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Consumer Perception of Artificial Intelligence and Its Impact on Online Shopping Behaviour

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ABSTRACT

Artificial Intelligence in e-commerce is rapidly expanding in today's era, changing perception of consumer in online shopping platform. AI-related features such as personalization, product recommendation, virtual assistants, visual search, dynamic pricing, AI-enabled chatbots make online shopping easy, convenient, time-saving and efficient. In previous research, authors mainly focus on personalization, speed and efficiency but very little research has been done on trust, privacy and transparency. The main objective of this study is to analyse the consumer perception of artificial intelligence in online shopping. Also, analyse the perception of consumers in AI-based personalization, trust, privacy and AI-enabled chatbots in online shopping. For this purpose, respondents were selected by convenience sampling. Data were collected through questionnaire which is primary source and review of literature was done by various research papers from different national and international journal which is secondary source. Demographic data include age, gender, educational qualification and frequency of online shopping was analysed by frequency distribution and percentage. Moreover, independent variables include consumer perception of artificial intelligence, AI-based personalization, trust and privacy concern and AI-enabled chatbots while dependent variables include online shopping behaviour. Therefore, consumer perception on artificial intelligence features and its impact on online shopping behaviour was analysed by descriptive statistical tools i.e. mean and standard deviation. This study conclude that consumer perception of artificial intelligence on online shopping behaviour is positive. It is disclosed that young consumers are most engage in online shopping. Most consumers shop online on occasional and rarely basis, few consumers are shop online on monthly, weekly and frequently basis. Consumers are aware about artificial intelligence features like personalization and chatbots which enhance online shopping but

consumers have neutral behaviour on trust and privacy concerns, which means consumers feel hesitant about data security, hence it is important to strengthen trust, transparency or data protection so that the long-term benefits of artificial intelligence can be increased..

Keywords: Artificial Intelligence, Consumer Perception, Online shopping behavior, AI-based Personalization, E-commerce

1. INTRODUCTION

Artificial Intelligence is a 21st century technology that performs various functions. It makes human-related tasks easier. It is easy to understand that artificial intelligence is a technology which simulates human intelligence tasks and performs various functions such as problem-solving, learning and decision-making. Artificial intelligence has also played a significant role in the transformation of e-commerce platforms globally, leading to significant changes in consumer online shopping. It makes shopping easy and convenient. Online shopping is one of the easy ways to buy products. In this, consumers can buy products online. With the advent of smartphones and portable laptops, shopping can be done anywhere at any time. In fact, even if someone is travelling or in the office, shopping becomes easy for him. Earlier when people used to buy product they had to sit in front of the desktop for hours but with the advent of AI, it has become very easy. There has been a change in the consumer perception of online shopping behaviour due to artificial intelligence. Many AI-factors like product recommendation, virtual assistants, visual search, dynamic pricing improves the consumer's purchasing choice. When consumers shop online on different platforms like Amazon, Flipkart, Myntra and so on, artificial intelligence provides product recommendations and influences consumer choice through targeted ads, making it easier and more convenient for consumers to adopt artificial intelligence. AI-enabled chatbots help the consumer to get instant feedback on product related searches, order tracking and frequently asked questions which makes online shopping seamless. There are some product discovery tools like visual search or voice search which enhance the online shopping behaviour of the consumer. Artificial intelligence provides the facility of 24*7 customer support which increases the satisfaction of the consumer which in turn increases brand loyalty and the consumer makes repeat purchases again and again. Features like dynamic pricing impact the consumer online shopping perception. If the price is changing frequently, the consumer feels that it is not trustworthy. Buying products at reasonable or discounted prices becomes easy through artificial intelligence. Consumers accept artificial intelligence progressively if their privacy is protected which result

increase of trustworthiness in artificial intelligence. Some factors like transparency, trust and ethics are challenges due to which some consumers are not able to fully adopt artificial intelligence

2. SIGNIFICANCE OF STUDY

This study is significant because it will help to better understand consumer perception of artificial intelligence in online shopping and strengthen existing research. The findings from this research will help e-commerce companies to understand the AI-features which will effectively design so that trust and satisfaction of consumers will increase and also improving marketing strategies. This study will make consumers aware of the impact of artificial intelligence on online shopping and enable them to make better purchasing decisions.

3. LITERATURE REVIEW

Singh et al. (2018) investigated that consumers prefer online shopping as it reduces their time and effort and increases convenience. Good internet speed, 24/7 internet connectivity, secure return policy or affordable data packs motivate a consumer to make online purchases. Advancement in technology or features like digital payment positively influence consumers. Improvement of IT infrastructure and low data cost makes online shopping more accessible.

Khan (2022) examines how artificial intelligence enhances decision-making and positively shapes online shopping behaviour of consumers in Nagpur. AI-features like personalization, recommendation system and chatbots increase consumer engagement and purchase intent. AI-powered tools enhance customer satisfaction and brand loyalty. AI is a strategic tool for businesses that influence consumer behaviour. Author also acknowledges limitation related to trust, privacy and security concern among consumers.

Patil and Bhope (2024) examined the influence of artificial intelligence on online consumer buying decision in Pune. AI-driven product recommendations influence consumer purchase decisions. Consumers rely on AI suggestions for choosing the product. AI chatbots help consumers to make purchase decisions. Personalized AI offers increase consumer likelihood of purchase. AI fundamentally improves the online shopping experience which increases satisfaction. AI-driven personalized advertising found to be useful, trustworthy and effective for

consumers. AI plays a direct and positive role in helping a consumer to make online buying decisions.

Ramya and Karthikeyan (2024) examined how Artificial Intelligence technology influence buying behaviour of consumer in online shopping. This study is empirical and quantitative in nature and the primary data based on 500 respondents and has been collected using a structured questionnaire. AI plays an important role in how consumers evaluate, search and purchase products online. This acceptance has also led to changes in consumer purchase rate and shopping patterns. Consumers interact more with personalized and voice-based AI tools than other AI applications. Younger or consumers who are digitally active are more influenced by AI.

Palande (2024) examines mobile shopping behaviour in e-commerce, focusing on technologies such as Artificial Intelligence, Augmented Reality and Blockchain. This study is quantitative in nature and data is based on 400 respondents in Pune city. Studies shows that consumers positively perceive AI-driven personalization, which enhances consumer shopping, improves product recommendations and makes mobile shopping more interactive and enjoyable. AI improves consumer engagement but does not influence repeat purchases or loyalty. Consumers show a high level of trust in mobile payment systems, especially when blockchain type of secure technology supports. Trust has been found to be a key enabler for mobile shopping behaviour. This study also shows that rebranding strategies does not affect consumer loyalty and perception.

Dai and Liu (2024) examined the impact of Artificial Intelligence on consumer buying behaviour in online retail shopping. This study is based on quantitative approach by collecting primary data from online retail shoppers. To analyse consumer response, descriptive statistics and basic inferential analysis are used. AI enabled features such as personalized recommendation, automated suggestion and intelligent search improve online shopping efficiency and positively influence purchase decision. This study reflects that convenience and time saving are the major drivers. Consumers have a favourable view towards AI in online retail purchase. Online retailers enhance consumer satisfaction and sales by integrating AI technologies effectively.

Allahverdiyev and Năstase (2025) examines how artificial intelligence technologies are influencing consumer behaviour in e-commerce platforms in Romania. AI-based recommendation helps consumers to

make better and faster decisions which reduce consumer search time and effort and making shopping easier. Personalization features enhance consumer convenience and satisfaction. AI-powered interface responds positively that provide relevant suggestions to the consumer. Chatbots and virtual assistants provide instant responses which enhance the customer experience, driving engagement and repeat buys. AI is a competitive advantage for e-commerce firms, improving their marketing strategy and customer retention.

Sharma (2025) explained the impact of artificial intelligence on consumer online buying behaviour and its role in e-commerce by using descriptive and secondary-data-based approach. In this study various applications of e-commerce have been studied such as recommendation system, chatbot, virtual try-ons, digital marketing tool, stock management, cybersecurity and customer relationship management. AI helps consumers to choose suitable product faster and increases satisfaction during online shopping. Chatbots and virtual assistant solves queries faster and reduces time wastage. Customers use technology like virtual try-ons in the beauty product category. These AI-driven services increase customer engagement and loyalty. Some benefits have also been seen in e-commerce such as enhancing sales forecasting and stock management, improving digital marketing effectiveness, detecting fraud and cyber security threats. However, some online buying behaviour of AI has negative aspects such as privacy concerns, filter bubbles, dynamic pricing, over-reliance on AI automation, fake review and AI-generated manipulation.

Gantumur (2025) examined how artificial intelligence influences consumer purchase intentions in online shopping. AI provides personalized product recommendations and offers fast result search and relevant suggestions. AI reduce consumer effort or decision-making time. The author also explained that AI personalization and customization display products according to consumer preferences. Through AI-based advertising and targeted promotions, consumer purchases are influenced leading to greater consumer engagement. Data Analytics provides a better understanding of consumer behaviour. AI-based customer support enhances responsiveness and improve customer satisfaction. AI provides competitive advantage to online retailers. Moreover, AI improves efficiency, but this may raise trust and privacy concerns among consumers.

Usman (2025) investigated the impact of AI based recommendation systems in e-commerce by using a quantitative survey approach to understand consumer behaviour and how algorithm driven

recommendation impacts product discovery, purchase intention, decision making efficiency and overall shopping behaviour. AI-driven recommendation plays a strong role in consumer buying behaviour in e-commerce. AI system is helpful for consumers in purchasing goods. Trustworthiness in the recommendation system increases interest of the consumers and provides confidence in making purchasing decisions. At the same time, more personalization can limit product variety. Some consumers feel distorted due to algorithm-driven suggestions.

4. RESEARCH GAP

- Most of the studies have been done on consumer buying behaviour but consumer perception of artificial intelligence has not been studied deeply.
- Important factors such as trust, privacy concerns and perceived risk associated with artificial intelligence have mostly been discussed theoretically but not tested empirically.
- Previous research suggests that the use of artificial intelligence changes consumer behaviour, but it does not clearly explain the psychological and perception-based reasons behind such consumer behaviour.
- Existing research is limited to small and specific locations which make it difficult to apply the results to all consumers

5. RESEARCH METHODOLOGY

Statement of problem

Nowadays online shopping platforms are using artificial intelligence so that consumers can buy better products through different AI-features but the problem is that artificial intelligence is being used a lot but it is not clear how consumers are perceiving artificial intelligence and how their perception is affecting online shopping behaviour. Previous research focuses on personalization, speed and efficiency but very little research has been done on trust, privacy and transparency so the main problem is that what is the consumer perception about artificial intelligence and how is it impacting online shopping behaviour, there is a lack of empirical

data on this that's why it is important to do systematic and detailed research on this topic.

Objectives of the study

The main aim of this study to understand the consumer perception of artificial intelligence and its impact on online shopping behaviour. The specific objective include:

- To analyse the perception of consumers of artificial intelligence in online shopping.
- To analyse the impact of AI-based personalization on consumer purchase decision.
- To analyse the perception of consumers of trust and privacy on AI-enabled features.
- To analyse the impact of AI-enabled chatbots on the perception of the consumers in online shopping.

Hypotheses of the study

H01: There is no significant perception of consumer of artificial intelligence in online shopping.

H02: There is no significant impact of AI-based personalization on consumer purchase decision.

H03: There is no significant perception of consumer of trust and privacy on AI-enabled features.

H04: There is no significant impact of AI-enabled chatbots on the perception of consumers in online shopping.

6. RESEARCH DESIGN

This study suggests a descriptive and quantitative research design in order to explore the consumer perception of artificial intelligence and its impact on online shopping behaviour.

Data sources

Primary data were collected through the questionnaire method. A structured questionnaire was designed and regulate to consumers by social media platforms who actively buy products through online shopping. A 5-point Likert scale was used to capture consumer attitude and perception. 120 Respondents were selected by convenience sampling, ensuring that only consumers who have prior experience with AI-enabled services and who shop online are included. Secondary data were collected from national and international journals research papers.

Variables

In this study, independent variables include consumer perception of artificial intelligence, AI-based personalization, trust and privacy concern and AI-enabled chatbots while online shopping behaviour is included in dependent variables.

Analytical tools

The collected data was coded and analysed using Microsoft Excel. Demographic variables such as age, gender, education qualification, frequency of online shopping were analysed by using frequency and percentage. Pie charts visually represent the distribution of different demographic categories, making comparison easier and increasing understanding of respondent characteristics. Respondent agreement was measured by using mean and variability or consistency in responses was measured by using standard deviation.

7. DATA ANALYSIS

Part A: This consists the information regarding various demographic variables such as age, gender, education qualification and frequency of online shopping

AGE GROUP	FREQUENCY	PERCENTAGE
Below 20	29	24%
21-30	47	39%
31-40	25	21%
41-60	15	13%
Above 60	4	3%
TOTAL	120	100%

Table 1: Age-wise Distribution of Respondents
Source: Author's own research

Table 1 depicts the age-wise distribution of respondents. The age group of 21-30 years have majority respondents i.e. 39% followed by the age group of below 20 years have 24% respondents. 21% respondents belong to the age group of 31-40 years and 13% respondents belong to the age group of 41-60 years. The age group of above 60 have the 3% of respondents which is too less than other age groups. This data reflects that young consumers are the primary player in this study.

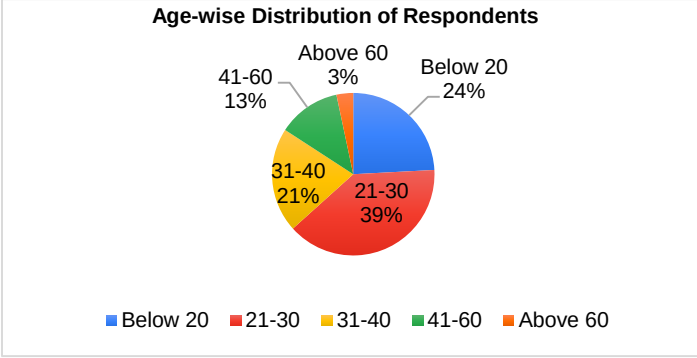

Figure 1: Distribution of Respondents Based on Age Group
Source: Author's own research

Figure 1 visually represents the age-wise distribution of respondents of different age group which shows the age group of 21-30 years respondents are the active participant while the age group of above 60 years have the less participation in the study.

GENDER	FREQUENCY	PERCENTAGE
MALE	61	51%
FEMALE	59	49%
TOTAL	120	100%

Table 2: Gender-wise Distribution of Respondents
Source: Author's own research

Table 2 depicts the gender-wise distribution of respondents which shows that 51% of respondents are male and 49% of respondents are female. This shows the almost balanced diversity of both genders.

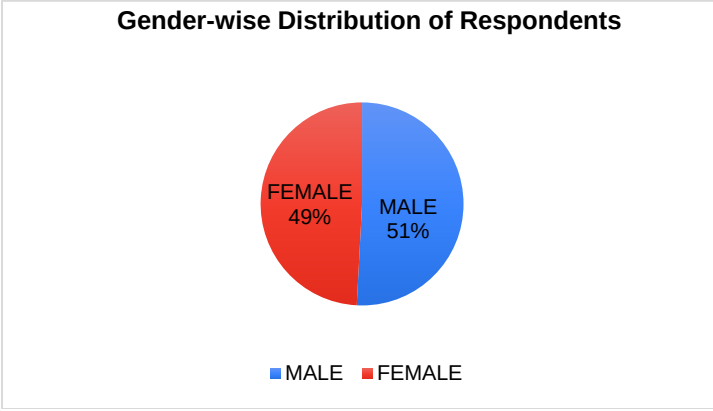

Figure 2: Distribution of Respondents Based on Gender
Source: Author's own research

Figure 2 visually represents the gender-wise distribution of respondents which shows almost equal participation of male and female respondents.

EDUCATION QUALIFICATION	FREQUENCY	PERCENTAGE
Below Secondary (Below 10th)	2	2%
Secondary (10th Pass)	2	2%
Higher Secondary (12th Pass)	18	15%
Diploma	1	1%
Undergraduate (Bachelor's Degree)	29	24%
Postgraduate (Master's Degree)	45	38%
M.Phil.	3	3%
Doctorate	20	17%
TOTAL	120	100%

Table 3: Education Qualification of Respondents
Source: Author's own research

Table 3 depicts the educational qualification of respondents. 38% respondents belong to the category of Postgraduate (Master's Degree) followed by 24% respondents are belong to Undergraduate (Bachelor's Degree). 17% respondents belong to the Doctorate category, 15% respondents belong to the higher secondary (12th pass) category, 3% respondents belong to the M.Phil. category, 2% respondents belong to below secondary (Below 10th) category, 2% respondents belong to Secondary (10th pass) category and 1% respondents belong to Diploma category. This data reflects that study include most of the respondents with higher level of education.

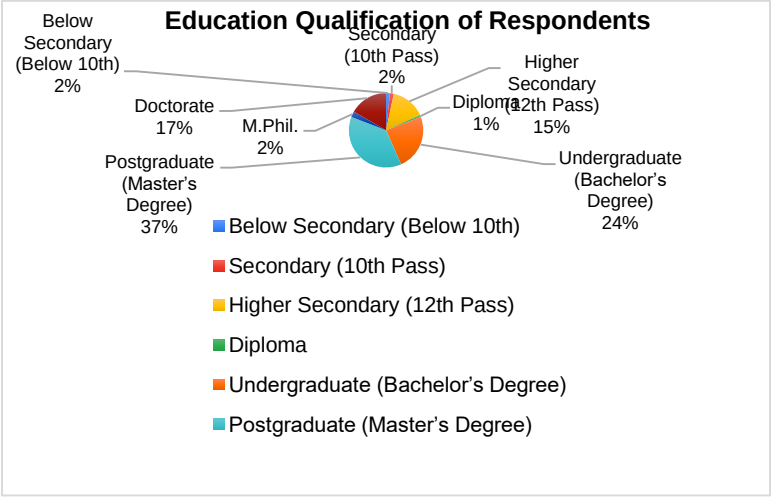

Figure 3: Distribution of Respondents Based on Educational Qualification
Source: Author's own research

Figure 3 visually represent the education qualification of respondents which shows the respondent belong to higher level of education have more intake.

FREQUENCY OF ONLINE SHOPPING	FREQUENCY	PERCENTAGE
Rarely	34	28%
Occasionally	37	31%
Monthly	31	26%
Weekly	9	8%
Frequently	9	8%
TOTAL	120	100%

Table 4: Distribution of Respondents Based on Frequency of Online Shopping
Source: Author's own research

Table 4 depicts the distribution of respondents based on frequency of online shopping. 31% respondents shop occasionally, 28% respondents shop rarely and 26% respondents shop on monthly basis while 8% respondents shop online on frequently basis and 8% respondents shop online on weekly basis. This data reflects that most of the respondents shop online on occasionally or rarely basis while only small proportion of respondents belong to frequent online shopping.

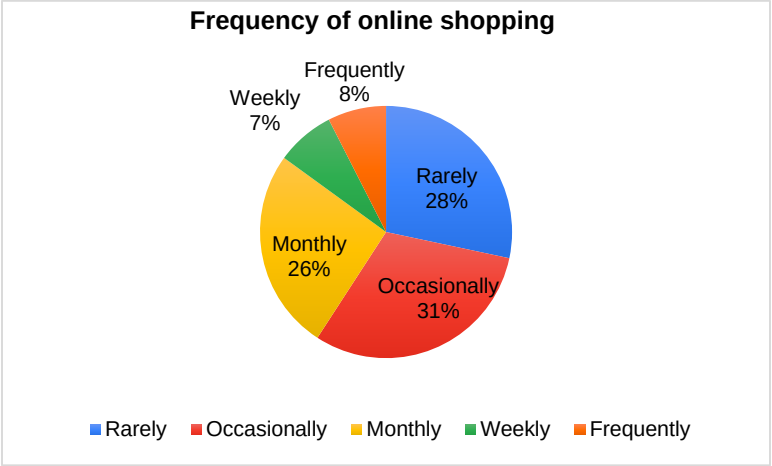

Figure 4: Distribution of Respondents Based on Frequency of Online Shopping
Source: Author's own research

Figure 4 visually represent the frequency of online shopping of respondents which shows most of the respondents shop online occasionally while only a small proportion of respondents who shop weekly.

Part B: This consists the information regarding analysis of consumer perception on AI-features in online shopping.

STATEMENT	**MEAN**	**S.D.**
I am aware that Artificial Intelligence is used in online shopping platforms.	3.5916667	1.0650745
AI makes online shopping more convenient and efficient for me.	3.425	0.9496793
AI helps me find relevant products quickly while shopping online.	3.6	0.920358
I believe AI improves the overall online shopping experience.	3.5583333	0.8868397
AI-driven personalization saves my time while shopping online.	3.4916667	0.8401264
Personalized offers and discounts generated by AI influence my purchase decisions.	3.375	0.898762
I trust online shopping platforms that use Artificial Intelligence.	3.1416667	0.812671
I believe AI-enabled systems protect my personal information.	2.9916667	0.8647711
AI-enabled chatbots provide quick responses to my queries.	3.5666667	0.867076
Chatbots increase my confidence in making online purchase decisions.	3.3	0.8560217

Table 5: Descriptive Statistics of AI-related variables
Source: Author's own research

Table 5 depicts the consumer perception on AI-related features such as personalization, chatbots, and trust and privacy concerns on online shopping.

Mean = 3.59 and S.D. = 1.06 shows that respondents are agree with the statement that they aware about artificial intelligence is used in online shopping platforms and the high standard deviation shows diverse opinion and variation in consumer perception.

Mean = 3.42 and S.D. = 0.94 shows that respondents are agree that artificial intelligence makes online shopping more convenient efficient, while low standard deviation shows consensus in consumer perception.

Mean = 3.6 and S.D. = 0.92 shows that respondents are agree that artificial intelligence helps to find relevant products quickly, while low standard deviation shows consensus in consumer perception.

Mean = 3.55 and S.D. = 0.88 shows that respondents are agree to believe that artificial intelligence improve the overall online shopping experience, while low standard deviation shows consensus in consumer perception.

Mean = 3.49 and S.D. = 0.84 shows that respondents are agree that AI-driven personalization saves time, while low standard deviation shows consensus in consumer perception.

Mean = 3.37 and S.D. = 0.89 shows that respondents have neutral response in personalized offers and discounts which is generated by artificial intelligence to influence the purchase decisions, while low standard deviation shows consensus in consumer perception.

Mean = 3.14 and S.D. = 0.81 shows that respondents have neutral response on trustworthiness of artificial intelligence, while low standard deviation shows consensus in consumer perception.

Mean = 2.99 and S.D. = 0.86 shows that respondents have neutral response on AI-enabled system can protect the personal information, while low standard deviation shows consensus in consumer perception.
Mean = 3.56 and S.D. = 0.86 shows that respondents are agree that AI-enabled chatbots provide quick responses to the queries, while low standard deviation shows consensus in consumer perception.

Mean = 3.3 and S.D. = 0.85 shows that respondents have neutral response on chatbots increase the confidence in online purchase, while low standard deviation shows consensus in consumer perception

8. RESULTS AND FINDINGS

The results of this study indicate that consumers' perception of AI in online shopping is positive. Consumers are aware that AI-features are used in online shopping and make online shopping easy, convenient and efficient. The research revealed that young consumers are more active in online shopping. Most consumers shop online occasionally and rarely, with fewer responses on a monthly, weekly or frequently basis, which may be due to some reasons. The mean values being above neutral indicate that AI-driven personalization and chatbots save consumers time while shopping online and provide quick responses to queries. Moreover, consumers have a neutral response to personalized offers and discounts; trust and privacy concerns. This means that consumers still feel hesitant about data security and feel that these factors need to be addressed.

9. ETHICAL CONSIDERATION

This research conduct ethically, to maintain the integrity and confidentiality of the participant. No personal information is collected and responses is coded in a way that maintained the confidentiality of the participant. This research is voluntary and the participant have the right to withdraw at any time during the research. However, the entire research process followed ethical protocols to ensure that the process is credible and trustworthy.

10. CONCLUSION

The study concludes that consumer perception of AI significantly influences online shopping. Consumers do prefer online shopping, but in some aspects, it is a bit difficult for consumers to feel confident about AI in online shopping. Features like AI-driven personalization or chatbots enhance consumer online shopping, making it easy and convenient. However, personalized offers and discounts; and trust and privacy concerns remain challenges for consumers. If online platforms don't focus on security, transparency and the ethical use of AI, consumers will find it difficult to feel confident about online shopping. At last, although AI is having a positive impact on consumer perception in online shopping,

security concerns should be further improved so that consumers have long term reliability towards artificial intelligence.

11. LIMITATIONS

- The sample size in this study is limited to 120 respondents, which makes it difficult to directly apply the results to the entire population.
- This study is based on descriptive statistical tools. As inferential statistical tools are not used, a cause-and-effect relationship between AI-related features and online shopping behaviour cannot be established.
- The study only considered selected AI-features such as personalization and chatbots. There is different AI applications used in online shopping which are not included, limiting the scope of study.
- AI technology is rapidly evolving which may lead to a change in consumer perception. This study is conducted over a limited period of time and hence the findings do not represent long term perception

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