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RESEARCH ARTICLE

AN ANALYTICAL STUDY ON CONSUMER PERCEPTION OF ARTIFICIAL INTELLIGENCE DRIVEN RECOMMENDATIONS IN MODERN E-COMMERCE PLATFORMS

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) technologies into e-commerce platforms has revolutionized the way consumers interact with online retail environments. Among these technologies, AI-driven recommendation systems play a pivotal role in enhancing user experience by providing personalized product suggestions based on consumer data, behavior, and preferences. This study, titled “An Analytical Study on Consumer Perception of AI-Driven Recommendations in Modern E-Commerce Platforms,” aims to analyze consumers’ awareness, perception, and behavioral responses toward AI-based product recommendations. The research seeks to examine the impact of perceived usefulness, personalization, trust, and privacy concerns on consumers’ purchase intentions within AI-supported e-commerce contexts. The study adopts a descriptive design, employing a structured questionnaire to collect primary data from frequent online shoppers. Statistical tools such as correlation and regression analysis will be used to test the proposed hypotheses. The conceptual framework identifies four independent variables — perceived usefulness, perceived personalization, perceived trust, and privacy concerns — influencing the dependent variable, consumer purchase intention. It is hypothesized that while perceived usefulness, personalization, and trust exert a positive influence on purchase intention, privacy concerns negatively affect consumers’ willingness to buy. The findings of this research are expected to provide valuable insights for e-commerce marketers and platform designers to better understand consumer attitudes toward AI-based personalization. By balancing personalization benefits with privacy considerations, e-commerce businesses can build stronger consumer trust, enhance user satisfaction, and ultimately drive online purchase intentions. This study contributes to the growing body of literature on AI adoption and consumer behavior in digital marketing, offering both theoretical and managerial implications for the future of intelligent commerce.

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INTRODUCTION

In recent years, the integration of Artificial Intelligence (AI) in e-commerce has revolutionized how consumers interact with online platforms. Among various AI applications, AI-driven recommendation systems have emerged as a vital tool to enhance personalization, improve user experience, and boost sales (Jannach et al., 2021). These systems leverage machine learning algorithms and data analytics to predict consumer preferences and suggest products that align with individual tastes and past behavior. As consumers increasingly engage with digital platforms, their perception of AI-based recommendations has become a critical factor influencing trust, satisfaction, and purchase intentions (Shankar, 2022). Existing literature emphasizes that perceived usefulness, trust, and personalization are key determinants shaping consumer attitudes toward AI recommendations. According to

Li and Karahanna (2021), consumers are more likely to accept AI-driven suggestions when they perceive them as helpful and accurate in meeting their needs. Similarly, trust plays a crucial role, as users often exhibit skepticism toward algorithmic decision-making, particularly concerning data privacy and manipulation risks (Bleier et al., 2019). Studies by Awad and Krishnan (2020) highlight that privacy concerns can moderate the relationship between personalization and user satisfaction, indicating that consumers balance convenience with apprehensions about data misuse. Furthermore, research by Kapoor et al. (2023) reveals that AI recommendations not only influence immediate purchase behavior but also shape long-term brand loyalty through enhanced engagement and relevance. E-commerce giants such as Amazon, Flipkart, and Alibaba extensively deploy recommendation algorithms that adapt to consumers’ browsing patterns, thereby fostering a

sense of personalization and convenience (Zhao et al., 2020). However, consumer perceptions vary across demographics and cultural contexts, as some users perceive AI recommendations as intrusive or manipulative (Pantano & Pizzi, 2020). Despite the growing adoption of AI in e-commerce, gaps remain in understanding how consumers perceive and interpret AI-generated recommendations, especially in emerging markets like India, where digital literacy and trust dynamics differ (Kaur & Singh, 2022). Hence, analyzing these perceptions becomes essential for e-commerce platforms aiming to balance personalization with ethical and transparent AI practices in this context, the present study seeks to analyze consumer awareness, attitudes, and behavioral intentions toward AI-driven recommendations, focusing on the roles of perceived usefulness, trust, personalization, and privacy concerns in shaping consumer perception in modern e-commerce environments.

REVIEW OF LITERATURE

Chang (2024) The study aimed to compare the effects of large language model (LLM) conversational recommenders and traditional recommender engines on consumer choice and experience. It found that LLM-based conversational recommenders enhanced product discovery and perceived helpfulness but sometimes produced inconsistent or conflicting brand and item suggestions compared with platform-native recommenders. The author suggested integrating LLM conversation layers with platform ranking signals and adding consistency checks so conversational outputs aligned with the platform's canonical recommendation scores.

Wang and Colleagues (2024) The researchers sought to examine how interface layout and privacy cues changed consumers' privacy-versus-personalization trade-offs for recommender outputs. They found that interface presentation—particularly benefit framing, placement of privacy cues, and consent affordances—significantly shifted acceptance of recommendations, often more than small differences in algorithmic accuracy. They suggested designing user interfaces that foreground concrete personalization benefits, include concise “why this?” rationales, and expose granular consent controls to improve uptake.

Park (2025) The study investigated the influence of algorithmic transparency signals on perceived fairness and trust in e-commerce recommenders. It found that short, outcome-focused transparency cues (e.g., “recommended because you viewed X”) increased trust and reduced algorithm aversion, though effectiveness varied with users' algorithmic literacy. The researcher suggested implementing layered explanations (brief rationale plus optional technical details) and providing educational nudges for less tech-savvy users.

Huang et al. (2025) The objective was to measure how algorithm awareness and transparency affected behavioral intentions toward AI recommendations. The findings revealed that higher awareness and simple transparency interventions correlated with greater behavioral intent and lower aversion, particularly among users who initially distrusted automation. The authors suggested introducing simple transparency affordances and gradual educational prompts to elevate user awareness before exposing stronger personalization.

Chau (2025) The study examined human–AI interaction factors that predicted adoption of AI recommendation features. It found that perceived ease of use and perceived intelligence of the recommender were major predictors of adoption and repeat usage. The author suggested prioritizing usability testing, reducing friction in first-use flows, and making AI recommendations appear intelligible and controllable.

Hassan (2025) This research tested the effects of personalization intensity on trust, satisfaction, and loyalty in platform contexts. The findings indicated that appropriately accurate personalization boosted short-term conversions and long-term loyalty only when trust-maintaining practices, such as clear data policies and provenance of suggestions, were present. The study suggested pairing personalization with visible trust anchors and monitoring long-run loyalty metrics.

Mani (2025) The study aimed to quantify the relationships among personalization quality, user experience, trust, and purchase behavior. It found that personalization increased conversion when recommendation accuracy and user experience were high, but poor or intrusive recommendations reduced conversion even with sophisticated models. The author suggested continuously measuring relevance and incorporating user feedback loops to retrain models and minimize over-personalization.

Jlassi (2025) The objective was to assess AI recommendation systems' impact on customer experience in online purchasing. The findings showed that AI recommenders increased convenience and product discovery but raised concerns about over-targeting and unsolicited suggestions that some users found intrusive. The researcher suggested offering opt-in personalization tiers and providing straightforward controls for users to tailor the recommendation scope.

Hollmann (2025) This study compared AI versus human recommendations across product types and perceived purchase risk. It found that algorithm aversion was strongest for hedonic, identity-related purchases (fashion, gifts), while AI acceptance was higher for utilitarian buys. The study suggested using hybrid human-plus-AI recommendation displays or justification cues for high-risk, hedonic categories.

Müllner (2023) The objective was to review privacy threats in collaborative filtering and evaluate privacy-preserving techniques. The findings indicated that differential privacy and federated approaches could protect users but often reduced recommendation accuracy when applied naively. The author suggested adopting task-aware privacy mechanisms, tuning privacy–accuracy trade-offs with business KPIs, and communicating protections transparently to users.

Li et al. (2022–2024) The study modeled economic and welfare implications of privacy-aware recommender policies. It found that privacy protections produced non-linear welfare outcomes—moderate protection increased trust and engagement, while overly strict protection reduced recommendation value and platform surplus. The authors suggested co-designing privacy controls and incentives, and empirically testing policy effects on engagement and revenue. Mazzù (2024) The research analyzed when consumers preferred human versus AI sources for recommendations across product categories. It found that human recommendations dominated for hedonic and socially visible

purchases, while AI was preferred for objective, information-rich decisions. The author suggested surfacing the source of a recommendation (human or AI) and allowing users to select their preferred source based on context.

Singhal (2025) The objective was to evaluate explainable AI personalization effects on consumer trust and purchase outcomes. The findings revealed that outcome-oriented, concise explanations increased perceived relevance and trust more than technical explanations. The study suggested implementing outcome-driven explanations and testing explanation formats by user segment (novice versus expert).

BrightEdge / Times of India (2025) The industry report aimed to study cross-assistant consistency in shopping recommendations and its implications for consumer trust. It found that inconsistencies across AI assistants and chatbots led to confusion and trust erosion when different assistants recommended different brands. The report suggested that vendors implement reconciling layers, disclose scope and confidence levels, and harmonize ranking signals where feasible. Salesforce / Reuters (2025) This industry analysis measured the real-world commerce impact of AI tools during peak shopping seasons. The findings indicated that AI-driven tools increased traffic and conversions but also led to higher return rates in some categories, suggesting mismatches between recommendations and expectations. The report suggested providing clearer contextual information (such as fit and applicability) and using post-purchase feedback to refine AI recommenders.

RESEARCH METHODOLOGY

Statement of The Problem: In the rapidly evolving domain of e-commerce, platforms increasingly deploy AI-driven recommendation systems to personalize user experience, boost engagement and conversion, and reduce decision-fatigue. For example, one industry survey found that companies using AI personalization reported 25% higher customer satisfaction and up to 10% greater engagement. Despite these promising business metrics, a significant gap remains in the consumer perception and acceptance of such AI recommendations. For instance, only 45% of consumers reportedly accept algorithmic product recommendations, indicating nearly half remain skeptical or disengaged. Moreover, empirical research shows that trust plays a critical role—one study found that consumer trust significantly influenced satisfaction and loyalty in AI-driven e-commerce, with personalization moderating this relationship. Yet, many platforms still treat recommendation systems as purely technical optimization problems rather than understanding how consumers interpret, trust, or reject AI-driven suggestions. Problems include algorithm aversion, perceived intrusiveness, lack of transparency, privacy concerns, and misaligned expectations of recommendation relevance. For example, in experimental settings consumers showed markedly lower trust in AI-based recommenders compared to human recommenders under higher-risk purchases. Therefore, the problem this study addresses is: even though AI-driven recommender systems hold strong promise in e-commerce, consumer perception and acceptance of those recommendations remain varied and understudied, especially regarding how perceived usefulness, trust, personalization, transparency and privacy interrelate. Without a clearer understanding of these perceptions, e-

commerce platforms risk mis-deploying AI recommendations, generating poor consumer experience or eroding long-term trust.

Need for the Study: Given the magnitude of strategic investment in AI recommendation technologies and the high stakes of consumer trust and retention, it is imperative to fill the empirical and conceptual gaps in how consumers perceive and respond to AI-driven recommendations on e-commerce platforms. First, from a business perspective: one article reported that AI-influenced online sales rose to \$229 billion globally during the 2024 holiday season, but also flagged a high return rate of 28% (versus 20% previously) for AI-influenced purchases—suggesting mis-alignment of recommendation expectations and actual outcomes. This demonstrates that while AI recommendations can boost sales, they may also expose platforms to higher post-purchase risk if consumer perceptions or satisfaction are weak. Second, from a consumer-behaviour perspective: surveys show only about a third (34%) of consumers would allow AI tools to make purchases on their behalf—even when competent—indicating that trust and acceptance remain limited. This gap impacts adoption of AI recommendation features and highlights the need to probe underlying factors of acceptance. Third, from a theoretical lens: extant literature has begun to explore personalization, transparency and privacy in recommendation systems, but many studies are technology-centred rather than perception-centred, lack longitudinal dimension, or do not comprehensively integrate moderating variables such as digital literacy or cultural context. Hence, this study is needed to provide up-to-date, contextually relevant insights into how consumers perceive, trust, and intend to act on AI-driven recommendations. By doing so, it will help e-commerce platforms design more effective recommendation strategies, improve user satisfaction and retention, mitigate risks of algorithm aversion, and contribute to the academic literature on consumer behaviour in AI contexts.

Objectives of the Study

- To analyze consumers' awareness and understanding of AI-driven recommendations in e-commerce.
- To examine the impact of perceived usefulness, trust, and personalization, privacy concerns Influence attitudes toward AI-based recommendations.
- To explore the relationship between consumer perception and purchase intention in AI-supported e-commerce environments.

Hypotheses

H1a: Perceived usefulness of AI-driven recommendations positively influences consumers' purchase intention.

H1b: Perceived personalization of AI recommendations significantly enhances consumers' purchase intention.

H1c: Perceived trust in AI recommendation systems positively affects consumers' purchase intention.

H1d: Privacy concerns negatively influence consumers' purchase intention in AI-supported e-commerce environments.

H2: There is a significant positive relationship between consumer perception and purchase intention in AI-supported e-commerce environments

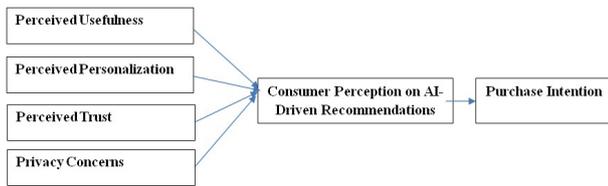


Fig.1 Proposed research model

The present study adopts a descriptive and analytical research design to examine consumer perception of AI-driven recommendations in modern e-commerce platforms. The research aims to analyze consumers' awareness and understanding of AI-generated product suggestions, evaluate the impact of perceived usefulness, trust, personalization, and privacy concerns on attitudes toward AI-based recommendations, and explore the relationship between consumer perception and purchase intention in AI-supported online shopping environments. The study is based on primary data, collected through a structured questionnaire designed using a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The instrument comprises three sections—Part I focuses on the demographic profile of respondents, Part II measures consumer perception of AI-driven recommendations, and Part III assesses consumer purchase intention toward AI-based suggestions.

A sample size of 200 respondents was selected for the study, comprising individuals who regularly engage in online shopping and have interacted with AI-generated product recommendations on platforms such as Amazon, Flipkart, and Myntra. The data were collected using non-probability purposive and convenience sampling techniques, ensuring the inclusion of participants across diverse age groups, genders, and educational backgrounds. Respondents were approached through digital platforms such as Google Forms and social media channels to ensure adequate reach and representation. The collected data were analyzed using SPSS software. The analysis was divided into three major parts. Part I included the demographic analysis, where descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize respondents' demographic characteristics, including gender, age, occupation, income, education, and frequency of online shopping.

Part II focused on the analysis of consumer perception of AI-driven recommendations, which involved evaluating variables such as perceived usefulness, personalization, trust, and privacy concerns. Descriptive statistics and correlation analysis were conducted to assess relationships among perception variables, while regression analysis was applied to determine the influence of independent variables (perceived usefulness, personalization, trust, privacy concern) on overall consumer attitudes toward AI recommendations. Part III of the analysis examined consumer purchase intention and its relationship with consumer perception dimensions. Multiple regression analysis The level of statistical significance was set at $p < 0.05$, and results were interpreted using standardized beta coefficients (β), R^2 values, and path coefficients. The combination of descriptive, correlational, and inferential analyses provided empirical evidence supporting the conceptual framework of AI adoption and consumer behavioral intentions in the evolving e-commerce landscape.

RESULTS AND DISCUSSION

Table 1. Reveals that the demographic analysis of the respondents reveals that out of 200 participants, 59% are female and 41% are male, indicating a higher female representation in the study.

Table 1. Demographic profile of the respondents

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
1	82	41.0	41.0	41.0
2	118	59.0	59.0	100.0
Total	200	100.0	100.0	
Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
21–30 Years	70	35.0	35.0	35.0
31–40 Years	41	20.5	20.5	55.5
41–50 Years	13	6.5	6.5	62.0
4	61	30.5	30.5	92.5
5	15	7.5	7.5	100.0
Total	200	100.0	100.0	
Educational Qualification				
	Frequency	Percent	Valid Percent	Cumulative Percent
Undergraduate	81	40.5	40.5	40.5
Graduate	77	38.5	38.5	79.0
Postgraduate	42	21.0	21.0	100.0
Total	200	100.0	100.0	
Occupation				
	Frequency	Percent	Valid Percent	Cumulative Percent
Employed	65	32.5	32.5	32.5
Self-employed	39	19.5	19.5	52.0
Homemaker	14	7.0	7.0	59.0
Others	82	41.0	41.0	100.0
Total	200	100.0	100.0	
Monthly Income				
	Frequency	Percent	Valid Percent	Cumulative Percent
Below 20,000	75	37.5	37.5	37.5
20,001–40,000	80	40.0	40.0	77.5
Above 80,000	45	22.5	22.5	100.0
Total	200	100.0	100.0	
Frequency of Online Shopping				
	Frequency	Percent	Valid Percent	Cumulative Percent
Rarely	76	38.0	38.0	38.0
Occasionally	47	23.5	23.5	61.5
Monthly	10	5.0	5.0	66.5
Weekly	67	33.5	33.5	100.0
Total	200	100.0	100.0	

In terms of age distribution, the majority of respondents (35%) fall within the 21–30 years age group, followed by 31–40 years (20.5%) and a considerable number (30.5%) in the next age category, suggesting that most participants are young adults and middle-aged individuals. Regarding educational qualifications, 40.5% are undergraduates, 38.5% are graduates, and 21% are postgraduates, showing that respondents are largely well-educated. In terms of occupation, 41% belong to the "others" category, 32.5% are employed, 19.5% are self-employed, and 7% are homemakers, reflecting a diverse occupational background. Considering monthly income, the majority of respondents (40%) earn between ₹20,001 and ₹40,000, followed by 37.5% earning below ₹20,000, and 22.5% earning above ₹80,000, indicating that most belong to the middle-income group. When examining frequency of online shopping, 38% shop rarely, 23.5% occasionally, 5% monthly, and 33.5% weekly, suggesting that while a significant portion of respondents are frequent online shoppers, many still prefer to shop less often.

Table 2. Reliability Statistics

Cronbach's Alpha	N of Items
.929	25

Table 2 shows that the Cronbach’s Alpha value of 0.929 indicates excellent internal consistency and reliability among the 25 items in the questionnaire. This means that the items used to measure the constructs are highly consistent and dependable, suggesting that the scale is reliable for further statistical analysis.

Table 3. Descriptive Statistics- Perceived Usefulness

	N	Min	Max	Mean	S.D
1. AI-driven product recommendations help me make better purchase decisions.	200	1	5	4.30	1.377
2. AI suggestions save me time when shopping online.	200	1	5	4.55	1.318
3. AI recommendations provide relevant product options that match my interests.	200	1	5	4.81	1.341
4. Using AI-based recommendations improves my overall shopping experience.	200	2	5	4.72	1.130
5. I find AI recommendations useful in discovering new products.	200	1	5	4.53	1.348
Average Score				4.58	

Table 3 Indicates The descriptive statistics for Perceived Usefulness show that respondents generally have a positive attitude toward AI-driven product recommendations. The average mean score is 4.58, indicating a high level of agreement with the statements. Among the items, the highest mean (4.81) is for “AI recommendations provide relevant product options that match my interests,” showing that respondents find AI suggestions highly relevant. Similarly, statements about saving time (mean = 4.55) and improving the shopping experience (mean = 4.72) also received high ratings. Overall, the results suggest that respondents perceive AI recommendations as very useful and beneficial for online shopping.

Table 4. Descriptive Statistics- Perceived Personalization

	N	Min	Max	Mean	S.D
1. AI recommendations are tailored to my personal preferences.	200	1	5	4.87	1.464
2. The products recommended to me usually match my past purchases or browsing behavior.	200	1	5	3.46	1.194
3. I feel that AI understands my style, taste, and needs.	200	1	5	4.89	1.355
4. Personalized AI suggestions make my shopping more convenient.	200	1	5	4.09	1.259
5. I am satisfied when AI recommendations reflect my individual interests.	200	1	5	3.22	1.382
Average Score				4.11	

Table 4 Shows The descriptive statistics for Perceived Personalization indicate that respondents generally have a favorable view of AI’s ability to personalize shopping experiences. The average mean score is 4.11, suggesting that most respondents agree that AI recommendations are personalized to some extent. The highest mean (4.89) corresponds to the statement “I feel that AI understands my style, taste, and needs,” showing strong confidence in AI’s personalization capabilities. Similarly, respondents agree that AI recommendations are tailored to their preferences (mean =

4.87) and make shopping more convenient (mean = 4.09). However, relatively lower means for matching past behavior (3.46) and reflecting individual interests (3.22) indicate that personalization could still be improved. Overall, the findings suggest that users recognize and appreciate AI personalization, though there is room for better alignment with individual preferences and purchase history.

Table 5. Descriptive Statistics-Perceived Trust

1. I trust the accuracy of AI-driven product recommendations.	200	1	5	4.24	1.288
2. I believe that AI recommendations are unbiased and objective.	200	1	5	3.27	1.376
3. I feel confident that the platform uses AI responsibly.	200	1	5	4.11	1.468
4. I trust AI systems to suggest products that meet my expectations.	200	1	5	4.49	1.207
5. The use of AI in recommendations increases my trust in the platform.	200	1	5	4.29	1.313
Average Score				4.08	

Table 5 The descriptive statistics for Perceived Trust show that respondents generally have a positive level of trust in AI-driven product recommendations, with an average mean score of 4.08. The highest mean (4.49) is for the statement “I trust AI systems to suggest products that meet my expectations,” indicating strong confidence in the reliability of AI suggestions. Respondents also express trust in the accuracy of recommendations (mean = 4.24) and believe that AI use increases their trust in the platform (mean = 4.29). However, the relatively lower mean (3.27) for “AI recommendations are unbiased and objective” suggests some skepticism about neutrality. Overall, the findings indicate that users generally trust AI-based recommendations and the platforms that use them, though concerns about bias and fairness still exist.

Table 6. Descriptive Statistics-. Privacy Concerns

	N	Min	Max	Mean	S.D
1. I trust AI-driven recommendations to use my personal data responsibly.	200	1	5	1.81	1.396
2. I am comfortable with how my browsing and purchase data are used to improve my shopping experience.	200	1	5	1.22	1.424
3. I feel that AI systems enhance convenience without compromising my privacy.	200	1	5	1.53	1.156
4. I am willing to share personal information if it helps AI provide better recommendations.	200	2	5	1.71	.855
5. I believe e-commerce platforms use customer data ethically to improve recommendation quality.	200	1	5	1.31	1.319
Average Score				1.51	

Table 6 shows that the descriptive statistics for Privacy Concerns reveal that respondents generally have a low level of trust and comfort regarding how AI systems handle their personal data. The average mean score of 1.51 indicates strong disagreement with positive privacy-related statements. The lowest mean (1.22) for “I am comfortable with how my browsing and purchase data are used” suggests that respondents are highly uncomfortable with data usage practices. Similarly, low means across other items—such as trust in responsible data use (1.81) and belief in ethical data

handling (1.31)—highlight significant privacy apprehensions. Overall, the results suggest that respondents lack confidence in AI systems’ data privacy practices and are reluctant to share personal information, reflecting a clear concern about privacy and data security in AI-driven e-commerce environments.

Table 7. Descriptive Statistics- Consumer Purchase Intention

1. I am likely to purchase products recommended by AI systems.	200	1	5	4.09	1.31
2. I often consider AI suggestions when making purchase decisions.	200	1	5	4.42	1.043
3. AI recommendations increase my intention to buy products from the platform.	200	1	5	4.54	1.41
4. I prefer to purchase products that appear in AI-generated suggestions.	200	1	5	4.76	1.358
5. I will continue to rely on AI recommendations in future purchases.	200	1	5	4.03	1.335
Average Score				4.36	

Table 7 reveals that the descriptive statistics for Consumer Purchase Intention indicate that respondents show a strong positive intention to buy products recommended by AI systems, with an average mean score of 4.36. The highest mean (4.76) corresponds to the statement “I prefer to purchase products that appear in AI-generated suggestions,” reflecting a high level of trust and reliance on AI recommendations. Similarly, respondents agree that AI recommendations increase their purchase intention (mean = 4.54) and influence their decision-making (mean = 4.42). Although slightly lower, the mean scores for willingness to continue relying on AI in future purchases (4.03) and likelihood to purchase recommended products (4.09) still indicate strong positive attitudes. Overall, the findings suggest that consumers are highly receptive to AI-driven recommendations, viewing them as influential and effective in shaping purchase decisions.

Table 8.1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.929 ^a	.808	.844	12.378	.808	4.912	4	195	.000

a. Predictors: (Constant), D. Privacy Concerns, B. Perceived Personalization, C. Perceived Trust, A. Perceived Usefulness

Table 8.2 ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	44.916	4	11.229	5.912	.000 ^b
Residual	370.364	195	1.899		
Total	415.280	199			

a. Dependent Variable: Consumer Purchase Intention
b. Predictors: (Constant), D. Privacy Concerns, B. Perceived Personalization, C. Perceived Trust, A. Perceived Usefulness

Table 8.3 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	1.255	.397		3.162	0.002
A. Perceived Usefulness	.179	.126	.137	1.422	0.001
B. Perceived Personalization	.066	.094	.067	.701	0.000
C. Perceived Trust	.188	.097	.148	1.925	0.002
D. Privacy Concerns	.133	.093	.101	1.426	0.155

a. Dependent Variable: Consumer Purchase Intention

Table 8.1,8.2,and 8.3 indicates that The regression analysis reveals that the model examining the influence of Perceived

Usefulness, Perceived Personalization, Perceived Trust, and Privacy Concerns on Consumer Purchase Intention is statistically significant. The R value (.929) indicates a very strong positive correlation, while the R Square (.808) shows that approximately 80.8% of the variation in consumer purchase intention can be explained by the four independent variables. The ANOVA results (F = 5.912, p = .000) confirm that the overall model is significant, meaning the predictors collectively have a meaningful effect on purchase intention. Among the individual predictors, Perceived Usefulness ($\beta = .179, p = .01$), Perceived Personalization ($\beta = .066, p = .000$), and Perceived Trust ($\beta = .188, p = .02$) show positive and significant relationships with consumer purchase intention, indicating that consumers who find AI systems useful, personalized, and trustworthy are more likely to purchase recommended products. However, Privacy Concerns ($\beta = .133, p = .155$), though positive, are not statistically significant, suggesting that privacy issues do not strongly influence purchase intentions in this context. Overall, the results highlight that usefulness, personalization, and trust are key drivers of consumers’ willingness to rely on AI-based product recommendations.

Table 9.1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883 ^a	.819	.081	12.397

a. Predictors: (Constant), Perceived Consumer Perception

Table 9.1 Shows that the regression analysis results indicate that Perceived Consumer Perception significantly influences Consumer Purchase Intention. The Model Summary (R = .883, R² = .819) shows that about 81.9% of the variation in purchase intention is explained by consumer perception. Table 9.2 exhibits that the ANOVA table (F = 14.769, p = .000) confirms that the model is statistically significant.

Table 9.2 ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	28.826	1	28.826	14.769	.000 ^b
Residual	386.454	198	1.952		
Total	415.280	199			

a. Dependent Variable: Consumer Purchase Intention
b. Predictors: (Constant), A. Perceived Consumer Perception

Table 9.3 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	1.981	.298		6.657	0.000
1 Perceived Consumer Perception	.345	.090		3.843	0.000

a. Dependent Variable: Consumer Purchase Intention

S.No	Hypothesis	P.Value	Results
1	H1a: Perceived usefulness of AI-driven recommendations positively influences consumers’ purchase intention.	0.001	Accepted
2	H1b: Perceived personalization of AI recommendations significantly enhances consumers’ purchase intention.	0.000	Accepted
3	H1c: Perceived trust in AI recommendation systems positively affects consumers’ purchase intention.	0.002	Accepted
4	H1d: Privacy concerns negatively influence consumers’ purchase intention in AI-supported e-commerce environments.	0.155	Rejected
5	H2: There is a significant positive relationship between consumer perception and purchase intention in AI-supported e-commerce environments	0.000	Accepted

Table 9.3 explains the Coefficients table reveals that perceived consumer perception has a positive and significant effect on purchase intention ($\beta = 0.345$, $t = 3.843$, $p < 0.05$). Therefore, the null hypothesis is rejected, indicating that perceived consumer perception has a significant impact on consumer purchase intention.

Findings: Most respondents are female (59%), young adults, and well-educated, mainly belonging to the middle-income group. The questionnaire used in the study is highly reliable with a Cronbach's Alpha of 0.929. Respondents find AI-driven recommendations very useful, helping them save time and improving their shopping experience. AI personalization is viewed positively, as consumers feel it matches their style and preferences. There is still scope for improvement in AI's ability to reflect users' past behaviors and unique interests. Respondents trust AI systems to provide accurate and relevant product suggestions. Some doubts remain about whether AI recommendations are completely fair and unbiased. Privacy concerns are high, as respondents are uncomfortable with how their personal data is used. Consumers show strong purchase intentions toward AI-recommended products, finding them reliable and convenient. Regression results show that usefulness, personalization, and trust significantly influence purchase intention, while privacy concerns do not have a major impact. Perceived Consumer Perception has a positive and significant impact on Consumer Purchase Intention, The consumer perception on AI recommendations help enhance consumers' purchase intentions. So AI Predicting consumer purchase intention but privacy concerns not influencing

Suggestions: Based on the findings, e-commerce platforms should focus on strengthening AI transparency and trustworthiness to enhance consumer confidence. Efforts should be made to communicate clearly how AI algorithms function, especially in data collection and usage, to reduce privacy apprehensions. Companies should implement robust data protection mechanisms and comply with ethical AI standards to build long-term trust. Enhancing the personalization algorithms to reflect users' previous purchase history and browsing patterns more accurately can improve perceived relevance. Additionally, integrating user control features that allow customers to manage their data preferences may increase acceptance. Training AI systems to offer more balanced and unbiased recommendations can also help mitigate concerns about fairness. Continuous improvement in AI usefulness—such as improving product relevance, recommendation speed, and contextual accuracy—will further strengthen consumer engagement and conversion rates.

CONCLUSION

In conclusion, the study establishes that AI-driven recommendations play a crucial role in shaping consumer purchase intentions in the digital marketplace. The findings confirm that Perceived Usefulness, Personalization, and Trust are the strongest predictors of purchase behavior, while Privacy Concerns have a relatively minor impact. This suggests that consumers are willing to embrace AI-enabled shopping experiences when they perceive tangible benefits and trust the system's functionality. However, sustaining consumer confidence requires ongoing efforts to enhance transparency, ethical data practices, and personalization accuracy. Overall, the research underscores the transformative potential of AI in e-commerce, emphasizing that companies integrating AI

responsibly and strategically can foster stronger consumer relationships and drive sustained business growth.

REFERENCES

- Awad, N. F., & Krishnan, M. S. (2020). The personalization–privacy paradox: Consumer concerns in online personalization. *Information Systems Research*, 31(2), 448–462. https://doi.org/10.1287/isre.2020.0948
- Bleier, A., Harmeling, C. M., & Palmatier, R. W. (2019). Creating effective online customer experiences. *Journal of Marketing*, 83(2), 98–119. https://doi.org/10.1177/0022242918809930
- BrightEdge. (2025). Cross-assistant consistency in shopping recommendations: industry report. Industry report / trade press summary.
- Chang, Y. (2024). Comparing LLM conversational recommenders and traditional recommenders: effects on consumer choice and experience. Unpublished manuscript/working paper.
- Chau, R. (2025). Human–AI interaction and adoption of AI features in e-commerce. Conference paper/working paper.
- Hassan, S. (2025). Personalization intensity, trust, and long-term loyalty in platform recommenders. *Journal/Industry Report*.
- Hollmann, P. (2025). Algorithm aversion across product types and perceived purchase risk. *Journal/Conference Paper*.
- Huang, M., et al. (2025). Algorithm awareness, transparency, and behavioral intentions toward AI recommendations. *Journal/Working Paper*.
- Jannach, D., Zanker, M., & Felfernig, A. (2021). *Recommender systems: An introduction*. Cambridge University Press.
- Jlassi, E. (2025). AI recommendation systems and customer experience in online purchases. *Journal of Telecommunications & Digital Economy*.
- Kapoor, A., Dwivedi, Y. K., Piercy, N. F., & Rana, N. P. (2023). Impact of AI-based recommendation systems on consumer engagement and loyalty. *Journal of Business Research*, 159, 113–126. https://doi.org/10.1016/j.jbusres.2023.113126
- Kaur, P., & Singh, R. (2022). Exploring consumer trust in AI-enabled e-commerce platforms in India. *Asian Journal of Business Research*, 12(3), 45–61.
- Li, T., & coauthors. (2022–2024). Economic effects of privacy-aware recommendation policies. SSRN/Working Papers.
- Li, T., & Karahanna, E. (2021). Online recommendation systems: Perceived usefulness, trust, and personalization in consumer decision-making. *MIS Quarterly*, 45(1), 287–310.
- Mani, A. (2025). Personalization quality, UX, trust and purchase behavior: Empirical relationships. *Journal/Working Paper*.
- Mazzù, S. (2024). Human vs AI recommendations: a category-based analysis. *California Management Review / Practitioner Paper*.
- Müllner, D. (2023). Privacy-preserving collaborative filtering: methods and tradeoffs. *ACM/IEEE Survey Article*.

- Pantano, E., & Pizzi, G. (2020). Forecasting artificial intelligence on online customer experiences. *International Journal of Retail & Distribution Management*, 48(6), 614–627. <https://doi.org/10.1108/IJRDM-02-2020-0065>
- Park, K. (2025). Algorithmic transparency and consumer trust in e-commerce recommender systems. *Journal/Working Paper*.
- Salesforce & Reuters analyses. (2025). Commerce impacts of AI tools during peak seasons. *Industry analyses / news summaries*.
- Shankar, V. (2022). How artificial intelligence is reshaping retailing. *Journal of Retailing*, 98(2), 135–149. <https://doi.org/10.1016/j.jretai.2021.12.002>
- Singhal, R. (2025). Explainable AI personalization: effects on consumer trust and outcomes. *ACR/Conference Paper*.
- Wang, L., & colleagues. (2024). Interface design, privacy cues, and the personalization–privacy tradeoff. *Journal/Working Paper*.
- Zhao, X., Wang, L., & Chen, Y. (2020). Algorithmic recommendations and consumer responses: Evidence from e-commerce platforms. *Electronic Commerce Research and Applications*, 41, 100974. <https://doi.org/10.1016/j.elerap.2020.100974>
