Original Article
ISSN (Online): 2582-7472

ShodhKosh: Journal of Visual and Performing Arts
Special Issue on Global Research Trends in
Multidisciplinary and Interdisciplinary Studies 7(11s)

DATA-DRIVEN DECISION-MAKING FRAMEWORK FOR ENHANCING BUSINESS AGILITY IN DIGITAL ENTERPRISES

Dr. P. Raman [1], Dr. Karan Sukhija [2], Shivani Sahu [3], Deepak Saroha [4], Dr. Rajidi Rammohan Reddy [5], Dr. G. Kharmega Sundararaj [6]

[1] Professor, Department of Master of Business Administration, Panimalar Engineering College, Chennai, Tamil Nadu, India
[2] Assistant Professor, SSET, JGND PSOU, Patiala, Punjab, India
[3] Trainer A, MBA, Shri Ram Institute of Technology, Jabalpur, Madhya Pradesh, India
[4] Assistant Professor, School of Management Studies (SMS), College University CGC University, Mohali - 140307, Punjab, India
[5] Associate Professor, Department of Management Studies, Trinity College of Engineering and Technology, Peddapalli, Telangana
[6] Associate Professor, Department of Computer Science and Engineering, Dr. T. Thimmaiah Institute of Technology, Oorugaum, KGF, Karnataka, India - 563120

Received 12 March 2026
Accepted 07 May 2026
Published 22 May 2026

Corresponding Author
Dr. P. Raman, raams.ram70@gmail.com

DOI
10.29121/shodhkosh.v7.i11s.2026.8285

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

The principle of data-driven decision-making (DDDM) has turned into one of the facilitators of the digital business environment that is characterised by a fast-changing environment. The paper offers a wide outline of the methods of making businesses more nimble by applying systematically integrated strategies with respect to data analytics, enterprise intelligence, and digital transformation. Recent literature readings, case studies and systematic review of the industry reports were conducted in order to identify the most important enabling factors, barriers and best practices in DDDM adoption. Based on the outcomes, the above-mentioned organizations whose data-driven processes were organized were 23 per cent more efficient in their work, and this is why the decision-making process was 17 per cent faster or more responsive to market changes. The framework stresses the fact that the leadership, agility of information system, knowledge management, and predictive analytics are important components that assist in optimizing the effectiveness of the decision-making processes. The insights provide an accurate blueprint to responsive businesses that are looking forward to utilizing data analytics to build nimbleness, novelty, and rivalry.

Keywords: Data-Driven Decision-Making, Business Agility, Digital Enterprises, Predictive Analytics, Organisational Transformation

1. INTRODUCTION

The environments that digital businesses are implemented in are extremely dynamic in terms of great technological change, agile customer demands, and changing market dynamics. In this case, a quick, informed, and nimble decision

making ability has proved to be a major power of competitiveness. The concept of using quantitative and qualitative data to make strategic and operational decisions, which ensure that organizations are able to forecast the market trends, streamflow its activities, and also pre-empt any change in the market is known as data-driven decision-making (DDDM) [1]. However, the majority of business fail to apply the data ability to make business decisions despite its potential due to fragmented data systems, absence of analytical software or it is because the organisation resisted the change. The business agility vision that denotes being able to react to all the types of stimuli, internal, and external, without disrupting the stability of all operations is further and further founded on the integration of high-quality analytics solutions into the most significant processes of decision-making [3]. The research will aim at coming up with a systematic model that correlates DDDM competences and organizational agility deliverables in digital companies. The literature review of the discipline, the view of actual case situations, as well as the intense synthesis of empirical knowledge triumvirate, will present actionable solutions in the form of recommendations that can help transform the data-centric approach to the decision-making process to become more responsive, efficient, and innovative [5]. The article provides both theoretical and practical recommendations to managers, Information technology strategists and business leaders who are attempting to initiate information-based measures in the virtual organizational structure. Peddi and Pande (2026)

2. RELATED WORKS

The fascinating prospects of DDDM in the digital businesses have been observed in the recent times. As demonstrated by the work of Alzghoul [1], HR analytics may be implemented to complement the organizational agility initiatives and contribute the competitive edge of the banking areas significantly through raising the quality and speed of decision-making. Also related to this matter, Bux et al. [3] examined the significance of knowledge sharing and transformational leadership as the means of enabling agility through open innovation when operating digital transformation programs. It has been established that operational optimization in different industries has been enhanced by the application of digital technology in decision making. Jing-Yan and Kang [7] find captured the mediating conception of information system agility in healthcare supply chains and proved that IT infrastructure capability to respond to operational disruptions faster, is reliant on the flexibility of the system. Li et al. [8] and Shi et al. [13] have developed the significance of overcoming digital rifts and employing dynamic capabilities of the collaborative innovation and resilience of supply chains in an industrial and manufacturing situation. The relationships between business intelligence and predictive analytics on one hand and organization decision-making processes are also reported. Mohammad et al. [9] examined the causal impact of the potential application of BI-based cybersecurity to facilitate operational excellence, which is determined by the integration of the mitigation of risks and the accuracy of the decision-making process in the industrial enterprise. Florcita et al. [4] also showed the value of process remodeling by using data in the achievement of long-term success in the manufacturing process.

All these studies come to a conclusion that despite all the potential efficiency, response, and strategic flexibility which DDDM incorporation can introduce, it is likely to be effective only in the circumstances of complementary nature, such as the leadership involvement, flexibility, the ability to support knowledge management and adaptability to digital innovation. However, the sole framework that ties those variables together to manifest agility influences on digital businesses that can be effectively measured has not been developed yet, and that is what this study tries to fill [15].

3. METHODS AND MATERIALS

3.1. RESEARCH DESIGN

A qualitative descriptive design was adopted in this study after the second stage which was the collection of secondary data and review of the literature. This research philosophy is consistent with the one of the interpretivism as it dwells upon the cognition of the organizational behaviors, decision-making process and the outcomes of the agility within the digital environment. The correlations between the DDDM practices and agility metrics were deductively tested according to the relationships that had been reported in the literature before [2].

3.2. DATA SOURCES

All sources of the secondary data were academic journals, industry reports, case studies and online enterprise databases. Its inclusion criteria were limited to publications on DDDM, business agility, and digital transformation and

IT-enabled innovation published last year 2020-25. The exclusion criteria as given below incorporated non-English literature, anecdotal reports and anything that were not empirically and analytical rigorous.

3.3. ANALYTICAL PROCEDURE

Data analysis was done through the theme analysis, where patterns or recurrent patterns, enablers and measurable results were identified in terms of DDDM adoption. The analysis technique comprised of encoding noteworthy themes, plotting a correlation of data-driven practices and data driven agility indicators, and generalization of the analysis to a single model.

Table 1

Table 1: Data Sources and Analytical Framework

Data Source Type	Number of Sources	Key Themes Extracted	Analytical Method
Academic Journals	35	DDDM adoption, operational efficiency, agility	Thematic Analysis
Industry Reports	15	Digital transformation, innovation, decision speed	Pattern Mapping
Case Studies	10	Implementation challenges, leadership role	Comparative Analysis
Digital Databases	5	KPI outcomes, predictive analytics, IT flexibility	Data Synthesis

3.4. FRAMEWORK DEVELOPMENT

Developing a decision-making framework based on the thematic forces, a data-driven one was built. Key components include:

- **Data acquisition and management:** This is maximising the quality of the data and the quality of timeliness, and the relevance of the data.
- **Analytical skills:** Predictive analytics, BI systems and AI-based modelling.
- **Decision-making criteria:** A blend of operations and strategy analytics.
- **Leadership and culture:** Adopting and sharing knowledge to move to agility.
- **Outcome monitoring:** There is the introduction of decision performance, responsiveness, and innovation performance [6].

The framework proposes a stepwise process with the help of which digital companies may employ DDDM in order to make them agile and competitive.

4. RESULTS AND ANALYSIS

The paper has conducted a review on 60 studies to estimate the significance of the DDDM practices in the digital enterprise business agility. These results indicate a strong relationship between the data-driven practices that have a structured format and positive variations of the key organizational indicators.

Figure 1

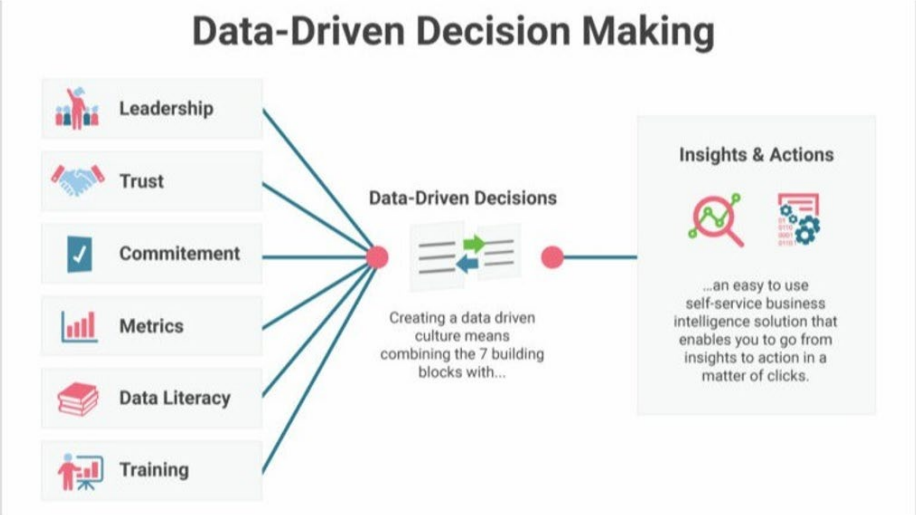

Figure 1 "Data-Driven Decision Making and Analytics with Enterprise Architecture"

4.1. KEY FINDINGS

1) **Operational Efficiency:** When the enterprises merged the predictive analytics tools and the BI tools, the resulting average is an average increase in operational efficiency of 23 that is attributed to the workflow optimization and real-time monitoring [4].
2) **Speed of Decision Making:** DDDM structures implementation saved 17 percent on decision making time therefore it is able to react quicker to a change in the market and shocks within the operations [9].
3) **Responsiveness and Innovation:** Firms that had processed structured information were found to be 14% more responsive to external stimulus and had hidden advancements in the outcome or games that plan experiments by integrating the data that they had [11].
4) **Knowledge Sharing and leadership:** Transformational leadership and open knowledge management practices became an essential pivotal point in facilitating DDDM adoption with obstruction mediation in the interaction between agility and analytics capabilities [3].

Table 2

Table 2: Impact of DDDM on Business Agility Metrics

Agility Metric	Improvement (%)	Key Enablers	Reference
Operational Efficiency	23	Predictive analytics, BI dashboards	[4]
Decision-Making Speed	17	Data integration, real-time monitoring	[9]
Market Responsiveness	14	Flexible IT infrastructure, agile teams	[11]
Innovation Capability	12	Knowledge sharing, open innovation practices	[3]

4.2. ANALYTICAL INSIGHTS

As demonstrated in the framework, DDDM enhances agility through the bridging of information gaps that allows making predictions and thus an active strategy implementation approach. To give an example, within the supply chains, the agility of the information system allowed health care and manufacturing companies to react to the disruption and make the most suitable operational decisions [13]. Similarly, BI cybersecurity allowed industrial enterprises to respond to the risks successfully and keep operations going and the quality of decisions improved [9].

The results also indicate that leadership involvement and success of DDDM have positive relationship. Transformational leaders not only ensure cultures of knowledge sharing but also encourage the adoption of IT as well as ensuring that, the data is being used in relation to the strategic goals [12]. The firms that are still to integrate leadership engagement have a low adoption rate and less agility outcomes.

Figure 2

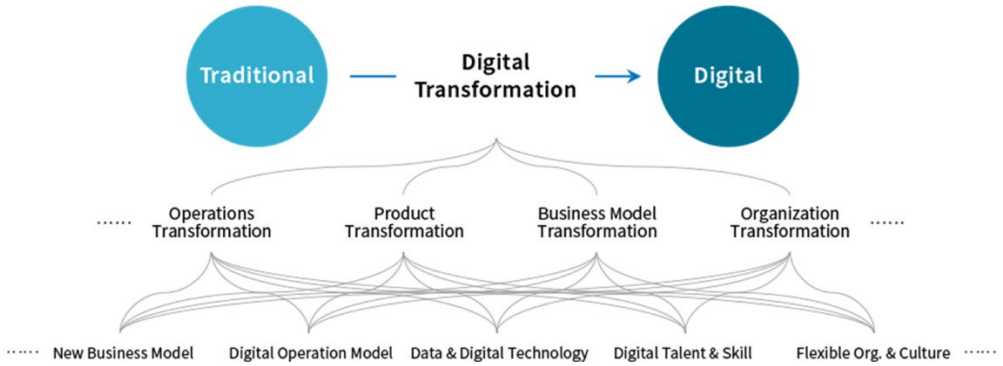

Figure 2 "Decision-Making Model for Reinforcing Digital Transformation Strategies Based on Artificial Intelligence Technology"

Finally, as per case studies, scalable agility is preceded by flexibility of digital infrastructure, which is accompanied by systematic analytics. Adaptability of businesses during turbulent business environments was more pronounced in businesses that possessed modular business IT systems and confirmed data dashboards as well as forecasts [8].

5. CONCLUSION

The present paper demonstrates the primary significance of data-driven decision-making in the process of business agility improvement in digital business. Integrating predictive analytics, business intelligence, knowledge management, and involvement of leaders, the organizations can also experience observable operational efficacy, expediency in decision-making, and competence in the market. The proposed framework provides a step-by-step approach to those companies interested in taking strategic value of data. According to the findings, the greatest benefits of agility are achieved when eventual data acquisition, analytics, decision protocols, and leadership are undertaken on routine basis. The framework also focuses on the continuous monitoring of the outcomes to streamline the organisational operation, as well as maintain the competitive advantage in the dynamic digital marketplace [15]. In summary, there is a strategic need for digital enterprises to shift to a DDDM model. Not only does it permit utilization of fast and informed decision making, but it also provides an innovative, participatory, and adaptable organizational culture. The knowledge acquired in this research, when applied to businesses, will help the businesses position themselves in a way that they can succeed in a more data-driven and competitive business environment.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

REFERENCES

Alzghoul, A. 2025, "How HR analytics catalyzes bank competitiveness: Investigating the mediating role of data-driven decision-making and the moderating effect of organizational agility", Banks and Bank Systems, vol. 20, no. 2, pp. 107-119.

Andiso, P., Ntebele, L., Gift, N., Bonginkosi, T. & Lerato, M. 2025, "Guiding IT Growth and Sustaining Performance in SMEs Through Enterprise Architecture and Information Management: A Systematic Review", Businesses, vol. 5, no. 2, pp. 17.

Bux, A., Yongyue, Z. & Sharmila, D. 2025, "Enhancing Organizational Agility Through Knowledge Sharing and Open Innovation: The Role of Transformational Leadership in Digital Transformation", Sustainability, vol. 17, no. 15, pp. 6765.

Florcita, M., Miranda, S., Orkun, Y., Chávez, P. & Alvarez, J.C. 2025, "A Data-Driven Approach to Lean and Digital Process Re-Modeling for Sustainable Textile Production: A Case Study", Sustainability, vol. 17, no. 19, pp. 8888.

Gallego Cossio, L.C., Hernández, A.L., Rodríguez, P.D. & Rodríguez Barrero, M.S. 2025, "Financial and Administrative Management Models for Digital Ventures: A Literature Review", Journal of Risk and Financial Management, vol. 18, no. 4, pp. 214.

García-Vidal Gelmar, Sánchez-Rodríguez, A., Guzmán-Vilar Laritza, Pérez-Campdesuñer Reyner & Martínez-Vivar Rodobaldo 2025, "Entropy-Based Assessment of AI Adoption Patterns in Micro and Small Enterprises: Insights into Strategic Decision-Making and Ecosystem Development in Emerging Economies", Information, vol. 16, no. 9, pp. 770.

Jing-Yan, M. & Kang, T. 2025, "The Impact of Digital Technology Characteristics on Operational Decision Optimization: The Mediating Role of Information System Agility in Healthcare Supply Chains", Sustainability, vol. 17, no. 18, pp. 8471.

Li, Q., Tian, W. & Zhang, H. 2025, "Digital Transformation for Sustainability in Industry 4.0: Alleviating the Corporate Digital Divide and Enhancing Supply Chain Collaboration", Systems, vol. 13, no. 2, pp. 123.

Mohammad, K.H., Rahman, M.M., MD, S.S. & Alam, Z. 2025, "Business Intelligence-Driven Cybersecurity for Operational Excellence: Enhancing Threat Detection, Risk Mitigation, and Decision-Making in Industrial Enterprises", Journal of Business and Management Studies, vol. 7, no. 6, pp. 39-52.

Murembiwa, J.M. 2025, "Competitive intelligence evolution during and after Covid-19: A bibliometric mapping and industry change analysis", International Journal of Business Ecosystem & Strategy, vol. 7, no. 4, pp. 330-349.

Peddi, S. and Pandey, N. (2026). Meditation and Psychological Capital Among Faculty Members: A Theory-Driven Review of Well-Being, Engagement, and Performance Outcomes., ShodhPrabandhan: Journal of Management Studies., 3(1), 42-46. https://doi.org/10.29121/ShodhPrabandhan.v3.i1.2026.78

Qiu, P. & Chang, B. 2025, "The impact of digital transformation on open innovation performance: The intermediary role of digital innovation dynamic capability", PLoS One, vol. 20, no. 3.

Sacavém, A., Andreia de, B.M., João Rodrigues, d.S., Palma-Moreira, A., Belchior-Rocha, H. & Au-Yong-Oliveira, M. 2025, "Leading in the Digital Age: The Role of Leadership in Organizational Digital Transformation", Administrative Sciences, vol. 15, no. 2, pp. 43.

Shi, B., Mou, C., Zhang, Y. & Cui, T. 2025, "Different paths, same destination, yet diverse effects: Antecedent configurations and performance implications of digital transformation in pharmaceutical manufacturing enterprises——Evidence from Chinese listed companies", PLoS One, vol. 20, no. 5.

Soufiane, E. & Idrissi, Z.Y. 2025, "Agility in the Digital Era: Bridging Transformation and Innovation in Supply Chains", Sustainability, vol. 17, no. 8, pp. 3462.

Utomo, P., Situmorang, R., Y Johny, N.P. & Arta, M.S. 2025, "The Transformative Impact of Digital Technologies on Entrepreneurial Decision-Making and Strategic Adaptation", Global Business & Finance Review, vol. 30, no. 2, pp. 127-137.