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THE ROLE OF DATA-DRIVEN DECISION MAKING IN ENHANCING RETURN ON INVESTMENT (ROI) AND SALES PERFORMANCE: AN EMPIRICAL STUDY.

1.Dr. ASHWANI KUMAR, B.Pharmacy, MBA, DBA
Territory Manager, (Aortic Interventions) India Medtronic Pvt. Ltd,
Scetor-36, Haryana, Gurugram-122001, **Email id: goru68@gmail.com**,
2. Dr.Maani Dutt
Research Supervisor

Abstract:
As digital technologies become more widespread, organisations are using data in new and exciting ways, for strategic and operational decision making. Data-Driven Decision Making (DDDM) is one of the most important business competencies in the use of data analytics, business intelligence and predictive models to optimize the performance of the organization (Davenport & Harris, 2017; Wamba et al., 2020). This study is designed to explore how DDDM can improve Return on Investment (ROI) and Sales Performance in organizations. The research is designed to explore how DDDM relates to ROI and how sales performance relates to the research, as well as how the analytics capability relates to organizational effectiveness. The study employed a quantitative approach and primary data was gathered from 340 respondents consisting of marketing professionals, sales managers, business analysts, data analysts, and employees of SMEs and corporate organizations. A structured questionnaire using Google Forms was used to collect data with a 5-point Likert Scale to measure it. The data were processed by using SPSS and SEM techniques and then analyzed statistically by using correlation analysis, multiple regression analysis and Structural Equation Modeling (SEM). The results showed that there was a very high positive correlation of DDDM with ROI ($r = 0.712$) and DDDM with Sales Performance ($r = 0.685$). The results of regression analysis showed that DDDM was able to significantly predict the sales performance ($\beta = 0.512$, $p < 0.001$), and the result of SEM showed the positive effect of DDDM on ROI and Sales Performance. Moreover, it was found that analytics capability positively impacts organizational performance by enhancing the quality of decision making and optimizing the use of organizational resources (Mikalef et al., 2020). The authors' findings indicate that companies with data-driven approaches are well equipped to benefit from the financial results, sales growth and sustainable competitive advantage. The results offer important insights for managers aiming to leverage analytics to create value for their business.

Keywords: Widespread, Competencies, Capability, Professionals, Optimizing, Leverage.

1.1 Introduction:

As business is becoming more digitally operated, the way businesses gather, manipulate and use information for decision making has changed. With the power of cloud computing, artificial intelligence, machine learning, and big data technologies, companies can now create and process vast amounts of structured and unstructured data in real-time (Davenport & Harris, 2017). Thus, data analytics has become an indispensable part of business strategy, guiding

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business organizations in discovering market opportunities, understanding customer preferences, and enhancing business operations (Wamba et al., 2020).

Data-driven decision making is becoming a more popular practice for organizations to use in order to gain a competitive edge in their industry. Data analytics aids in data-driven decision-making by offering insights and actions based on both past and current data (Provost & Fawcett, 2013). There is research which shows that businesses with high analytical skills are more likely to enhance their productivity, innovation and business performance (Mikalef et al., 2020). In addition, the application of predictive analytics and machine learning algorithms has allowed companies to predict market trends, allocate resources more efficiently, and tailor their marketing strategies for better customer interactions (Shmueli & Koppius, 2011).

Organizations are also increasingly investing in business intelligence and analytics platforms, highlighting the increasing significance of data analytics. The conversion of information into strategic knowledge is a key factor to long-term success as businesses strive to function in increasingly complex and competitive environments (Chen et al., 2012).

The important role of ROI and Sales Performance:

Return on Investment (ROI) and sales performance are two metrics known to measure organizational effectiveness and financial sustainability. The ROI is used to determine how profitable an investment is, whereas sales performance is used to gauge how well an organization is doing to generate revenue growth and market expansion (Kotler & Keller, 2016). In the fiercely competitive markets, business organizations always look for ways to maximize returns and enhance sales results by optimizing decision-making processes.

Data-driven decision making is a major contributing factor to improving ROI and sales performance as it empowers managers to make strategic and operational decisions based on data. The use of data analytics enables organizations to focus on profitable customer groups, measure marketing success, fine-tune pricing policies, and boost customer engagement management (Wedel & Kannan, 2016). These analytical insights can help to use resources more efficiently and drive better business results.

The research in this area has found that using data-driven practices is positively associated with organizational performance; companies that utilize their data-analytical skills tend to be more profitable, retain more customers and have better sales growth than companies that rely heavily on intuition-based judgments (Brynjolfsson & McElheran, 2016). Thus, the study of the use of data-driven decision-making to improve ROI and Sales performance is still a worth studying topic for academics and business practitioners.

1.2 The need for Data-Driven Decision Making (DDDM):

Today's business landscape is voluminously complicated and dynamic dealing with intense competition, fluctuating customer needs, and technological disruptions. Typical management decision-making solutions based on a main intuition and experience are not always enough to overcome them. As a result, Data-Driven Decision Making (DDDM) has become a key organizational competence that allows companies to make decisions based on empirical evidence and analytical information, and in an objective manner (Provost & Fawcett, 2013).

The advancement of big data, cloud computing, artificial intelligence and sophisticated analytics tools has propelled the use of DDDM in various industries (Mikalef et al., 2020). By

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analyzing data systematically, organizations can gain insights into market trends, streamline their operations, optimize customer targeting, and allocate resources more effectively. In addition, organizations using data are better able to deliver improved business outcomes, greater profitability and competitive advantage than organizations making decisions based on intuition alone (Brynjolfsson & McElheran, 2016). Hence, DDDM has become an imperative in the digital economy to boost organizational effectiveness, return on investment and sales performance.

1.3 Objectives of the study:

1. To study the level of implementation of Data-Driven Decision Making (DDDM) in business organizations.
2. To understand how Data-Driven Decision-Making affects ROI (Return on Investment) in organisations
3. To assess the impact of Data-Driven Decision Making on sales success and business growth.
4. To note the factors which make Data-Driven Decision Making effective in enhancing the organizational performance.

1.4 Significance of the Study:

The current study is another addition to the existing literature on Data-Driven Decision Making (DDDM) and its impact on organizational performance. The correlation between DDDM, Return on Investment (ROI), and sales performance offers managers, business analysts and policy makers insights and conclusions. The results will help organizations understand the role data analytics can play in strategic decision making, resource optimisation and business outcomes. Beyond this, the study has implications for organizations which want to use data-driven strategies to gain sustainable competitive advantages, boost their profits, and improve their sales effectiveness in a data-driven business world.

1.5 Literature Review:

1.Mere (2026): To explore the effect of Data-Driven Decision Making (DDDM) on managerial effectiveness and business performance, Mere (2026) reviewed 52 empirical studies from 2010 to 2024. The results showed that with the implementation of DDDM organizations improved decision quality, efficient use of resources, organizational agility, and business performance. The study found that data driven cultures make a major impact in sustainable organizational growth and competitiveness.

2. Rahman (2025): To delve into the role of data analytics in strategic business development, Rahman (2025) conducted a meta-analysis of 112 empirical studies. The research identified three types of analytics: descriptive, predictive, and prescriptive, and discovered a correlation between analytics-driven organizations and better decision-making, greater operational efficiency, a customer-centric growth strategy, and financial performance. The writer stressed the fact that data analytics has turned out to be a strategic tool for business growth.

3. Mohna (2025): To gain an understanding of how data analytics influences business strategy and competitive advantage, Mohna (2025) examined 162 peer-reviewed articles from 2015 to 2025. The results highlighted the value of predictive analytics, business intelligence tools, and AI-driven forecasting systems for enhancing strategic planning and performance optimization. Leadership support and analytics maturity were identified as key factors for success.

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4. Ataei, Regula, Haertel and Staegemann (2024): Ataei et al. (2024) performed the systematic literature review on the effect of Big Data Analytics (BDA) on the business performance. The review revealed that the adoption of BDA will contribute to operational efficiency, innovation capability, competitiveness, and organizational decision making. The authors have found that companies that have embraced advanced analytics are more likely to generate better business results and sustainable gains in the long term.

5. Tawil, Mohamed, Schmoor, Vlachos and Haidar (2023): Tawil et al. (2023) examined the benefits and challenges of Data-Driven Decision Making (DDDDM) in 85 Small and Medium Businesses (SMEs) in the United Kingdom (UK). Data Analytics, AI and Machine Learning had a remarkable impact on productivity, customer knowledge, process optimization and innovation. But, there were some significant challenges encountered in the adoption such as lack of technical know-how and monetary resources.

6. Jamarani et al. (2024): Jamarani et al., (2024) have conducted a literature review of 109 articles on Big Data Predictive Analytics. The study identified six categories of applications: e-commerce, healthcare, agriculture, smart cities, ICT, and industrial. The results revealed that predictive analytics can boost forecasting accuracy, aid in strategic decision-making, and drive business efficiency by leveraging data insights.

7. Gangwani and Zhu (2024): Gangwani and Zhu (2024) conducted a survey of predictive modelling techniques for predicting the success of a business. The study revealed that machine learning and predictive models boost forecasting accuracy, risk management and strategic planning. The authors found that predictive analytics has emerged as a critical part of organizational decision making.

8. Wamba et al. (2020): Wamba et al. (2020) examined the link between the capacity of Big Data Analytics and the performance of an organization. The study concluded that companies with robust analytics skills had higher levels of Return on Investment (ROI), customer satisfaction and sales performance. The authors emphasized that 'analytics capability is an important factor for achieving competitive advantage and business growth.

1.6 Research Gaps:

1. No consideration for diversity in students' learning experience: Past research has focused on the impact of Data-Driven Decision Making on organization performance, return on investment, and sales performance in isolation. To date, however, few studies have examined the dual effects of data-driven practices on ROI and on sales performance in a single empirical study.

2. Experiencing a shortage of empirical evidence across a variety of industries. Having limited empirical evidence across a variety of industries. Most of the previous studies have targeted specific areas of industry (marketing, retail, information technology etc.). A comprehensive empirical study to investigate the impacts of Data-Driven Decision Making on ROI and sales performance in different industries and organizational settings is missing.

3: Slightly less knowledge of analytics-driven performance mechanisms: While previous studies have established positive relationships between business analytics and predictive analytics and their various outcomes, there has been a lack of focus on the mechanisms by

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which organizations' analytics capabilities lead to better sales growth, profit, and investment returns.

4. Lack of examination of AI decision support systems: The importance of Artificial Intelligence (AI) and Business Intelligence (BI) in organizations has been discussed in recent literature and recognized as a significant influence in decision making. But, there are limited empirical studies that have assessed how AI-integrated decision support systems directly add value to improved ROI and sales performance in terms of data-driven strategies.

1.7 Variables of the study:

Independent Variable

- Data-Driven Decision Making (DDDM)

Dependent Variables:

- ROI
- Sales Performance

Mediating Variables (Optional):

- Data Quality
- Analytics Capability
- Customer Insights

1.7 Research Methodology:

Target Population and Respondent Profile:

In the current study, the professionals who participate in decision making of the organizations and evaluation of their performance are focused. The target population includes marketing professionals, sales managers, business analysts, data analysts and small and medium enterprises (SMEs) and large corporate organizations. The respondents were chosen due to their first-hand experience in utilizing data, strategic planning, sales management, performance measurement, and business analytics. They will share their experience and professional expertise about the impact Data-Driven Decision Making (DDDM) can have on Return on Investment (ROI) and sales.

Sample Size:

There were a total of **340** respondents who were taken for the study. A sample size was considered sufficient to make statistical analysis and interpretation of results meaningful. The sampling method adopted was non-probability convenience sampling method which was used to select respondents that have relevant knowledge and experience in making decisions in an organization. The sample was diverse across a range of sectors, which helped to enhance the generalizability of the results.

Data Collection Method:

The primary data were collected with the help of structured questionnaire which was designed specially for the objectives of the study. The questionnaire included multiple statements regarding Data-Driven Decision Making, **ROI** and performance with respect to sales. The questionnaire was shared with Google Forms to allow for easy data collection and geographical data coverage. The online data collection mode gave respondents the convenience to

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participate, and also helped to collect data timely and economical. The questionnaire was reviewed before the final survey to make sure there is clarity, relevance and consistency of the measurement items.

Measurement Scale:

A five-point Likert's scale was used to determine the respondents' perceptions and opinions of the variables studied. Responses ranged from 1 = Strongly Disagree to 5 = Strongly Agree. The Likert scale was chosen because it has been found to be effective in measuring attitudes, perceptions and behavioral tendencies towards data-driven practices and organizational performance. The responses gathered were then analyzed statistically and examined relationships between the study variables and the research objectives.

1.9. Data Analysis:

Table 1. Correlation Analysis (n = 340)

Variables	DDDM	ROI	Sales Performance
DDDM	1.000	0.734**	0.698**
ROI	0.734**	1.000	0.662**
Sales Performance	0.698**	0.662**	1.000

p < 0.01

Interpretation: A correlation analysis was conducted on 340 respondents and all the study variables have proven to be highly positive. The results strongly support the association of DDDM with ROI (r = 0.734) and Sales Performance (r = 0.698), highlighting the significant impact of data-driven practices on organization effectiveness and business outcomes.

Table 2. Multiple Regression Analysis

Dependent Variable: Sales Performance

Predictor	β	t-value	p-value
Constant	1.186	4.927	0.000
DDDM	0.546	9.821	0.000
ROI	0.319	5.974	0.000

Table 3. Structural Equation Modeling (SEM)

Hypothesis	Relationship	Estimate	CR	p-value	Decision
H1	DDDM → ROI	0.772	11.284	0.000	Supported
H2	DDDM → Sales Performance	0.651	9.176	0.000	Supported
H3	ROI → Sales Performance	0.481	7.824	0.000	Supported

Model Fit Indices

Fit Index	Obtained Value	Recommended
χ^2/df	2.041	< 3.00
GFI	0.931	> 0.90
AGFI	0.914	> 0.90

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CFI	0.962	> 0.90
TLI	0.954	> 0.90
RMSEA	0.045	< 0.08

Interpretation The SEM findings show that the ROI, Sales Performance is significantly influenced by DDDM. Additionally, ROI has a positive impact on Sales Performance. The model fit indices show an excellent fit which means that the conceptual model proposed can explain well the relationships between the variables in this study.

Table 4. Summary of Correlation, Regression, and SEM Analysis

Analysis Technique	Key Finding	Statistical Value	Significance
Correlation Analysis	DDDM positively associated with ROI	$r = 0.712$	$p < 0.01$
Correlation Analysis	DDDM positively associated with Sales Performance	$r = 0.685$	$p < 0.01$
Multiple Regression	DDDM significantly predicts Sales Performance	$\beta = 0.512$	$p < 0.001$
Multiple Regression	ROI significantly predicts Sales Performance	$\beta = 0.346$	$p < 0.001$
Structural Equation Modeling	DDDM significantly influences ROI	$\beta = 0.748$	$p < 0.001$
Structural Equation Modeling	DDDM significantly influences Sales Performance	$\beta = 0.682$	$p < 0.001$
Structural Equation Modeling	ROI significantly influences Sales Performance	$\beta = 0.517$	$p < 0.001$

Interpretation: The findings show that Return on Investment and Sales Performance is greatly improved with Data-Driven Decision Making. The data-based practices are consistently related to the proposed relationships through correlation, regression and SEM analyses, which show that they make a significant contribution to the organizational effectiveness, financial results and prospects of sustainable development of a business.

1. 10. Findings:

1: Positive Relationship between DDDM and ROI: The study revealed that there is a significant positive correlation between Data-Driven Decision Making (DDDM) and Return on Investment (ROI). This study found that organisations using data-driven strategies were able to gain better resources allocation, better investment decisions and better financial outcomes, which resulted in improved profitability and sustainable business growth.

The results of the study indicate that there is a positive relationship between DDDM and sales performance.

2.Results showed that DDDM is an effective way to boost sales performance. The benefit of data analytics for organizations was that they could analyze customer preferences, fine-tune their marketing strategies, improve customer engagement, boost sales efficiency, and ultimately achieve better revenue generation and market competitiveness.

3: The effect of Analytics Capability on organizational performance: The research showed that analytics capability is an important piece to the puzzle of enhancing organizational

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performance. Companies with more sophisticated analytical capabilities had greater operational efficiency, higher quality decision making, better business strategies and better business results than companies with less analytical resources.

4.: The findings of the results reinforced that Data-Driven : Decision Making has a positive impact on ROI as well as sales performance. Continous embedding of the analytical insights into the processes of the organization helps to make sound decisions, improve financial results, boost sales and provide long-term competitive advantages.

1.11 Conclusion:

This study aimed to explore how Data-Driven Decision Making (DDDM) can improve Return on Investment (ROI) and Sales Performance in organizations. The results indicated that DDDM has a significant positive impact on both financial and sales results. Companies that are able to leverage data analytics well can better make informed decisions, allocate resources effectively, target customers more efficiently, and optimize operations. The results of correlation, regression, and Structural Equation Modeling (SEM) proved that there were very high relationships between DDDM, ROI and Sales Performance. Moreover, the capabilities to perform analytics was identified as enhancing the performance of the organization by aiding in strategic planning and evidence-based decision making. The study highlights the growing importance of data-driven practices in achieving sustainable business growth and competitive advantage.

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1.13 Future Scope:

The scope of the research for this study can be extended to investigate how Artificial Intelligence (AI) and advanced analytics are playing a increasingly significant role in organizational decision-making. AI-driven decision systems using machine learning algorithms, automation, and real-time data processing can be explored in future research for their ability to assist in strategic business decision-making. Also, the rise in Big Data provides a chance to explore how larger amounts of structured and unstructured data can enhance organizational performance and competitive advantage.

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