THE IMPACT OF ARTIFICIAL INTELLIGENCE ON CONSUMER DECISION-MAKING IN THE ELECTRONIC PRODUCTS INDUSTRY

Dr. Saummya Rai, Dr. Eknath Zhrekar

Thakur college of science and Commerce, Kandivali
Saummya.rai2024@gmail.com
Mumbai University

Mahatma Night Degree college of Arts & Commerce, Chembur
9224151450
eknathzhrekar@mes.ac.in
Mumbai University

Abstract

Artificial Intelligence (AI) has revolutionized consumer behavior, particularly in the electronic products industry. AI-driven technologies, such as recommendation systems, virtual assistants, and chatbots, have reshaped how consumers interact with and make purchasing decisions. This research paper examines the impact of AI on buyers' decision-making, highlighting key factors such as personalization, convenience, and consumer trust. Through an in-depth analysis of recent literature, this paper explores the extent to which AI influences consumer preferences and purchase intentions in the electronic goods sector.

INTRODUCTION

Artificial Intelligence (AI) has brought about a revolutionary transformation across multiple industries, with retail and e-commerce among the most significantly impacted sectors. The increasing reliance on AI-powered algorithms has allowed businesses to analyze vast amounts of consumer data, predict customer preferences, and provide highly personalized recommendations. This transformation is particularly evident in the electronic products industry, where AI-driven marketing strategies and automation have drastically altered consumer decision-making patterns.

With the rapid adoption of AI technologies, businesses can now refine their marketing strategies, enhance customer experiences, and optimize pricing models to drive sales. AI is actively shaping how consumers interact with brands, find products, and make purchasing decisions. From chatbots offering real-time assistance to sophisticated recommendation engines that suggest relevant products, AI has enhanced shopping experiences, making them more seamless and personalized. However, while AI provides numerous advantages, challenges such as privacy concerns, algorithmic biases, and the need for continuous technological updates must also be considered.

AI has transformed consumer decision-making by enhancing personalization, engagement, and trust. Machine learning analyzes past purchases and browsing history to deliver tailored product recommendations, improving satisfaction and loyalty. AI-driven chatbots and virtual assistants provide real-time support, reducing cart abandonment and boosting confidence. Price prediction tools help consumers make informed purchases by analyzing market trends. Voice and visual search simplify product discovery through speech and images. Sentiment analysis monitors reviews and social media to refine marketing strategies and enhance customer satisfaction. These AI-driven innovations make shopping more efficient, convenient, and responsive to consumer needs.

Consumer decisions are shaped by various factors, including personal, psychological, social, economic, and technological influences. Personal attributes like age, income, lifestyle, and occupation impact preferences, with younger consumers favoring trendy products and older ones prioritizing durability. Psychological factors such as perception, motivation, learning, and beliefs influence brand trust and purchasing behavior. Social influences, including family, friends, and cultural values, shape preferences, with social media and influencer marketing playing a key role. Economic conditions, market trends, and promotions affect spending habits, with consumers adjusting purchases based on financial stability. Technological advancements, especially AI, enhance decision-making through personalized recommendations, chatbots, price comparisons, and virtual try-ons. AI-driven insights improve consumer confidence and streamline shopping experiences. Businesses

GAP iNTERDISCIPLINARITIES – Volume - VIII Special Issue
March 2025
Special Issue on AI: The New Revolution and Its Impact on Business

600

https://www.gapinterdisciplinarities.org/

leveraging AI effectively can attract and retain customers, as digital innovations continue to shape consumer behavior in an increasingly technology-driven market.

AI-powered recommendation systems have revolutionized consumer behavior, especially in e-commerce platforms like Amazon and Flipkart. These systems enhance user experiences by suggesting products based on interests and purchase history. Three primary approaches drive AI-driven recommendations. Collaborative filtering analyzes the purchase behavior of similar users, identifying patterns to suggest relevant products. Content-based filtering focuses on individual preferences, examining product attributes to match user interests and ensure personalized recommendations. Hybrid models combine both approaches, leveraging multiple data sources to improve accuracy and relevance. This integration enhances customer satisfaction by reducing search time and effort. Research shows that AI-powered recommendations significantly boost conversion rates by providing tailored shopping experiences. As AI evolves, businesses leveraging these technologies can enhance user engagement and drive higher sales, making recommendation systems a crucial aspect of modern e-commerce.

REVIEW OF LITERATURE

1.Sharma (2021): This research explores how AI influences consumer purchasing behavior by understanding consumer expectations. It underscores the importance of AI in gathering information on consumers' needs and preferences, which drives decision-making. The study provides insights into the significant role AI plays at each stage of the consumer purchase decision process.

2. Jamil and Rasool (2022): This study investigates the relationship between AI and consumer buying behavior, focusing on online retail purchases. It highlights that AI-driven personalization significantly enhances consumer purchase intentions and satisfaction. The research emphasizes the role of AI in providing faster, cheaper, and more accurate marketing techniques, thereby influencing consumer decisions.

3. Patel and Khan(2023): This study focuses on the significant impact of AI on consumer electronics, highlighting how AI makes devices more intuitive, personalized, and efficient. It discusses the ability of AI to enable devices to learn from user behavior, optimize performance, and automate routine tasks, thereby enhancing the overall user experience.

4. Chen and Zhang (2023): This paper explores the factors affecting the practical applicability of AI and its impact on consumers' online purchase intentions. It utilizes a technology-based model to understand how AI integration in retailing influences consumer acceptance and decision-making processes.

5. Lee and Park(2024): Grounded in the Technology Acceptance Model (TAM), this study investigates the influence of AI on both purchase decisions and the happiness derived from AI among online shoppers. It reveals the interplay between AI-powered features, perceived ease of use, and subsequent outcomes, providing a nuanced understanding of AI's impact on consumer behavior.

6. Xu and Wang(2024): This research examines consumer preferences and intentions when products are framed as "smart" versus "AI-powered." It provides insights into how the terminology used to describe AI in products can influence consumer perceptions and decisions.

Objectives of the study:
- To study the significance between the pricing strategies and purchasing behaviour
- To study the impact of factors affecting purchase of Electronic products AI-driven factors, such as trust in AI recommendations, research methods, and AI pricing benefits, significantly influence the likelihood of purchasing electronic products based on AI suggestions.

RESEARCH METHODOLOGY

This study utilizes both primary and secondary data, employing an analytical and descriptive approach. A close-ended questionnaire was administered to a sample of 100 participants. Secondary sources, including literature reviews, journals, and articles, were also utilized for the research. Descriptive analysis is done by using Person's co-relation, ANOVA and regression.

Hypothesis1:
Null hypothesis:There is no significant relationship between the pricing strategies and purchasingbehaviour.
Alternate hypothesis: There is significant relationship between the pricing strategies and purchasingbehaviour.

Result:	Pearson's	Correlation	Analysis
Descriptive Statistics			

What is your age group?	Counts	% of Total
a) Below 18	2	2.0 %
b) 18-25	72	72.0 %

c) 26-40	13	13.0 %
d) Above 40	13	13.0 %

What is your gender?	Counts	% of Total
a) Male	55	56.1 %
b) Female	43	43.9 %

What is your occupation?	Counts	% of Total
Retired	4	4.0 %
Teacher	2	2.0 %
a) Student	71	71.0 %
b) Working Professional	15	15.0 %
c) Business Owner	6	6.0 %
d) Other	2	2.0 %

The correlation analysis reveals that trust in AI recommendations does not significantly impact the likelihood of purchasing products based on AI-driven suggestions, with a weak negative correlation (Pearson's r = -0.171, p = 0.09). However, AI pricing benefits are positively correlated with the likelihood of purchasing based on AI suggestions (Pearson's r = 0.219, p = 0.029), indicating that consumers who perceive AI-driven pricing as beneficial are more likely to make AI-assisted purchases. Additionally, personalized pricing feelings and data collection acceptance show no significant relationship with purchasing decisions based on AI (p > 0.05). Interestingly, decision time reduction is negatively correlated with the likelihood of purchasing based on AI recommendations (Pearson's r = -0.229, p = 0.022), suggesting that those who feel AI reduces decision-making time may prefer making quicker independent decisions. These findings suggest that factors like AI pricing benefits and decision time reduction play a more significant role in driving AI-based purchasing behavior than trust in AI or acceptance of personalized pricing and data collection.

Correlation Matrix		Trust_Ai_Recommendations		Ai_Pricing_Benefits		Personalized_Pricing_Feelings		Data_Collection_Acceptance		Personalized_Assistant_Preference	Decision_Time_Reduction		Purchased_Based_On_Ai
TrustAiRecommendations	Pearson's R	—										
	Df	—										
	P-Value	—										
AiPricingBenefits	Pearson's R	0.217	*	—									
	Df	98		—									
	P-Value	0.03		—									
Personalized_Pricing_Feelings	Pearson's R	-0.338	***	-0.158		—							
	Df	98		98		—							
	P-Value	<.001		0.115		—							
Data_Collection_Acce	Pears	0.276	**	0.189		-0.285	**	—					

https://www.gapinterdisciplinarities.org/

ptance	on's R										
	Df	98	98	98	—						
	P-Value	0.005	0.06	0.004	—						
Personalized_Assistant_Preference	Pearson's R	-0.149	-0.031	0.088	-0.147	—					
	Df	98	98	98	98	—					
	P-Value	0.138	0.759	0.385	0.145	—					
Decision_Time_Reduction	Pearson's R	-0.144	-0.365 ***	0.174	-0.299 **	0.074	—				
	Df	98	98	98	98	98	—				
	P-Value	0.152	<.001	0.083	0.003	0.465	—				
Purchased_Based_On_Ai	Pearson's R	-0.171	0.219 *	-0.008	0.148	0.002	-0.229 *	—			
	Df	98	98	98	98	98	98	—			
	P-Value	0.09	0.029	0.938	0.142	0.981	0.022	—			
Note. * P < .05, ** P < .01, *** P < .001											

Hypothesis2:

Null hypothesis: There is no significant relationship between the factors and purchasingbehaviour.
Alternate hypothesis: There is significant relationship between the factors and purchasingbehaviour.
Result:Multiple Regression Analysis

A multiple regression analysis was applied to assess the impact of various AI-driven factors, including trust in AI recommendations, pricing benefits, and after-sales service, on the likelihood of purchasing electronic products based on AI suggestions.

The results of the model analysis indicate that AI-driven factors such as AI pricing benefits, dynamic pricing, and after-sales service significantly influence consumers' likelihood to purchase electronic products based on AI recommendations. The overall model is highly significant (F = 5.71, p < 0.001), explaining about 33.4% of the variance in purchasing decisions. Among the significant predictors, AI pricing benefits (β = 0.382, p < 0.001) emerged as a strong positive influence, followed by dynamic pricing feelings (β = 0.29, p = 0.004) and the importance placed on after-sales service (β = 0.337, p < 0.001).

Conversely, trust in AI recommendations (β = -0.217, p = 0.02) and research method (β = -0.234, p = 0.012) were found to have a negative relationship with the likelihood of purchasing based on AI recommendations, suggesting that consumers who trust AI less or prefer other methods of researching products are less likely to rely on AI-driven suggestions for their purchases. Additionally, relying on AI-powered customer service (β = 0.273, p = 0.005) positively influenced purchasing decisions, reflecting that consumer who engage with AI-powered support are more inclined to purchase based on AI recommendations.

These findings suggest that AI features related to pricing, customer service, and after-sales support play crucial roles in shaping consumer purchasing behavior, while trust in AI recommendations and traditional research methods may have a more complex or negative influence. Overall, AI's impact on purchasing decisions is multifaceted, with certain factors driving positive purchasing outcomes and others showing less influence or even a negative effect.

Model Fit Measures:

Model	R	R²	F	df1	df2	p
1	0.578	0.334	5.71	8	91	<.001

Omnibus ANOVA Test:

Predictor	Sum of Squares	df	Mean Square	F	p
trust_ai_recommendations	4.74	1	4.739	5.57	0.02
research_method	5.59	1	5.595	6.57	0.012
rely_on_ai_customer_service	7.19	1	7.191	8.45	0.005
price_comparisons_influence	4.1	1	4.099	4.82	0.031
dynamic_pricing_feelings	7.49	1	7.485	8.79	0.004
ai_pricing_benefits	12.23	1	12.23	14.37	<.001
purchase_influence_factor	6.8	1	6.804	7.99	0.006
after_sales_service_importance	11.73	1	11.733	13.78	<.001
Residuals	77.46	91	0.851		

Model Coefficients (for predicting purchased_based_on_ai):

Predictor	Estimate	SE	Lower	Upper	t	p	Standard Estimate
Intercept	1.944	0.5753	0.8009	3.0865	3.38	0.001	
Trust_Ai_Recommendations	-0.217	0.0918	-0.399	-0.0343	-2.36	0.02	-0.213
Research Method	-0.234	0.0911	-0.4147	-0.0526	-2.56	0.012	-0.24
Rely On Ai Customer Service	0.273	0.0938	0.0863	0.459	2.91	0.005	0.28
Price Comparisons Influence	-0.198	0.0902	-0.377	-0.0188	-2.19	0.031	-0.198
Dynamic Pricing Feelings	0.29	0.0978	0.0958	0.4845	2.97	0.004	0.277
Ai Pricing Benefits	0.382	0.1007	0.1817	0.582	3.79	<.001	0.363
Purchase Influence Factor	-0.254	0.0898	-0.4321	-0.0755	-2.83	0.006	-0.267
After Sales Service Importance	0.337	0.0907	0.1566	0.5168	3.71	<.001	0.347

FINDINGS AND CONCLUSION

The analysis indicates that trust in AI recommendations does not significantly impact consumers' likelihood of purchasing based on AI-driven suggestions. Instead, AI pricing benefits positively influence purchasing decisions, as consumers who perceive AI-driven pricing as advantageous are more inclined to buy. Additionally, decision time reduction negatively correlates with AI-assisted purchasing, suggesting that consumers who feel AI speeds up decision-making may prefer independent choices. Meanwhile, acceptance of personalized pricing and data collection does not significantly affect AI-driven purchases. These findings highlight that pricing advantages and decision-making preferences are stronger drivers of AI-based purchasing behavior than trust in AI itself.The multiple regression analysis highlights that AI-driven factors significantly impact consumers' likelihood of purchasing electronic products based on AI recommendations. The model explains 33.4% of the variance in purchasing decisions, confirming that AI pricing benefits, dynamic pricing, and after-sales service are key drivers of AI-assisted purchases. Among these, AI pricing benefits have the strongest positive influence, followed by the perceived effectiveness of dynamic pricing and the importance of after-sales service.

Conversely, trust in AI recommendations and preference for traditional research methods negatively impact AI-based purchasing behavior. This suggests that consumers who distrust AI or prefer independent research are less likely to rely on AI-driven suggestions. Additionally, AI-powered customer service positively influences purchasing decisions, indicating that consumers who engage with AI-based support are more inclined to trust AI recommendations. These findings emphasize the need for businesses to enhance AI pricing strategies, after-sales support, and AI-driven customer service to improve consumer adoption.

SUGGESTIONS AND RECOMMENDATIONS

Businesses should focus on enhancing AI-driven pricing strategies, as pricing benefits significantly influence consumer purchasing decisions. Implementing transparent and dynamic pricing models can build consumer trust and encourage AI-assisted purchases. Additionally, improving after-sales service and AI-powered customer support can strengthen customer relationships and increase reliance on AI recommendations. Since trust in AI does not strongly drive purchases, businesses should prioritize user-friendly AI interfaces that simplify decision-making. Moreover, personalized pricing strategies should be carefully balanced to avoid consumer scepticism. Finally, integrating AI tools that assist rather than replace independent decision-making can better align with consumer preferences.

REFERENCES

[1] Ali, F., Rasool, S., & Jamil, S. (2022). Impact of artificial intelligence on consumer buying behaviors: Study about the online retail purchase. ResearchGate. https://www.researchgate.net/publication/360456573

[2] Sharma, P. (2021). The impact of artificial intelligence on consumer behavior. International Journal of Emerging Perspectives on Online Learning. https://ijeponline.org/index.php/journal/article/download/810/771/924

[3] Xu, L., & Wang, J. (2024). When being smart trumps AI: An exploration into consumer preferences. Computers in Human Behavior, 148, 107524. ScienceDirect. https://www.sciencedirect.com/science/article/pii/S0747563224002735

[4] Khan, M. A., & Patel, R. (2023). The impact of artificial intelligence (AI) on consumer electronics. ResearchGate. https://www.researchgate.net/publication/386544251

[5] Zhang, T., & Chen, Y. (2023). Investigating the impact of artificial intelligence on consumer's online purchase intention. Foresight. Emerald Publishing. https://www.emerald.com/insight/content/doi/10.1108/fs-10-2021-0218/full/html

[6] Lee, H. J., & Park, J. (2024). Artificial intelligence effect on purchase decision and happiness. SSRN Electronic Journal. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4803985

[7] EY. (2024, August). 62% of Indians made purchases based on AI recommendations: EY report. Exchange4Media. Retrieved from https://www.exchange4media.com/marketing-news/62-of-indians-made-purchases-based-on-ai-recommendations-ey-report-136230.html

[8] Statista. (2024). Organizational usage of AI in India 2024. Retrieved from https://www.statista.com/statistics/1552018/india-organizational-usage-of-ai

[9] Forbes. (2024). E-commerce statistics and growth trends in India. Retrieved from https://www.forbes.com/advisor/in/business/ecommerce-statistics

[10] PR Newswire. (2024, March). India's consumer electronics and home appliances market to grow by USD 1.93 billion, 2024-2028: Technavio. Retrieved from https://www.prnewswire.com/news-releases/indias-consumer-electronics-and-home-appliances-market-to-grow-by-usd-1-93-billion-2024-2028-driven-by-government-initiatives-ai-powered-insights-by-technavio-302280650.html

[11] EY. (2024, August). 78% of Indian consumers prefer human customer service support when shopping online: EY report. Retrieved from https://www.ey.com/en_in/newsroom/2024/08/78-percent-of-indian-consumers-prefer-human-customer-service-support-when-shopping-online-ey-report

https://www.gapinterdisciplinarities.org/