IMPACT OF ARTIFICIAL INTELLIGENCE ON ONLINE SALES

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Abstract: *With the rapid advancement of technology, Artificial Intelligence (AI) has become a transformative force in online commerce, reshaping the relationship between consumers and digital platforms. This study investigates the impact of AI on online sales performance, emphasizing consumer and business perceptions in Kosovo. A quantitative methodology was applied, using a structured Likert-scale questionnaire distributed to 200 randomly selected respondents, including both active online shoppers and digital business representatives. Statistical analyses revealed a significant positive relationship between the use of AI tools and the effectiveness of online sales. Key findings indicate that AI contributes substantially to offer personalization, customer interaction, and loyalty development. Users who experience higher levels of personalization report greater satisfaction and trust in online platforms. The study concludes that AI has a direct and measurable impact on improving online sales performance by enhancing both user experience and business strategy. These insights provide a theoretical and practical foundation for the further development of digital platforms seeking to maximize efficiency and customer engagement.*

Key words: *Artificial Intelligence, consumers, digital commerce automation, online sales, quantitative analysis.*

1. Introduction

The development of advanced technologies, especially Artificial Intelligence (AI), has brought about a profound transformation in the way online businesses operate. AI has now become an essential component in e-commerce platforms, contributing not only to the automation of processes but also to the improvement of customer experience and increased sales efficiency (Phuong et al., 2025).

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Online sales have become a dominant form of commerce in the past decade, driven by technological development and expanded internet access. Consumers increasingly prefer online shopping for its convenience, variety, and real-time price comparison. The integration of digital and social platforms has turned online shopping into a standard behaviour rather than an alternative (Gao and Liang, 2025). E-commerce growth is also supported by advances in mobile technology, digital payments, and personalized user experiences.

Chatbots are essential tools for enhancing customer experience on online sales platforms. They offer 24/7 personalized assistance, improving response speed and reducing cart abandonment while increasing satisfaction (Mohamadfar et al., 2025). Moreover, they collect valuable user behaviour data for strategic business analysis.

One of the most evident impacts of artificial intelligence on online sales is the use of recommendation algorithms. By analysing user behaviour, preferences, and purchase patterns, these systems generate personalized suggestions that enhance sales conversions. AI-driven recommendations not only boost revenue but also enrich user experience and strengthen the emotional connection between consumers and brands (Jlassi et al., 2025).

Over the past decade, AI has enabled key innovations such as recommendation systems, interactive chatbots, real-time price optimization, and personalized content for each user (Jlassi et al., 2025). Major platforms like Amazon, Alibaba, and Netflix use these tools to boost revenue and enhance customer engagement (Gao and Liang, 2025). Studies show that AI technologies significantly influence purchase intentions and brand trust, especially through virtual "try-on" features in fashion and cosmetics (Gao and Liang, 2025). Beyond technical efficiency, AI supports customer relationship management, fostering long-term loyalty (Burnstine and Ghattas, 2025). Given these developments, this study examines how consumers and businesses in Kosovo perceive AI's measurable impact on online sales through quantitative analysis.

1.1. Problem Identification

Technological advances have transformed commerce and consumer–business interactions over the past decade. Artificial Intelligence (AI) is now central to online marketing and operations, enabling personalization, automation, and data-driven decision-making. Despite its widespread adoption, there remains a gap in local and regional research on how consumers perceive AI and its real effectiveness in boosting sales. Many businesses invest in chatbots, recommendation systems, and analytics without clear evidence of their impact. This study addresses that gap by examining the perceived and actual influence of AI on online sales in the Albanian context, guided by the central question: What is the impact of AI on improving online sales, and how is it perceived by consumers and businesses? The goal is to provide measurable insights and strategic recommendations to enhance technology-based decision-making.

1.2. Purpose of the Study

The main objective of this research is to examine the impact of Artificial Intelligence (AI) on online sales performance, focusing on the perceptions and experiences of both consumers and businesses in the digital market. As AI technologies such as chatbots, recommendation systems, user behaviour analytics, and price optimization become more prevalent, it is essential to determine whether they genuinely enhance purchase conversion, customer satisfaction, and loyalty. Specifically, the study aims to: (1) assess the influence of chatbots and automated interactions on consumer decision-making; (2) evaluate the effectiveness of AI-based recommendation systems in driving sales; (3) explore Albanian users' perceptions of AI in online shopping; and (4) measure the relationship between AI adoption and business performance in terms of sales and efficiency. By doing so, the research provides empirical insights and practical recommendations for optimizing AI use to strengthen online sales in the Albanian and broader regional context.

1.3. Research Questions

1. How does the use of artificial intelligence chatbots affect customer experience during online shopping?
2. What is the consumer perception of product recommendations suggested by AI systems?
3. Does the use of artificial intelligence increase customer satisfaction and loyalty?
4. How effective are AI tools (chatbots, automatic suggestions, behavioural analysis) in increasing online sales by Albanian businesses operating in the digital market?

1.4. Research Hypothesis

H.1. The use of artificial intelligence chatbots has a positive impact on the customer experience during online shopping.

H.2. H_2: Consumers are more likely to make purchases when products are suggested to them in a personalized way by AI systems.

H.3. There is a positive relationship between the use of AI and increased customer satisfaction with the online platform.

H.4. Businesses that use AI tools on their online platforms report greater sales growth compared to those that do not use AI.

H.5. The higher the level of personalized interaction with the consumer through AI, the greater their loyalty to the brand.

2. Literature Review

The literature shows that artificial intelligence is a key driver in the development of online sales platforms, influencing every stage of the customer experience—from

chatbot interactions to product personalization and long-term loyalty. Its success depends not only on technical efficiency but also on user perception, trust, control, and the perceived usefulness of AI systems.

2.1. Role of AI in the Transformation of Trade Electronic

Artificial Intelligence has greatly advanced e-commerce by enabling smarter, more personalized, and efficient consumer platforms. It automates many human-operated functions, enhancing decision-making speed, recommendation accuracy, and cost efficiency. Umutoni (2025) notes that AI-driven automation and predictive analytics can reduce operational costs by up to 30% while improving customer satisfaction. Through machine learning and natural language processing, AI analyses vast transaction data in real time to identify individual preferences, creating more personalized shopping experiences.

2.2. Chatbots how Tool Automatic about Consumer Involvement

AI-powered chatbots have become a central component of the online customer experience. These systems simulate human interaction and provide continuous service, minimizing the need for human intervention and improving response efficiency. According to Natenadze (2024), chatbots enhance consumer engagement through personalized and immediate communication. In industries such as fashion, they assist in purchases, suggest styles and trends, and analyse user queries to refine automated responses, creating an increasingly personalized shopping experience.

2.3. Personalization through Systems: The Recommendation Based on AI

Personalization is a key determinant of success in online commerce, and AI-based recommendation systems play a central role in achieving it. Using machine learning algorithms, these systems analyse user behaviour—such as purchase history and browsing patterns—to generate highly relevant product suggestions. Jayakumar et al. (2024) emphasize that deep personalization through AI enhances customer experience, boosts conversion rates and revenue, and supports targeted marketing campaigns that foster long-term loyalty.

2.4. Perceptions and Consumer Acceptance of their AI Applications

As AI technologies evolve, consumer perception remains vital for their adoption. Acceptance depends on trust, user experience, system intuitiveness, and the user's sense of control during purchasing. Sugiharti and Lestari (2024) found that users who view AI applications as useful and secure are more likely to adopt them regularly. Trust, perceived control, and privacy-preserving interactions significantly enhance long-term consumer–platform relationships.

2.5. Similar studies

Research on Artificial Intelligence in online sales has expanded considerably, highlighting its influence on consumer behaviour, personalization, and satisfaction. Krishnaia et al. (2025) found that AI enhances customer interaction and purchasing decisions through tailored recommendations and adaptive interfaces, increasing conversions by 35%. Rodriguez et al. (2024) showed that integrating AI with augmented reality, such as virtual "try-on" tools, improves satisfaction and trust. Similarly, Shepherd and Markantonakis (2024) emphasized the importance of secure payment environments like Trusted Execution Environments (TEEs) for maintaining consumer trust. Majoul et al. (2024) reported higher platform loyalty among users engaging with AI-driven FAQ bots compared to traditional support. Collectively, these studies confirm that AI is not merely a technological innovation but a strategic tool for customer interaction and relationship management.

3. Research Methodology

This study follows a quantitative approach, based on the collection and analysis of numerical data to investigate the impact of artificial intelligence on online sales. The quantitative approach was selected because it allows for the statistical measurement of consumers' perceptions, experiences, and attitudes towards the use of AI. Since the research aims to test clear hypotheses and measure relationships between certain variables, the use of a quantitative method is considered the most appropriate for this purpose.

Furthermore, the study is descriptive and correlational in nature, as it does not involve intervention or manipulation of the environment, but aims to describe and analyse the relationships that exist naturally between the use of AI and its perceived results in online sales. The descriptive approach helps identify patterns and trends, while the correlational approach enables testing of statistical relationships between variables.

3.1. Population and Sample

The population considered for this study consists of two main categories: (1) consumers of e-commerce platforms, who use online services to purchase products or services; and (2) representatives of digital businesses that operate through these platforms, including small and medium-sized enterprises (SMEs) engaged in online sales, marketing, and customer support. The inclusion of both groups enables a comprehensive understanding of AI's influence from the perspective of both users and service providers. The sample was selected using a simple random sampling method to ensure an unbiased representation of the target population. The total sample consists of 160 respondents, primarily regular users of online sales platforms. For consumers, the inclusion criterion was having made at least one online purchase within the last 12 months.

3.2. Research Instrument

The main instrument used for data collection is a structured questionnaire, specifically designed for this study. The questionnaire contains closed-ended questions and is divided into four sections: (1) demographic data; (2) experience with chatbots; (3) use of personalized recommendations; and (4) customer satisfaction and loyalty.

Most questions are formulated on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree), to enable a more detailed statistical analysis of attitudes and perceptions. The questionnaire was initially tested for linguistic clarity and coherence before official distribution.

3.3. Data Collection Procedure

Data were collected through an online questionnaire platform (Google Forms), distributed on social networks (Facebook, LinkedIn, Instagram), and closed community groups of consumers and e-commerce professionals. Participants were clearly informed about the purpose of the research and were assured of the confidentiality and anonymity of their data. The data collection process lasted 3 weeks, during which the collected responses were continuously verified to eliminate duplications or inconsistencies. Incomplete or irrelevant responses were excluded from the analysis.

3.4. Data Analysis Methods

After collection, the data were exported into formats suitable for statistical analysis (Excel, CSV) and processed using a program such as SPSS. The analysis was carried out at two levels:
   - Descriptive statistics, to summarize data (frequency, percentage, mean, standard deviation etc.);
   - Inferential analysis, to test the hypotheses through methods such as Pearson correlation, t-test for differences between groups, and linear regression to assess the impact of AI on sales.

The results will be used to verify whether there is a significant relationship between the use of AI and other indicators such as customer satisfaction or increased business performance.

3.5. Study Limitations

Despite its rigorous design, this study has certain limitations. It focuses exclusively on Kosovo, limiting the generalizability of the findings beyond this context. The reliance on self-reported online questionnaires may introduce subjective or socially influenced responses, and the stronger representation of consumers compared to businesses may create analytical imbalance. Future research should apply mixed methods, including

interviews and internal business data analysis, to ensure deeper and more comprehensive insights.

4. Results

This chapter presents and analyses data from a questionnaire assessing the impact of artificial intelligence (AI) on consumers' online shopping experiences and behaviours. Using a quantitative approach, the analysis focuses on perceptions, interactions, and responses related to chatbots, recommendation systems, and other AI tools, serving as a basis for hypothesis testing and conclusions on AI's effectiveness in e-commerce. The demographic data show that 34.8% of respondents were male and 65.2% female, indicating balanced engagement across genders. Most participants were aged 18–24, followed by those in the 25–34 and 35–44 age ranges, confirming that younger users are more active in online shopping and more receptive to AI-driven technologies, aligning with previous research on digital adoption trends.
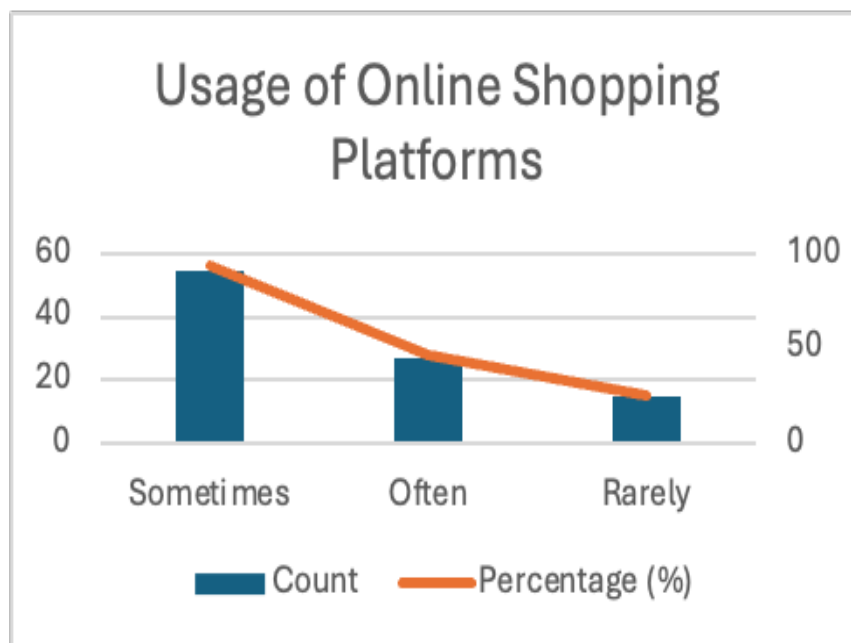

Diagram 1. *Usage of Online Shopping Platforms*

The data show that most respondents (about 56%) use online shopping platforms occasionally, indicating moderate engagement with digital commerce. Around 28% shop frequently, reflecting strong technological integration in their purchasing habits, while only 15% use such platforms rarely, suggesting limited e-commerce experience. Overall, the sample demonstrates regular to moderate online activity, making it suitable for analysing the influence of artificial intelligence on consumer shopping experiences.

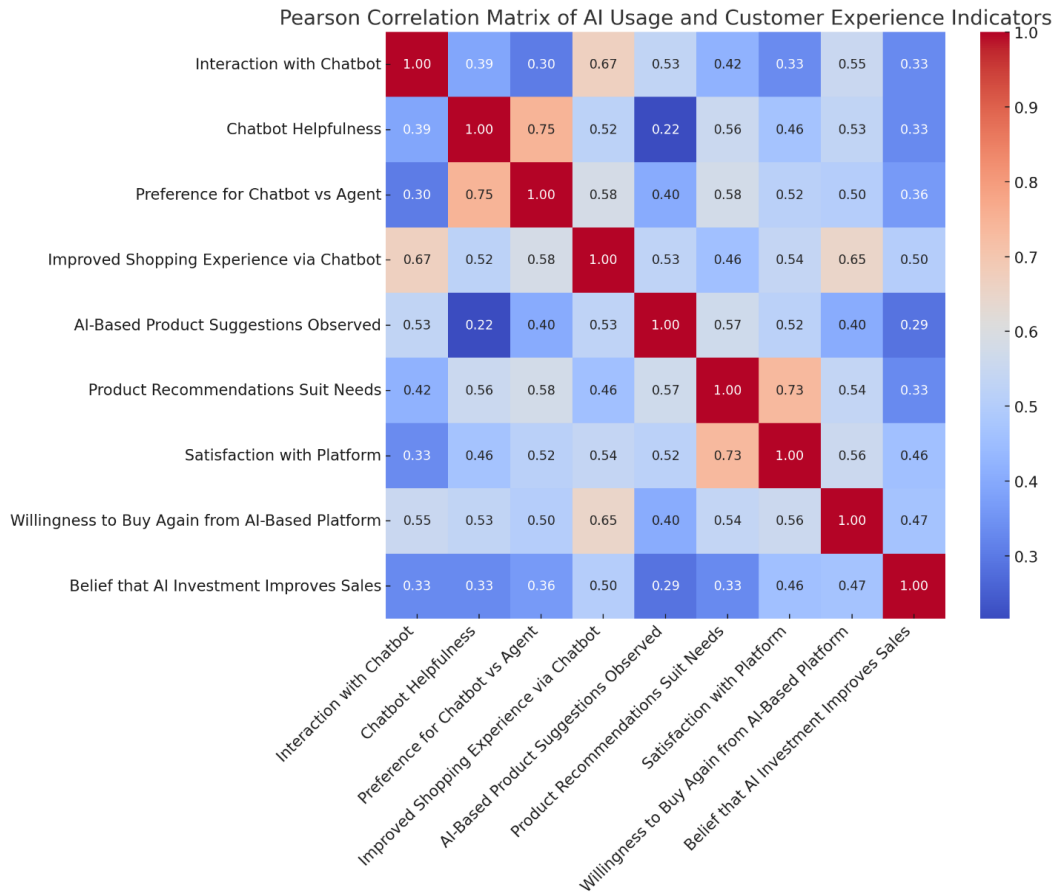Pearson Correlation Matrix of AI Usage and Customer Experience Indicators

Diagram 2. *Pearson Correlation Matrix of AI Usage and Customer Experience Indicators*

The Pearson Correlation Matrix illustrates significant positive relationships between artificial intelligence (AI) use and customer experience in online shopping. Chatbot interaction strongly correlates with improved shopping experience (r = 0.67) and preference over human agents (r = 0.75), indicating that helpful chatbots enhance satisfaction and engagement. AI-based product recommendations also show moderate correlations with suitability to user needs (r = 0.57) and platform satisfaction (r = 0.52), while improved experience via chatbots is highly linked to willingness to repurchase (r = 0.65). Moreover, belief in AI's contribution to sales improvement correlates positively with all experience indicators (r = 0.50). Overall, the findings confirm that AI positively influences interaction, personalization, satisfaction, and loyalty, supporting the study's hypotheses and emphasizing AI's strategic role in online commerce.

ANOVA Test Results   Table 1

Source	Dependent Variable	Sum of Squares	df	Mean Square	F	Sig. (p)
Between Groups	Satisfaction by Age	26.97	3	8.99	5.28	0.0017
Within Groups	Satisfaction by Age	267.5	157	1.7		
Total	Satisfaction by Age	294.47	160			
Between Groups	Satisfaction by Platform Use	24.87	2	12.44	7.29	0.0009
Within Groups	Satisfaction by Platform Use	269.6	158	1.71		
Total	Satisfaction by Platform Use	294.47	160			

The ANOVA results reveal statistically significant differences in platform satisfaction based on both age and frequency of platform use. For age, the analysis (F = 5.28, p = 0.0017) shows that younger users, particularly those aged 18–24, are more receptive to AI-based features and report higher satisfaction with personalized digital experiences. Similarly, satisfaction differs significantly by frequency of use (F = 7.29, p = 0.0009), with frequent users expressing greater satisfaction due to higher exposure to AI-driven tools. These findings highlight that both demographic and behavioural factors shape user perceptions, emphasizing the need for AI personalization strategies tailored to different user segments.
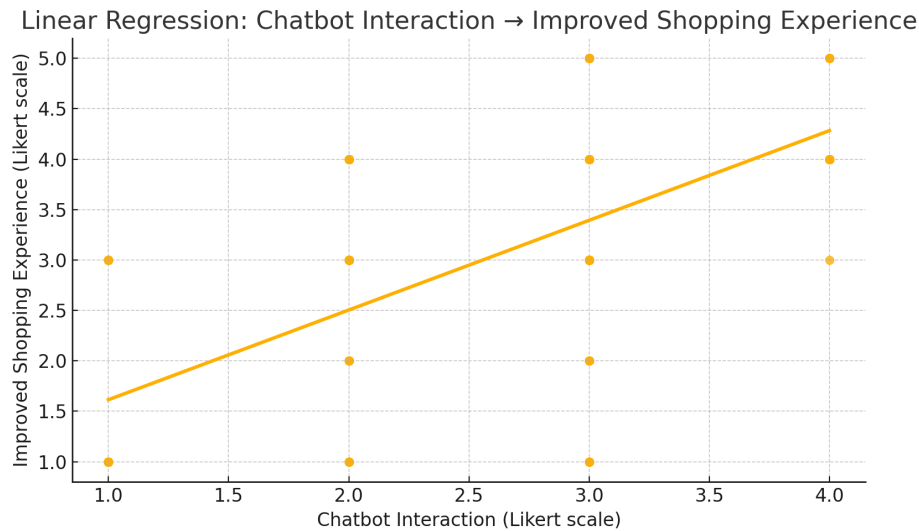

Diagram 3. *Linear Regression: Chatbot Interaction → Improved Shopping Experience*

The regression analysis demonstrates a strong positive linear relationship between chatbot interaction and perceived improvement in the online shopping experience. The model explains 45% of the variance in user experience (R^2 = 0.448, F = 124.75, p < 0.001), confirming that frequent chatbot use enhances efficiency, satisfaction, and perceived professionalism. Similarly, the recommendation model shows that AI-based personalization explains 28% of consumers' willingness to make unplanned or repeat purchases (R^2 = 0.278, F = 59.24, p < 0.001), highlighting its role in driving sales. The combined model of chatbot interaction, recommendations, and experience improvement explains 36% of the overall satisfaction (R^2 = 0.364, F = 28.95, p < 0.001), showing that satisfaction arises from the integrated effect of multiple AI components. Overall, these findings affirm that well-designed chatbots and personalized recommendations significantly enhance user experience, trust, and loyalty on online platforms.

5. Discussions

The findings of this study confirm the crucial role of Artificial Intelligence (AI) in enhancing customer experience, satisfaction, and online sales performance. Statistical analyses (Pearson correlation, ANOVA, and linear regression) consistently demonstrate strong relationships between AI features and user outcomes. Chatbot interaction explains 45% of the variance in improved user experience (R^2 = 0.448, p < 0.001), aligning with studies that highlight chatbots' role in fast, personalized, and continuous support (Natenadze, 2024; Umutoni, 2025; Mohamadifar et al., 2025). AI-driven recommendations account for 28% of repeat purchases (R^2 = 0.278, p < 0.001), confirming that personalization fosters impulsive buying and consumer trust (Jayakumar et al., 2024; Jlassi et al., 2025). The combined model, chatbot interaction, recommendations, and experience enhancement, explains 36% of the satisfaction variance (R^2 = 0.364, p < 0.001), consistent with findings that virtual try-on tools and recommendation systems heighten engagement and loyalty (Gao and Liang, 2025; Burnstine and Ghattas, 2025). ANOVA results show significant effects of age and usage frequency: users aged 18–24 and frequent buyers report the highest satisfaction, reflecting openness to technology and the "learning-by-use" effect (Phuong et al., 2025; Rodriguez et al., 2024). Overall, the study reinforces that AI functions not merely as a technological tool but as a strategic driver of customer relationship management and trust (Krishnaia et al., 2025; Majoul et al., 2024; Sugiharti and Lestari, 2024).

In conclusion, the study demonstrates that artificial intelligence (AI) has a positive and measurable impact on online sales platforms by enhancing the shopping experience, increasing repeat purchase intentions, and strengthening customer satisfaction and loyalty. Supported by recent literature, these findings contribute to both theoretical and practical frameworks for AI integration in digital commerce. They highlight the

importance of tailoring AI strategies to user demographics and engagement levels. Consistent with global research trends, AI emerges as an essential element of modern e-commerce, with tools such as chatbots and intelligent recommendations fostering personalized consumer relationships and deeper brand engagement (Bachina and Kanagala, 2025).

Based on the statistical analyses (descriptive statistics, Pearson correlation, ANOVA, and linear regression), the study provides clear answers to all research questions and confirms most hypotheses.

Question 1: The use of AI chatbots significantly enhances customer experience, explaining 45% of the variance in perceived improvement (R^2 = 0.448; $p < 0.001$). Frequent chatbot interactions lead to more personalized and satisfying experiences, confirming H1.

Question 2: AI-generated product recommendations positively influence purchasing behaviour, with a strong correlation to repeat and unplanned purchases (r = 0.57; R^2 = 0.278). Consumers feel understood and engaged, confirming H2.

Question 3: Chatbot interaction, intelligent suggestions, and improved experience together explain 36% of platform satisfaction (R^2 = 0.364; $p < 0.001$). The strong correlation between improved experience and repeat purchases (r = 0.65) supports H3 and H5, showing that AI fosters satisfaction and loyalty.

Question 4: Although business data were not directly analysed, user perceptions indicate that AI enhances sales through personalization and better experiences (r = 0.50 with experience; r = 0.48 with satisfaction). Thus, H4 is partially confirmed.

The discussion highlights that Artificial Intelligence (AI) functions as a central driver—rather than a supplementary tool, in shaping customer experience, behaviour, and loyalty on online platforms. The statistical findings reinforce existing literature, underscoring the increasing relevance of personalization, real-time interaction, and intelligent automation. These insights carry practical implications for designing adaptive, user-centred, and data-driven digital experiences.

6. Conclusions

This study provides a comprehensive analysis of the impact of Artificial Intelligence (AI) on consumer experiences and the performance of online sales platforms in Kosovo. Using a quantitative approach, the findings demonstrate that chatbots significantly enhance user experience, explaining 45% of its variability (R^2 = 0.448), while personalized recommendations influence purchasing behaviour and loyalty (R^2 = 0.278).

The combined effect of chatbots, recommendations, and overall experience improvement accounts for 36% of the satisfaction variance (R^2 = 0.364), underscoring AI's multifaceted contribution to user engagement. Younger consumers (18–24) and frequent users reported the highest satisfaction, highlighting the role of demographic and behavioural factors in AI perception. Overall, the study confirms that AI-driven tools are essential for creating personalized, efficient, and trustworthy digital experiences, making AI not just a supportive technology, but a cornerstone of modern e-commerce strategy.

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