Exploring AI Adoption in E-Commerce: A Gen Z Perspective on Technology Acceptance

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Abstract

AI integration in e-commerce improves user experience, attitudes, and behaviours, according to the research. The relevance of practical benefits and user-friendly interfaces is highlighted by the substantial correlation between perceived utility and simplicity of use and positive sentiments toward AI. UX (user experience) improvements, personalized recommendations, and user education make AI-powered services more inclusive. The report also emphasizes impulsive purchase and AI algorithm transparency to generate confidence. AI adoption requires positive attitudes, so organizations should prioritize clear communication and user-centered design. Marketers can increase sales by using impulsive buying and AI advice. E-commerce AI integration requires user-centric design, transparency, and personalization. Future initiatives should improve recommendation systems, accessibility, and user education to maximize AI benefits and alleviate user concerns.

Key words: e-commerce, Gen Z, Artificial Intelligence, user experience

INTRODUCTION

In the dynamic realm of online business, the integration of Artificial Intelligence (AI) technologies has significantly transformed the landscape, presenting both unprecedented opportunities and challenges. As businesses strive to adapt to evolving consumer behaviors and preferences, understanding the acceptance and adoption of AI technologies becomes crucial. This project aims to investigate the complex dynamics of technology acceptance in the context of e-commerce, with a particular focus on Generation Z (Gen Z).

Generation Z, characterized by its digital savviness and affinity for technological innovation, is a pivotal demographic shaping the modern e-commerce ecosystem. Their distinct attitudes, preferences, and expectations toward AI-powered tools and platforms warrant thorough examination. This study seeks to unravel the intricate interplay between Gen Z's perceptions, motivations, and behaviours within the online business space through a nuanced assessment of technology acceptance.

By exploring the intricate relationship between AI and Gen Z, this project aims to shed light on the factors influencing the adoption and usage of AI technologies in e-commerce settings. It will delve into topics such as

usability, trust, security concerns, and perceived value, ultimately providing actionable recommendations for stakeholders looking to harness the transformative potential of AI while fostering consumer trust and satisfaction.

This research aspires to contribute to the growing discourse on technology acceptance in e-commerce through empirical investigation and rigorous analysis. It aims to offer valuable insights to academics, practitioners, and policymakers, facilitating informed decision-making and strategic planning in leveraging AI innovations to navigate the ever-evolving online business landscape.

STATEMENT OF THE PROBLEM

The convergence of artificial intelligence (AI) and e-commerce has ushered in a new era of digital commerce, characterized by personalized experiences, efficient operations, and data-driven decision-making. While AI offers immense potential to enhance customer satisfaction and business performance, its successful implementation hinges on consumer acceptance and trust. Despite the rapid growth of AI in e-commerce, a significant knowledge gap persists regarding consumer perceptions, particularly among digitally native generations like Gen Z.

A critical challenge lies in understanding the factors influencing consumer acceptance of AI-powered features and services in the e-commerce context. Issues such as privacy concerns, data security, algorithmic bias, and the perceived value of AI-driven recommendations require careful consideration. Moreover, the ethical implications of AI in e-commerce, including its impact on consumer behaviour, decision-making, and overall well-being, raise important questions that demand investigation.

This research aims to address the critical need for a comprehensive understanding of consumer attitudes towards AI in e-commerce. By examining the complex interplay between AI technologies, consumer perceptions, and the e-commerce ecosystem, this study seeks to identify key barriers to AI adoption and develop strategies to foster consumer trust and acceptance.

OBJECTIVES

1. Identify the primary factors influencing consumers' behavioural intentions to visit AI-powered e-commerce platforms.
2. Assess consumer acceptance of artificial intelligence in online shopping using the Technology Acceptance Model.
3. Offer practical recommendations to promote the increased adoption of AI in e-commerce.

RESEARCH HYPOTHESES

1. The perceived usefulness of AI positively affects attitudes towards its use in e-commerce.
2. The perceived ease of use of AI positively affects attitudes towards its use in e-commerce.

3. Attitudes towards the use of AI in e-commerce positively impact the intention to use it.

RESEARCH QUESTIONS

1. Does perceived usefulness of AI features in e-commerce influence consumer adoption?
2. Does ease of use of AI-powered tools in e-commerce contribute to positive consumer attitudes towards them?
3. Do positive attitudes towards AI in e-commerce translate into increased intention to use these features?

SCOPE OF THE STUDY

This study provides an in-depth examination of Generation Z's attitudes, behaviors, and acceptance of AI technology within the e-commerce sector. It will include a thorough review of existing literature on AI adoption in e-commerce and Gen Z's interactions with technology. The study aims to identify gaps and opportunities for further research at the intersection of AI, e-commerce, and Gen Z.

Data will be collected from a diverse sample of Gen Z individuals actively engaged in e-commerce. Ethical considerations will be prioritized, including ensuring participant confidentiality and obtaining informed consent. The study will also explore the impact of Gen Z's views on AI adoption for e-commerce businesses, AI developers, and policymakers. Strategies to improve technology acceptance and user experience among Gen Z consumers will be discussed, informed by the study's findings and relevant theoretical frameworks.

REVIEW OF LITERATURE

Haryaji Catur Putera, Wan Rizca Amelia, and Siti Alhamra Salqaura (2023) conducted a study to examine factors influencing Gen Z's e-loyalty in online shopping. The sample consisted of 96 Gen Z residents of Medan city who shop online at least twice a month. Data was analyzed using multiple linear regression, with hypothesis testing conducted via t-tests and F-tests. The findings revealed that e-WOM, e-experiential marketing, and e-satisfaction all have a significant positive impact on e-loyalty. These factors play a crucial role in enhancing e-loyalty among Gen Z consumers.

Frederick Pobee (2023) concludes that key factors influencing Gen Z's engagement with online shopping applications include ease of use, effectiveness, reliability, support service availability, and quality of information. The study suggests that e-commerce platforms should be designed for easy navigation, offer 24/7 customer support, and ensure system efficiency and reliability to meet Gen Z's expectations.

Packiaraj Thangavel, Pramod Pathak, and Bibhas Chandra (2022) explored Gen Z's online shopping behaviors using generational cohort theory. The study provides valuable insights for e-retailers on how this

generation approaches online shopping. By performing a cluster analysis of nine factors (excluding two with low factor loadings), four distinct segments were identified: (a) Economic-quality seekers, (b) Convenience shoppers, (c) Deal-hunting convenience seekers, and (d) Brand and quality-conscious shoppers. Each segment was profiled using demographic data and chi-square analysis. The study also examines the impact of the COVID-19 pandemic on online retail and marketing.

DATA ANALYSIS AND INTERPRETATION

Technology Acceptance Model (TAM)

This study utilizes the Technology Acceptance Model (TAM) to examine consumer adoption of artificial intelligence (AI). TAM, developed by Davis (1989), is effective in influencing users' perceptions of the usability and ease of use of new systems. In the near future, al. (2016) highlighted TAM's utility in assessing user views on technology adoption. Researchers, including Shahzad et al. (2018), Soon et al. (2016), and Weerakkody et al. (2017), have extensively applied this model to evaluate new system implementations. The TAM model has proven successful in various contexts, such as telemedicine (Chau & Hu, 2001), radio frequency identification (RFID) technology (Kapoor et al., 2014), and predicting customer behavioral intentions (Gentry & Calantone, 2002). The model is outlined as follows:

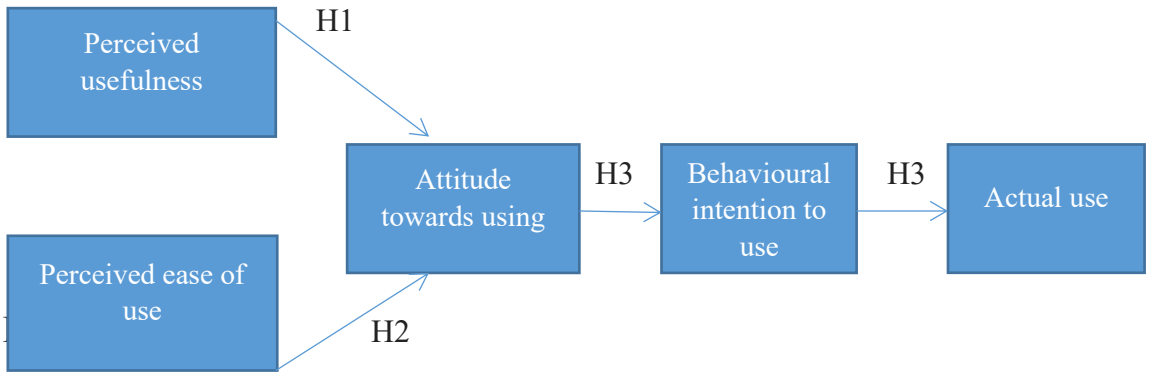

Figure 1: Conceptual framework

Perceived Usefulness

Perceived usefulness is how much users believe a technology improves their work quality. This belief affects their intention to use it, which in turn impacts actual behaviour. Research shows that consumers are loyal to brands they find useful and beneficial, influencing their attitudes and choices.

Perceived Ease of Use

Perceived ease of use is the belief that a technology is easy to use. Studies show that easier technologies are preferred and more likely to be adopted. For instance, online shopping is favoured over in-store shopping due to its convenience. Consumers tend to choose products that they find simple to use.

Attitude towards Use and Behavioural Intention

Attitude towards use reflects a positive internal response to a product based on past experiences, influencing the intention to use it. Attitude and behaviour are interconnected, with attitude often driving behaviour. Positive attitudes lead to favorable actions, as behaviour is shaped by underlying attitudes.

FINDINGS OF OBJECTIVES

DEMOGRAPHIC FINDINGS

The respondents of this study are predominantly aged between 21-27, making up 80.6% of the sample, with the remaining 19.4% aged 11-21. Gender distribution shows a near balance, with 50.6% female, 47.1% male, and 2.4% preferring not to disclose their gender. Employment status varies, with 38.8% being students, 8.2% working in government positions, 19.4% employed in the private sector, 15.3% in the public sector, 14.1% self-employed, and 4.1% unemployed. In terms of income, 37.6% of respondents earn less than 250,000, 21.7% earn between 250,001 and 500,000, 22.3% have incomes between 500,001 and 750,000, 12.9% earn between 750,001 and 1,000,000, and 5.2% earn above 1,000,000.

OBJECTIVE-WISE FINDINGS

- **Perceived Usefulness:** The research indicates that individuals who perceive AI technology as useful are more likely to favour its application in e-commerce. There is a moderate to high positive correlation (0.561) between attitude and perceived usefulness. This suggests that recognizing the benefits of AI significantly shapes positive attitudes towards its adoption in online retail.
- **Perceived Ease of Use:** The study finds that individuals are more likely to view AI-powered technologies favourably in e-commerce if they find them user-friendly. The relationship between attitude and perceived ease of use is also moderate to high, with a correlation value of 0.591. This highlights the importance of user-friendly interfaces and intuitive design in fostering positive attitudes towards AI integration in e-commerce platforms.
- **Attitude and Behavioural Intention:** The research shows that those with a positive attitude towards AI integration in e-commerce are more likely to intend to use AI-powered systems. The

correlation between attitude and intention to use is moderate to strong, with a coefficient of 0.619. This underscores the crucial role of positive attitudes in influencing consumers' willingness to engage with AI technology in online retail environments.

TABLE 1: correlation between perceived usefulness and attitude towards use of ai in e-commerce

			Usefulness	Attitude
Spearman's rho	Usefulness	Correlation Coefficient	1.000	.561**
		Sig. (2-tailed)	.	.000
		N	170	170
	Attitude	Correlation Coefficient	.561**	1.000
		Sig. (2-tailed)	.000	.
		N	170	170

**. Correlation is significant at the 0.01 level (2-tailed).

- From the above table it is clear that, the correlation coefficient is 0.561 which clearly implies that there is a positive relationship between the perceived usefulness and the attitude towards use of AI in E-commerce. So we can say that **Perceived usefulness positively influences the attitude towards use of AI in E-commerce.**

TABLE 2: correlation between perceived ease of use and attitude towards use of AI in e-commerce

			Ease of use	Attitude
Spearman's rho	Ease of use	Correlation Coefficient	1.000	.591**
		Sig. (2-tailed)	.	.000
		N	170	170
	Attitude	Correlation Coefficient	.591**	1.000
		Sig. (2-tailed)	.000	.
		N	170	170

**. Correlation is significant at the 0.01 level (2-tailed).

From the above table it is clear that, the correlation coefficient is 0.591 which clearly implies that there is a positive relationship between the perceived usefulness and the attitude towards use of AI in E-commerce. So we can say that **Perceived ease of use positively influences the attitude towards use of AI in E-commerce**

TABLE 3: correlation between attitude towards use of ai in e-commerce and behavioural intention of use

			attitude	Intention of use
Spearman's rho	Attitude	Correlation Coefficient	1.000	.619**
		Sig. (2-tailed)	.	.000
		N	170	170
	Intention of use	Correlation Coefficient	.619**	1.000
		Sig. (2-tailed)	.000	.
		N	170	170

**. Correlation is significant at the 0.01 level (2-tailed).

From the above table it is clear that, the correlation coefficient is 0.619 which clearly implies that there is a positive relationship between the perceived usefulness and the attitude towards use of AI in E-commerce. So we can say that **Attitude towards use of AI in E-commerce positively influences the behavioural intention of use.**

SUGGESTIONS

- **Enhance User Interface (UI) and User Experience (UX):** Prioritize simplifying navigation, streamlining checkout processes, and ensuring AI-driven features are intuitive and user-friendly to maintain positive user perceptions.
- **Improve Recommendation Systems:** Continuously refine recommendation systems based on user feedback and purchasing patterns to enhance relevance and accuracy over time.
- **Ensure Inclusivity:** Implement features such as screen reader compatibility, adjustable fonts, and colour contrast options to provide an inclusive shopping experience. These measures aid users with disabilities by enabling effective navigation, personalized text sizes, and improved legibility.
- **Provide Educational Resources:** Offer educational resources and tutorials to help users understand the benefits of AI-powered e-commerce platforms. Guided tours, video demonstrations, and interactive walkthroughs can familiarize users with AI-driven features, encouraging their adoption.
- **Tailor Marketing Strategies:** Strategically place product suggestions and create urgency through limited-time offers or flash sales to influence customers' impulse buying behaviour.

- **Increase Transparency of AI Algorithms:** Make AI algorithms more transparent so users understand how recommendations are generated, thereby increasing trust in the information's sources and accuracy.
- **Enhance Accessibility Features:** Add options such as screen reader support, adjustable font sizes, and different colour contrasts to ensure AI-powered shopping apps and websites are accessible and user-friendly for everyone, including people with disabilities.

CONCLUSION

The research highlights the crucial role of AI integration in e-commerce and its impact on user experience, attitudes, and behaviours. The correlation analysis demonstrates positive relationships between perceived usefulness, perceived ease of use, and attitudes towards AI integration, underscoring the significance of recognizing practical benefits and ensuring user-friendly interfaces to foster favorable perceptions.

The study also emphasizes the importance of personalized recommendations, accessibility features, and user education in improving the usability and inclusiveness of AI-powered platforms, thereby ensuring a positive shopping experience for all users. Additionally, the findings acknowledge the role of impulsive buying behaviour and stress the need for transparency in AI algorithms to build user trust and confidence.

The positive correlation between attitudes towards AI integration and behavioural intention to use it highlights how user perceptions drive adoption. This underscores the need for businesses to nurture positive attitudes through transparent communication and user-centered design. The study's focus on tailoring marketing strategies to exploit impulsive buying behaviours reveals opportunities for businesses to enhance sales tactics and boost conversion rates. By strategically using AI-powered recommendations and creating urgency through limited-time offers, businesses can effectively increase consumer engagement and sales.

In conclusion, prioritizing user-centric design, transparency, and personalized experiences is essential for the successful adoption and integration of AI in e-commerce. Future efforts should focus on refining recommendation systems, enhancing accessibility features, and providing user education to maximize the benefits of AI technology while addressing user concerns and preferences in the evolving online retail landscape.

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