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Impact of Generative AI on Business Decision-Making

1. Dr. S. Bharathi,

Head & Professor, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

2. S.S. Sudharsana

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

3. M. Laksha Bai

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

4. M. Naveen prabhu

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

5. M. Gowri

PG Student, School of Management, Dhanalakshmi Srinivasan University, Tiruchirappalli.

Abstract

Generative Artificial Intelligence (Generative AI) has emerged as a transformative technology that significantly influences modern business operations and managerial decision-making. AI-driven technologies such as ChatGPT, Gemini, Claude, and AI-powered analytics systems are increasingly adopted across industries including healthcare, finance, education, marketing, retail, and human resource management. These technologies enable organizations to automate complex tasks, generate predictive insights, enhance operational efficiency, and improve strategic planning.

The present study examines the impact of Generative AI on business decision-making processes and organizational performance. The study adopts a descriptive and analytical research design using both primary and secondary data sources. Primary data were collected through structured questionnaires distributed among MBA students, professionals, and employees from various sectors. Secondary data were obtained from journals, books, research articles, and business reports.

The findings reveal that Generative AI significantly improves decision-making speed, predictive analytics, customer intelligence, business productivity, and strategic planning capabilities. Correlation and regression analyses indicate a strong positive relationship between AI adoption and decision-making effectiveness. The study also identifies major challenges associated with AI implementation, including ethical concerns, data privacy risks, algorithmic bias, cybersecurity threats, and excessive dependence on automated systems.

The study concludes that Generative AI is becoming an essential component of modern business management and decision science. Organizations that effectively integrate AI technologies with human expertise and ethical governance mechanisms are more likely to achieve sustainable growth, innovation, and competitive advantage.

Keywords - Generative AI, Business Decision-Making, Artificial Intelligence, Predictive Analytics, Business Intelligence, Automation, Strategic Management

1. Introduction

Artificial Intelligence (AI) has become one of the most influential technological innovations shaping the contemporary business environment. Among various AI technologies, Generative Artificial Intelligence has gained substantial attention due to its capability to generate text, reports, recommendations, codes, images, and predictive business insights with minimal human intervention. Generative AI refers to advanced machine learning systems capable of producing new content and analytical outputs using large volumes of structured and unstructured data.

The increasing adoption of Generative AI technologies has significantly transformed traditional business decision-making processes. Earlier decision-making models primarily depended on managerial experience, historical

analysis, and manual interpretation of business information. However, modern organizations increasingly rely on AI-powered systems to support data-driven, accurate, and real-time decision-making.

Businesses operate in highly competitive and rapidly changing environments where timely and strategic decisions are essential for organizational survival and growth. Generative AI technologies assist managers in identifying market trends, understanding consumer behavior, forecasting risks, improving operational efficiency, and developing strategic recommendations.

AI-driven tools such as ChatGPT, Microsoft Copilot, Gemini, and Jasper AI are now widely used for business reporting, communication automation, customer engagement, and managerial assistance. These systems reduce manual workload and improve operational productivity.

Despite the benefits associated with Generative AI adoption, several challenges remain significant. Ethical concerns, misinformation, algorithmic bias, cybersecurity threats, privacy issues, and overdependence on AI systems continue to influence organizational adoption strategies. Therefore, understanding the impact of Generative AI on business decision-making is essential for researchers, organizations, educators, and policymakers.

The present study aims to examine the role of Generative AI in enhancing business decisionmaking and organizational effectiveness.

2. Review of Literature

Existing literature demonstrates that Artificial Intelligence plays a critical role in transforming organizational management, operational efficiency, and strategic decision-making.

Thomas H. Davenport and Rajeev Ronanki (2018) emphasized that organizations adopting AI technologies experience improvements in operational efficiency, productivity, and customer satisfaction. Their study highlighted the practical applications of AI in business environments.

Erik Brynjolfsson and Andrew McAfee (2017) argued that digital technologies and AI significantly enhance organizational competitiveness and productivity. The authors explained that AI-driven automation improves organizational performance and innovation capabilities.

Ming-Hui Huang and Roland T. Rust (2021) found that AI-powered systems improve customer engagement, personalization, and service efficiency. AI technologies enable businesses to understand consumer preferences and enhance customer relationship management.

Yogesh K. Dwivedi et al. (2023) examined the growing influence of Generative AI in organizational transformation and innovation management. Their findings suggested that Generative AI supports strategic business growth and real-time analytical capabilities.

Mohammad Hossein Jarrahi (2018) highlighted the importance of collaboration between human intelligence and AI systems. The study argued that AI technologies should complement rather than replace human judgment in managerial decision-making.

Although previous studies emphasized the advantages of AI adoption, researchers also identified challenges including privacy risks, ethical issues, algorithmic bias, and cybersecurity concerns. Therefore, there remains a need for additional research focusing on balanced and responsible AI integration within business environments.

3. Conceptual Framework

The conceptual framework of the study explains the relationship between Generative AI adoption and business decision-making effectiveness.

3.1 Independent Variables

- AI-Based Data Analysis
- Automation Efficiency
- Predictive Analytics

- Customer Intelligence
- Real-Time Information Processing

3.2 Dependent Variables

- Decision-Making Accuracy
- Strategic Planning
- Business Productivity
- Innovation and Competitiveness
- Organizational Performance

3.3 Moderating Variables

- Human Expertise
- Ethical Governance
- Data Privacy Policies
- Organizational Readiness

The framework proposes that effective implementation of Generative AI positively influences organizational decision-making and business performance.

4. Research Methodology

4.1 Research Design

The study adopts a descriptive and analytical research design to examine the impact of Generative AI on business decision-making.

4.2 Objectives of the Study

1. To examine the impact of Generative AI on business decision-making.
2. To analyze the role of AI in improving organizational efficiency and strategic planning.
3. To identify challenges associated with AI adoption in business environments.
4. To understand perceptions regarding AI-driven business systems.

4.3 Hypotheses

Null Hypothesis (H_0)

Generative AI does not significantly influence business decision-making.

Alternative Hypothesis (H_1)

Generative AI significantly improves business decision-making efficiency and accuracy.

4.4 Sample Size and Sampling Technique

The study included 120 respondents consisting of MBA students, business professionals, and employees from different sectors. Convenience sampling technique was adopted for selecting respondents.

4.5 Data Collection

Both primary and secondary data sources were used.

Primary Data

Primary data were collected through structured questionnaires.

Secondary Data

Secondary data were collected from:

- Journals
- Books
- Research articles
- Websites
- Business reports

4.6 Research Instrument

A structured questionnaire based on a 5-point Likert Scale was used for data collection.

Scale:

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree

4.7 Statistical Tools Used

- Percentage Analysis
- Mean and Standard Deviation
- Correlation Analysis
- Regression Analysis
- Descriptive Statistics

5. Data Analysis and Interpretation

Table 1: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	64	53.3%
	Female	56	46.7%
Age Group	20–25 Years	72	60%
	26–30 Years	31	25.8%
	Above 30 Years	17	14.2%
Occupation	Students	58	48.3%
	Professionals	62	51.7%

Interpretation

The demographic analysis indicates that the majority of respondents belong to the 20–25 age group. Both students and professionals participated in the study, ensuring diverse perspectives regarding AI adoption.

Table 2: Perception Towards Generative AI

Statement	Mean Score	Interpretation
AI improves decision-making speed	4.31	High
AI enhances business productivity	4.27	High
AI supports strategic planning	4.12	High
AI reduces manual workload	4.40	Very High
AI creates ethical concerns	3.89	Moderate
AI improves customer engagement	4.18	High

Interpretation

The findings reveal that respondents strongly agree that Generative AI improves productivity, automation efficiency, and strategic planning. Moderate concerns remain regarding ethics and privacy-related issues.

6. Correlation Analysis

The correlation analysis identified a strong positive relationship between AI adoption and business decision-making effectiveness.

- Correlation coefficient (r) = 0.71
- Significance level ($p < 0.05$)

The findings indicate that organizations implementing AI technologies experience improved operational efficiency, faster analysis, and enhanced strategic planning.

Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.

7. Regression Analysis

Variable	Beta Value	Significance
Automation Efficiency	0.42	Significant
Predictive Analytics	0.38	Significant
Customer Intelligence	0.31	Significant
Real-Time Data Processing	0.44	Significant

Interpretation

The regression analysis demonstrates that real-time data processing and automation efficiency are the strongest predictors of effective business decision-making.

8. Discussion

The findings of the study indicate that Generative AI is emerging as a transformative force in modern business management. Organizations increasingly depend on AI-powered systems to analyze large volumes of data, automate repetitive operations, generate predictive insights, and support strategic decision-making.

The respondents strongly agreed that AI improves efficiency, reduces operational workload, and enhances productivity. These findings align with previous studies emphasizing AI's role in organizational innovation and operational excellence.

The study also identified that AI-powered customer intelligence systems significantly improve personalization and customer engagement. Organizations use AI technologies to understand customer behavior, forecast market demand, and improve customer relationship management strategies.

Despite these advantages, concerns related to ethical governance, cybersecurity, privacy protection, and misinformation remain significant challenges. Excessive dependence on AI systems without human oversight may negatively affect organizational decision quality.

Therefore, the study emphasizes that human expertise and ethical governance frameworks remain essential for responsible AI implementation.

9. Conclusion

The study concludes that Generative AI has a significant positive impact on business decisionmaking and organizational performance. AI-driven systems improve operational efficiency, strategic planning, automation, innovation, and customer engagement capabilities.

Organizations adopting AI technologies gain competitive advantages by enhancing productivity, forecasting market trends, automating workflows, and supporting evidence-based decisionmaking.

However, ethical concerns, data privacy risks, and algorithmic bias continue to remain major challenges associated with AI adoption. Therefore, organizations should establish ethical governance mechanisms and ensure balanced integration of AI technologies with human intelligence.

Businesses that effectively combine technological innovation with human expertise are more likely to achieve sustainable growth and long-term organizational success.

10. Implications of the Study

10.1 Managerial Implications

- Organizations should invest in AI-driven analytics and automation systems.
- Managers should develop AI literacy and digital decision-making skills.
- Businesses must establish ethical AI governance frameworks.

10.2 Academic Implications

- Educational institutions should integrate AI and business analytics into management education.
- Researchers may conduct sector-specific studies related to AI adoption.

10.3 Social Implications

- AI adoption may create new employment opportunities requiring digital skills.
- Ethical AI practices are necessary to protect consumer rights and privacy.

11. Limitations of the Study

- Convenience sampling limits generalization of findings.
- The sample size was relatively small.

- The study mainly focused on perceptions rather than long-term organizational outcomes.
- Rapid technological advancements may influence future findings.

12. Future Research Directions

Future studies may:

- Examine AI adoption across specific industries such as healthcare, banking, retail, and education.
- Explore long-term effects of AI on organizational culture and employee performance.
- Compare AI adoption between small businesses and multinational corporations.
- Analyze ethical governance models for responsible AI implementation.

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