINDINGS

The quantitative assessment utilized a 5-point Likert scale to evaluate the perceived efficacy of data governance across the participating organizations. The results indicate a "Moderate Maturity" plateau, where governance is recognized at the policy level but remains inconsistent in operational practice.

Quantitative analysis focused on:

- Average data governance perception scores by company.
- Item-wise mean scores to identify specific strengths and gaps (e.g., quality, accessibility, integration, culture).
- Interpretive comparison across companies and managerial levels.

Professional Level	Respondents (N=50)	Percentage
Top Management (Directors, VPs, Heads of Dept)	10	20%
Middle Management (Managers, Team Leads)	25	50%
Operational Staff (Data Analysts, Engineers)	15	30%
Total	50	100%

Overall Data Governance Maturity by Company

The table below summarizes the mean perception scores across the four surveyed domains: Usage, Quality, Management, and Strategy.

Company	Mean Governance Score	Maturity Classification
Afia	3.54	Moderate-High
Unilever	3.52	Moderate-High
Nestlé	3.48	Moderate
Henkel	3.47	Moderate
P&G	3.40	Moderate

Analysis of Key Performance Gaps

The research identified a critical "Silo Effect" across all five firms. While respondents largely agreed that formal governance roles exist (Mean: 3.72), the scores for **Data Integration** (Mean: 3.22) and **Cross-functional Accessibility** (Mean: 3.15) were significantly lower. This suggests that while "Data Stewards" are appointed on paper, they lack the technical infrastructure or mandate to facilitate the seamless flow of information between departments like Logistics and Production.

DISCUSSION OF RESEARCH FINDINGS**The Disconnect in Data Stewardship**

A primary finding of this study is the presence of "Passive Governance." In companies such as P&G and Henkel, governance is often viewed as a compliance-driven activity rather than a transformation enabler. This leads to delays in "Time-to-Insight," where decision-makers must wait for data to be manually cleaned or verified before it can be used for predictive analytics.

Preliminary Comparative Observations

- **Top Tier (Afia & Unilever):** These firms showed higher scores in **Management Support** and **Issue Resolution**. Their success is attributed to the integration of data KPIs into departmental performance reviews, ensuring that data quality is a shared responsibility.
- **Middle Tier (Nestlé & Henkel):** These organizations possess robust global standards but struggle with local implementation in the Dubai context, particularly regarding the integration of legacy local systems with global ERP platforms.
- **Emerging Tier (P&G):** The lower score in this cohort reflects a struggle with "Data Fragmentation," where the rapid pace of business transformation has outpaced the development of governed data pipelines.

Impact on Business Transformation (The transition from traditional assembly to IoT-enabled smart factories)

The Maturity Plateau: The five surveyed firms (Nestlé, Unilever, Afia, P&G, and Henkel) exhibit a moderate DG maturity score of 3.48/5.00. While policy frameworks are robust, there is a distinct failure in operationalizing these policies at the shop-floor level.

The Perception Gap: A critical discrepancy exists between Top Management (who perceive 84% framework clarity) and Operational Staff (who report only 56% ease of data access).

Transformation Barriers: Inconsistent master data and system silos remain the primary inhibitors of predictive maintenance and real-time inventory optimization.

The data suggests a direct correlation between governance maturity and the success of Industry 4.0 adoptions (The transition from traditional assembly to IoT-enabled smart factories). Weaknesses in master data and/or unstructured machine data consistency were cited as the leading cause for failed automation pilots and inaccurate inventory forecasting. Without a "Single Source of Truth," digital transformation remains localized to specific departments rather than becoming an enterprise-wide reality.

Strategic Recommendations

To transcend the current maturity plateau and achieve a "Leader" status, manufacturing organizations in Dubai should implement the following targeted interventions:

1. Transition from "Policy-Based" to "Outcome-Based" Governance

Organizations must stop viewing data governance as a stand-alone project. Instead, DG objectives should be embedded into **Business Transformation KPIs**.

Empower Data Stewards: Shift the role from administrative oversight to active cross-functional facilitation.

2. Implementation of a Unified Data Fabric

To solve the low scores in **Data Integration (3.22)**, fundamentally, are the stewards failing to define the standards, or are the systems simply unable to talk to each other despite the standards?

However, Firms should move away from rigid, siloed databases toward a **Data Fabric architecture**. This allows for a virtualized layer of data that connects legacy ERP systems with modern IoT sensors on the factory floor, providing the "Single Source of Truth" necessary for real-time decision-making.

3. Cultivating a "Data-First" Organizational Culture

Technical tools alone cannot solve governance lapses. A **Localized Data Literacy Program** is recommended to bridge the gap between middle management and operational staff. By empowering shop-floor employees to understand the downstream impact of poor data entry, firms can ensure data quality at the point of origin.

4. Preparation for Regional Regulatory Alignment

As Dubai continues to enhance its digital economy through the **Dubai Data Law**, firms must proactively align their governance frameworks with regional data residency and privacy requirements. This will not only ensure compliance but also build trust with international partners and customers.

Prioritize Local Literacy: Implement training programs tailored to the Dubai workforce to ensure data is treated as a strategic asset at the point of origin.

LIMITATION OF THE STUDY

The study is limited to five manufacturing companies in Dubai, selected as a purposive sample, and does not represent the entire manufacturing population in the emirate or the wider UAE. Time and cost constraints restricted both the number of organizations included and the depth of field engagement, particularly with respect to direct system audits or longitudinal observations.

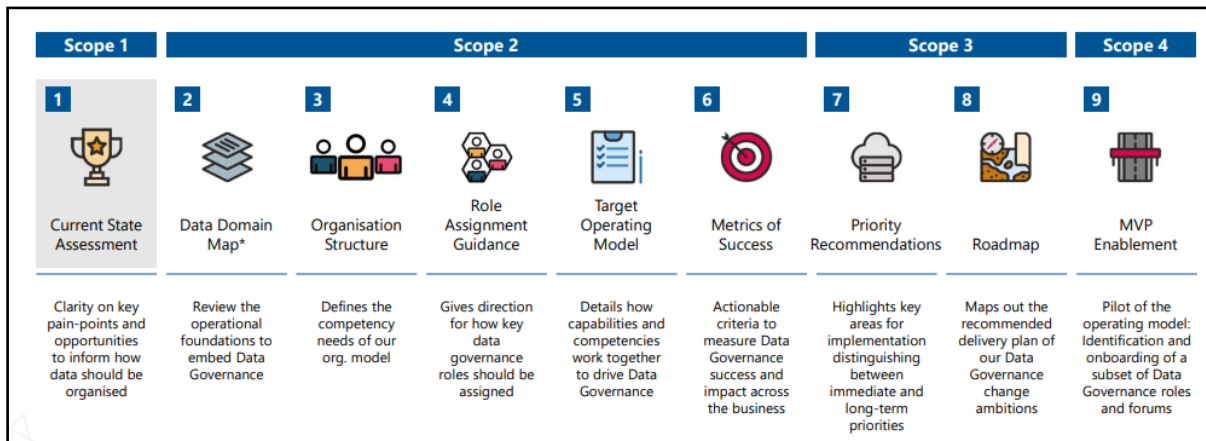
Findings rely on the perceptions of 50 respondents across various managerial levels, which may be influenced by individual experience, awareness of corporate strategies and self-reporting bias (noting that the scores may skew higher because the respondents are the ones responsible for the policies). Furthermore, the quantitative design, while useful for comparison, does not fully capture the nuanced political, cultural and vendor-related dynamics that shape data governance implementation.

CONCLUSION

The findings of this research underscore that while leading manufacturing firms in Dubai have moved past the initial awareness phase of data governance, they have reached a **"Maturity Plateau."** With an average mean score of **3.48**, the sector demonstrates a solid grasp of formal framework design and policy-making; however, a significant "execution gap" exists in the operationalization of these policies.

The study confirms that **Unilever and Afia** lead the cohort due to their superior integration of management support and clear stewardship roles. In contrast, the slight lag in **P&G and Henkel** highlights that even global leaders face localized challenges in data accessibility and system interoperability when undergoing rapid digital transformation. Ultimately, data governance in this region is no longer a back-office compliance function—it is

the primary determinant of how quickly a firm can pivot from traditional manufacturing to **Industry 4.0** readiness(The transition from traditional assembly to IoT-enabled smart factories).



Final Research Summary

This paper provides an empirical baseline for data governance maturity in the UAE's industrial heartland. By addressing the identified gaps in **accessibility** and **integration**, Dubai's manufacturing sector can ensure that its "marathon" of business transformation leads to sustainable competitive advantage and operational excellence in the global market.

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