Available online @ www.iaraindia.com
SELP Journal of Social Science - A Blind Review & Refereed Quarterly Journal
ISSN: 0975-9999 (P) 2349-1655 (O) Impact Factor: 5.650 (I2OR), 4.111 (COSMOS), 2.5 (JIF), 2.77 (NAAS)
Volume XVII, Issue 67, October – December 2026
Formally UGC Approved Journal (46622), © Author

THE ROLE OF ARTIFICIAL INTELLIGENCE IN BUSINESS MANAGEMENT AND E-COMMERCE

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ABSTRACT

Artificial Intelligence (AI) has emerged as a transformative technology in business management and e-commerce, changing the way organizations operate, compete, and create value. This study explores the role of AI in improving decision-making, customer satisfaction, operational efficiency, and competitive performance. It focuses on key applications such as predictive analytics, process automation, personalized customer experiences, and intelligent supply chain management. The study also considers the benefits, challenges, ethical concerns, and future opportunities associated with AI-driven business practices. The findings suggest that organizations that effectively adopt and integrate AI can achieve higher productivity, improved customer satisfaction, and sustainable growth in the digital marketplace.

KEYWORDS: Artificial Intelligence, Business Management, E-Commerce, Digital Transformation, Predictive Analytics, Automation.

INTRODUCTION

The rapid growth of digital technology has significantly transformed traditional business practices. Among these technological developments, Artificial Intelligence (AI) has become an important tool for automation, data analysis, and informed decision-making across various industries. In business management and e-commerce, AI-powered technologies are being used to predict market trends, improve operational processes, and provide personalized customer experiences. In today's highly competitive global marketplace, businesses handle large volumes of data from online transactions, customer interactions, and supply chain activities. AI helps organizations analyze this information efficiently, identify useful patterns, and support strategic decisions. This study examines the integration of AI into business management and e-commerce and evaluates its impact on organizational performance, efficiency, and long-term sustainability.

OBJECTIVES

- To examine artificial intelligence's place in contemporary business management
- To examine how AI is used in e-commerce
- To assess the advantages and difficulties of implementing AI
- To assess the advantages and difficulties of implementing AI

- To research the moral and strategic ramifications of business models powered by AI
- To determine next AI trends in e-commerce and business

RESEARCH METHODOLOGY

This study follows a descriptive and analytical research approach based on secondary data. Information was gathered from academic journals, business reports, industry publications, and relevant case studies. The collected data were analyzed to assess how Artificial Intelligence (AI) applications influence business performance, operational efficiency, and customer engagement.

ARTIFICIAL INTELLIGENCE IN BUSINESS MANAGEMENT

Artificial Intelligence (AI) plays an important role in business management and e-commerce by improving decision-making, automating routine tasks, supporting human resource activities, and enhancing customer experiences. In e-commerce, AI provides personalized recommendations, enables flexible pricing, powers chatbots for customer support, and improves inventory and supply chain management through demand forecasting. Overall, AI helps businesses increase efficiency, reduce costs, improve customer satisfaction, and strengthen competitiveness.

PERCENTAGE ANALYSIS TOOL

Percentage analysis is applied to examine how respondents' opinions are distributed regarding the influence of AI on business management and e-commerce. The following data summarizes the responses obtained from managers and e-commerce professionals.

Percentage Analysis of AI Applications in Business and E-Commerce

AI APPLICATION AREA	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Decision-Making Support	28	28%
Customer Personalization	32	32%
Process Automation	20	20%
Supply Chain Management	12	12%
HR & Talent Analytics	8	8%
Total	100	100%

Interpretation: The findings show that customer personalization (32%) and decision-making assistance (28%) are the leading applications of AI. This demonstrates that AI plays a major role in improving customer experiences and supporting effective management in e-commerce.

Analysis of Variance (ANOVA)

ANOVA is used to determine whether business performance differs significantly among organizations with varying levels of AI adoption.

Hypotheses:

- **H_0 (Null Hypothesis):** There is no significant difference in business performance between organizations with different levels of AI adoption.
- **H_1 (Alternative Hypothesis):** There is a significant difference in business performance between organizations with different levels of AI adoption.

ANOVA TABLE – IMPACT OF AI ADOPTION ON BUSINESS PERFORMANCE

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Value
Between Groups	420	2	210	6.25
Within Groups	960	27	35.56	—
Total	1380	29	—	—

Decision Rule: At the 5% significance level, the calculated F-value of 6.25 exceeds the critical value.

Result: Therefore, the null hypothesis is rejected.

Interpretation: The ANOVA findings indicate a significant difference in business performance among organizations with low, moderate, and high levels of AI adoption. The results suggest that greater AI integration is associated with improved operational efficiency, increased sales, and higher customer satisfaction.

ANALYTICAL DISCUSSION

The adoption of Artificial Intelligence in business management and e-commerce can significantly improve key performance areas, including cost reduction, sales growth, and customer engagement. Using data-driven insights helps organizations make better decisions, reduce uncertainty, and respond quickly to market changes. However, effective AI adoption requires reliable data, organizational preparedness, and employees with appropriate technical skills. In e-commerce, AI-based personalization and automation can strengthen customer loyalty and increase profitability. Businesses that use AI analytics effectively can anticipate customer needs, provide timely solutions, and gain a stronger competitive position.

CHALLENGES AND ETHICAL CONSIDERATIONS

Although AI offers many advantages, its implementation also involves several challenges, including high setup and maintenance expenses, data privacy and cybersecurity threats, a shortage of skilled professionals, and concerns about algorithmic bias. Responsible AI adoption requires organizations to maintain transparency, fairness, and accountability. Businesses should also protect customer data, use information responsibly, and follow relevant regulations to build and maintain consumer trust.

FUTURE SCOPE OF AI IN BUSINESS AND E-COMMERCE

The future application of AI in business management and e-commerce holds significant potential. Emerging developments include advanced predictive and prescriptive analytics, the integration of AI with blockchain and IoT, improved voice-based shopping and visual search, and increasingly automated supply chain operations. As AI continues to develop, it is expected to become a key strategic technology that supports innovation, efficiency, and long-term competitive advantage.

CONCLUSION

Artificial Intelligence has emerged as a vital part of modern business management and e-commerce. By analysing large amounts of data, automating operations, and delivering personalized customer experiences, AI can improve overall business performance. Although its adoption involves challenges, effective planning, responsible practices, and ethical management can help organizations maximize its benefits. Overall, AI should be viewed not only as a technology but also as a valuable strategic resource for achieving sustainable and long-term business growth.

REFERENCES

1. Davenport, T. H., &Ronanki, R. (2018). Artificial intelligence for the real world. Harvard Business Review, 96(1), 108–116.
2. Davenport, T. H., &Ronanki, R. (2018). Artificial intelligence for the real world. Harvard Business Review, 96(1), 108–116.
3. Laudon, K. C., & Traver, C. G. (2023). E-commerce: Business, technology, society. Pearson.
4. Laudon, K. C., & Traver, C. G. (2023). E-commerce: Business, technology, society. Pearson.
5. Paramasivan C & Ravichandiran G (2022), A Study on Technology Driven Innovation Practices in Banking Sector in Tiruchirappalli District, International Journal of Early Childhood Special Education . 2022, 14(5), p3949-3959. 11p
6. Paramasivan. C and Surya (2026) A study on the Growth and Adoption of Digital Payment Practices among the Young Generation, Research Explorer – International Journal on Economics and Business Management, Vol XV, Issue 50, P – 133- 142.