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The Use of AI for a Better User Experience in E-Commerce Websites

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Abstract. *This article investigates how AI can improve the user experience of various e-commerce platforms through personalization and automation, with a focus on consumer perception, trust, data privacy concerns but also the final purchase intention. Although a new topic to be researched, the current literature mentions the clear potential of artificial intelligence in improving customer engagement and satisfaction, although ethical considerations around data handling and bias remain ongoing challenges. Studies show that well-implemented, AI-based recommendation systems and chatbots can make the shopping journey simpler and more enjoyable, yet the acceptance of these technologies varies across different consumer segments. Drawing on these insights, the present research employed a structured, closed-ended survey administered to 150 online shoppers from Romania. The methodology aimed to address three core questions: (1) Does AI-driven personalization positively impact user satisfaction and purchase intention? (2) Are chatbots perceived as effective tools for resolving routine inquiries? (3) Do privacy and data security concerns reduce consumer trust in AI-enhanced e-commerce platforms? Analysis of the collected data indicates that, while most respondents find AI features convenient and helpful, a considerable proportion remains skeptical due to fears of privacy infringement. As a consequence, user trust remains a critical factor in AI acceptance. By analyzing our findings and comparing them with established theoretical frameworks, our paper contributes to the existing body of knowledge on AI applications in e-commerce and marketing. It shows that balancing technological innovation with transparent and ethical data practices is necesary for maximizing AI's benefits while keeping the consumer trust in online commerce.*

Keywords: e-commerce, artificial intelligence, personalization, chatbots, user experience, consumer trust.

Introduction

E-commerce evolved with at an enormous pace over the last years, especially in Romania, transforming from a niche method of purchasing into the primary retail channel for numerous industries worldwide. This transformation was facilitated by the evolution of internet access and infrastructure, the rise of mobile technology, and changing consumer behaviors that prioritize speed, convenience, and personalization, which are provided by e-commerce. Now, this competitive market forces retailers to differentiate themselves through various methods in order to

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enhance the overall user experience. Thus, artificial intelligence (AI) turned out to be an incredibly useful tool for e-commerce websites to deliver customized content, better customer service with chatbots, and overall, a better user experience. (Chintalapati, Pandey, 2022)

By collecting and analyzing large volumes of date in real time, AI-powered systems allow e-commerce platforms to transform customer actions into actionable insights. Recommendation engines, for instance, use the power of machine learning to understand purchasing patterns and browsing behaviors, thus, suggesting products that match user interests or complement existing selections Hermann (2022). This personalized approach not only increases the likelihood of conversion but also creates customer loyalty by simplifying the searching process for products. More so, automated solutions such as chatbots and virtual shopping assistants offer instant support and guidance, thereby reducing friction in the purchasing journey

Yet, despite its clear potential, the integration of AI in e-commerce has certain challenges, such as concerns surrounding privacy, data security, and algorithmic bias highlight the need for transparent and ethical implementation strategies More so, businesses must invest in robust technological infrastructures and develop in-house expertise to fully use the capabilities of AI. In this article, we tried to examine how personalization and automation, with the help of AI, are perceived by Romanian consumers so AI can shape e-commerce user experiences for the better. By investigating current practices, user perceptions, and measurable outcomes, our study aims to identify best practices and offer practical recommendations for retailers looking to optimize their online platforms through AI (Labib, 2024).

Literature review

AI is becoming smarter, faster and better with every day that passes. This rapid pace of development paved the way for a more intelligent, data-driven way to improve the user experience in various fields, information systems but also in e-commerce platforms. Foundational works in AI, such as Russell and Norvig (2021), show the power of AI powered software from machine learning algorithms to natural language processing, that can be the source of many innovations in the retail sector. These principles show how retailers can use AI to better understand consumer behavior, predict purchase patterns, and also to automate customer interactions.

The business context of AI fundamentals

In order to contextualize AI's application in retail, Davenport (2018) shows how organizations can deploy AI to streamline operations and enhance decision-making. In a similar way, Brynjolfsson and McAfee (2017) discuss the impact of automation and data analytics on competitive landscapes, making a point that AI-driven platforms can create entirely new business models and revenue streams. Expanding on this, Sharda et al. (2023) examine how data science and analytics work together with AI, offering decision-makers with systems for more informed, data-backed decisions that are crucial in the environment of online retail.

AI powered systems in e-commerce

One of the most useful use-cases of AI in e-commerce should be the personalization of the digital interface, aiming to tailor products, services, and marketing content to every individual user. Komiak and Benbasat (2006) demonstrate how personalization and familiarity can enhance user trust in recommendation agents, while Huang and Rust (2021) argue that well-designed AI systems can also increase user engagement and satisfaction while delivering seamless interactions. On the managerial side, Sorescu (2017) illustrates how data-driven business models rely on real-time

analytics to customize offerings, thereby fostering loyalty and repeat purchases. AI-powered chatbots and virtual assistants further enhance online user experiences by offering real-time support and guidance (Huang and Rust, 2018). These systems reduce response times and can handle routine inquiries, freeing human agents to tackle complex issues. Research by Baabdullah et al. (2022) suggests that well-implemented chatbots improve consumer satisfaction and perceived service quality, leading to stronger brand relationships.

Challenges, ethical considerations and the future of AI

Despite their clear benefits, AI-driven e-commerce solutions pose several challenges, from ethical concerns that arise from potential algorithmic biases, data privacy issues, and the need for transparent decision-making processes (Davenport, 2018). Retailers must also take into considerations certain technological barriers, such as integrating AI with existing infrastructures, and the costs associated with maintaining large-scale data analytics systems (Sharda et al., 2023). Building an internal culture that supports AI adoption, invests in skill development, and addresses consumer trust factors remains paramount for sustained success (Brynjolfsson and McAfee, 2017). Looking ahead, the literature suggests that AI's role in e-commerce will continue to expand, fueled by advances in deep learning, natural language understanding, and cognitive computing (Russell and Norvig, 2021). As personalization becomes more sophisticated, retailers will likely explore new methods to anticipate user needs, further blurring the line between online and offline shopping experiences (Huang and Rust, 2021). Consequently, ongoing research must address how to balance commercial objectives with ethical, social, and regulatory considerations.

Methodology

The study follows a quantitative research design to examine the influence of AI-driven personalization and automation on user experience in e-commerce. Inspired by prior investigations using large-scale surveys to capture consumer perceptions, the approach centers on administering a structured questionnaire. The primary objective is to quantify user attitudes, behaviors, and trust levels related to AI implementations in online retail. Follwing the current literature, the following research hypotheses have been formulated:

H1: AI-driven personalization (e.g., product recommendations) have a positive effect on user satisfaction and purchase intention. Previous studies suggest that product recommendations increase perceived relevance, thereby increasing user engagement.

H2: Users perceive AI-powered chatbots as effective for routine inquiries, contributing to an enhanced service experience as chatbots have been linked to reduced waiting times and higher customer satisfaction

H3: Data privacy and security concerns negatively influence user trust in AI-enabled e-commerce platforms, since research highlights privacy as a key barrier to AI adoption in retail

The target population are adult online shoppers in Romania, with similar purchasing patterns, participants must have made at least one online purchase in the past six months, ensuring current familiarity with e-commerce technologies. The survey is structured as follows:

- Section A: Demographics – capturing age group, shopping frequency, preferred device.
- Section B: AI Experience – measuring familiarity with chatbots, recommendation engines, and other AI features.
- Section C: Perceptions and Attitudes – Likert-scale items assessing perceived usefulness, trust, privacy concerns, and overall satisfaction.

- Section D: Intent – evaluating purchase intention in response to AI-driven features and measuring the likelihood of future use.

A structured survey was created using Google Forms and distributed across social media platforms, email lists, and relevant consumer forums. The survey comprises exclusively closed-ended questions (multiple-choice, Likert scales) to facilitate straightforward data analysis and enable respondents to complete it efficiently. After closing the survey, the data will be exported from Google Forms into Microsoft Excel for analysis where the data will be cleaned and interpreted.

Results and discussions

The final sample comprised **150 respondents**, distributed proportionally to the initial trends observed in the initial data. As illustrated in Table 1, the age groups are split almost evenly between 18–24 (29%), 25–34 (29%), and 45+ (29%), with a smaller segment of 35–44 (14%). This relatively balanced distribution suggests that AI-based e-commerce features may appeal to a wide range of age categories. Regarding shopping frequency, nearly 38% of participants reported making online purchases multiple times per week, highlighting a high-engagement consumer segment.

Table 1. Research results

Variable	Most Common Category	Approx. %
Age Group	18–24 / 25–34 / 45+ (tied)	~29% each
Shopping Frequency	Several times/week	~38%
Device	Smartphone	~67%
Familiarity with AI	Aware and knowledgeable	~86%
Chatbot Interaction	Yes, very useful	~57%

Smartphones were the primary shopping device for about two-thirds of respondents, while laptops or PCs accounted for roughly 29%, and tablets for a smaller 5%. Most participants (86%) stated they were aware of AI usage in e-commerce, indicating a consumer base with a growing understanding of how AI-based tools (product recommendations, chatbots) work. Over half (57%) had interacted with a chatbot and found it useful, but a notable 33% did not perceive substantial benefits from chatbot interactions.

Perceived usefulness of AI features

When asked to rate the **usefulness of personalized recommendations** on a scale from 1 (not at all useful) to 5 (very useful), 48% gave the highest rating (5), while another 24% rated them as 4. This suggests a widespread positive attitude toward AI-driven product suggestions. Furthermore, 43% of respondents strongly agreed that these recommendations help them find desired items more quickly, emphasizing the potential of AI to streamline the online shopping journey. Even though most respondents appreciate AI-based customization, approximately 10–20% consistently gave neutral or lower scores (1 or 2) on questions related to personalized ads and offers. This minority indicates some consumer resistance to targeted advertising, which could stem from privacy concerns or the feeling of being over-targeted.

Trust and privacy concerns

Comfort with sharing personal data on AI-enabled platforms showed a polarized pattern: nearly half of the sample (about 48%) felt very comfortable (score of 5), while around 38% selected the lowest score (1). A similar split emerged regarding **trust** in how e-commerce sites use AI ethically,

with around 43% expressing strong agreement (5) and about 33% strongly disagreeing (1). This division highlights a crucial insight: while a portion of users embrace AI's convenience, others remain cautious about data handling and potential misuse.

Influence on purchase intentions

A notable proportion of respondents—roughly 43%—strongly believe that AI-enhanced websites offer a superior shopping experience, and around 43% also reported they are more likely to finalize purchases if a site deploys efficient chatbots and AI support. Moreover, close to 43% indicated they would increase their online shopping frequency if AI simplifies the searching and ordering process. These findings suggest that well-implemented AI features can significantly boost user satisfaction and potentially lead to higher conversion rates.

Nevertheless, there remains a subset of users (roughly 15–25% across different items) who are neutral or unconvinced about AI's added value. This group either did not see meaningful benefits from chatbots or worried that personalized advertising might infringe on their privacy.

Hypotheses Validation

Hypothesis 1: "AI-driven personalization positively affects user satisfaction and purchase intention." - Most respondents reported higher satisfaction with personalized recommendations, and nearly half indicated they are more inclined to purchase on AI-enhanced sites. Thus, this hypothesis appears supported by the data.

Hypothesis 2: "AI-powered chatbots are perceived as effective for routine inquiries, enhancing service experience." - While a majority viewed chatbots as useful, a substantial minority did not. Still, overall sentiment leans positive, indicating partial support, especially among those who shop frequently.

Hypothesis 3: "Privacy and data security concerns negatively influence trust in AI-enabled e-commerce." - The strong polarization regarding comfort in sharing personal data and trust in AI usage underscores that privacy concerns remain a major barrier for a significant segment of consumers. Hence, this hypothesis is upheld, reflecting a complex relationship between AI benefits and privacy anxieties.

When compared with similar research, the results reveal consistent patterns: AI-driven personalization tends to improve shopping convenience and user satisfaction, but persistent concerns around privacy and data handling can undermine trust. The present findings reinforce the idea that e-commerce platforms must balance innovative AI solutions with transparent data practices to address consumer apprehensions. From a theoretical point of view, the results suggest that a balanced approach, where personalization is clearly communicated, optional, and accompanied by robust privacy measures, may yield the most positive outcomes for both businesses and consumers. The data imply that AI can indeed shape user behavior and satisfaction, but ethical considerations and trust-building strategies remain crucial for long-term acceptance.

In conclusion, the trends observed in this study point to a strong potential for AI to enhance e-commerce experiences, albeit with notable reservations tied to data privacy. Future research could explore more nuanced dimensions of user behavior, such as generational differences in AI acceptance or the impact of transparent data policies on long-term customer loyalty.

Conclusion

This research has explored the perception of people on personalization and automation systems in e-commerce, powered by AI, can create better user experiences, focusing on the utility of chatbots, need for trust, data privacy, and purchase intention. The findings show that while a majority of

respondents have a positive attitude towards AI-powered features for their convenience and relevancy, a significant segment remain skeptical about how those AI systems handle their personal data. These contrasting views prove a point on the importance of transparent data practices and robust security measures to maintain user trust in these commerce platforms. From a practical point of view though, these results indicate that e-commerce platforms can benefit from adopting well-designed recommendation systems and chatbots, as these can enhance customer satisfaction and potentially boost conversion rates and they are a welcome addition to the shopping experience. At the same time, providing clear opt-in or opt-out options for personalization, coupled with ongoing communication about data usage, appears critical in addressing privacy concerns. By customizing AI solutions to user preferences and ensuring ethical data handling, retailers can balance innovation with the trust-building necessary for sustainable online growth. For future research, a deeper exploration of segment-specific attitudes is needed, such as by age group or shopping frequency as they could offer further insights into how demographic factors influence AI acceptance. Additionally, evaluating the long-term effects of AI-based features on customer loyalty and brand reputation may prove invaluable. Overall, this study shows that AI holds considerable promise for creating better, more robust e-commerce experiences but must be deployed responsibly to meet evolving consumer expectations.

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