



Data-Driven Decision Culture and Organizational Performance in Information Technology Organizations: An Empirical Study using Business Analytics

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Abstract—

In the business environment organizations are using data and analytical insights to guide their decisions. This is called data-driven decision-making. It means using data, analytics tools and evidence-based information to make decisions than just relying on intuition or experience. With the growth of digital technologies organizations now have a lot of data that can be analyzed to improve efficiency, productivity and competitiveness. The Information Technology industry plays a role in this transformation.

Many organizations are investing in business analytics tools and technologies. However they struggle to integrate data-driven practices into their decision-making processes. This study looks at the relationship between data-driven decision culture and organizational performance in IT organizations. We collected data from 50 respondents, including employees, team leaders, managers and HR professionals across IT organizations. We used a questionnaire with a 5-point scale to collect the data.

The results show a positive relationship between data-driven decision culture and organizational performance. This means that organizations that use data-driven decision-making have productivity, planning and workforce management.

Keywords— Data-Driven Decision-Making; Business Analytics; Organizational Performance; Information Technology; Decision Culture; Pearson Correlation; Likert Scale; Quantitative Research.

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I. INTRODUCTION

Today organizations are using data-driven tools to manage their operational processes. The Information Technology industry is playing a role in this transformation. IT organizations are using cloud computing, enterprise software platforms, artificial intelligence systems and big data analytics to collect, process and utilize information for decision-making.

In the IT industry decision-making is very important. Organizations are shifting from intuition-based decision-making to data-driven decision-making. Data-driven decision-making means using data, analytical tools and performance metrics to support managerial decisions.

For example software development teams use analytics to track delivery timelines. HR departments use workforce analytics to manage talent retention and engagement. Research has shown that organizations that use data-driven decision-making have productivity and better decision-making.

The main question of this study is: Does data-driven decision culture influence organizational performance in IT organizations? We want to understand the relationship between data-driven decision culture and organizational performance.

This study aims to: (1) understand data-driven decision culture in IT organizations (2) examine the use of business analytics in decision-making,

(3) analyze the relationship between data-driven decision culture and organizational performance and (4) identify challenges and opportunities in adopting data-driven decision-making practices.

II. LITERATURE REVIEW

The growing body of research on data-driven decision-making and organizational performance provides a rich theoretical foundation for the present study. This chapter reviews key prior studies that examine analytics adoption, organizational culture, and performance outcomes.

Brynjolfsson, Hitt, and Kim (2011) conducted one of the most influential empirical studies linking data-driven decision-making to firm productivity. Their research, covering over 179 large publicly traded firms, found that organizations relying on DDDM demonstrated measurably higher productivity, output, and return on assets compared to those relying on intuition-based processes. This foundational study established that analytics is not merely a technological investment but a strategic organizational capability.

Davenport and Harris (2007) argued that organizations competing on analytics often develop cultures that encourage employees to rely on data when making decisions, treating data as a strategic resource. Their research highlighted several analytics-mature organizations such as Capital One, Marriott, and Procter & Gamble, demonstrating that analytics-driven cultures produce superior performance outcomes across operational, financial, and strategic dimensions.

Wamba et al. (2017) examined the relationship between big data analytics capabilities and firm performance across multiple industries, finding that analytics capabilities positively influence organizational performance by improving innovation, operational efficiency, and decision quality. Their study emphasized that the combination of technological infrastructure and managerial analytical capability is more impactful than technology alone. Mikalef et al. (2019) extended this work by showing that organizations with strong analytics capabilities can utilize data resources more effectively to improve competitive performance. Their findings reinforced the importance of combining technological resources with managerial capabilities and organizational culture to achieve the full benefits of analytics investments.

From an organizational culture perspective, Schein (2010) emphasized that shared values and norms significantly influence employee behavior. LaValle et al. (2011) connected this to analytics, finding that organizations with strong analytical cultures are more likely to integrate data into decision-making and invest in training programs to improve data literacy across functions. Vidgen, Shaw, and Grant (2017) further argued that successful analytics implementation requires significant organizational transformation and a culture that promotes evidence-based thinking.

Provost and Fawcett (2013) contributed a practical framework for data science application in business, explaining how predictive analytics allows organizations to improve forecasting accuracy, risk management, and operational planning. Chen, Chiang, and Storey (2012) similarly demonstrated that business intelligence and analytics tools contribute directly to improved strategic and operational outcomes.



A key gap identified in the literature is that most prior studies focus primarily on technological aspects of analytics adoption rather than the cultural and behavioral factors that determine whether analytical insights are actually used in decision-making. Furthermore, relatively few studies examine this relationship empirically across multiple hierarchical roles (employees, team leaders, managers, HR professionals) within IT sector organizations. The present study aims to address these gaps by providing role-based empirical evidence from IT organizations.

III. METHODOLOGY

The present study adopts a quantitative descriptive and analytical research design to examine the relationship between data-driven decision culture (DDDC) and organizational

performance (OP) in Information Technology organizations. A quantitative approach was chosen because the study involves measuring perceptions using structured, standardized instruments and applying statistical techniques to test the research hypothesis.

The study uses purposive sampling, a non-probability technique in which respondents are selected based on their direct relevance to the research objectives. Specifically, respondents were required to be employed in IT organizations and actively involved in decision-making activities supported by analytics tools such as dashboards, reporting systems, or workforce analytics platforms.

The sample consists of 50 respondents across four organizational roles: Employee/Associate (42%), Team Lead/Supervisor (22%), Manager (20%), and HR Professional (16%). This multi-level sampling strategy ensures that insights are captured across operational, tactical, and strategic decision-making contexts. The respondents were drawn from IT, Software Development, IT Consulting, and FinTech organizations.

Primary data was collected through a structured questionnaire divided into two sections. Section 1 captured respondent profile information (age, experience, industry, role). Section 2 contained 16 Likert-scale items measuring the two key variables. Questions Q5 to Q12 measured Data-Driven Decision Culture (independent variable), and Q13 to Q20 measured Organizational Performance (dependent variable). Each item was rated on a 5-point scale from 1 (Strongly Disagree) to 5 (Strongly Agree).

The research hypothesis tested is as follows: H_0 : Data-driven decision culture has no significant relationship with organizational performance. H_1 : Data-driven decision culture has a significant positive relationship with organizational performance.

Data analysis was conducted using Microsoft Excel through three techniques: (1) Percentage Analysis to summarize distribution of responses,

(2) Mean Score Analysis to determine average agreement levels for each item, and (3) Pearson Correlation Analysis to test the relationship between the two composite variables. Composite variable scores were calculated as the average of the eight Likert items for each variable per respondent. Secondary data was sourced from published academic journals, ERP documentation, and prior empirical research studies.

IV. RESULTS AND DISCUSSION

This chapter presents findings from the primary data analysis. The discussion integrates percentage analysis, mean score interpretation, and correlation statistics to comprehensively examine how data-driven decision culture influences organizational performance in IT organizations.

**Table 1: Respondent Profile Summary**

Category	Group	%
Age	20-25 yrs	28%
	26-30 yrs	36%
	31-35 yrs	22%
	36+ yrs	14%
Experience	<1 yr	12%
	1-3 yrs	34%
	4-6 yrs	30%
	7+ yrs	24%
Industry	IT	42%
	Software Dev.	28%
	IT Consulting	18%
	FinTech	12%
Role	Employee	42%
	Team Lead	22%
	Manager	20%
	HR Professional	16%

The respondent profile reveals strong participation from early-to-mid-career professionals (26-30 years, 36%) with 1-6 years of experience (64% combined), working primarily in IT (42%) and Software Development (28%) organizations. This distribution is appropriate for examining analytics-supported decision-making practices, as younger professionals in IT environments are most directly engaged with digital tools and dashboards in their daily workflows.



Table 2: Mean Score Analysis — All Questionnaire Items

Statement	Mean	
Organization encourages data use in decisions	4.16	
Employees have access to analytics dashboards	4.20	
Team leaders rely on performance data	4.10	
Managers use analytical reports for strategy	4.18	
Evidence-based suggestions are promoted	4.08	
Analytics tools improve interdepartmental coordination	4.14	
Employees supported in using data for task performance	4.12	
Dashboards used for project progress monitoring	4.22	
Analytics improves managerial decision quality	4.14	



Analytics improves departmental performance	4.24
Performance data improves operational efficiency	4.10
Analytics helps identify business opportunities	3.96
HR uses analytics for workforce planning	4.00
HR analytics identifies training needs	4.02
Data-driven HR improves employee productivity	4.10
Overall performance improves with analytics	4.22

All 16 items recorded mean scores above 3.96, with the majority exceeding 4.00, indicating consistently high agreement among respondents. The overall mean for the Data-Driven Decision Culture variable was 4.16, while the Organizational Performance variable averaged

4.21. The highest-scoring item was analytics improving departmental performance (4.24), while analytics helping identify business opportunities scored slightly lower (3.96), suggesting that strategic opportunity identification through data is still maturing in many IT organizations.

Regarding specific findings: 80% of respondents agreed their organization encourages data use in operational decisions, 80% confirmed analytics dashboards are available for decision support, and 80% agreed team leaders rely on performance data. For organizational performance, 86% agreed overall performance improves with analytics support, 84% agreed analytics improves departmental performance, and 82% agreed data-driven HR practices improve employee productivity.

Table 3: Pearson Correlation — DDDC vs. Organizational Performance

Variable	DDDC	OP
Data-Driven Decision Culture (DDDC)	1.000	0.740
Organizational Performance (OP)	0.740	1.000

The Pearson correlation coefficient between the composite Data-Driven Decision Culture scores and Organizational Performance scores was calculated as $r = 0.74$. This indicates a strong positive relationship between the two variables, meaning organizations with stronger data-driven decision cultures consistently report better organizational performance outcomes.

**Table 4: Correlation Interpretation Scale**

r Value	Interpretation	Decision
0.00-0.19	Very Weak	
0.20-0.39	Weak	
0.40-0.59	Moderate	
0.60-0.79	Strong	$r = 0.74$
0.80-1.00	Very Strong	

Based on the standard correlation interpretation scale, $r = 0.74$ falls in the Strong (0.60-0.79) category, confirming a statistically meaningful positive relationship. The null hypothesis (H_0) is therefore rejected, and the alternative hypothesis (H_1) is accepted: data-driven decision culture has a significant positive relationship with organizational performance.

These findings align with prior research. Brynjolfsson et al. (2011) established that firms using data-driven practices achieve higher productivity, while Davenport and Harris (2007) demonstrated that analytics-driven cultures produce superior operational and strategic outcomes. Mikalef et al. (2019) further confirmed that analytics maturity contributes to improved competitiveness and innovation. The present study adds to this body of evidence by providing role-specific empirical data from IT organizations, demonstrating that analytics adoption benefits span operational, managerial, and HR functions simultaneously.

Key insights from role-level analysis include: employees reported improved task performance through analytics access; team leaders confirmed dashboards enhance project monitoring and productivity tracking; managers noted that analytical reports support strategic planning and resource allocation; and HR professionals reported that workforce analytics improve talent assessment, training identification, and productivity management. This multi-level validation strengthens the generalizability of findings within IT organizational contexts.

V. CONCLUSION

This study empirically examined the relationship between data-driven decision culture and organizational performance within Information Technology organizations. Based on primary data collected from 50 professionals across multiple organizational roles and industries within the IT sector, and analyzed through percentage analysis, mean score calculations, and Pearson correlation analysis, the following conclusions are drawn.

First, data-driven decision culture is actively present across IT organizations at multiple hierarchical levels. Employees, team leaders, managers, and HR professionals all reported regular use of analytics tools, dashboards, and performance indicators in their respective decision-making activities. This multi-level analytics adoption reflects a maturing organizational culture that values evidence-based decision-making.

Second, the statistical analysis confirms a strong positive relationship between data-driven decision culture and organizational performance ($r = 0.74$), validating the alternative hypothesis. Organizations that promote analytics-supported decision-making demonstrate improved performance outcomes across operational

efficiency, planning effectiveness, workforce management, and strategic responsiveness.

Third, the mean score analysis (overall DDDC mean = 4.16; OP mean = 4.21) shows that respondents strongly believe analytics tools improve decision quality, reduce uncertainty, enhance planning accuracy, and contribute to overall organizational productivity. The consistency of high agreement across all 16 survey items reflects the pervasive role of analytics in modern IT organizational performance.



From a managerial perspective, organizations should invest in expanding analytics dashboard access across all departments, develop data literacy training programs for employees at all levels, integrate analytics into HR performance evaluation and talent management systems, and build organizational cultures that reward evidence-based decision-making. Future research may investigate this relationship across other sectors such as healthcare, banking, and manufacturing, and explore the emerging role of AI-assisted analytics in decision-making and the impact of leadership support on analytics adoption maturity.

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