Investigating Factors Influencing Consumer Decision Making in The AI Environment

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# **1.0 Introduction**

## **1.1 Background Information**

Artificial intelligence (AI) according to Vivifies et al., (2019) is the e ability of a computer program or a machine to think and learn. De Bruyn et al., (2020) also stated that AI is a field of study that deals with developing and applying algorithms and heuristic methods to solve complex or impossible human problems. Despite these advances, AI remains a controversial topic. Some people are concerned about creating intelligent machines that could surpass human intelligence and threaten humanity (Abradi, 2022). However, others believe that AI can benefit society, providing new ways to solve problems and increasing our understanding of the world. An AI environment is a computer system designed to create and run artificial intelligence applications. AI environments typically provide tools and services that allow developers to develop and train AI models and then deploy those models into production. The goal of an AI environment is to make it easier for developers to create and deploy AI applications.

The function of Artificial Intelligence (AI) in our economy is becoming more significant. AI has the potential to emerge as the engine that drives economic growth and productivity. It may improve the effectiveness and quality of decision-making processes and inspire the development of new goods, services, markets, and industries. However, artificial intelligence may negatively affect the economy and society (Khan,2022). For example, it poses significant dangers of polarization in the labor market, rising inequality, massive unemployment, and the formation of new unwanted industrial structures. Policymakers must establish the circumstances required to cultivate AI's promise while cautiously assessing how to mitigate its potential hazards.

This study examines the elements influencing consumer purchase behavior within the AI environment and the different phases and kinds of AI consumer decision-making processes. The primary purpose is to comprehend the process of customer choice-making in the AI environment market (Qin,2019). The literature on AI's economic impacts is expanding quickly. John McCarthy, the founder of AI, describes it as the science and engineering of creating intelligent machines and computer programs. In recent years, several software creations have included components of artificial intelligence. The subfields of AI include Machine Learning, Natural Language Processing, Image Processing, and Data Mining. The absence of a standard framework to analyze AI is one of the most significant obstacles to exploring this literature, and several methods are offered. This study presents artificial intelligence based on machine learning (ML).

Using machine learning (ML), AI systems may generate new knowledge by discovering intricate structures and patterns in data analysis. Computer systems can comprehend natural language, detect ailments, and even drive vehicles. Due to the complexity of the technology, it isn't easy to provide a specific definition of artificial intelligence. The ML technique emphasizes the machine's capacity to learn and anticipate. According to, human intellect is superior to artificial intelligence. AI will mostly often enhance labor by giving people insights, recommendations, and direction to boost the productivity of businesses. This notion of artificial intelligence parallels the concept of automation as a factor that increases the productivity of conventional production inputs.

Therefore, there is increasing consumer use of artificial intelligence. Thus, this alters business practices from decision-making based on information to autonomous processes. This research investigates the elements that influence customer decision-making in an AI context. It will study the numerous kinds, phases, and contributing aspects of the decision-making process in more depth (Contissa,2018). Artificial intelligence (AI) has become increasingly important in consumer decision-making. As AI technology has advanced, so too has its ability to influence consumer behavior. This research paper investigates the factors influencing consumer decision-making in the AI environment.

## **1.2 Statement of Problem**

In recent years, the artificial intelligence (AI) environment has increased in complexity and scale. Along with this growth has come an increase in the number of factors influencing consumer decision-making in the AI environment. This research aims to investigate factors influencing consumer decision-making in the AI environment. In particular, the study will explore how consumers make decisions when presented with choices generated by AI-based recommender systems. Given the increasing popularity and use of such recommender systems, it is vital to understand how they influence consumer decision-making to optimize their design and implementation. Furthermore, the findings of this research will contribute to our understanding of how AI is changing the landscape of marketing and consumption. Due to complex decision-making approach, application of AI will aid in offering solutions to the real time problems that affects the effectiveness and efficiency of consumers.

## **1.3 Research Objectives**

1. To understand consumer decision-making mechanisms for purchase behavior in the AI environment.
2. To explore critical factors influencing consumers' purchase decisions in the AI context.
3. To investigate the diverse effects of driving factors on consumer buying behavior in various decision types and stages of the decision-making process.

## **1.4 Research Questions**

1. What are the main factors that influence consumer decision-making in the AI environment?
2. How do these factors impact consumer decision-making in the AI environment?
3. What are the diverse effects of driving factors on consumer buying behavior in various decision types and stages of the decision-making process?

# **2.0 Literature Review**

## **2.1 Artificial Intelligence**

Several factors influence consumer decision-making in the AI environment. First, the increasing availability of data and the ability to process it quickly and accurately has made it possible for AI systems to provide consumers with more personalized recommendations. This has made it easier for consumers to find the products and services they are looking for and has also made it easier for them to compare different options. AI has grown in importance for corporate operations, customers, and marketplaces in today's society. AI systems improve the quality of human life by assuming tasks that are avoided. AI has been used in various service businesses (Kumar,2020). AI is applied to enhance symptom diagnostics and patient treatments at a cheaper cost inside the healthcare system. In the tourist sector, artificial intelligence functions as tour guides to increase traveler engagement and alleviate feelings of isolation. Applications of AI in the hotel business range from Chatbots to enhance the guest service procedure to robot helpers that enhance the on-site hotel experience. AI gadgets are used to clean hospitals and patient rooms during the COVID-19 pandemic because they can prevent the transmission of the virus to people and organize online instruction at higher education institutions (Olan,2021). There are, however, certain restrictions on the application of AI. As AI develops more innovative, many fear AI-powered machines will replace them in employment. In light of the expanding usage of artificial intelligence in many sectors, it is necessary to enact appropriate laws and establish clear guidelines.

## **2.2 Use of AI in Marketing and Advertising**

In recent years, there has been a growing interest in using AI in marketing and advertising. It is due to the increasing availability of data and the need to manage large amounts of data efficiently. Additionally, AI can help to automate repetitive tasks, freeing up time for marketers to focus on other tasks. There are several ways in which AI is applied in marketing and advertising. For example, it can be used for target audience segmentation, personalization, and predictive analytics. Additionally, AI can create and optimize content and automate tasks such as ad placement and optimization. AI can provide significant benefits for marketing and advertising (Kietzmann,2018). However, it is essential to note that AI is still in its early stages of development, and tackling initial challenges is essential. For example, data quality and privacy concerns need to be addressed. Additionally, it is necessary to ensure that AI is used to complement and enhance human capabilities rather than replace them.

To comprehend the prospects AI creates for marketers; one must understand how communications have historically "worked" along the consumer's decision process. The consumer journey begins with need identification, which propels the customer through the early phases. Evaluation, active evaluation, acquisition, and after-purchase (paschen,2018). At each trip point, the customer processing activities, advertising goals, and conventional advertising duties for marketers. The stage when a need is triggered seems complicated to trace since it happens at the category level, not a specific brand (Trakru, 2020). Advertisers have depended on market analysis, web analytics, and data mining techniques to construct customer profiles to comprehend and influence wants. With AI, it is, therefore, able to understand customers' evolving desires and demands in real-time, as they are expressed online, and to rapidly develop more comprehensive profiles. Machine learning continually updates these profiles as customers' digital footprints grow due to social media status updates, purchase habits, or online comments and reviews. AI also assists advertising in "manifesting" customer requirements and desires. Pinterest uses picture recognition to determine the style preferences of individual users based on the photographs they have pinned to the site.

AI has altered how marketers comprehend and direct customers. New methods of user-generated data mining will drive future consumer insights, and AI will emerge as the ultimate privacy test. Using machine learning (ML), advertising can acquire customer information. Invisibly collect data from several sources, aggregate them, and mine them for immediate customer insights (Chen,2021). The marketers may then utilize this information to connect with customers actively. AI will soon be so invisibly knit into the fabric of conventional advertising that it will become indistinguishable from it in terms of its hazards and potential benefits.

## **2.3 AI in E-Commerce**

In the early days of e-commerce, AI was primarily used for basic tasks such as product recommendations and customer support. As ecommerce has grown and become more complex, AI has been increasingly used to handle more complex tasks such as pricing, inventory management, and fraud detection. AI is well-suited for ecommerce because it can quickly analyze large amounts of data to find patterns and make predictions. For example, AI can predict what products a customer is likely to buy, how much they are willing to pay, and when they are likely to purchase. AI can also be used to identify fraudulent activity, such as fake reviews or attempts to return used items. AI is not without its challenges, however. One of the biggest challenges is the lack of data. Ecommerce companies have a lot of data, but it is often unstructured and spread across multiple systems (Kumar,2020). It makes it difficult for AI systems to access and use the data. Another challenge is the need for specialized expertise. AI is a complex technology, and finding people with the necessary skills to develop and deploy AI applications can be difficult.

In eCommerce, AI significantly impacts improving customer experiences and creating new solutions. AI's most important eCommerce uses include voice search, chatbots, virtual assistants, and personalized purchasing experiences. AI is integrating into every part of human existence. AI is almost everywhere, from increasing self-checkout cash registers to airport security checks. According to a survey issued by Gartner, the number of firms cultivating AI has surged by 270% over the last four years(sheoran,2020). Still, there are several misunderstandings about all aspects of AI. Many believe, for instance, that artificial intelligence is a relatively new field of research, although it has been for over seven decades.

A firm must have an eCommerce platform to remain competitive with other retail enterprises. If your eCommerce firm cannot sell online, you will not maximize your profits. In addition, following the epidemic, eCommerce enterprises have seen a growth spurt. Technology's innovative and transformational use has brought us to an age in which we are more absorbed in social media, electronics, and the internet. Numerous prosperous organizations have chosen to embrace the internet market and are exploring ways to increase sales in this manner. AI is becoming a significant component of the business sector as many brick-and-mortar enterprises join the eCommerce market. It is also growing contact and engagement with digital touchpoints. We see how incorporating AI into an eCommerce website may increase sales and promote operational efficiency and productivity.

**2.4 Artificial Intelligence and Consumers**

As user data is a vital input to AI systems, this section examines the implications of AI on the behavior and surplus among consumers, emphasizing the distortions that the employment of algorithms could cause. AI systems are becoming more utilized to organize and choose pertinent data, like the order of search engine results, the information that internet users consume, the multimedia material they access, and the recommendations for future purchases. This feature is especially beneficial for customers since robots are more effective and objective than humans at picking relevant and high-quality information, which might lead to improved matching and lower search prices (Puntoni,2021). In this regard, algorithms might assist in overcoming the issue of information explosion by handling information processing. They may alter the decision-making procedure by allowing customers to delegate purchase choices to algorithms, giving rise to the term "algorithmic consumer" (Bhagat, 2022). In this approach, algorithms enable customers to transcend cognitive and behavioral limitations, make more reasonable decisions, and resist deceptive marketing methods. (Maniatis, 2016), conducted a randomized trial study where they offered access to a decision-support tool that includes algorithmic suggestions for selecting the insurance plan with the lowest cost. They discover that algorithmic advice considerably improves the likelihood of plan switching. The authors also conclude that self-selection toward software use would be statistically significant. In reality, many individuals who accept algorithmic guidance are already switching insurance plans, while those who reject it could benefit the most from similar decision-making assistance. It shows that offering access to AI help is insufficient for its advantages to be adopted.

The adoption of ML technology may have disadvantages from the consumer's perspective. ML technologies may induce selection biases, resulting in a new set of policy problems, particularly given that perhaps the fundamental prediction models are difficult for humans to comprehend or manipulate. Algorithmic inequality is triggered by either biased algorithmic forecasts or biased algorithmic goals (Maniatis,2016). The ensuing biases that form the focus of the studies might emerge for two primary reasons: the researchers make predictions using information created endogenously. Once again, they integrate human behavioral limitations. Typically, machine learning-based systems evaluate voluminous amounts of data comprising personally identifiable and demographic information (Calvano,2020). As the learning mechanisms among these algorithms are opaque, they may result in inadvertent discrimination. For instance, the employment of algorithms in courtrooms to predict recidivism has lately aroused a heated discussion. According to (Qin,2019), the program was two times more likely to falsely identify black defendants as having a high probability of recidivism and two times more likely to inaccurately identify white offenders as having a low risk of recidivism. Even though data utilized by the algorithm need not contain an individual's ethnicity, other data features might well be associated with race, which may lead to racial discrepancies in the predictions, hence generating a discussion over the appropriate fairness standard (Thiebaut,2019).

# **3.0 Method**

## **3.1 Research Design**

This research investigates the factors influencing consumer decision-making in the ai environment. The study will use qualitative methodology, specifically in-depth interviews with consumers who have purchased in the ai environment. The research will seek to understand the motivations and considerations that go into these decisions to provide insights for businesses seeking to understand and appeal to consumers in this space(kindylidi,2021). In-depth interviews will be chosen as the primary methodological tool as they provide wealthy, detailed data to generate insights into the consumer decision-making process. The questionnaire will include demographics, consumer decision-making styles, perceived risks and benefits of AI, and consumer trust in AI. The research will be conducted with a purposive sample of 20 consumers who have purchased in the ai environment to ensure that the selection is representative of the population of interest. Data will be analyzed using thematic analysis to identify key themes and patterns.

## **3.2 Implication and limitations**

The proposed research investigates factors influencing consumer decision-making in the ai environment. The research will be conducted through surveys and interviews with consumers. The study findings will be used to develop a marketing strategy for ai products.

There are several implications of this research. First, it will provide insight into how consumers make decisions when faced with ai products. Marketing departments can use this information to develop strategies for increasing sales of ai products. Second, the research will help identify factors hindering consumer decision-making regarding AI products (Kumar,2020). This information can be used to improve the design of AI products or the marketing of ai products. Finally, the research may help identify new opportunities for ai products.

There are also several limitations to this research. First, the research is limited to surveys and interviews with consumers. It means that the data collected may be biased. Second, the study is limited to AI products implying that the findings may not be generalizable to other products. Third, the research may not be able to identify all factors influencing consumer decision-making. It is because decision-making is complex, and many factors can affect it.

# **Conclusions**

This paper investigates the factors influencing consumer decision-making in the AI environment. Robots can now think conceptually and critically thanks to research into artificial intelligence. A variety of businesses will continue to place increasing importance on artificial intelligence. We conclude that more study in this field is possible since using such approaches can provide immensely profitable and desirable outcomes, even if artificial intelligence has not yet reached its full potential. Therefore, the need towards having an effective artificial intelligence is not only to aid in decision making but also act as an effective tool for marketing and making some decisions to reaching more consumers. The green consumers in most cases makes a choice with regard to which products are key that is in line with the environment and create economic value, benefit and even reliable to the environment. Using the AI technology, the choice of green products is deemed to be key as it offers the long-term benefits to the society at large. Consumers consciousness about environment and economic benefit is key in making consumption decision and making key and effective product purchase decision. The green consumers are deemed to have a collective economic viability when choosing green products with the application of AI technologies Therefore, consumer consciousness regarding product benefit and its reliability are some of the key drivers towards making rational AI and decision-making effectiveness.

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