



From data to decisions: Understanding AI-driven consumer buying patterns in Chamoli district

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Abstract

This study examines the role of Artificial Intelligence-based digital tools in shaping consumer buying behaviour in the Chamoli District of Uttarakhand. With the increasing use of smartphones, internet services, online shopping platforms, and digital payment systems, consumers in semi-urban and hilly regions are gradually becoming exposed to AI-supported features such as product recommendations, personalized advertisements, and chatbot-based assistance. The research is based on primary data collected from 400 respondents. It focuses on how AI-enabled recommendations, personalization, consumer trust, and data privacy awareness influence purchase-related decisions. The findings indicate that AI-supported personalization and recommendation systems have a positive effect on consumer purchase behaviour. Trust strengthens this relationship, while privacy awareness affects the manner in which consumers respond to AI-driven marketing practices. The study further reveals that AI tools improve convenience and enhance the shopping experience, but concerns regarding excessive personalization, data misuse, and limited transparency may reduce consumer confidence. Therefore, the responsible use of AI, clear communication about data practices, and protection of consumer privacy are necessary for developing long-term trust in emerging digital markets such as Chamoli.

Keywords: Artificial Intelligence, Consumer behaviour, Digital market, Chamoli

Introduction

Artificial Intelligence has become an important part of modern marketing and consumer decision-making. Its influence is no longer limited to large cities or technologically advanced markets. AI is increasingly used by firms to understand consumer preferences, predict behaviour, and design personalized marketing strategies (Davenport *et al.*, 2020; Huang & Rust, 2021) [2, 5]. Semi-urban and rural regions such as Chamoli District in Uttarakhand are also witnessing changes in the way consumers search for products, compare alternatives, and make purchase decisions. In the past, consumers in such regions mostly depended on local markets, personal experience, family advice, and informal sources of information. However, the rapid growth of smartphones, internet connectivity, digital payment systems, and online shopping platforms has changed this pattern. Consumers now receive product suggestions, targeted advertisements, price comparisons, and automated support through digital platforms. Many of these services are supported by AI-based systems that study user behaviour and provide customized content (Wedel & Kannan, 2016; Davenport *et al.*, 2020) [9, 2]. AI technologies such as machine learning, predictive analytics, recommendation engines, and chatbots help businesses understand consumer preferences more accurately. Recommender systems generally use consumer data, past behaviour, preferences, and interaction patterns to suggest products or content that may be relevant to individual users (Ge *et al.*, 2022) [4]. While such systems can make shopping more convenient and relevant, they also raise concerns related to

privacy, transparency, and consumer control (Buhalis & Sinarta, 2019; Ge *et al.*, 2022) [1, 4].

In a region like Chamoli, consumer behaviour is influenced by both traditional and modern factors. Local availability, income level, education, digital literacy, social influence, and trust in technology all affect how consumers respond to AI-based marketing. Therefore, the effect of AI in Chamoli may differ from its effect in large urban markets.

The present study aims to understand how AI-driven tools influence consumer buying behaviour in Chamoli District. It also examines the role of consumer trust, awareness of data privacy, and ethical concerns in shaping responses to AI-based recommendations and personalized marketing. By focusing on a semi-urban and hilly district, the study contributes to a better understanding of digital consumer behaviour beyond metropolitan areas.

Review of literature

The increasing use of Artificial Intelligence in consumer markets has changed the way businesses interact with customers and influence their purchase decisions. AI-based tools such as recommendation systems, predictive analytics, automated advertisements, and chatbots allow firms to analyse consumer data and provide customized shopping experiences (Davenport *et al.*, 2020; Huang & Rust, 2021) [2, 5]. Although many studies have examined AI in urban and global markets, its role in semi-urban and rural areas such as Chamoli District remains less explored.

Earlier studies on consumer behaviour mainly focused on psychological, social, cultural, and economic factors. With the growth of digital platforms, recent research has added data-driven approaches to understand how consumers make decisions. Modern marketing practices now use algorithm-based systems to study consumer interactions, online searches, browsing behaviour, and purchase history. These systems help firms predict consumer preferences and design more targeted marketing strategies (Wedel & Kannan, 2016) [9].

Personalization is one of the most common uses of AI in marketing. AI allows businesses to move beyond general market segmentation and offer suggestions based on individual preferences. Online shopping platforms, streaming services, and digital marketplaces frequently use such systems to recommend products and services. Personalization can increase consumer satisfaction and engagement, but excessive personalization may create discomfort among users, especially when they feel that their personal data is being used without clear consent (Huang & Rust, 2021; Ge *et al.*, 2022) [5, 4].

Predictive analytics is another important application of AI in consumer markets. It helps firms estimate future demand, identify consumer patterns, and improve product targeting. However, algorithm-based suggestions may also limit consumer choice by repeatedly showing similar products. This can influence consumer autonomy and reduce exposure to alternative options. In emerging digital regions such as Chamoli, this dual role of AI as both a facilitator and influencer needs careful examination.

Trust and transparency are central to consumer acceptance of AI-based systems. Consumers are more likely to use AI-generated recommendations when they believe that the system is reliable, fair, and transparent. If users do not understand how their data is collected and used, they may hesitate to depend on AI-driven suggestions. Research on trustworthy recommender systems also highlights that transparency, fairness, privacy protection, and user control are important for building trust in AI-based recommendations (Ge *et al.*, 2022) [4].

Ethical and privacy-related issues also affect consumer attitudes toward AI. AI-based targeting can influence consumer decisions without their full awareness. Concerns related to data collection, misuse of personal information, algorithmic bias, and excessive persuasion are becoming increasingly relevant. Consumers now expect businesses to use AI responsibly and protect their personal information (Buhalis & Sinarta, 2019; Ge *et al.*, 2022) [1, 4].

Recent studies have also highlighted the importance of Explainable Artificial Intelligence. Explainable AI focuses on making algorithmic decisions more understandable to users (Doran *et al.*, 2017) [3]. In consumer-facing applications, explanations can help users understand why a particular recommendation or decision has been made, which may improve trust and acceptance (Ramon *et al.*, 2021; Rong *et al.*, 2022) [7, 8]. However, empirical evidence from semi-urban and rural regions is still limited. This creates a research gap in understanding how consumers in areas such as Chamoli perceive and respond to AI-based marketing tools.

Overall, the existing literature suggests that AI affects consumer buying behaviour through personalization,

predictive analytics, recommendation systems, and automated decision-making. At the same time, trust, privacy, transparency, and ethical use remain important concerns. Since most existing studies focus on urban and digitally advanced populations, the present study attempts to address this gap by examining AI-driven consumer behaviour in the socio-economic context of Chamoli District.

Research problem

The use of Artificial Intelligence in consumer markets has changed traditional purchasing practices. AI-based tools provide benefits such as convenience, personalization, faster product search, and improved decision support (Davenport *et al.*, 2020; Huang & Rust, 2021) [2, 5]. However, their influence on consumer autonomy, trust, and decision-making in semi-urban and rural areas is still not fully understood.

Many consumers may not be aware that their online activities, including searches, clicks, browsing history, and purchase records, are collected and analysed by digital platforms. This data is often used to shape product recommendations and targeted advertisements. Lack of awareness about these practices may create concerns related to transparency, privacy, and consumer trust (Buhalis & Sinarta, 2019; Ge *et al.*, 2022) [1, 4].

In Chamoli District, consumer behaviour is also shaped by local conditions such as income, education, digital literacy, accessibility, social influence, and traditional buying habits. The interaction between these local factors and AI-driven systems creates a complex environment that requires systematic study. Most existing research on AI and consumer behaviour has focused on urban consumers and technologically advanced markets. There is limited research on how AI affects consumers in semi-urban and hilly regions. Therefore, this study seeks to examine the extent to which AI influences consumer buying behaviour in Chamoli District. It also analyses consumer awareness, trust, privacy concerns, and ethical issues associated with AI-based marketing.

Objectives of the study

The main purpose of the present study is to examine how Artificial Intelligence-based digital tools influence the buying behaviour of consumers in Chamoli District, Uttarakhand. The study gives special attention to AI-enabled recommendations, personalized advertisements, predictive tools, and chatbot-based assistance used by online shopping platforms. Specifically, the study aims to:

1. To study the level of consumer exposure to AI-enabled digital platforms and marketing tools in Chamoli District.
2. To examine how AI-based product recommendations influence product search, comparison, selection, and final purchase decisions.
3. To analyse the role of consumer trust and perceived transparency in accepting AI-generated suggestions.
4. To assess the level of awareness among consumers regarding data privacy and the use of personal information by digital platforms.
5. To identify ethical concerns related to AI-based marketing, especially excessive personalization, perceived intrusion, and possible manipulation of consumer choice.

6. To examine whether socio-demographic factors such as age, education, income, occupation, and digital literacy affect consumer response to AI-driven marketing tools.
7. To suggest practical measures for the responsible, transparent, and consumer-friendly use of AI in semi-urban and hilly markets such as Chamoli.

Hypotheses

The following hypotheses have been framed to test the relationship between AI-driven marketing tools and consumer buying behaviour in Chamoli District:

- **H1:** Consumers who are more exposed to AI-driven product recommendations are more likely to make purchase decisions based on such recommendations.
- **H2:** AI-based personalization has a positive effect on consumer satisfaction and engagement with online shopping platforms.
- **H3:** Higher consumer trust in AI systems increases the likelihood of accepting and acting upon AI-generated suggestions.
- **H4:** Awareness of data privacy practices moderates the relationship between AI-based recommendations and consumer purchase decisions.
- **H5:** Excessive personalization may create a feeling of intrusion among consumers and may negatively affect trust and decision-making.
- **H6:** Socio-demographic factors such as age, education, income, occupation, and digital literacy significantly influence consumer perception and adoption of AI-driven marketing tools.

These hypotheses are tested through quantitative analysis of survey responses collected from online consumers in Chamoli District.

Research methodology

The present study adopts a descriptive research design. This design is appropriate because the study aims to describe and analyse consumer perceptions, usage patterns, trust levels, privacy awareness, and buying behaviour in relation to AI-based digital marketing tools.

The study is based on both primary and secondary sources of data. Primary data were collected through a structured questionnaire from consumers in Chamoli District who use online shopping platforms or other digital services. The questionnaire was designed to collect information on demographic profile, use of AI-enabled features, exposure to recommendation systems, personalized advertisements, chatbot interaction, trust in AI systems, privacy awareness, and purchase-related behaviour.

Secondary data were used to develop the conceptual and theoretical background of the study. These data were collected from books, research papers, journal articles, reports, and reliable online sources related to artificial intelligence, consumer behaviour, recommender systems, digital marketing, privacy, and trust. A sample of 400 respondents was selected for the study. The respondents represented different age groups, educational levels, income categories, occupations, and levels of digital literacy. A random sampling approach was

used so that each eligible respondent had a fair chance of being included in the study.

The questionnaire was divided into three parts. The first part covered demographic information such as gender, age, education, occupation, and income. The second part focused on the use of AI-driven tools, including recommendation systems, personalized advertisements, and chatbots. The third part examined consumer trust, perception of transparency, privacy awareness, ethical concerns, and buying behaviour. Before the final data collection, a pilot test was conducted on a small group of respondents. This helped in checking the clarity, relevance, and suitability of the questions. Necessary changes were made before administering the final questionnaire.

The collected data were analysed with the help of descriptive statistics, correlation analysis, and regression analysis. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to present the profile of respondents and summarize their responses. Correlation analysis was used to examine the association between AI exposure, personalization, trust, and purchase decisions. Regression analysis was applied to measure the influence of AI-related variables on consumer buying behaviour and to test the proposed hypotheses. SPSS and Microsoft Excel were used for data processing, tabulation, and presentation.

The study has certain limitations. It is confined to online consumers in Chamoli District and may not fully represent offline consumers. Since the study is based on self-reported responses, the possibility of response bias cannot be completely ruled out. Further, consumer attitudes toward AI may change over time due to technological advancement and increasing digital awareness.

Conceptual framework

The conceptual framework of the study explains how Artificial Intelligence influences consumer buying behaviour in Chamoli District. It connects technological, behavioural, ethical, and socio-demographic factors that affect consumer decision-making.

AI-driven recommendations and personalization are treated as independent variables. AI-driven recommendations refer to product suggestions generated by algorithms on the basis of consumer behaviour, browsing history, preferences, and previous purchases. Personalization refers to the process of tailoring advertisements, product offers, and digital content according to the needs and interests of individual users. Such personalization is widely recognized as one of the major applications of AI in marketing (Huang & Rust, 2021)^[5].

Consumer trust and perceived transparency are considered mediating variables. Trust reflects the extent to which consumers believe that AI systems are reliable, fair, useful, and understandable. When consumers trust AI-based systems, they are more likely to accept product recommendations and act on them. Prior studies on recommender systems also show that transparency and explainability can support user trust (Ge *et al.*, 2022; Ramon *et al.*, 2021)^[4, 7].

Data privacy awareness is treated as a moderating variable. It refers to the level of understanding consumers have about how their personal data is collected, stored, processed, and used by

digital platforms. Consumers with higher privacy awareness may respond more carefully to AI-based suggestions. Privacy awareness can either strengthen or weaken the relationship between AI tools and consumer purchase decisions.

Consumer buying behaviour is the dependent variable. It includes product selection, purchase intention, decision-making process, purchase frequency, and engagement with AI-enabled platforms.

Socio-demographic factors such as age, education, income, occupation, and digital literacy are used as control variables. These factors may influence how consumers perceive and adopt AI-based technologies. Younger and digitally skilled consumers may be more comfortable with AI tools, while others may use them with caution.

The framework suggests that AI-driven recommendations and personalization influence consumer buying behaviour directly and indirectly through trust. This relationship is further affected by privacy awareness and socio-demographic characteristics.

Results and Discussion

Demographic profile of respondents

The study surveyed 400 respondents from Chamoli District who actively use online shopping platforms. The demographic distribution shows a balanced gender representation, with 52% male and 48% female respondents. The majority of participants fall within the 18–35 age group (75%), indicating that younger and middle-aged individuals are the primary users of digital platforms in the region.

Educationally, respondents are diverse, with 30% undergraduates, 25% postgraduates, 20% having secondary education, and 25% possessing professional or vocational qualifications. In terms of occupation, 40% are students, 35% employed, 15% self-employed, and 10% homemakers. Income distribution reveals that 45% earn below ₹25,000 per month, 35% fall within ₹25,001–50,000, and 20% earn above ₹50,000. This profile reflects a moderately diverse and digitally engaged population.

Table 1: Demographic profile of respondents (n = 400)

Demographic variable	Category	Frequency	Percentage (%)
Gender	Male	208	52
	Female	192	48
Age (Years)	18–25	140	35
	26–35	160	40
	36–45	60	15
	46+	40	10
Education	Secondary	80	20
	Undergraduate	120	30
	Postgraduate	100	25
	Professional/Vocational	100	25
Occupation	Student	160	40
	Employed	140	35
	Self-Employed	60	15
	Homemaker	40	10
Monthly Income (₹)	<25,000	180	45
	25,001–50,000	140	35
	>50,000	80	20

Interaction with AI-driven tools

The findings indicate substantial engagement with AI-powered technologies. Approximately 70% of respondents interact with recommendation systems, 55% with personalized advertisements, and 40% with chatbots or virtual assistants. Among these, 60% frequently rely on AI-generated recommendations, while 25% use them occasionally.

This suggests that AI tools have become an important part of the consumer decision-making process, particularly among younger users. The relatively lower use of chatbots indicates that while AI recommendations are widely accepted, conversational AI tools are still in a developing stage in this region.

Table 2: Interaction with AI-driven tools

AI Tool	Frequency of Use	Percentage (%)
Recommendation Systems	Often	60
	Sometimes	25
	Rarely	15
Personalized Advertisements	Often	55
	Sometimes	30
	Rarely	15
Chatbots / Virtual Assistants	Often	40
	Sometimes	35
	Rarely	25

Trust and perception of AI

Consumer perception of AI systems reflects moderate to high levels of trust, especially when transparency is ensured. A majority (65%) agree that AI makes online shopping easier, while 60% express trust in AI recommendations when data usage is clearly communicated.

However, concerns remain significant. Around 40% of respondents express apprehension regarding the misuse of personal data, and 30% perceive highly personalized recommendations as intrusive. These findings highlight that trust in AI is conditional and depends largely on transparency and ethical data practices.

Table 3: Trust and perception of AI systems

Statement	Agree (%)	Neutral (%)	Disagree (%)
AI makes online shopping easier	65	20	15
Trust AI recommendations when data usage is clear	60	25	15
Concerned about misuse of personal data	40	20	40
Highly personalized suggestions feel intrusive	30	40	30

Ethical and privacy awareness

The results show that 55% of respondents are aware of data privacy practices, while 45% have limited knowledge. Among those who are aware, 65% exhibit cautious behaviour when sharing personal information.

Additionally, 30% of respondents perceive excessive personalization as intrusive, supporting the idea that over-personalization can negatively affect consumer trust. These findings confirm that privacy awareness plays a moderating role in shaping consumer responses to AI-driven marketing.

Table 4: Ethical and privacy awareness with AI systems

Aspect	Category / Response	Frequency	Percentage (%)
Awareness of data privacy	Aware	220	55
	Limited knowledge	180	45
Behaviour regarding personal data sharing	Cautious (Among aware respondents)	143	65
	Not cautious	77	35
Perception of excessive personalization	Feel intrusive	120	30
	Neutral / Acceptable	280	70

Statistical analysis

The data collected from 400 respondents were analysed using descriptive statistics, correlation analysis, and regression analysis. Descriptive statistics were used to summarize the demographic characteristics of respondents and their level of interaction with AI-enabled tools. Frequency and percentage values helped present the distribution of responses clearly. Correlation analysis was used to examine whether a relationship exists between major study variables such as AI recommendations, personalization, trust, and purchase

decisions. Pearson's correlation coefficient was applied to measure the strength and direction of these relationships. Regression analysis was used to test the predictive effect of AI-related variables on consumer buying behaviour. It also helped examine the roles of trust, privacy awareness, excessive personalization, and socio-demographic factors in explaining consumers' responses to AI-based marketing tools. The results of the statistical analysis are presented in the following tables.

Correlation analysis

Table 5: Correlation analysis between key AI variables and consumer behaviour indicators

Variables	Correlation (r)	Significance (p value)
AI Recommendations – Purchase Decision	0.62	<0.01
Personalization – Consumer Satisfaction	0.57	<0.01
Trust – Adoption of AI	0.53	<0.01

Pearson correlation analysis was conducted to understand the relationship between AI-related variables and consumer behaviour indicators.

- The correlation between AI recommendations and purchase decisions was found to be $r = 0.62$, with $p < 0.01$. This shows a strong and statistically significant positive relationship. It means that consumers who interact more with AI-generated recommendations are more likely to consider them while making purchase decisions. Therefore, H1 is supported.

- The relationship between personalization and consumer satisfaction was $r = 0.57$, with $p < 0.01$. This indicates a moderate to strong positive relationship. The result suggests that personalized digital experiences improve consumer satisfaction and engagement with online shopping platforms. Hence, H2 is accepted.
- The correlation between trust and adoption of AI was $r = 0.53$, with $p < 0.01$. This shows that trust has a positive association with consumer willingness to use and follow AI-based suggestions. Thus, H3 is supported.

- Overall, the correlation results show that AI recommendations, personalization, and trust are positively associated with consumer buying behaviour. However, the strength of these relationships may also be influenced by privacy awareness and socio-demographic characteristics. These associations reveal that AI instruments are not only frequently utilized but also have a significant impact on

consumer decisions when trust and relevance are ensured. The correlation values ranging from moderate to strong suggest that while AI has considerable influence, factors like socio-demographics and privacy awareness still have significant roles.

Regression analysis

Table 6: Regression analysis showing the influence of AI variables on consumer buying behaviour

Hypothesis	Predictor / Moderator	β Coefficient	Significance (p -value)	Result
H1	AI Recommendations	0.45	<0.01	Accepted
H2	Personalization	0.43	<0.01	Accepted
H3	Trust	0.38	<0.01	Accepted
H4	Privacy Awareness (Moderating)	0.41	<0.05	Accepted
H5	Excessive Personalization	-0.28	<0.05	Accepted
H6	Socio-Demographics	0.32	<0.01	Accepted

Regression analysis was conducted to examine the influence of AI-related variables on consumer buying behaviour. The results show that all proposed hypotheses are statistically supported.

- AI recommendations have a positive and significant effect on purchase decisions, with $\beta = 0.45$ and $p < 0.01$. This indicates that AI-generated product suggestions are an important predictor of consumer buying behaviour. Consumers who receive relevant recommendations are more likely to consider them during the purchase process.
- Personalization also has a positive effect on consumer satisfaction and engagement, with $\beta = 0.43$ and $p < 0.01$. This suggests that customized product suggestions, advertisements, and platform experiences increase consumer interest and involvement.
- Trust has a significant positive effect, with $\beta = 0.38$ and $p < 0.01$. This shows that consumers are more likely to accept AI-generated suggestions when they believe that the system is reliable, transparent, and useful.
- Privacy awareness has a moderating effect, with $\beta = 0.41$ and $p < 0.05$. This means that consumers who are more aware of data privacy practices respond more carefully to AI-driven marketing. Their acceptance of AI recommendations depends on how secure and transparent they perceive the platform to be.
- Excessive personalization has a negative effect, with $\beta = -0.28$ and $p < 0.05$. This result indicates that over-personalized suggestions may create discomfort or a sense of intrusion, which can reduce consumer trust.
- Socio-demographic factors also show a significant effect, with $\beta = 0.32$ and $p < 0.01$. This means that age, education, income, occupation, and digital literacy influence how consumers understand, accept, and use AI-based marketing tools.

Thus, the regression results confirm that AI recommendations, personalization, trust, privacy awareness, excessive personalization, and socio-demographic characteristics all play

important roles in shaping consumer buying behaviour in Chamoli District.

Discussion

The findings of the study indicate that AI-based digital tools are becoming increasingly relevant in the consumer decision-making process in Chamoli District. Recommendation systems and personalized advertisements are the most commonly used AI-enabled features among the respondents. This shows that AI is no longer limited to large urban markets. It is also influencing consumers in semi-urban and hilly regions where digital adoption is gradually increasing.

The results show that AI-generated recommendations have a strong relationship with purchase decisions. Consumers often use these suggestions while searching for products, comparing alternatives, and making final choices. This indicates that recommendation systems are acting as a decision-support mechanism for online consumers. Personalization also appears to improve consumer satisfaction and engagement. When platforms provide relevant product suggestions or customized advertisements, consumers find the shopping process easier and more convenient. However, the study also shows that excessive personalization can create discomfort. Some consumers may feel that platforms are monitoring their behaviour too closely. This can reduce trust and negatively affect their willingness to engage with AI-based systems.

Trust is one of the most important findings of the study. Consumers are more likely to accept AI-generated suggestions when they believe that the platform is reliable and transparent. Clear information about how data is collected and used can improve consumer confidence. On the other hand, lack of transparency may create suspicion and reduce acceptance of AI tools. Privacy awareness also plays a significant role. Respondents who are more aware of data privacy issues tend to be more cautious while sharing personal information. This suggests that privacy awareness does not completely prevent the use of AI tools, but it makes consumers more selective and careful.

The findings further show that socio-demographic factors influence consumer response to AI. Younger and more digitally literate consumers appear more comfortable with AI-based platforms, while others may use them with more caution. Education, income, occupation, and digital literacy also affect how consumers understand and respond to AI-driven marketing.

Overall, the study shows that AI can improve consumer experience, but its effectiveness depends on trust, transparency, privacy protection, and responsible use. For semi-urban regions like Chamoli, marketers and digital platforms should avoid aggressive personalization and focus on ethical, simple, and transparent communication with consumers.

Conclusion and implication

The study concludes that Artificial Intelligence has a significant influence on consumer buying behaviour in Chamoli District. AI-enabled tools such as recommendation systems, personalized advertisements, predictive suggestions, and chatbot support are gradually becoming part of the online shopping experience of consumers in the region. The findings show that AI recommendations positively affect purchase decisions. Consumers are more likely to consider AI-generated suggestions when they find them relevant and useful. Personalization also improves satisfaction and engagement by making the shopping experience more convenient and suitable to individual preferences.

Trust is a key factor in the acceptance of AI-based marketing. Consumers are more willing to act on AI-generated recommendations when they believe that the system is transparent, reliable, and fair. Privacy awareness also affects consumer behaviour. Consumers who understand data privacy issues tend to be more careful in sharing personal information and more selective in accepting AI-based suggestions. The study also highlights that excessive personalization may reduce trust. When consumers feel that platforms are using too much personal information or tracking them too closely, they may perceive AI-based marketing as intrusive. Therefore, businesses must maintain a balance between personalization and consumer comfort.

The findings have practical implications for marketers, digital platforms, and policymakers. Businesses targeting semi-urban and hilly markets should use AI in a transparent and ethical manner. They should clearly inform consumers about data collection and usage practices. Platforms should also provide privacy controls and avoid overly aggressive targeting. For policymakers, the study highlights the need to promote digital literacy and consumer awareness regarding data privacy. Consumers should be educated about how AI-based platforms work and how their personal data may be used.

The study is limited to online consumers in Chamoli District. Future studies may include offline consumers, rural households, and comparative studies across different districts of Uttarakhand. Longitudinal research may also be useful to examine how consumer attitudes toward AI change over time.

In conclusion, AI has the potential to improve consumer experience and support the growth of digital markets in regions like Chamoli. However, its long-term success depends on responsible implementation, transparency, privacy protection, and consumer trust.

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