IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Study On Impact Of Artificial Intelligence In E-Commerce Consumers With Special Reference To Alathur

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Abstract

This study examines the role of Artificial Intelligence (AI) in e-commerce, focusing on consumer awareness, benefits, challenges, and adoption factors. It found that AI improves the shopping experience, especially through personalized recommendations and faster search results, but trust and privacy concerns remain significant barriers. While many consumers value AI features, they are cautious about data security and the reliability of AI-driven decisions. The study recommends enhancing transparency, improving AI tool effectiveness, addressing privacy issues, and educating consumers to foster greater trust and adoption of AI in e-commerce.

Introduction

The paper discusses the concept of Artificial Intelligence (AI), which refers to the development of computer systems capable of performing tasks typically requiring human intelligence, such as visual perception, speech recognition, and decision-making. John McCarthy defined AI as the science and engineering of creating intelligent machines. The field includes various sub-disciplines like reasoning, knowledge representation, learning, and natural language processing. The idea of creating machines that think like humans has been around since the inception of modern computing. In the 1980s, AI research gained momentum with the success of expert systems, programs that mimicked human experts' knowledge and problem-solving abilities. By 1985, AI became a billion-dollar industry, and government funding for research increased due to projects like Japan's fifth-generation computer initiative. However, by 1987, the market for AI declined, leading to a second "AI winter. "The paper also touches on AI for IT operations, where AI is used to manage and automate information technology tasks on multi-platform systems. The

study explores how AI is transforming online shopping by influencing consumer behavior, enhancing the shopping experience, and addressing potential risks like privacy concerns.

Statement of the Problem

In recent years, the integration of Artificial Intelligence (AI) into e-commerce has transformed the way businesses operate and interact with consumers. However, there remains a gap in understanding the level of awareness and the overall impact of AI among e-commerce consumers. Despite AI's growing presence in online shopping, including personalized recommendations, chatbots, and predictive analytics, many consumers may not fully comprehend its benefits or challenges. Additionally, while AI offers numerous advantages, such as enhanced customer experiences and improved service efficiency, there are concerns regarding privacy, trust, and the potential risks of AI adoption. The factors influencing the adoption and acceptance of AI in e-commerce are also not well understood, leaving businesses with limited insights into how to effectively engage consumers. This study aims to bridge these gaps by assessing the awareness and understanding of AI among e-commerce consumers, identifying the benefits and challenges they perceive, and exploring the factors that drive or hinder their adoption of AI technologies.

Objectives of the study

- To assess the level of awareness and understanding of AI among e-commerce consumers.
- To identify the benefits and challenges of artificial intelligence implementation in e-commerce from a consumer perspective**.**
- To identify the factors that influence the adoption and acceptance of artificial intelligence among e- consumers.

Research Methodology

The study adopts a descriptive and analytical research design, primarily focusing on qualitative analysis. This design aims to explore and understand the awareness, benefits, challenges, and factors influencing AI adoption in e-commerce from the consumer perspective. The primary data was collected directly from e-commerce users using a structured questionnaire consisting of 20 questions. Secondary data was gathered from internet sources, study reports, and journals relevant to the research topic. Convenience sampling was employed to select participants for the study. The survey included 50 participants. The data was collected using a questionnaire survey, along with secondary information from the internet and academic journals.

Review of Literature

- **Rulfan Tang's Study (July 2022)** on "AI in Railway Systems" highlighted the growing influence of AI in various sectors, including railways. The paper provides a systematic literature review on the current AI research in rail transport, acknowledging AI's promising role as a game-changer. However, AI research in this field is still in its early stages, with future focus on combining AI applications for decision-making, managing uncertainties, and addressing cybersecurity challenges.

- **Silvana Secinaro and Oavide Calandra's Research (April 2021)** on "AI in Healthcare" indicated that AI in healthcare is an emerging field, particularly in health services management, predictive medicine, diagnostics, and clinical decision-making. The United States, China, and the UK are the leading contributors to this research. AI can assist physicians in diagnosis, predicting disease spread, and personalizing treatments, though many areas are still underexplored.
- **Sunday Ayoola Oke's Research (January 2008)** observed that AI has significantly improved both manufacturing and service systems over the past two decades. AI has become a critical area of research across many fields, including engineering, science, education, medicine, business, and law. However, the challenges posed by AI in information technology continue to affect global organizational development.
- **Wasim Khan's Study** on "Emerging AI Technologies and the Labor Market" explained that AI will create new jobs, particularly in higher-value services, while also transforming industries. The development of AI solutions will require teams, opening up new roles and positions in the job market.
- **Shailesh Manjrekar (February 2022)** predicted that AI will drastically reshape markets. AI will automate repetitive tasks, but it will mostly be implemented as augmented AI, where humans and AI work together. This collaborative approach will yield the best results.
- **Pawan Whig's Study (August 2020)** on "AI and Machine Learning in Business" showed that while many business tasks can be automated using AI, human involvement remains crucial. Fully automating businesses is not yet possible, but certain functions like accounting and information management can be automated. The study stresses the importance of adopting AI in a human-friendly way to avoid negative consequences and ensure its positive impact on society.

Theoretical Framework

Artificial Intelligence (AI) refers to the simulation of human intelligence by machines, encompassing applications like expert systems, natural language processing, speech recognition, and machine vision. It is defined by Alan Turing as the science of creating intelligent machines, particularly computer programs. AI has evolved from ancient myths to the 20th century, where it gained momentum with the invention of the digital computer. The field was formalized in 1956, although it faced setbacks during the "AI winter" in the 1970s and 1980s due to overestimation of its potential. However, the 21st century saw a resurgence in AI, driven by machine learning advancements and powerful computing resources. The merits of AI include reducing human error, taking on risky tasks, working 24/7, providing digital assistance, and making faster decisions. However, AI also has notable drawbacks, such as high costs, potential to make humans lazy, unemployment concerns, lack of emotional connection, and limitations in creativity and problem-solving. AI has several objectives, such as solving problems, completing multiple tasks, handling big data, and creating synergy between humans and AI. The field includes different types, such as Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Superintelligence (ASI), each representing different stages of AI development. It also includes specialized types like Reactive Machines, Limited Memory AI, and Self-Aware AI. AI applications span various industries, including robotics,

transportation, marketing, business, gaming, and customer service through AI-powered chatbots. Factors influencing AI adoption include perceived usefulness, ease of use, familiarity, social influence, trust, regulatory environment, and availability. In summary, AI is transforming industries and society, offering significant advantages but also presenting challenges related to costs, job displacement, and ethical concerns. The future of AI will likely depend on resolving these challenges while fostering a balance between human and machine capabilities.

Results and discussion

Table 1
Impact of Artificial Intelligence in E-Commerce

Variable	Description	Frequency	Percentage
Gender	Male	20	40%
	Female	30	60%
	Others	0	0%
Age	Below 20	10	20%
	20-30	30	60%
	30-40	6	12%
	Above 40	4	8%
Frequency of online shopping	Once a week	5	10%
	Once a month	18	36%
	Once every few months	12	24%
	Rarely	15	30%
Implementation of AI helps e-consumers with product discovery	Yes	46	92%
	No	14	8%
Usage of ai powered features while shopping online	Rarely	9	18%
	Sometimes	32	64%
	Often	6	12%
	Almost always	3	6%
Benefits of AI implementation in e-commerce	Personalized product recommendations	9	18%
	Faster search results	13	26%
	Improved customer service	10	20%
	Easier checkout	4	8%
	All of the above	12	24%
	Others	2	4%
Factors influencing decision to use AI powered features	Convenience	16	32%
	Efficiency	6	12%
	Personalization	6	12%

	Trust in technology	7	14%
	Trust in company providing this service	7	14%
	Positive review from others	4	8%
	Others	4	8%
Usage of chatbots while shopping online	Yes	29	58%
	No	21	42%
Feedback of respondents towards the use of chatbots	Very satisfied	12	24%
	Somewhat satisfied	10	20%
	Neutral	20	40%
	Somewhat dissatisfied	6	12%
	Dissatisfied	2	4%
AI will significantly shape the future of e-commerce	Yes	36	72%
	No	6	12%
	Unsure	8	16%
likelihood of recommending an AI powered e-commerce website	Very likely	15	30%
	Somewhat likely	16	32%
	Neutral	16	32%
	Somewhat unlikely	1	2%
	Unlikely	2	4%
negative experience with AI powered features in online shopping	Yes	20	40
	No	30	60
privacy concerns in online shopping due to AI implementation	Sharing personal data without concern	25	50%
	Inaccurate product recommendations	5	10%
	Targeted ads	12	24%
	Others	8	16%
AI provides a better shopping compared to traditional online shopping	Yes	39	78%
	No	11	22%
abandoning AI recommended purchases due to lack of trust in online shopping	Yes	26	52%
	No	24	48%

The data collected from the survey provides valuable insights into the usage and perception of AI in e-commerce. In terms of demographics, the majority of respondents are female (60%), with most falling in the 20-30 age group (60%). When it comes to online shopping frequency, a significant portion of participants shop online once a month (36%) or rarely (30%), with a smaller number shopping once a week (10%). Regarding the implementation of AI in product discovery, a large majority (92%) agree that AI aids in discovering products, reflecting its positive impact on the shopping experience. Additionally, 64% of respondents use AI-powered features sometimes, while 18% use them rarely and 12% often, indicating a moderate but growing adoption of AI features in online shopping.

The perceived benefits of AI implementation are evident, with 26% of respondents recognizing the faster search results, while others appreciate personalized product recommendations (18%) and improved customer service (20%). Convenience (32%) and trust in technology or the company (14%) are the most influential factors driving the decision to use AI-powered features. Furthermore, 58% of respondents reported using chatbots during online shopping, though the satisfaction levels are mixed, with 40% neutral towards chatbots, 24% very satisfied, and 4% dissatisfied. Despite this, a strong majority (72%) believe that AI will significantly shape the future of e-commerce.

However, privacy concerns are a notable issue, with 50% of respondents expressing unease about sharing personal data, and 24% concerned about targeted ads. Additionally, 52% of respondents have abandoned AI-recommended purchases due to a lack of trust in online shopping. Despite these concerns, 78% of participants feel that AI provides a better shopping experience compared to traditional methods. While there are some challenges, the data shows an overall positive perception of AI's role in e-commerce, although trust and privacy remain critical factors for consumers.

Findings

The findings indicate that AI is positively influencing e-commerce, with many respondents believing it enhances product discovery. While most consumers use AI-powered features occasionally, they highly value benefits like faster search results and personalized recommendations. Convenience and trust in the technology or company are important factors driving the adoption of AI. Chatbots are used by a majority, but satisfaction varies, with many respondents expressing neutral or very satisfied feelings. A strong majority believe AI will play a significant role in shaping the future of e-commerce, although privacy concerns remain a major issue. Trust in AI recommendations is a concern for some, with many abandoning purchases due to a lack of confidence in the system. Despite these challenges, AI is generally seen as providing a better shopping experience than traditional methods. Overall, while AI is appreciated, improving trust, privacy, and the effectiveness of AI tools is crucial for broader acceptance.

Suggestions

To improve AI implementation in e-commerce, platforms should focus on enhancing transparency and trust by clearly explaining data usage and privacy policies. They should also work on improving the effectiveness of AI tools like chatbots to ensure a better user experience. Personalization of recommendations should be prioritized to align with consumer preferences. Addressing privacy concerns with stronger security measures and user control over data will help build confidence. Lastly, educating consumers about AI benefits and functionalities can encourage greater engagement and trust.

Conclusion

In conclusion, AI has a significant positive impact on the e-commerce experience, offering benefits such as improved product discovery, faster search results, and personalized recommendations. However, challenges such as trust issues, privacy concerns, and varying satisfaction with AI-powered tools like chatbots need to be addressed. By focusing on transparency, improving AI tool effectiveness, prioritizing data privacy, and educating consumers, e-commerce platforms can enhance user experience, build trust, and drive broader adoption of AI technologies. Overall, AI has the potential to greatly shape the future of e-commerce, but its successful implementation depends on resolving existing concerns.

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