ISSN–2278-5655

AMIERJ Aarhat Multidisciplinary International Education Research Journal

Volume–XV, Issue– III May – June, 2026

OPEN ACCESS Original Research Article

DIGITAL TRANSFORMATION IN COMMERCE- AI-DRIVEN TOOLS: TO ENHANCE CUSTOMER SATISFACTION WITH REFERENCE TO SENTIMENTAL AND PREDICTIVE ANALYSIS

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Abstract:

Artificial Intelligence (AI) has emerged as a transformative force, reshaping the way businesses operate and compete in today's digital economy. Customer satisfaction remains a cornerstone of business success, and AI is playing a vital role in redefining how organizations engage with, understand, and retain their customers. Through advanced technologies such as AI-powered chatbots, businesses can now provide 24/7 customer assistance, ensuring timely and efficient support. This study examines the role of AI in enhancing customer satisfaction, with particular reference to sentiment analysis and predictive analytics. It explores how these technologies can help businesses strengthen their competitive advantage. Primary data was collected through a structured questionnaire distributed among customers to assess their perceptions of AI-based personalization, service responsiveness, and engagement quality. The findings of the study highlight that AI-driven tools not only improve the accuracy of understanding customer preferences but also contribute to building long-term customer relationships by anticipating needs and offering proactive solutions. Overall, the study provides valuable insights into how AI can be strategically implemented to enhance business performance, boost customer loyalty, and create new opportunities for growth in the era of digital transformation.

Keywords: *Artificial Intelligence (AI), Customer Satisfaction, Sentiment Analysis, Predictive Analytics, Digital Transformation*

Introduction:

Artificial Intelligence (AI) has emerged as a game-changer in the way businesses operate and compete in today's digital economy. Customer satisfaction remains the cornerstone of business success, and AI is significantly transforming how companies engage with and retain their customers. With the help of advanced tools such as AI-powered chatbots, businesses can now provide 24/7 assistance, ensuring that customers receive timely support at any point of the day. Moreover, AI enables organizations to gain valuable business insights by analyzing vast amounts of data, allowing them to stay updated with market trends and consistently fulfil customer demands. By enhancing both customer experience and business intelligence, AI is reshaping strategies for attracting and retaining customers, making it a critical driver of digital transformation in commerce. While most companies currently use sentiment analysis and predictive analytics to enhance customer experience, an emerging possibility is to empower customers with sentiment-analysis tools themselves. By enabling customers to analyses product or service sentiment on their own, companies can help them make more informed and prompt purchasing decisions.

This study aims to evaluate customer acceptance of the new sentiment-analysis approach and assess whether they prefer this innovation or wish to retain the traditional practice of writing reviews. Understanding this will help the business to design better AI strategies and enhance customer engagement. The paper first reviews the existing literature, then outlines the

ISSN–2278-5655

AMIERJ Aarhat Multidisciplinary International Education Research Journal

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research methodology, presents the findings, and concludes with key implications.

Objectives:

- To analyse the effectiveness of sentiment-based feedback systems.
- To compare sentiment analysis with traditional star rating systems.
- To examine users' preferences regarding online review mechanisms.
- To determine whether sentiment analysis provides more detailed insights than star ratings.
- To evaluate the practicality of implementing sentiment-based scoring systems in online platforms.

Literature Review:

Rahul Sharma[1], Shramishtha Srivastva[2], Sanobar4 Fatima[3]- September- October- 2023- E-Commerce and Digital Transformation: Trends, Challenges, and Implications- International Journal for Multidisciplinary Research. – This article explains how AI is helping to transform the e-commerce business into a more customer centric to improve their experience and try to boost their sales with the help of the sentimental and predictive analysis. AI powered predictive analysis helps to accurately cast the future demands and helps to manage the inventories. It enhances the business and customer interactions. Conversational AI could help solve the customer queries and Virtual AI would help in virtual try-ons and visual search. However this research paper highlights that the use of AI could lead to ethical issue, data privacy and algorithms fairness. The transformation into AI with reference to customer personalization needs to be done in an ethical way. This paper examines how AI can improve the buying experiences of the customer with tackling ethical issues and a transformation into the digital world.

Mohammad Eid Alzahrani [1] Theyazn H. H. Aldhyani [2], Saleh Nagi Alsubari [3], Maha

M. Althobaiti, [4], and Adil Fahad[1]- May, 2022- Developing an Intelligent System with Deep Learning Algorithms for Sentiment Analysis of E-Commerce Product Reviews- This article explains that with the use of internet, a lot of data is hidden. Data mining techniques are used to decode the meaning of the hidden text. On all the commercial websites the customers write their reviews and opinions about the products. Sentimental analysis uses the combination of lexicon approach where the words are given tags and scores so that the text could be represented in the form of numbers. The research had collected the reviews from the amazon website and had processed the data by using the following methods: 1. Lowercase- which converts all the letters into the lowercase. 2. Stop words: it is used to remove all the words which does not carry any information such as "a", "the", "an" etc. The model was particularly satisfactory.

Favour Uche Ojika[1], Wilfred Oseremen Owobu[2], Olumese Anthony Abieba[3], Oluwafunmilayo Janet Esan[4], Bright Chibunna Ubamadu[5], Andrew Ifesinachi Daraojimba[6]- March, 2021 - A Conceptual Framework for AI-Driven Digital

Transformation: Leveraging NLP and Machine Learning for Enhanced Data Flow in Retail Operations- This article explains that AI is helping the retail industry to which enables them to improve their efficiency in decision making and also improves customer experience. It mainly focuses on the Natural Learning Process (NPL) and Machine Learning (ML). This study contains three components: data collection and integration, AI driven data processing and insights generation, and automated decision-making for optimization. NPL helps in the extraction of actionable

ISSN–2278-5655

AMIERJ Aarhat Multidisciplinary International Education Research Journal

Volume–XV, Issue– III May – June, 2026

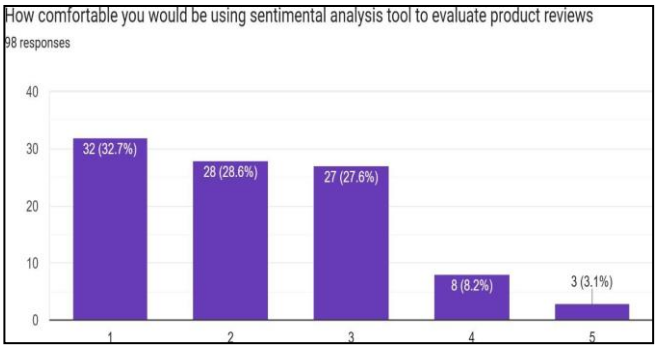
OPEN ACCESS Original Research Article

intelligence from the customer feedback which helps the retailers to take efficient and quick business decisions. ML helps in predictive analysis which helps to maintain the inventories, demand forecasting and supply chain optimization. Although it faces challenges related to data privacy,

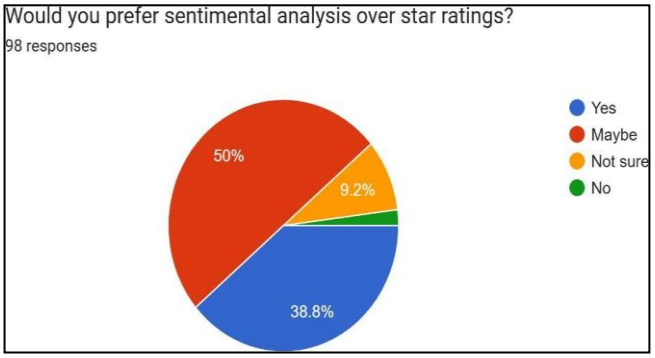
Research Methodology:

1. RESEARCH DESIGN: The study adapts a mixed method Research Design, combing both Qualitative
2. and Quantitative approaches. Quantitative data is collected using linear scale and qualitative data through open ended questions.
3. RESEARCH APPROACH: The research follows an exploratory research approach, as it aims at collecting the opinions of the respondents related to the selected topic.
4. DATA COLLECTION: Primary data was collected using structured questionnaire designed through google forms. The questionnaire consists of open ended questions and closed ended questions.
5. SAMPLING TECHNIQUE: Random sampling is used to collect the data from the respondents based on the availability of the respondents' and their willingness.
6. SAMPLE SIZE: The sample size for the study consists of 98 respondents.
7. RESEARCH TOOLS: The research instrument used is a self-designed questionnaire comprising:
   - Multiple- Choice questions
   - Linear scale
   - Open-ended questions for personal opinions
8. DATAANALYSIS TECHNIQUE:
   - Quantitative data is analyzed using percentages, averages and graphical representations such as charts.
   - Qualitative data from open ended response is analyzed by asking them opinions.

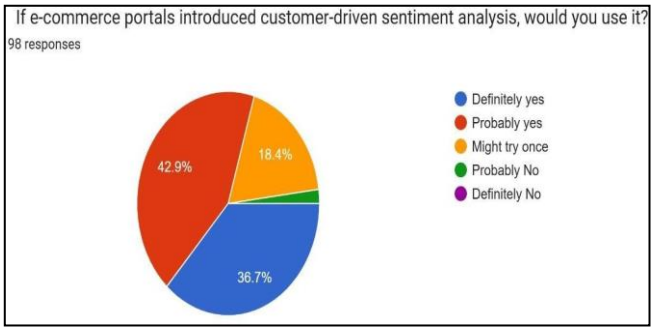
Result and Dicussion:



The above chart shows that 32 respondents out of 98 agreed on to prefer sentimental analysis to evaluate the product reviews



The above pie chart reveals that 38% of the respondents would prefer sentimental analysis over star ratings, but whereas 50% of the respondents are not very sure whether they would prefer the same.



The above pie chart shows that 36.7% of the respondents would be comfortable if the e- commerce platforms introduce sentimental analysis.

ISSN–2278-5655

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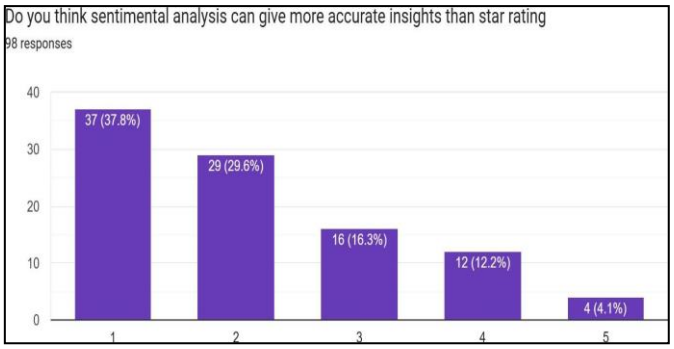
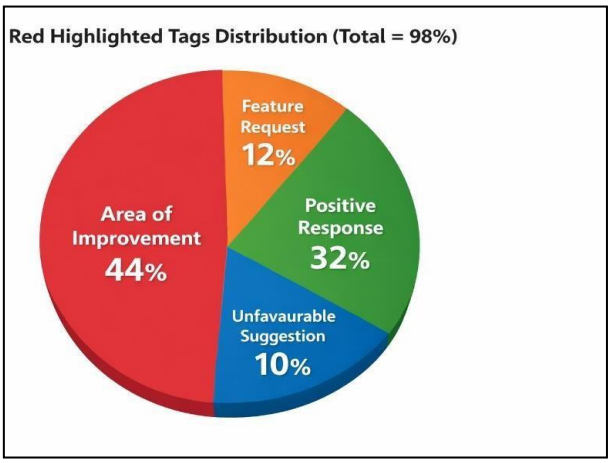


The above graph explains that 37.8% of the respondents thinks that sentimental analysis can give more accurate insights than star ratings.

Open ended reviews:



The above pie-chart displays that 44% is the area of improvement and 32% of the participants has a positive response towards this approach.

Conclusions:

The present study examined the role of AI-driven tools, particularly sentiment analysis and predictive analytics, in enhancing customer satisfaction within the framework of digital transformation in commerce. Based on the responses collected from 98 participants, the findings reveal a moderate yet promising acceptance of sentiment analysis as an alternative or complementary approach to traditional star rating systems.

The results indicate that while 38% of respondents expressed a preference for sentiment analysis over star ratings, a significant proportion (50%) remained uncertain about adopting this approach.

Additionally, 36.7% of participants reported being comfortable with the introduction of sentiment analysis by e-commerce platforms, and 37.8% believed that it could provide more accurate insights than conventional rating systems. These findings suggest that although customers recognize the potential benefits of AI-driven analysis, there is still hesitation due to unfamiliarity or lack of awareness.

The qualitative responses further highlighted areas for improvement, with 44% of respondents identifying scope for enhancement and 32% expressing a positive outlook toward the innovation. This indicates that customers are open to technological advancements but expect reliability, transparency, and user-friendly implementation.

Overall, the study concludes that AI-driven sentiment analysis has the potential to enhance customer engagement, improve feedback accuracy, and support informed decision-making in digital commerce. However, successful implementation requires customer education, ethical data practices, and system transparency to build trust and encourage wider acceptance. The integration of additional features such as fake review detection, keyword-based insights, and percentage-based sentiment scoring could further strengthen the effectiveness of AI-driven feedback systems.

In conclusion, AI-powered tools represent a strategic opportunity for businesses to improve customer satisfaction and achieve sustainable competitive advantage in the evolving digital marketplace.

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ISSN–2278-5655

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3. *Rahul Sharma[1], Shramishtha Srivastva[2], Sanobar4 Fatima[3]- September- October- 2023- E-Commerce and Digital Transformation: Trends, Challenges, and Implications- International Journal for Multidisciplinary Research.*

Cite This Article: ***Jain R. (2026).*** *Digital Transformation in Commerce- AI-Driven Tools: To Enhance Customer Satisfaction with Reference to Sentimental and Predictive Analysis*. **In Aarhat Multidisciplinary International Education Research Journal**: Vol. XV (Number III, pp. 144–148)