AI in E-Commerce Enhancing Customer Experience and Operations

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ABSTRACT:

The proliferation of Artificial Intelligence (AI) as a momentous technology within the e- commerce industry has drastically improved both customer satisfaction and operational effectiveness. AI technologies that can be utilized in an e-commerce environment include machine learning, recommendation systems, chatbots, predictive analytics, and/or automated logistics, which help to create insights into customer behaviour and create a unique shopping experience based upon those insights as well as increased efficiency within an organisation via streamlined internal processes. The main purpose of this study is to provide insight into how AI affects customer satisfaction and operational effectiveness in the e-commerce industry. This study also examines the perceptions of the consumer and the operational gains as a result of using AI-based systems. The study collected data from 70 respondents via a structured questionnaire. The results of the study revealed that AI has made a significant impact on product recommendations, customer service response time, demand forecasting, and inventory management, resulting in improved customer engagement and increased decision making and operational productivity of organisations adopting AI in e-commerce.

KEY WORDS: Generation Z, online shopping behavior, e-commerce, consumer trends, digital marketing, mobile commerce, social media influence, buying attitude.

INTRODUCTION

As digital technology rapidly grows and changes their market positioning, businesses now utilize an array of digital tools that have revolutionized how they interact with their client base. One of the most influential of these digital technologies is referred to as Artificial Intelligence (AI). Businesses within e-commerce increasingly depend upon this technology to help them create greater levels of engagement with their clients; provide enhanced product optimization and decision-making capabilities; and ultimately achieve higher levels of success for their business objectives. Businesses within e-commerce are using AI as a mechanism to assist them in better analyzing (utilizing large amounts) the abundant amounts of user generated/web based consumer data to facilitate a more personalized experience for the end- user client(s). Companies such as Amazon and Alibaba utilize such AI features as ecommerce recommendations, chatbots for customer assistance & questions, voice-based search, and AI based search engines which facilitate much more effective and efficient means of helping consumers find desired products.

OBJECTIVES OF THE STUDY

- The goal of researching AI Utilised in E-commerce is to understand the potential benefits to the use of AI in online shopping.
- To investigate how AI contributes to an enhanced customer experience while shopping online.
- To investigate how AI contributes towards increased productivity within e-commerce retailers.

REVIEW OF LITEATURE

There have been a number of research articles from **Dwivedi et al. (2021)** about how the Digital Marketing and E-Commerce arena has been affected by Artificial Intelligence (AI). The authors suggest that when AI technologies (e.g. Machine Learning, Predictive Analytics) are used by companies, they result in the ability for companies to deliver

personalised experiences to their customers, leading to improved business operations.

In the Service Industry, **Huang and Rust (2018)** examined how Artificial Intelligence is utilised. The researchers determined that by automating customer interactions and providing effective services to customers (e.g. chatbots and smart assistants), AI systems result in improved quality of service provided to customers.

Grewal et al. (2020) surveyed the impact of AI technologies across Retail and eCommerce sectors and found that AI enables companies to gain a better understanding of their customers by harvesting insights from consumer behaviour patterns, increase effectiveness of Supply Chain Management processes and enhance engagement with their customers.

Chatterjee et al. (2022) studied the impact of AI in Online Retailing, and found considerable advantages to both recommendation systems and Automated Customer Service applications of AI by providing greater Operational Efficiency and increased Customer Satisfaction.

RESEARCH METHODLOGY

METHODS OF DATA COLLECTION:

Primary data, secondary data

SAMPLE TECHNIQUE

Convenient sampling, 71 individual consumer.

LIMITATION OF THE STUDY

The number of respondent is limited to 71 finding and suggestions are based on the information given by the respondents.

ANALYSIS AND INTREPRETATIONS

- **SIMPLE PERCENTAGE**

TABLE 4.1

Most Frequently purchased product in online

PRODUCTS	NO OF RESPONDENTS	NO OF PERCENTAGE
Beauty and Personal Care	9	12.7%
Booking & Stationery	4	5.6%
Electronics	12	16.9%
Fashion & Accessories	29	40.8%
Home & Kitchen	17	23.9%
Total	71	100%

INTERPRETATION

The data shows that the **majority of respondents (40.8%) prefer Fashion & Accessories**, making it the most popular product category among the respondents. In contrast, **Books & Stationery (5.6%) have the lowest preference**, while Electronics, Home & Kitchen, and Beauty & Personal Care show moderate levels of consumer interest.

INFERENCE

A significant majority (40.8%) of respondents engage with Fashion & Accessories products, highlighting their prominence

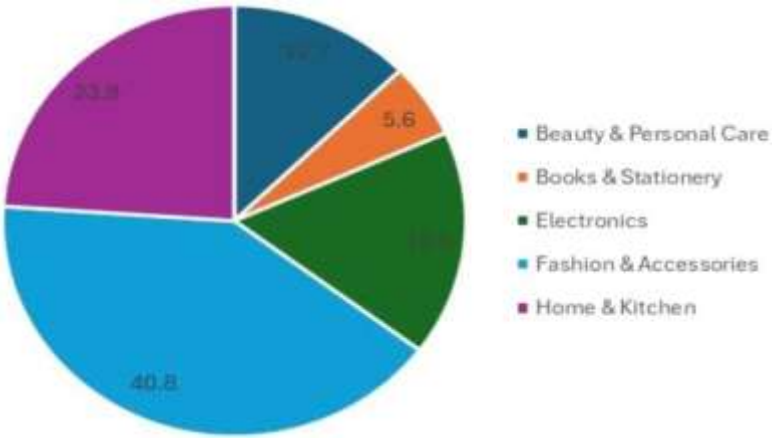

TABLE NO: 2 ONE – WAY ANOVA

Bayesian Estimates of Coefficients[a,b,c]					
Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
How often do you browse or search for products online? = 1	1.353	1.353	.039	.966	1.739
How often do you browse or search for products online? = 2	1.516	1.516	.021	1.230	1.802
How often do you browse or search for products online? = 3	1.389	1.389	.036	1.013	1.764
How often do you browse or search for products online? = 4	1.800	1.800	.131	1.087	2.513
a. Dependent Variable: Age					
b. Model: How often do you browse or search for products online?					
c. Assume standard reference priors.					

CHI SQUARE

Chi-Square Test Showing the Relationship between Gender and Factors Influencing Product Choice

TABLE NO: 4.3

CALCULATED VALUE	TABLE VALUE	DEGREE OF FREEDOM	LEVEL OF SIGNIFICANCE	RESULT
5.238	-	8	73.2%	Accepted

INTERPRETATION

The chi-square test shows that the p-value (0.732) is greater than the 0.05 level of significance. Hence, there is no significant relationship between gender and the factors influencing product choice. Therefore, the null hypothesis is accepted.

H_0: There is no significant relationship between gender and factors influencing product choice. (The two variables are independent.)

H_1: There is a significant relationship between gender and factors influencing product choice. (The two variables are dependent.)

FINDINGS

- A significant majority (40.8%) of respondents engage with Fashion & Accessories products, highlighting their prominence.

SUGGESTIONS

- Assess how these policies influence Gen Z's online purchase behaviour.
- Explore how delivery options and reliability influence purchasing decisions.
- Analyse how reviews, forums, and user-generated content affect purchasing decisions.

CONCLUSIONS

The E-Commerce industry has changed tremendously since A.I. became part of it by improving customer interaction & A.I. is also found in many day to day operations such as recommending products based on past purchases, improving the efficiency of customer service with the use of chatbots, forecasting demand for their products by management etc... A.I. is helping retailers manage their supply chains, develop, implement better advertising and create more customer satisfaction, improve delivery times and lower prices. With these factors combined A.I. will lead to increased operational, customer satisfaction, and sustainable eCommerce profit margins.

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