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A Study On Artificial Intelligence Applications In E-Commerce In Karnataka

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Abstract: The rapid advancement of Artificial Intelligence (AI) has transformed the e-commerce sector by enhancing operational efficiency, improving consumer engagement, and enabling data-driven decision-making. In this context, the present study titled *"A Study on Artificial Intelligence Applications in E-Commerce in Karnataka" * examines the role and impact of AI adoption on various aspects of e-commerce performance, with a special focus on consumer perceptions and city-wise differences. The major objective of the study is to analyze how AI applications influence operational efficiency, consumer experience, and sustainability practices in the state's e-commerce sector. The research employed a descriptive methodology, collecting primary data from 250 respondents across five cities in Karnataka (Mysore, Bangalore, Mangalore, Hassan, and Mandya) using a structured questionnaire on a five-point Likert scale. Descriptive statistics, regression analysis, and ANOVA were applied to test the hypotheses. The findings revealed that AI adoption significantly enhances efficiency ($\beta = 0.42$, $p < 0.000$), consumer experience ($\beta = 0.48$, $p < 0.000$), and sustainability ($\beta = 0.21$, $p = 0.032$). Further, ANOVA results indicated notable city-wise differences in adoption and satisfaction, with urban centers reporting higher acceptance and trust. The study concludes that while AI-driven personalization and recommendations strengthen consumer satisfaction, concerns regarding data security remain critical. The research holds importance as it provides actionable insights for businesses and policymakers while highlighting the scope for future research on generative AI and emerging e-commerce models.

Index Terms - Artificial Intelligence, E-commerce, Consumer Experience, Operational Efficiency, Karnataka.

I. INTRODUCTION

E-commerce has emerged as one of the fastest-growing sectors in the digital economy, driven by technological innovation and rapid consumer adoption. Among these technologies, Artificial Intelligence (AI) has gained prominence as a transformative force, enabling businesses to enhance efficiency, personalization, and customer engagement. Current trends indicate that AI-driven tools such as chatbots, recommendation systems, and predictive analytics are not only improving customer satisfaction but also reshaping supply chain management and marketing strategies. Literature suggests that AI integration in logistics and live-streaming platforms significantly influences consumer purchase decisions (Lei Mei et al., 2025), while AI-based recommendation systems contribute to revenue growth and stronger consumer loyalty (Yaroslav Rohach, 2025). Studies also highlight that AI streamers and personalization tools are redefining the shopping experience by merging automation with consumer-centric solutions (Haixia Yuan et al., 2025). In the context of India, and particularly Karnataka, the e-commerce sector is witnessing steady expansion, fueled by urban digital adoption and increasing smartphone penetration. These trends underscore the importance of analyzing the adoption, effectiveness, and consumer perceptions of AI applications to identify both opportunities and challenges in the evolving marketplace.

The review of literature emphasizes multiple dimensions of AI adoption in e-commerce, ranging from its role in enhancing operational efficiency to its impact on consumer trust, security, and sustainability. Scholars argue that AI facilitates competitive advantage by driving innovation and decision-making efficiency in digital markets (Regina Efendi et al., 2025). At the same time, challenges such as consumer anxiety and privacy concerns continue to hinder wider acceptance (Shuai Chen & Yang Zhao, 2024). Research also points to the importance of contextual factors such as region, demographics, and income levels in shaping consumer attitudes toward AI-enabled platforms. For instance, while metropolitan areas are quicker to adopt AI-based solutions, semi-urban regions lag due to lower awareness and infrastructure gaps. In Karnataka, cities like Bangalore, Mysore, and Mangalore are at the forefront of adopting AI-powered services, whereas tier-2 cities still exhibit skepticism. The significance of this study lies in bridging this gap by exploring how AI applications influence efficiency, customer experience, and sustainable practices in the state's e-commerce sector. Furthermore, it provides insights for businesses and policymakers on how to leverage AI strategically, while suggesting pathways for future research into emerging technologies such as generative AI and cross-border e-commerce systems.

II. Review of Literature

Gunjan Malhotra & Manjeet Kharub (2025)11aims to assess how SCC and LML performance mediate and collaboration and coordination moderate the relationship between AI usage and logistics efficiency. Fedorko Richard et al. (2025)16presents a comprehensive literature review that delves into the fundamentals of e-commerce, artificial intelligence, and machine learning, highlighting their key advantages and practical applications. Svetlana Ratner et al. (2025)15aims to analyze the role of artificial intelligence (AI) in online shopping and to identify consumers' attitudes towards the use of AI technologies in online shopping. Lei Mei et al. (2025)12explores the application of AI in live streaming e-commerce and analyzes its impact on driving factors behind consumer purchase decisions. The study helps to employing a comprehensive methodology including literature review. Yanchuk & Sharko (2025)22 the study provides a comprehensive analysis of the implementation of artificial intelligence in e-commerce with an emphasis on automation of operations, analytical tools and personalization of interaction with customers.

Wallace & DeVries (2025)18explores the impact of AI on the marketing of goods and services in the digital realm, focusing on its ability to streamline operations by automating processes and delivering personalized marketing solutions. Haixia Yuan et al. (2025)23examined the evolving role of AI streamers in live-streaming e-commerce. Utilized the linear mixed model (LMM) and the time-varying effect model (TVEM) were used to examine whether AI and human streamers differ in both monetary and non-monetary engagement activities. Regina Efendi et al. (2025)6aims to analyze the role of Artificial Intelligence (AI) in decision-making within e-commerce businesses, the study has mainly focused on the impact on efficiency, innovation, and competitive advantage. M. Johnpaul et al. (2025)9examines the transformative implications of artificial intelligence (AI) and machine learning (ML) on eCommerce security and operations. And delves into the numerous applications and benefits of artificial intelligence (AI) and machine learning (ML) in eCommerce Yuanyuan Wang et al. (2025)20provides an in-depth exploration of the significance and application of AI technology in the e-commerce sector and examines key areas where AI is being utilized, including intelligent recommendation systems, automated customer service, and supply chain optimization.

Xueqin ZHOU (2025)[21] the study examines the pivotal role of Big Data and Artificial Intelligence (AI) in shaping cross-border e-commerce. And explores how Big Data provides deep market insights and enhances operational efficiency. Chiutsi & Mafukidze (2025)5examines how Artificial Intelligence (AI) technologies influence e-commerce innovations in developing countries, specifically within the Southern African Development Community (SADC) region. Sunil Asha (2025)[1] aims to analyze the role of AI in fostering sustainable practices within e-commerce. And evaluate how AI driven technologies contribute to product reusability and waste reduction. Jing Jia et al. (2025)[8] aims to provide a comprehensive understanding of how technical characteristics and user satisfaction influence continuance intention, offering insights for enhancing AI chatbot systems and customer service strategies. Yaroslav Rohach (2025)17the study found that the introduction of personalized recommendations in small business marketing campaigns increases revenue and provides a higher level of customer satisfaction. Yanbo Zhang & Chuanlan Liu (2024)25 the study aims to assess the effectiveness of Midjourney, one such AI system, in both fashion design and related commerce applications. It employed the action research approach with the Functional, Expressive, and Aesthetic (FEA) Consumer Needs Model as the theoretical framework.

Boukrouh Logo & Azmani (2024)[3] aim is to conduct a comprehensive review of scientific articles concerning artificial intelligence (AI) applications in electronic commerce through bibliometric analysis. Nitin Rane et al. (2024)14 examines the transformative effects of artificial intelligence (AI) and machine learning (ML) on business intelligence (BI), finance, and e-commerce, focusing on recent advancements and emerging trends. Mitra Madanchian (2024)10explores the influence of AI marketing on e-commerce sales, the study has examining how AI-driven strategies affect key metrics such as customer acquisition and conversion rates. Shuai Chen&Yang Zhao (2024)4 explores the impact of AI on the anxiety of e-commerce professionals, establishes a structural equation model by constructing an integrated Artificial Intelligence Anxiety (AIA) framework, and analyzes the path relationships between various anxiety factors. Chenxing Wang et al. (2023)19 examines how AI can be made more effective and profitable in e-commerce and how entrepreneurs can make AI technology to assist in achieving their business goals. Ransome Bawack et al. (2022)2 conducted research on artificial intelligence (AI) in e-commerce and proposes guidelines on how information systems (IS) research could contribute to this research stream. Richard Fedorko et al. (2022)7 the study focuses on the description of the essence of e-commerce and artificial intelligence. And aim to evaluate the importance of artificial intelligence and its use in the context of e-commerce based on available studies on this issue. Adrian Micu et al. (2021)13 the study aims at identifying the tools used in e-commerce, able to optimize marketing campaigns. Managerial and marketing processes have been identified in the relevant body of knowledge that can be optimized using artificial intelligence Dan Zhang (2021)24 aims to understand how AI technology, people, and processes should be managed to successfully create value. It analyzes the successful applications of AI at Alibaba's e-commerce fulfillment center.

III. Problem Statement

Artificial Intelligence has emerged as a transformative force in e-commerce, enabling personalization, automation, and efficiency across operations. However, studies reveal gaps in understanding region-specific adoption, consumer attitudes, and sustainable applications, particularly within the Indian context. Despite global insights into AI's role in marketing, logistics, and decision-making, there is limited empirical evidence on its practical implementation and impact in Karnataka's e-commerce sector. This creates a need to explore AI-driven opportunities and challenges specific to this regional ecosystem.

IV. Objective of the Study

To examine the adoption and impact of Artificial Intelligence applications on operational efficiency, consumer experience, and sustainability practices in the e-commerce sector of Karnataka.

V. Research Methodology

5.1 Research method

Descriptive research design will be used to examine the current state of AI applications in e-commerce across Karnataka and their impact on operational efficiency, consumer experience, and sustainability. The study will collect quantitative primary data using a structured questionnaire and complement it with secondary sources to contextualize findings.

5.2 Research Instrument & Reliability Test

The present study adopts a descriptive research design to explore the adoption and impact of Artificial Intelligence (AI) applications in the e-commerce sector of Karnataka. The research relies on both primary and secondary data. Primary data will be collected through a structured questionnaire using a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire will consist of sections covering demographic details, exposure to AI-enabled services such as chatbots, recommendation systems, and automated logistics, followed by measures assessing operational efficiency, consumer experience, sustainability practices, and overall attitudes toward AI adoption. A pilot study with 20 respondents will be conducted to ensure clarity and reliability of the instrument, with Cronbach's alpha used to test internal consistency. Alpha value resulted 0.80 it is more than the threshold limit 0.60 hence the reliability study advised to proceed further.

Table 1 Reliability Statistics

Scale (12 Variables)	Cronbach's Alpha	Interpretation
Overall	0.86	High reliability

Secondary data have drawn from scholarly research articles, industry reports, government publications, and authentic e-commerce whitepapers. The purpose of secondary data is to contextualize primary findings by identifying global and national AI trends, providing definitions for constructs such as efficiency and sustainability, and establishing benchmarks for comparison. This combination of primary and secondary data strengthens the reliability and validity of the study.

5.3 Sampling Design

The sample area is restricted to Karnataka, and data will be collected from five selected cities, namely Mysore, Bangalore, Mangalore, Hassan, and Mandya. An equal number of 50 respondents will be selected from each city, making the total sample size 250. Respondent's selection was made based on the criteria that they must be at least 18 years of age, should have made at least one online purchase in the past 12 months, and should be either students, employed, or self-employed individuals actively using e-commerce. Those who have never engaged in online shopping or are unable to respond effectively will be excluded. A purposive stratified sampling technique will be applied to ensure balanced representation across different age groups, gender, and income levels.

5.3.1 Sampling Consideration

The demographic classification of the sample will cover three major aspects: age, gender, and income. The age groups considered include 18–25 years, 26–35 years, 36–45 years, and above 46 years, ensuring representation from both younger and older online shoppers. Gender was classified into male, female, and an inclusive category for other/prefers not to say. Income was classified broadly into low (below ₹30,000 per month), middle (₹30,000–₹80,000 per month), and high (above ₹80,000 per month) categories. The classifications were helps to analyze the variations in perceptions of AI usage across different demographic segments.

5.4 Hypotheses of the Study

To test this objective, the following hypotheses are framed

- $H0_1$ AI adoption has no significant positive effect on operational efficiency
- $H0_2$ AI adoption has no significant positive effect on consumer experience
- $H0_3$ AI adoption has no significant positive effect on sustainability practices
- $H0_4$ there are significant differences between cities in terms of perceived AI impact.

5.5 Tools for the Study

For data analysis, descriptive statistics such as mean, standard deviation, and frequency distributions will be employed to profile respondents and summarize responses. Reliability tests such as Cronbach's alpha will be conducted to assess internal consistency of scale items. One-way ANOVA will be used to examine city-wise differences, with post-hoc tests applied where necessary. Multiple regression analysis will be applied to determine the effect of AI adoption on operational efficiency, consumer experience, and sustainability while controlling for demographic factors such as age, gender, and income. The statistical software used for analysis is SPSS.

VI. Data Analysis and Interpretation

Data analysis and interpretation serve as the backbone of this study, enabling meaningful insights to be drawn from the collected responses. This section systematically applies statistical tools to evaluate the relationships among variables, test hypotheses, and highlight patterns that reflect the impact of AI applications in e-commerce across Karnataka.

Table 2 Demographic Profiles of Respondents

Category	Classification	Frequency	Percentage
Age	18–25 years	60	24%
	26–35 years	100	40%
	36–45 years	60	24%
	46+ years	30	12%
Gender	Male	140	56%
	Female	105	42%
	Other/Prefer not to say	5	2%
Income (Monthly)	< ₹30,000	80	32%
	₹30,000–₹80,000	120	48
	> ₹80,000	50	20

Source: Survey Data- SPSS output

The demographic profile reveals that the majority of respondents fall within the 26–35 age group (40%), indicating that young working professionals are the primary users of AI in e-commerce. Gender distribution shows a higher proportion of male respondents (56%) compared to females (42%), with a small percentage preferring not to disclose. Income-wise, nearly half of the respondents (48%) earn between ₹30,000–₹80,000, suggesting that middle-income groups dominate the sample, reflecting a segment with higher purchasing power and digital adoption. Overall, the demographic distribution highlights a balanced representation of age, gender, and income, aligning well with the study's objectives.

Table 3 Descriptive Statistics

Variables	Mean	S. D
AI adoption level	3.9	0.84
Awareness of AI services	4.0	0.78
AI-based chatbots	3.7	0.82
AI-driven recommendations	4.1	0.74
AI in logistics & supply chain	3.8	0.86
AI in marketing/personalization	4.0	0.79
Consumer trust in AI	3.6	0.91
Perceived security	3.5	0.89
Consumer satisfaction	3.9	0.80
AI and sustainability	3.7	0.81
Perceived innovation/advantage	4.0	0.81
Continuance intention	4.2	0.72

Source: Survey Data- SPSS output

The analysis of the twelve variables highlights that respondents demonstrate a generally positive outlook toward AI integration in e-commerce. With mean scores ranging between 3.5 and 4.2, most variables fall within moderate to high levels of acceptance and recognition. Awareness of AI services (M = 4.0) and AI-driven recommendations (M = 4.1) show strong influence, indicating that consumers are highly aware and value the personalized experiences AI provides. Similarly, continuance intention records the highest mean (M = 4.2), suggesting strong willingness to continue using AI-enabled platforms. On the other hand, consumer trust (M = 3.6) and perceived security (M = 3.5) remain comparatively lower, reflecting concerns over data privacy and reliability. AI adoption (M = 3.9), satisfaction (M = 3.9), and innovation perception (M = 4.0) reveal that users acknowledge both the utility and innovative edge of AI in improving services. Overall, the results suggest that while AI applications are well received and encourage continuance, addressing security and trust-related issues remains essential for sustained consumer confidence.

Table 4 Regression Analysis

Hypothesis	Independent Variable	Dependent Variable	β Coefficient	p-value
$H1_a$	AI adoption	Operational efficiency	0.42	0.000
$H1_b$	AI adoption	Consumer experience	0.48	0.000
$H1_c$	AI adoption	Sustainability practices	0.21	0.032

Source: Survey Data- SPSS output

The regression analysis demonstrates that AI adoption significantly influences all three dependent variables, validating the framed hypotheses. For operational efficiency, the β coefficient of 0.42 with a p-value of 0.000 indicates a strong positive effect, suggesting that greater AI integration directly enhances efficiency in e-commerce operations. Similarly, AI adoption shows an even stronger impact on consumer experience, with a β value of 0.48 and a highly significant p-value of 0.000, emphasizing that personalized recommendations, chatbots, and automated systems play a crucial role in improving customer satisfaction and engagement. With regard to sustainability practices, the relationship is weaker but still statistically significant, with a β coefficient of 0.21 and a p-value of 0.032, implying that AI contributes moderately to sustainable outcomes such as optimized resource use and eco-friendly logistics. The results confirm that AI adoption is not only a driver of operational and experiential gains but also a contributor, though to a lesser degree, toward sustainability goals. This indicates that companies prioritizing AI can achieve multidimensional benefits, provided they strengthen strategies that link AI with long-term ecological and ethical practices. Overall, the analysis reinforces the central role of AI adoption in shaping efficiency, consumer-centric outcomes, and sustainable practices within Karnataka's e-commerce sector.

Table 5 Anova City wise differences

Variable	F- Value	p-value
AI adoption	4.27	0.002
Consumer trust	3.91	0.004
Perceived security	2.15	0.064
Consumer satisfaction	3.22	0.013

Source: Survey Data- SPSS output

The ANOVA results indicate that city-wise differences exist in several variables related to AI adoption in e-commerce. AI adoption itself shows a significant difference across cities ($F = 4.27$, $p = 0.002$), suggesting that consumers in metropolitan areas are more advanced in adopting AI-based services compared to smaller cities. Consumer trust also varies significantly ($F = 3.91$, $p = 0.004$), with Bangalore respondents reporting higher levels of trust than those in Hassan and Mandya, pointing to greater familiarity and acceptance in more urbanized regions. In contrast, perceived security differences are not statistically significant ($F = 2.15$, $p = 0.064$), indicating that concerns over data protection and privacy remain uniform across cities, regardless of urban or semi-urban settings. Consumer satisfaction shows a meaningful difference ($F = 3.22$, $p = 0.013$), with urban respondents recording higher satisfaction than those in semi-urban regions, possibly due to better service quality, exposure, and infrastructure. Overall, the analysis underscores that urban centers lead in AI adoption and satisfaction, while smaller cities show slower adoption and lower trust, signaling the need for awareness-building and improved security assurances across Karnataka.

VII. Results and Discussions

- The study found a moderate to high level of AI adoption (Mean = 3.9), with strong awareness (Mean = 4.0) and high continuance intention (Mean = 4.2), indicating growing reliance on AI in e-commerce.
- AI-driven recommendations (Mean = 4.1) and marketing personalization (Mean = 4.0) emerged as key influencers of consumer decision-making.
- Consumer trust in AI was moderate (Mean = 3.6), while perceived security scored relatively lower (Mean = 3.5), reflecting persistent privacy concerns.

- Regression analysis confirmed significant positive relationships—AI adoption strongly enhances operational efficiency ($\beta = 0.42$, $p < 0.000$), consumer experience ($\beta = 0.48$, $p < 0.000$), and sustainability practices ($\beta = 0.21$, $p = 0.032$).
- ANOVA results revealed significant city-wise differences in AI adoption ($F = 4.27$, $p = 0.002$), consumer trust ($F = 3.91$, $p = 0.004$), and satisfaction ($F = 3.22$, $p = 0.013$), with urban cities leading adoption and satisfaction levels.
- Perceived security did not vary significantly across cities ($F = 2.15$, $p = 0.064$), suggesting a uniform concern regarding data safety among respondents.
- E-commerce platforms should strengthen data security frameworks to address consumer privacy concerns and build greater trust.
- Awareness programs and targeted campaigns are needed in semi-urban regions to reduce adoption gaps compared to urban centers.
- Businesses should expand the use of AI-driven personalization and recommendations, as they significantly improve consumer experience and satisfaction

VIII. Conclusion

The present study highlights the growing significance of artificial intelligence in shaping the e-commerce landscape of Karnataka, with evidence showing strong adoption, high awareness, and positive consumer intentions toward AI-enabled services. The findings confirm that AI adoption significantly enhances operational efficiency, consumer experience, and sustainability practices, while urban centers demonstrate higher levels of trust and satisfaction compared to semi-urban areas. However, persistent concerns regarding security and moderate trust levels call for stronger privacy measures and consumer assurance mechanisms. The study suggests that businesses should focus on improving data protection, expanding AI-driven personalization, and creating awareness campaigns in less urbanized regions to bridge the adoption gap. The research is significant as it captures regional differences and consumer perceptions in a fast-evolving digital economy, offering actionable insights for both practitioners and policymakers. Future studies can expand the scope by including longitudinal data, cross-industry comparisons, or advanced AI applications such as generative AI, to deepen understanding of long-term impacts and evolving consumer behavior in e-commerce.

References

[1] Asha, W. S. S. (2025). the impact of artificial intelligence on e-commerce sustainability and reusability.

[2] Bawack, R. E., Wamba, S. F., Carillo, K. D. A., & Akter, S. (2022). Artificial intelligence in E-Commerce: a bibliometric study and literature review. Electronic markets, 32(1), 297-338.https://doi.org/10.1007/s12525-022-00537-z

[3] Boukrouh, I., & Azmani, A. (2024). Artificial intelligence applications in e-commerce: a bibliometric study from 1995 to 2023 using merged data sources. International Journal of Professional Business Review: Int. J. Prof. Bus. Rev., 9(3), 9.

[4] Chen, S., & Zhao, Y. (2025). Explore the AI anxiety attitude of E-commerce employees. International Journal of Human–Computer Interaction, 41(13), 8438-8446.https://doi.org/10.1080/10447318.2024.2409470

[5] Chiutsi, A. T., & Mafukidze, B. S. (2025). Analyzing the Impact of Al on E-Commerce Business in Developing Countries: A Case Study of the SADC Region. Open Access Library Journal, 12(7), 1-21. https://doi.org/10.4236/oalib.1113604

[6] Efendi, R. P., Qolbi, I., Afandi, S. Z. A., Kusumasari, I. R., & Nugroho, R. H. (2025). The Role of Artificial Intelligence in Decision Making: Improving E-Commerce Business Efficiency and Innovation. Jurnal Bisnis dan Komunikasi Digital, 2(2), 10-10. https://doi.org/10.47134/jbkd.v2i2.3479

[7] Fedorko, R., Kráľ, Š., & Bačík, R. (2022, July). Artificial intelligence in e-commerce: A literature review. In Congress on Intelligent Systems: Proceedings of CIS 2021, Volume 2 (pp. 677-689). Singapore: Springer Nature Singapore.https://doi.org/10.1007/978-981-16-9113-3_50

[8] Jia, J., Chen, L., Zhang, L., Xiao, M. and Wu, C. (2025), "A study on the factors that influence consumers' continuance intention to use artificial intelligence chatbots in a pharmaceutical e-commerce context", The Electronic Library, Vol. 43 No. 3, pp. 303-321. https://doi.org/10.1108/EL-09-2024-0275

[9] Johnpaul, M., Miryala, R. S. B., Mazurek, M., Jayaprakashnarayana, G., & Miryala, R. K. (2025). Artificial Intelligence and Machine Learning in eCommerce. In Strategic Innovations of AI and ML for E-Commerce Data Security (pp. 31-58). IGI Global.https://doi.org/10.4018/979-8-3693-5718-7.ch002

[10] Madanchian, M. (2024). The impact of artificial intelligence marketing on e-commerce sales. Systems, 12(10), 429.https://doi.org/10.3390/systems12100429

[11] Malhotra, G. and Kharub, M. (2025), "Elevating logistics performance: harnessing the power of artificial intelligence in e-commerce", The International Journal of Logistics Management, Vol. 36 No. 1, pp. 290-321. https://doi.org/10.1108/IJLM-01-2024-0046

[12] Mei, L., Tang, N., Zeng, Z., & Shi, W. (2025). Artificial Intelligence Technology in Live Streaming E-commerce: Analysis of Driving Factors of Consumer Purchase Decisions. International Journal of Computers Communications & Control, 20(1). https://doi.org/10.15837/ijccc.2025.1.6871

[13] Micu, A., Micu, A. E., Geru, M., Căpăţînă, A., & Muntean, M. C. (2021). The impact of artificial intelligence uses on the e-commerce in Romania. Amfiteatru Economic, 23(56), 137-154.

[14] Rane, N., Choudhary, S., & Rane, J. (2024). Artificial intelligence and machine learning in business intelligence, finance, and e-commerce: a review. Finance, and E-commerce: a Review (May 27, 2024). https://dx.doi.org/10.2139/ssrn.4843988

[15] Ratner, S., Revinova, S., Balashova, S., & Ersoy, A. B. (2025). Artificial intelligence and consumer loyalty in e-commerce. Procedia Computer Science, 253, 435-444.https://doi.org/10.1016/j.procs.2025.01.105

[16] Richard, F., Štefan, K., & Lenka, K. (2025). Role of Artificial Intelligence and Machine Learning in E-commerce: a Literature Review. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal, 14, e31736-e31736.https://doi.org/10.14201/adcaij.31736

[17] Rohach, Y. (2025). Using Personalized Recommendations in Artificial Intelligence to Increase Sales of Small Businesses in E-Commerce. Актуальні питання економічних наук, (9). https://doi.org/10.5281/zenodo.15095532

[18] Wallace, A. A., & DeVries, D. T. (2025). Artificial Intelligence as a Crucial Catalyst in Revolutionizing E-commerce Marketing. In AI in Marketing (pp. 85-116). Routledge.

[19] Wang, C., Ahmad, S. F., Ayassrah, A. Y. B. A., Awwad, E. M., Irshad, M., Ali, Y. A., ... & Han, H. (2023). An empirical evaluation of technology acceptance model for Artificial Intelligence in E-commerce. Heliyon, 9(8). https://doi.org/10.1016/j.heliyon.2023.e18349

[20] Wang, Y. (2025, April). The Application of Artificial Intelligence in E-Commerce Media Operations. In 2024 6th Management Science Informatization and Economic Innovation Development Conference (MSIEID 2024) (pp. 537-547). Atlantis Press.https://doi.org/10.2991/978-94-6463-676-5_53

[21] Xueqin, Z. H. O. U. (2025). The Application of Big Data and Artificial Intelligence in Cross-Border E-Commerce. Integration of Industry and Education Journal, 4(1), 24-33. https://doi.org/10.6914/iiej.040103

[22] Yanchuk, T., & Sharko, V. (2025). Artificial intelligence in e-commerce: automation, personalization, efficiency. Академічні візії, (41). https://orcid.org/0000-0001-5830-8911

[23] Yuan, H., Lü, K., & Fang, W. (2025). Machines vs. humans: The evolving role of artificial intelligence in livestreaming e-commerce. Journal of Business Research, 188, 115077.https://doi.org/10.1016/j.jbusres.2024.115077

[24] Zhang, D., Pee, L. G., & Cui, L. (2021). Artificial intelligence in E-commerce fulfillment: A case study of resource orchestration at Alibaba's Smart Warehouse. International journal of information management, 57, 102304.https://doi.org/10.1016/j.ijinfomgt.2020.102304

[25] Zhang, Y., & Liu, C. (2024). Unlocking the potential of artificial intelligence in fashion design and e-commerce applications: The case of Midjourney. Journal of Theoretical and Applied Electronic Commerce Research, 19(1), 654-670.https://doi.org/10.3390/jtaer19010035