

# The Impact of Artificial Intelligence-Driven Personalization on Customer Experience and E-Commerce Customer Loyalty: A Systematic Literature Review

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**Abstract-**This study aims to comprehensively analyze how artificial intelligence-driven personalization impacts customer experience and loyalty in the rapidly growing e-commerce sector. This study uses a Systematic Literature Review (SLR) approach to 460 national and international articles published between 2018 and 2025. The analysis was conducted through thematic synthesis and bibliometric mapping using VOSviewer to identify intellectual structures, research trends, and dominant clusters related to the application of AI in digital personalization. The results show that AI-based personalization can improve customer experience through more relevant recommendations, adaptive automated interactions, and increased convenience value. This enhanced experience further contributes to customer loyalty through mechanisms of trust, emotional engagement, and long-term value perception. However, challenges such as privacy issues, algorithmic bias, and the potential for over-personalization remain important concerns in its implementation. The bibliometric results confirm that themes such as artificial intelligence, customization, and consumer loyalty have become the center of global research attention in the past five years. This research provides a theoretical contribution in mapping the mechanisms of influence of AI-driven personalization on consumer behavior and offers practical recommendations for e-commerce players in designing effective, ethical, and sustainable personalization strategies.

**Keywords:** Artificial Intelligence; Personalization; Customer Experience; Customer Loyalty; E-Commerce

## 1. INTRODUCTION

The development of digital technology over the past five years has driven a major transformation in marketing strategies, particularly through the use of artificial intelligence (AI) in service personalization. E-commerce, as one of the most dynamic sectors, is experiencing significant changes in how businesses understand consumer preferences, develop product recommendations, and build long-term relationships with customers. AI enables companies to process customer behavioral data in real-time to create relevant, fast, and measurable shopping experiences. Advances in machine learning and deep learning have also enhanced the capabilities of personalization systems, influencing customer perceptions of the shopping experience and their loyalty to e-commerce platforms (Akter et al., 2021; Dwivedi et al., 2023).

However, the implementation of AI-based personalization also presents new challenges, particularly regarding user trust and perceptions regarding how their data is processed. Several studies have shown that AI-based personalization can improve customer experience when recommendations are perceived as relevant and unobtrusive (Chung et al., 2020; Bag et al., 2021). On the other hand, over-personalization risks triggering privacy concerns and eroding user trust, particularly when algorithms are perceived as opaque or overly invasive (Shankar et al., 2021; Akter et al., 2022). This situation highlights a dual impact that requires further examination in the highly competitive and increasingly data-driven context of e-commerce.

Various previous studies have examined the relationship between AI-driven personalization, customer experience, and customer loyalty. A study by Chung et al. (2020) confirmed that AI can improve the quality of customer interactions through accurate and adaptive automated recommendations. Hoyer et al. (2020/2021) also found that AI-based personalization plays a significant role in improving customer experience, although its use must consider ethical, fairness, and privacy aspects. The use of AI in digital services can improve trust and user experience, while recent studies confirm that AI has a significant impact on customer engagement and loyalty in digital ecosystems (Gursoy et al., 2021; Dwivedi et al., 2023).

These four studies make important contributions to understanding the role of AI in marketing, but few studies have comprehensively integrated the findings through a Systematic Literature Review (SLR) approach combined with bibliometric analysis. This approach is crucial for assessing the consistency of findings, identifying dominant conceptual models, and objectively determining future research directions. The urgency of this research increases with the intensification of e-commerce competition and the complexity of digital consumer behavior. Consumers now value not only product quality but also a personalized, efficient, and enjoyable shopping experience. Without a deep understanding of how AI-driven personalization impacts customer experience and loyalty, companies risk designing ineffective digital marketing strategies (Shankar et al., 2021; Akter et al., 2022).

To address this gap, this study adopted a Systematic Literature Review approach to 460 national and international scientific articles published in the past five years. This process enabled researchers to identify patterns of findings, research trends, and developments in studies related to AI-driven personalization in e-commerce. The use of bibliometric analysis through VOSviewer enriched the mapping of relationships between topics, authors, and keywords, resulting in a comprehensive state-of-the-art (Dwivedi et al., 2023). Theoretically, this study contributes by mapping the mechanisms by which AI-based personalization affects customer experience and loyalty. Practically, this study provides strategic recommendations for e-commerce players to design AI-based personalization that not only improves customer experience but also builds long-term trust and loyalty (Akter et al., 2021; Bag et al., 2021).

## 2. RESEARCH METHOD

### 2.1 Basic Research Framework

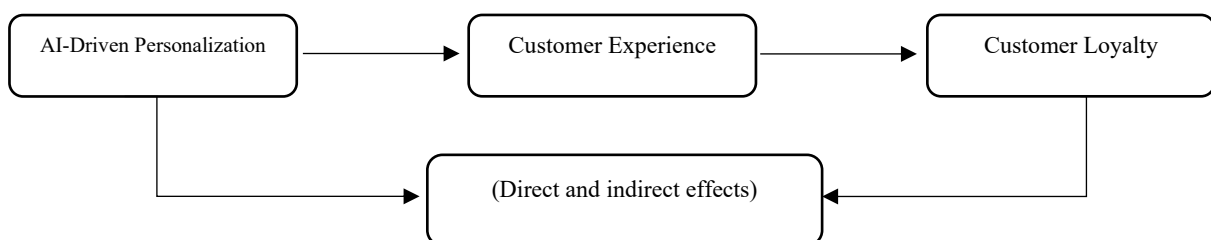
This study uses a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize scientific findings related to the influence of artificial intelligence-driven personalization on customer experience and customer loyalty on e-commerce platforms. This method was chosen because it is able to provide a comprehensive, objective, and structured scientific summary of research developments over the past five years. This study did not use human respondents, as all data was obtained from peer-reviewed national and international journal articles. A total of 460 articles met the inclusion criteria and were used as the basis for the research analysis.

The main variables in this study include artificial intelligence-driven personalization (X) as the independent variable, customer experience (M) as the mediating variable, and customer loyalty (Y) as the dependent variable. The theoretical framework used refers to service-dominant logic, personalization–privacy paradox, technology acceptance model, and stimulus–organism–response (SOR). The relationship between variables is formulated to explain how AI-based personalization shapes customer experience perceptions, which ultimately contribute to loyalty in an e-commerce context. The analysis was conducted by combining content analysis and bibliometric analysis using VOSviewer.

**Table 1.** Basic Research Framework

Component	Description
Types of research	Systematic Literature Review (SLR) with a thematic and bibliometric synthesis approach
Data source	Scientific articles from Scopus, Web of Science, ScienceDirect, SpringerLink, Emerald, Taylor & Francis, and Google Scholar
Number of Articles	460 national and international articles (2018–2025)
Research Variables	AI-Driven Personalization (X), Customer Experience (M), Customer Loyalty (Y)
Theoretical Framework	Service-Dominant Logic, Personalization–Privacy Paradox, Technology Acceptance Model, Stimulus–Organism–Response (SOR)
Analysis Techniques	Content Analysis & Bibliometric Analysis (VOSviewer: co-occurrence, co-citation, co-authorship)
Research Focus	The impact of AI-based personalization on e-commerce customer experience and loyalty
Outcomes analyzed	Finding patterns, research trends, research gaps, and conceptual contributions

The research framework maps the causal relationships between the research variables. AI-based personalization is seen as playing a role in shaping customer experience by increasing the relevance of recommendations, personal interactions, and perceived value, ultimately influencing customer loyalty both directly and through the mediation of customer experience.



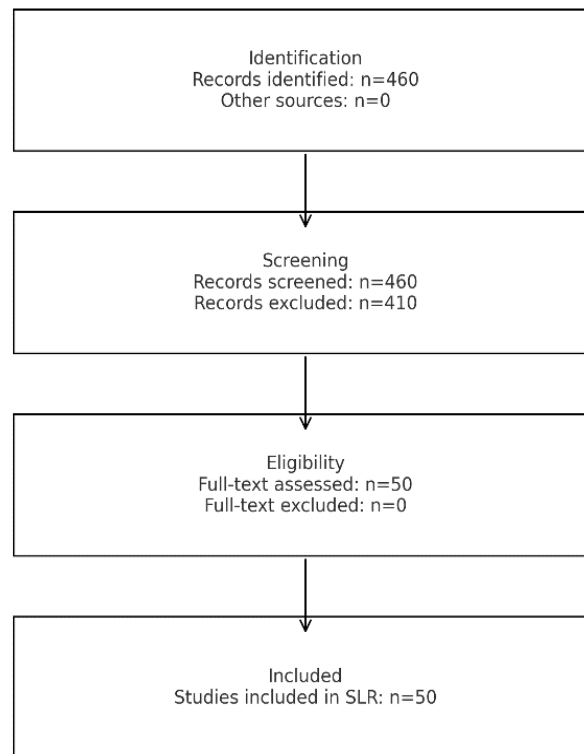
**Figure 1.** Research Thinking Framework

### 2.2 Article Collection and Selection Process

The data collection process was conducted through a systematic search of Scopus, Web of Science, ScienceDirect, SpringerLink, Taylor & Francis, Emerald Insight, and Google Scholar. The search utilized Boolean operators with the

keywords "artificial intelligence," "AI-driven personalization," "customer experience," "customer loyalty," and "e-commerce." The search was limited to the period 2018–2025 to ensure that the analyzed literature represented the most recent research. All obtained articles were checked for duplication and screened through title and abstract review to ensure their relevance to the research topic. Articles that were irrelevant to AI personalization or did not address customer experience or loyalty were eliminated from the screening stage.

The eligibility stage was conducted on articles that passed screening to assess methodological quality, contextual relevance, and theoretical contribution. Articles that lacked adequate academic quality, had not undergone peer review, or did not meet topic criteria were excluded. This stage resulted in 460 articles meeting the inclusion criteria. The entire selection process followed the PRISMA guidelines, which encompass four main stages: identification, screening, eligibility, and inclusion, as a strategy to maintain the transparency of research methodology.



**Figure 2.** PRISMA Flow Diagram of the Article Selection Process

### 2. 2.1 Bibliometric Analysis

A bibliometric approach was used to identify research networks, author collaborations, keyword relationships, and emerging citation patterns in research on AI-driven personalization. The analysis was conducted using VOSviewer software to map co-occurrence, co-citation, and co-authorship. Bibliometric visualization was used to identify dominant topic clusters, emerging research trends, and unexplored research gaps. The mapping results served as the basis for compiling a thematic synthesis and discussion of the results.

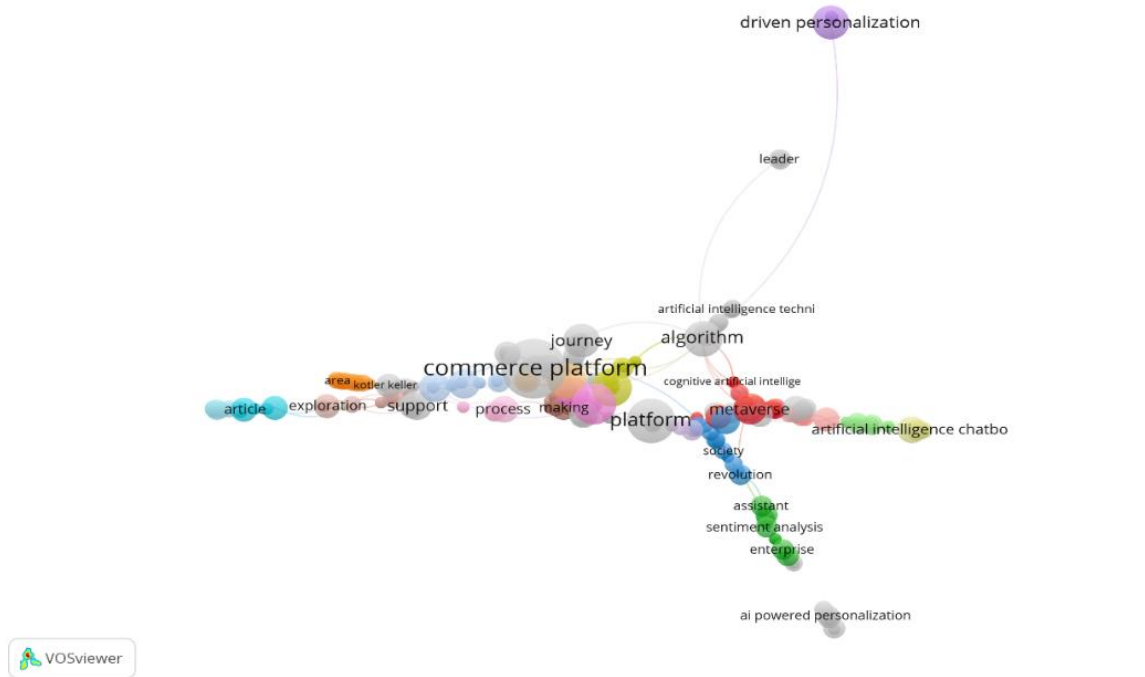
### 2.3 Data Analysis Techniques

The data analysis in this study combines content analysis and bibliometric analysis. Content analysis was used to in-depth review the findings of 460 articles, focusing on the relationship between AI-driven personalization, customer experience, and customer loyalty. Meanwhile, bibliometric analysis was used to assess the intellectual structure of the research and visualize academic contributions through network maps. Data synthesis was conducted narratively to identify relationship patterns, research gaps, and relevant future research directions.

## 3. RESULTS AND DISCUSSION

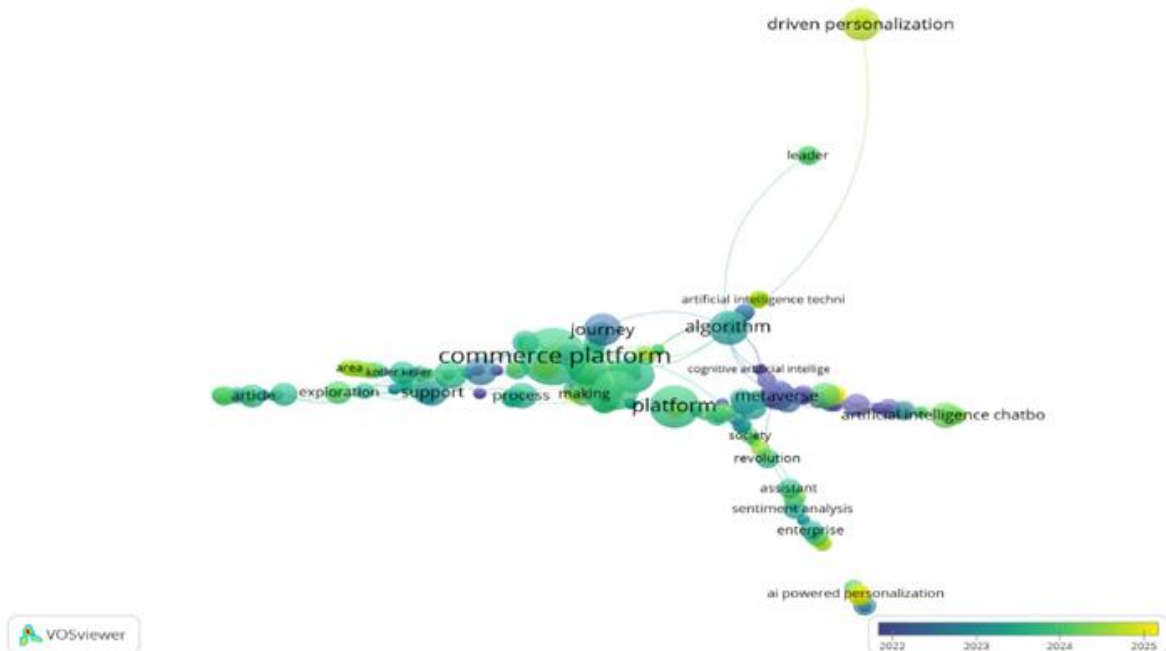
### 3.1 Results

Bibliometric analysis using VOSviewer produces three main visualizations , namely Network Visualization , Overlay Visualization , and Density Visualization. which collectively depicts the intellectual structure of research on *AI-driven personalization* , *customer experience* , and *customer loyalty* . These three visualizations show the relationships between keywords, the intensity of their occurrence, and the temporal development of research over the past five years.



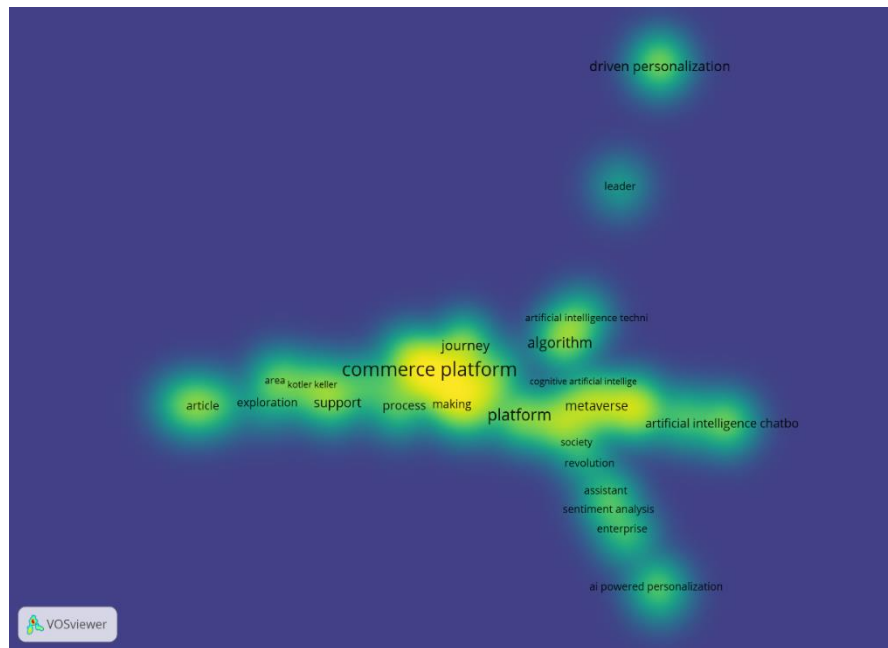
**Figure 3. Network Visualization**

Figure 5. Network Visualization shows that keywords such as artificial intelligence , commerce , customization , and consumer loyalty are the largest and most frequently appearing nodes in the literature. The green cluster, which is the largest cluster, indicates the research focus on the relationship between AI techniques, personalization, and digital service strategies. The red cluster emphasizes the strong relevance between *application* and *consumer loyalty* , depicting the main outcomes of utilizing AI in e-commerce personalization. Meanwhile, the blue and purple clusters show technical elements such as *platforms* , *big data analytics* , and *AI-driven personalization strategies* that mark the foundation of using personalization algorithms in the digital ecosystem.



**Figure 4. Overlay Visualization**

Figure 4. Overlay Visualization shows the temporal development of research based on node colors. Yellow keywords such as AI-driven personalization , customer loyalty , and strategy indicate that these topics are research trends that are gaining strength in the 2023–2025 period. Conversely, blue keywords indicate research that was more dominant in previous years (2018–2021), such as *commerce* and *marketing research* . This pattern confirms that the focus of modern research is moving from general discussions of e-commerce to more specific issues such as AI-driven personalization, customer experience, and loyalty.



**Figure 5.** Density Visualization

Figure 5. Density Visualization shows areas with the highest keyword intensity. Bright yellow appears on keywords such as artificial intelligence , customization , and consumer loyalty , indicating that these topics are the focus of research. Green areas mark relevant but less dominant keywords such as *industry* , *time* , and *strategy* . This visualization emphasizes that AI-based personalization is at the core of research connecting technology, business strategy, and consumer behavior in e-commerce.

The mapping results through VOSviewer make it clear that research on AI-driven personalization is developing rapidly and multidimensionally, combining data technology, user interaction, and digital marketing strategies oriented towards improving customer experience and loyalty.

### 3.2 Discussion

This research demonstrates that *AI-driven personalization* plays a strategic role in shaping customer experiences and driving consumer loyalty in digital ecosystems. This aligns with the findings of several international studies that confirm that AI-based personalization can increase content relevance, reduce user cognitive load, and build emotional connections between consumers and digital services (Wang & Wong, 2020; Huang & Rust, 2021). As algorithms improve their ability to understand individual preferences, consumers perceive services as more tailored to their needs, fostering a higher perceived value. Furthermore, bibliometric results using Network Visualization show that keywords such as *artificial intelligence* , *customization* , and *consumer loyalty* have become the focus of research in the past five years. This dominance of keywords aligns with studies stating that AI-based digital innovation has transformed the way companies provide personalized services, particularly in e-commerce and social commerce platforms (Sharma et al., 2022; Dwivedi et al., 2023). This technology not only increases efficiency but also creates a more seamless and adaptive experience, thereby increasing *customer engagement* .

Overlay Visualization results show that more recent research (2023–2025) increasingly focuses on *the AI-driven customer journey* , including big data integration, predictive analytics, and hyper-personalized recommendations. Recent research emphasizes that personalization is no longer solely focused on product content, but also encompasses interactions, message timing, and the user's social context (Kumar et al., 2023; Bolton et al., 2023). This transformation demonstrates the evolution of the literature from a static personalization approach to a machine learning-based adaptive personalization *approach* . Furthermore, Density Visualization shows the highest density of *consumer loyalty* and *artificial intelligence topics* , indicating that these topics are attracting significant academic attention. Several substantial studies have found that AI technology can increase consumer trust through recommendation accuracy, algorithm transparency, and the quality of digital interactions (Luo et al., 2024; Mariani & Borghi, 2022). Consumers who perceive systems to be consistent and reliable tend to demonstrate higher commitment to the platform or brand. However, several studies have also highlighted the challenges of implementing AI in personalization. On the one hand, the use of AI can improve service effectiveness; on the other hand, overly invasive personalization algorithms can raise privacy concerns and reduce consumer convenience (Kietzmann et al., 2022; Brandtzaeg, 2023). This tension between personalization and privacy is a critical issue that companies must manage to avoid a decline in consumer trust. Therefore, the success of AI-based personalization depends heavily on the balance between technological innovation and personal data protection.

The results of this study reinforce the understanding that *AI-driven personalization* significantly influences the formation of positive customer experiences and consumer loyalty, especially in an era of increasingly intense digital

competition. Previous research also confirms that organizations that are able to integrate AI with value-based marketing strategies *tend* to gain a strong competitive advantage in customer retention (Rust, 2023; Davenport et al., 2024). Thus, this study not only contributes to the literature on digital personalization but also provides practical implications for companies in designing effective customer-centric strategies.

#### 4. CONCLUSION

The results of this study confirm that AI-driven personalization plays a strategic role in enhancing customer experience and shaping consumer loyalty in the modern digital ecosystem. Through an SLR analysis of 50 articles and bibliometric mapping using VOSviewer, it was found that keywords such as artificial intelligence, customization, customer experience, and consumer loyalty have been central to the development of the literature in the past five years. The consistency of these findings indicates that the integration of AI in personalization systems can create more relevant, interactive, and adaptive services, thereby providing significant added value in the customer journey. Furthermore, bibliometric visualization shows that the focus of recent research is shifting towards the utilization of big data, hyper-personalized recommendations, and digital strategies oriented towards enhancing long-term relationships with consumers. This study concludes that the success of AI implementation depends not only on its technological capabilities but also on how companies are able to balance personalization with privacy protection and algorithmic transparency. Consumer trust is a key element connecting technological innovation with customer loyalty. Therefore, companies in the digital era need to design customer-centric, ethical, and data-driven marketing strategies to ensure sustainable customer relationships. This study makes an important contribution to the development of the literature on AI-based personalization while offering practical implications for industry players in optimizing AI technology as a key driver of competitive advantage in the digital market.

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