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Impact of AI-Powered Recommendation Systems on Consumer Purchase Intention in E-Commerce: A Review

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Abstract : *Artificial intelligence (AI)-powered recommendation systems have become a central feature of e-commerce platforms. By analysing browsing history, past purchases, search behaviour, ratings, and demographic information, these systems suggest products that appear relevant to individual consumers. This paper reviews existing literature on the relationship between AI-based recommendation systems and consumer purchase intention in e-commerce. The review finds that recommendation quality, personalization, perceived usefulness, trust, and reduced search effort generally strengthen purchase intention. However, privacy concerns, perceived intrusiveness, algorithmic bias, and lack of transparency can reduce consumer acceptance. The paper concludes that AI recommendations can improve consumer engagement and sales conversion, but e-commerce firms must balance personalization with data privacy, explainability, and ethical data use.*

Keywords: Artificial intelligence, recommendation systems, e-commerce, consumer behaviour, purchase intention, personalization, trust, privacy

I. INTRODUCTION

E-commerce platforms such as Amazon, Flipkart, Myntra, and online grocery platforms increasingly use artificial intelligence (AI) to recommend products to users. These recommendation systems use machine-learning algorithms to predict consumer preferences and display personalized product suggestions, such as "Recommended for you," "Customers also bought," or "Frequently bought together."

Consumer purchase intention refers to a consumer's willingness or plan to buy a particular product or service. In online shopping, purchase intention is influenced by product relevance, convenience, trust in the platform, perceived value, reviews, price, and the overall shopping experience. AI recommendation systems may influence these factors by making product discovery easier and by presenting options that match consumer preferences.

Existing research indicates that AI recommendations can increase product discovery, engagement, and unplanned purchases. However, the effectiveness of recommendations depends on whether consumers perceive them as useful, accurate, trustworthy, and non-intrusive. Therefore, this paper reviews the existing literature to understand how AI-powered recommendation systems affect consumer purchase intention in e-commerce.

Objectives of the Study:

- To examine the impact of AI-powered recommendation systems on consumer purchase intention in e-commerce.
- To identify the main factors that make AI recommendations effective, including personalization, recommendation quality, trust, and perceived usefulness.

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- To analyse the negative factors that may reduce purchase intention, such as privacy concerns, intrusiveness, and lack of transparency.
- To identify research gaps and suggest directions for future research.

II. RESEARCH METHODOLOGY

This study is based on secondary data and follows a narrative literature-review approach. Secondary research involves analysing and synthesizing existing studies rather than collecting new primary data through surveys or experiments.

The review considered peer-reviewed journal articles, bibliometric studies, and credible industry and academic sources related to AI recommendation systems, e-commerce, consumer behaviour, and purchase intention. The review mainly considered studies published between 2015 and 2026, as AI-based recommendation systems expanded rapidly during this period.

Conceptual Background

Independent variable	Mediating variables	Dependent variable	Moderating/negative factors
AI-powered recommendation systems	Personalized recommendations, perceived usefulness, recommendation quality, trust, reduced search effort, consumer engagement	Consumer purchase intention	Privacy concerns, perceived intrusiveness, lack of transparency, algorithmic bias

III. REVIEW OF LITERATURE

AI Recommendations and Purchase Intention

Pallavi and Chithambar (2026) stated that AI-powered recommendation systems positively influence consumer purchase intention through personalization, recommendation quality, transparency, explainability, and trust. Similarly, Chan et al. (2026) stated that perceived usefulness and personalization quality are important factors that increase consumer engagement and purchase intention in digital marketplaces. Khanh et al. (2025) also stated that AI-powered personalization improves consumer engagement and strengthens purchase intention on e-commerce platforms.

Yun and Chun (2024) stated that personalized recommendations influence purchase intention through consumers' flow experience and perceived trust. Yin et al. (2025) stated that consumer insight and recommendation mechanisms affect purchase intention by helping consumers identify suitable products. Chang and Park (2024) further stated that trust in AI recommendations and trust in recommended products help consumers form a consideration set, which may lead to purchase intention.

Personalization and Relevance

Khanh et al. (2025) stated that personalization is a major driver of purchase intention because it provides consumers with product suggestions based on their preferences, browsing history, and previous purchases. This reduces the effort required to search for suitable products and improves the overall shopping experience.

Yun and Chun (2024) stated that recommendation precision, timeliness, interactivity, recommendation strength, and information layout influence consumers' response to personalized recommendations. Chan et al. (2026) also stated that personalization depth, adaptive ranking, and explanation interfaces shape consumer attitudes toward AI-based recommender systems.

However, Pallavi and Chithambar (2026) stated that personalization may become excessive when consumers feel that a platform is monitoring their behaviour too closely. They noted that perceived manipulation and privacy concerns can weaken acceptance of AI recommendation systems, even when the recommendations are accurate.

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Trust and Transparency

Pallavi and Chithambar (2026) stated that trust is an important factor linking AI recommendations with purchase intention. Consumers are more likely to accept recommendations when they trust the platform, believe the recommendations are accurate, and understand why particular products are suggested.

Chang and Park (2024) stated that trust in AI recommendations and trust in the recommended products influence the formation of a consumer consideration set and subsequent purchase intention. Filipović and Šapić (2025) also stated that perceived ease of use and perceived usefulness are important factors that influence consumer engagement and purchase intention.

Chan et al. (2026) stated that transparency and explainability reduce uncertainty in algorithmic decision-making and improve consumer confidence in AI recommendations. They also highlighted that ethical concerns, including algorithmic bias and lack of transparency, remain major challenges for AI-driven personalization.

Privacy Concerns and Consumer Resistance

Pallavi and Chithambar (2026) stated that privacy concerns, perceived manipulation, and algorithmic bias weaken consumer acceptance of AI recommendation systems. Consumers may resist personalized recommendations if they believe that their personal data are being collected, stored, or used without adequate protection.

Chan et al. (2026) stated that data privacy, algorithmic bias, and transparency are key ethical concerns in AI-based recommender systems. They argued that responsible AI personalization requires transparent, scalable, and consumer-centred recommendation strategies.

Khanh et al. (2025) stated that the success of AI-powered personalization depends not only on recommendation accuracy but also on consumers' perceptions of privacy and trust. Therefore, even highly relevant recommendations may fail to increase purchase intention if consumers feel uncomfortable with data collection or targeted advertising.

Product Type and Recommendation Context

Yu et al. (2026) stated that AI-generated reviews significantly increase purchase intention for search products, such as electronics and books, but do not have a significant effect on experience products, such as clothing, cosmetics, food, and travel services. This indicates that the effectiveness of AI recommendations depends on the type of product being recommended.

Bozdog et al. (2025) stated that AI chatbots influence consumers' purchase intention by supporting product-related decision-making in online shopping environments. Li and Doong (2026) also stated that the interactive features and affordances of AI chatbots can act as drivers of purchase intention.

Therefore, e-commerce firms should customize recommendation strategies according to product category. For experience products, AI recommendations should be supported by user reviews, images, videos, return policies, and detailed product information to reduce consumer uncertainty and build trust.

Findings and Interpretation of the Review

Factor	Impact on Purchase Intention	Explanation
Personalization	Positive	Relevant suggestions reduce search effort and improve shopping convenience.
Recommendation quality	Positive	Accurate and useful recommendations increase engagement and willingness to buy.
Trust	Positive	Consumers are more likely to purchase when they trust the recommendation and the platform.
Perceived usefulness	Positive	Helpful recommendations make online shopping easier and more satisfying.
Transparency and	Positive	Clear reasons for recommendations improve

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explainability		consumer confidence.
Privacy concerns	Negative	Fear of data misuse can reduce acceptance of personalized recommendations.
Perceived intrusiveness	Negative	Excessive targeting may make consumers feel uncomfortable or manipulated.
Algorithmic bias	Negative	Unfair or inaccurate recommendations can reduce trust and purchase intention.

Limitations of the Review

This review is based on secondary sources, so it depends on the quality and availability of existing research. Many studies measure purchase intention rather than actual purchase behaviour, meaning that intention may not always result in a completed transaction.

In addition, much of the available evidence is concentrated in technologically advanced markets and relies heavily on cross-sectional surveys and structural equation modelling. This limits the ability to draw strong conclusions about long-term consumer behaviour, emerging markets, and cultural differences.

IV. CONCLUSION

AI-powered recommendation systems significantly influence consumer purchase intention in e-commerce. By providing personalized, relevant, and convenient product suggestions, they can improve product discovery, engagement, and willingness to purchase. Recent reviews show that personalisation, recommendation quality, trust, and perceived usefulness are major positive drivers of purchase intention.

At the same time, privacy concerns, perceived intrusiveness, lack of transparency, and algorithmic bias can weaken consumer acceptance. Therefore, e-commerce businesses should use AI recommendations responsibly by combining personalization with transparency, privacy protection, and consumer control. Future research should focus more on actual purchasing behaviour, ethical AI, emerging markets, and long-term consumer relationships.

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