ISSN 0974-763X
UGC-CARE Listed Journal

SOUTH ASIAN JOURNAL OF MANAGEMENT RESEARCH (SAJMR)

Volume 15, Issue No.1 January, 2025

CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION AND RESEARCH (CSIBER), KOLHAPUR, MAHARASHTRA, INDIA

(An Autonomous Institute)
University Road, Kolhapur - 416004, Maharashtra State, India.

website : www.siberindia.edu.in
E-mail : editorsajmr@siberindia.edu.in

Chhatrapati Shahu Institute of Business Education and Research (CSIBER)

South Asian Journal of Management Research (SAJMR)

Volume 15, Issue No. 1, January, 2025

Editor: Dr. Pooja M. Patil

Publisher

CSIBER Press

Central Library

Chhatrapati Shahu Institute of
Business Education & Research (CSIBER)
University Road, Kolhapur – 416004, Maharashtra, India.
Phone: 91-231-2535706/07, Fax: 91-231-2535708,
Website: www.siberindia.edu.in
Email: csiberpress@siberindia.edu.in
Editor Email: editorsajmr@siberindia.edu.in

Address:
CSIBER Press
Central Library Building
Chhatrapati Shahu Institute of Business Education and Research (CSIBER),
University Road Kolhapur, Maharashtra - 416004, India.

ISSN: 0974-763X

Price: INR ₹ 1,200/-

Editor: Dr. Pooja M. Patil

Distributed By

CSIBER Press

Central Library

Chhatrapati Shahu Institute of
Business Education & Research (CSIBER)
University Road, Kolhapur – 416004, Maharashtra, India.
Phone: 91-231-2535706/07, Fax: 91-231-2535708,
Website: www.siberindia.edu.in
Email: csiberpress@siberindia.edu.in

Perception of Indian Customers towards Ai-Powered CRM Practices Implemented In E-Commerce Companies

Mrs. A. NILOFER
Research Scholar in Commerce, Affiliated to Bharathidasan University, PG & Research Department of Commerce, National College (Autonomous), Tiruchirappalli, Tamilnadu, India.

Dr. M.A. PARVEEN BANU
Research Advisor & Assistant Professor, Affiliated to Bharathidasan University, PG & Research Department of Commerce, National College (Autonomous), Tiruchirappalli, Tamilnadu, India.

Abstract
The use of Artificial Intelligence (AI) in Customer Relationship Management (CRM) systems has revolutionized the way organizations examine their extensive customer data. Organizations are enhancing their ability to adapt to the AI customer service system (AICS) and digitalization environment by developing skills and processes to increase their agility. They help to optimize and personalize customer interactions, predict trends in customer behaviour and improve operational efficiency. AI has ushered in a new era in Customer Relationship Management that embrace AI in their CRM systems can gain a competitive edge by offering highly personalized and efficient customer interactions. This study investigates the influence of customer satisfaction on the implementation of Artificial Intelligence (AI) in Customer Relationship Management (CRM) within e-commerce enterprises. This study utilizes pre-existing research to formulate hypotheses and construct a conceptual framework. The primary objective of this study is to understand Indian customers' perceptions of AI-powered CRM practices in e-commerce companies. This study gives importance to customers' prepositions towards satisfaction regarding AI enabled CRM practices in Indian context. The model is empirically validated by investigating Indian consumers using a Stratified Random Sampling technique for selecting the respondents. The sample of 662 Indian customers was surveyed through questionnaire to collect insights on their experience and perceptions of AI enhanced CRM practices. Data were analyzed using descriptive and inferential statistics with thematic analysis applied to qualitative responses. The statistical analysis is performed using partial least squares Structural Equation Modelling (PLS-SEM). The findings, when considered in the context of organizational agility, demonstrate that the perceived value and simplicity of the use of AICS, employee trust and attitude, and behavioural intention are important factors that mediate the adoption of AICS. This study finds that there is a significant correlation between Customer Loyalty and positive outcomes like satisfaction. AI assisted CRM practices have significantly impacted in e-commerce sector in execution of tasks and Customer satisfaction. The findings have evident practical implications and avenues for further research.

Keywords: Artificial Intelligence, Customer Relationship Management, Customer Satisfaction, Organizational Agility, Indian Context.

Introduction

Six business principles Customer Value (CV), Customer Acquisition (CA), Customer Retention (CR), Customer Interaction (CI), Product Management (PM), and satisfaction of customers regarding AI-enabled CRM systems underpin this study. Businesses are customer-centric (focus), increasingly dependent on technology (means), and in an ever-changing and unpredictable environment that demands attitudinal and procedural agility to change quickly and effectively for competitive advantage. This research covers Indian customer prepositions towards satisfaction regarding Artificial Intelligence (AI) enabled Customer Relationship Management (CRM) systems. This paper explores the integration of Artificial Intelligence into Customer Relationship Management systems within the framework of organizational agility. It focuses on the interaction of three key business concepts: CRM, e-commerce models and AI. This paper aims to assess the value and impact of these concepts on knowledge and practice in the Indian context.

Client Relationship Management (CRM) necessitates meticulous analysis of client data (Chatterjee et al., 2021). Companies engage in this practice to get the most efficient and effective use of data. AI must reliably and cost-effectively store and analyze massive amounts of client data to enable businesses to succeed (Gnizy, 2019). CRM AI may by enough in stable business environment. Organizations need to adapt their procedures and outlook towards adoption to stay competitive in a dynamic business environment. Thus, we must understand how agility and AI customer service systems give firms an edge (Chatterjee et al., 2021).

In today's competitive business environment, organizations must improve their operations, products and services. Organizations must seize opportunities and adapt quickly in an unpredictable climate. Organizational agility drives success across industries, locations and enterprises. To be agile, organizations must collect, analyze, assess and utilize large amounts of customer data for CRM (Chatterjee et al., 2020: Nguyen and Mutum, 2012: San-Martina et al., 2016)). AI is helping overcome the large volume of data that limits its use

(Eriksson et al., 2020: Stone, 2020). AI-integrated CRM systems (AICS) simplify and minimize the cost of customer data analysis (Chan et al., 2019: Vrontis, 2017).

User experiences have expanded with AI, from physical stores to websites to chatbots to voice assistants. This study by Suresh and Rani (2020): Bedi and Singh (2022) in the Indian context found factors affecting consumer perception of e-commerce and its applications, such as personalized shopping experiences for online buyers, real-time product targeting, visual search, AI-based hiring processes, voice-powered search, assortment intelligence tools, conversational commerce, customer service, virtual personal shoppers, virtual assistants, AI fake review detection, AI-based sales processes and customer satisfaction.

AI-integrated CRM system adoption and organizational agility demand adaptation, innovation and resilience to maximize the commercial potential (Nazir and Pinsonneault, 2012: Santoro et al., 2019, Holbeche, 2018: Shams et al., 2020). Organizational ambidexterity is also important (Akthar et al., 2018: Vrontis, 2017).

According to McKinsey Global Institute (2022) AI adoption and use survey less than 20 % of Indian retail firms are adopting one or more technologies at scale or in a core part of their business, weighted by firm size, despite the opportunities it has. Though the Indian retail sector was an early adoption of AI technologies for customized suggestions, preference-based browsing and image-based product search. Customer demand prediction, inventory management and delivery efficiency are further use cases (NITI Aayog, 2018). However, the effect of AI on the implementation of CRM in e-commerce companies and its impact on Indian consumer satisfaction, perceived value, retention, acquisition, intention and product management is not been vividly discussed, which is deemed important to know because per Accenture report (2017), India's AI has the potential to add 1 trillion to its economy by 2035. Thus, the opportunity that lies ahead, and the gravity of the situation intend the researcher to investigate the impact of customer satisfaction on Artificial Intelligence (AI) towards the CRM implementation in e-commerce companies.

Objectives of the Study

The goal of the study is to investigate the influence of Customer Satisfaction on the implementation of Artificial Intelligence (AI) in Customer Relationship Management (CRM) Practices within e-commerce enterprises among Indian customers.

Research Questions

AI-integrated CRM systems and client satisfaction after adoption are inconsistent (Jagtap and Duong, 2019: Osei et al., 2019). Minimal research exists on optimization and agility- AICS (Osei et al., 2019). Therefore, the study will bridge the gap by framing the following research questions.

1. To what extent does customer interaction influence satisfaction with Artificial Intelligence (AI) towards CRM implementation in e-commerce companies?
2. To what extent does customer retention influence satisfaction on AI towards the CRM implementation in e-commerce companies?
3. To what extent does customer acquisition influence satisfaction with Artificial Intelligence towards the CRM implementation in e-commerce companies?
4. To what extent does product management influence satisfaction with Artificial Intelligence towards the CRM implementation in e-commerce companies?
5. To what extent does customer value influence satisfaction on Artificial Intelligence towards the CRM implementation in e-commerce companies?
6. To what extent does customer satisfaction influence AI-enabled CRM implementation in e-commerce companies?

Literature Review

Relationship of Customer Satisfaction with AI-enabled CRM Implementation

Customer happiness is crucial for integrating AI-powered CRM into e-commerce businesses. Studies like (Antonio et al., 2022) indicate that using Chabot in customer service systems can reduce expenses, but it may also diminish customer satisfaction because of factors like inadequate responses and robotic interactions. Customer happiness is considered a key factor in Chabot engagements, along with privacy, dependability, personalization and reactivity (Srivastava, 2021). It has been suggested that we use a customer satisfaction model based on Expectation Confirmation Theory (ECT) and Uncertainty Reduction Theory (URT) to look into how Chabot in AI-enabled CRM in e-commerce affect the happiness of users (Sohail et al., 2021). Additional study is required to tackle difficulties and enhance customer satisfaction in Chabot engagements and AI-enabled CRM implementation: the same has also been asked by Pillarisetty and Mishra (2022). Thus, it is hypothesized;

H1: Customer satisfaction has a positive influence towards AI-enabled CRM implementation in e-commerce companies.

Relationship of Customer value and Artificial Intelligence towards the CRM Implementation

Customer value is essential for incorporating AI-powered CRM in e-commerce companies. Implementing AI in web development improves the client experience through personalized services, leading to increased customer satisfaction and loyalty (Thandekkattu and Kalaiarasi, 2022). CRM tactics, including consumer connection management and trust-building techniques are designed to improve long-term customer value and reinforce relationships with consumers (Roba and Maric, 2023; Detscher and Stoll, 2021). AI-powered solutions like as virtual personal stylists, Chabot and and recommendation engines enhance the customer journey and improve the overall consumer experience in online fashion websites. The shift from transactional to relationship-focused approaches in e-commerce emphasizes the importance of customer satisfaction and enjoyment, achieved through comprehensive e-CRM methods and the use of intelligent agents (Pani and Venugopal, 2008). Chen et al.'s study shows that AI Chabot, a type of AI-powered CRM, improves the online customer experience and satisfaction in e-retailing according to Schoder and Madeja (2004). Schoder and Madeja's study highlighted that Electronic Commerce Customer Relationship Management (ECCRM) is a crucial element for success in electronic commerce, especially for B2C and small enterprises, as noted by Chang and Weng in 2012. These findings indicate that customer value is essential for driving the installation and success of AI-enabled CRM systems in e-commerce enterprises; however, the driving factors of consumer value remain unidentified. Thus, to investigate the relationship of consumers of India as a market, it is hypothesized:

H2: Customer value has a positive influence towards AI-enabled CRM implementation in e-commerce companies.

Relationship of Product Management with AI-enabled CRM Implementation

Product management, which encompasses content management systems, order management and shipment has a substantial impact on the integration of AI-powered CRM in e-commerce firms. Efficient product management guarantees the availability of essential data and information for AI systems to analyze and make well-informed judgements (Amroush et al., 2008). The content management system enables the effective organization and retrieval of pertinent knowledge, which is essential for AI algorithms to analyze and produce insights. Order management and shipment systems help streamline client orders and deliveries, allowing AI-powered CRM to offer customized and punctual customer interactions. The user's text is empty (Gatla et al., 2022). Integrating AI with legacy CRM systems in B2C relationships helps improve Customer Relationship Management by analyzing enormous amounts of data automatically (Chatterjee et al., 2022). However, the results have shown mixed results; also the context has not been much studied in the Indian context, to bridge the literature gap. It is hypothesizes that:

H3: Product Management has a positive influence towards AI-enabled CRM implementation in e-commerce companies.

Relationship of Customer Acquisition with AI-enabled CRM Implementation

Customer acquisition, search engine capabilities and data accuracy are crucial factors that impact the integration of AI-powered CRM in e-commerce businesses (Chatterjee et al., 2022: Jayanti et al., 2022). Integrating AI with current CRM systems enables the analysis of extensive data sets autonomously, proving to be a great asset for managing customer relationships (Muhammad and Permana, 2019). The effectiveness of AI-CRM implementation relies on aspects including information quality, system fit and organizational fit, which have a substantial and positive influence on the adoption of AI-CRM for B2C relationship management (Ahmed, Amroush and Maati, 2016). Technology turbulence can influence the adoption and success of AI-CRM capacity within the organization (Becker, Greve and Albers, 2009). High-quality customer data is essential for enhancing organizations' comprehension of their clients and delivering optimal online service. Customer acquisition methods, such as search engine capabilities and data quality, are crucial for the effective integration of AI-powered CRM in e-commerce firms (Wqandoko and Panggati, 2022), however, the behaviour of Indian consumers towards AI-enabled CRM implementation is not clear, thus, it is hypothesized.

H4: Customer Acquisition has a positive influence towards AI-enabled CRM implementation in e-commerce companies.

Relationship of Customer Retention with AI-enabled CRM Implementation

Customer retention is crucial for organizations to thrive in mature industries (Nagaraj et al., 2023). Utilizing AI in customer service can enhance organizational efficiency, but inadequate customization may result in dissatisfaction (Nataraj, 2010). Hence, e-commerce firms should priortise enhancing the customer experience with AI-powered services like personalized communication and recognition to maintain customer

loyalty/retention (Das et al., 2018; Ibrahim et al., 2020). AI integration in CRM systems helps forecast customer loss and can be used to enhance client retention. Customer retention, strong CRM strategies, and AI enabled technology are essential for e-commerce enterprises to thrive in the competitive market. Thus, it is hypothesized:

H5: Customer Retention has a positive influence towards AI-enabled CRM implementation in e-commerce companies.

Relationship of Customer Interaction with AI-enabled CRM Implementation

Customer engagement, encompassing customer interaction management, social media utilization and multimedia characteristics, significantly impacts the integration of AI-powered CRM in e-commerce firms. Integrating AI with CRM systems enhances customer experiences and enables personalized interactions (Alzahrani, 2016: Krishnareddy et al., 2022). Social media technology positively impacts firms' distribution chain interactions, boosting customer experiences and improving CRM outcomes (Krishnareddy et al., 2022). Moreover, integrating Chabot into CRM systems allows organizations to deliver efficient and customized customer experiences by automating processes and choices (Chaterjee et al., 2022). Effective deployment of AI-incorporated CRM systems necessitates meticulous planning, considering aspects like data quality, system compatibility and organizational alignment (Roba and Maric, 2023). Customer engagement, Incorporating social media and multimedia elements, is essential for promoting the use and effectiveness of AI-powered CRM in e-commerce businesses (Dhanesh and Duthler, 2019). Thus, it is hypothesized:

H6: Customer Interaction has a positive influence towards AI-enabled CRM implementation in e-commerce companies.

Research Methodology

Primary Data

In this study primary data was collected through online survey which is distributed to 700 Indian customers. Respondents were asked about their experiences with AI-powered CRM systems, focusing on how satisfied they were with personalized recommendations, customer support and privacy concerns. The survey used a Likert scale for quantitative questions (1 to 5) and open-ended questions for qualitative insights. Emphasizes were made since the start towards the importance of avoiding complex or leading questions in the questionnaire. Attention was also given to the fact that the potential respondents did not have any problems understanding the questions. All these attempts were taken to increase the response rate (Chidlow et al., 2015). The layout of the questionnaire was in order and no leading or ambiguous questions were set. The questionnaire was prepared according to the scale development procedure (Carpenter, 2018). The items were prepared in the form of statements and the respondents were asked to reply by selecting the best option. A 5-point Likert scale was used, ranging from Strongly Disagree (SD) to Strongly Agree (SA). Out of 700 respondents, 662 Indian customers had a 94.57 % response rate using a Stratified Random Sampling method. Given this high response rate, it was not perceived as essential to perform a non-response bias test (Armstrong and Overton, 1977). The number of items and respondent ratio should lie between 1:4 and 1:10 (Deb and David, 2014: Hinkin, 1995). As such, the responses are within standard acceptable limits. The number of responses by type of organization is discussed in the results section. Participants and procedure using the ideas of constructs and theories that are already out there, 54 measurement items were made for the survey to use the partial least squares Structural Equation Modeling (PLS-SEM) method to check the conceptual model (Figure 1) and 12 questions were asked by the respondents based on the Demographic profiling. Since the conceptual model says that there are more independent variables than dependent variables, PLS-SEM analysis was used to test the hypotheses and confirm the conceptual model (Abdi, 2010: Wold, 2001). The PLS-SEM approach yields better results in analyzing an exploratory study like this (Hair et al., 2019). Besides, this technique does not require any sample restrictions in the survey (Willaby et al., 2015). This technique applies to data that does not have a normal distribution. The CB-SEM technique cannot analyze this kind of data (Ringle et al., 2012). The prospective respondents i.e., Indian e-commerce customers were informed that the aim of this study is purely academic.

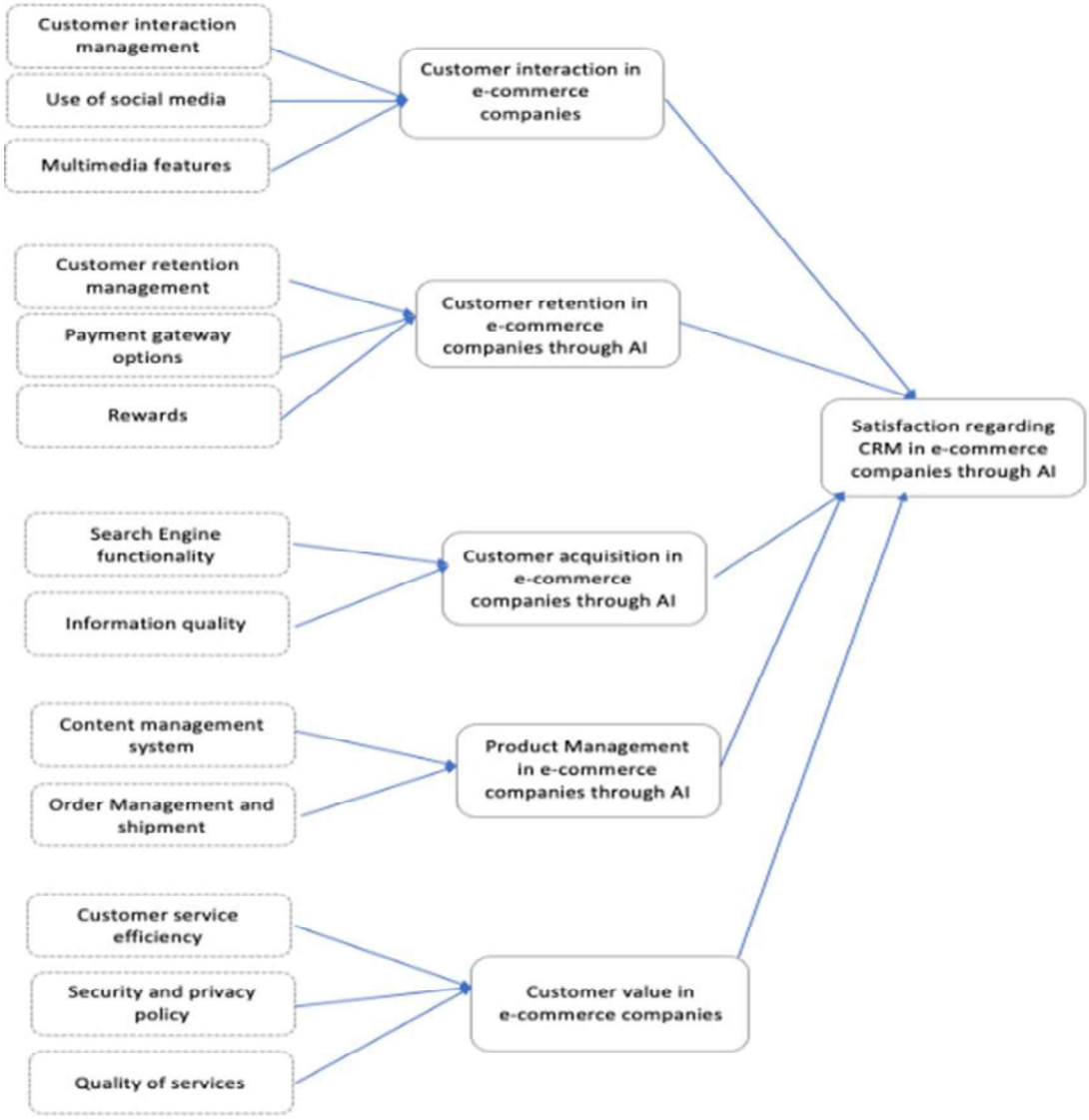
Secondary Data

Secondary data was gathered from various resources such as reports published by research firms such as Statista and McKinsey, which provided industry trends and case studies on the implementation of AI in CRM systems within the Indian e-commerce context. Relevant academic papers on Customer satisfaction and AI adoption were also reviewed to build theoretical framework.

Conceptual Model

Figure 1 represents the conceptual model of this study. This model explores the integration of Artificial Intelligence into Customer Relationship Management systems within the framework of organizational agility. It focuses on the intersection of three key business concepts: CRM, e-commerce models and AI. The paper investigates the value and impact of these concepts on knowledge and practice in the Indian context.

Figure 1: Conceptual Framework for Analyzing AI-Powered CRM in e-Commerce among Indian Customers.



Source: Author own source

Sampling

In this study, Stratified Random Sampling was chosen to ensure a balanced representation of key demographic groups within the Indian e-commerce market. The strata were defined based on age, gender geographic location and income levels allowing for a more nuanced understanding of customer satisfaction across different segments. Stratified Random Sampling was used to enhance demographic diversity, capturing varied perspectives across different age groups, income levels and locations which is crucial given the diversity of the Indian consumer base (Etikan and Bala, 2017).

Sample Distribution and Demographics

The 662 respondents were distributed across different age groups, genders and income levels. The sample included a variety of people from different geographic regions within India, ensuring the findings were reflective of both metro cities and smaller urban centres. Gender balance was maintained and income levels were also considered to capture varying levels of access to e-commerce platforms and AI-powered CRM systems.

Results

Descriptive Statistics

A summary of the respondents' demographic, socioeconomic and preference-related decisions is provided. The sample consisted of 662 individuals with 366 (55.28%) identifying as men and 296 (44.71%) as female. Most participants were private employees with 216 (32.6%) falling in the 31-40 age range and 176 (26.5%) in the 20-30 age group. The majority of employees reported monthly wages over Rs. 40,000, followed by 20,001-30,000 (238; 35.9%; and 221; 33.3%, respectively). Respondents widely use the internet at home (316; 47.7%) and in work places (242; 36.5%). Respondents primarily use the internet for emailing, education and games (427; 64.5%), with shopping being the next most common activity (155; 24.7%). Mobile data is the most common way people access the internet, accounting for 64.5 %. The majority of online purchases are made sporadically with 31.4% occurring once a month and 21.3% happening less frequently. Respondents use several websites and mobile applications such as Amazon, Flipcart, Snapdeal, Paytm and Shop clues to buy a wide range of things online, including books, cosmetics, fashion, home furniture and electronics (396; 57.7%).

Validity of the Measurement Model

Fornell and Larcker (1981) used factor loadings, Composite Reliability (CR), Average Variance Explained (AVE), and Reliability (Cronbach's alpha) to check for construct convergence. CR values of 0.7 or higher, all standardized factor loadings of 0.5 or higher and AVE values of 0.5 or higher indicate convergent validity (Cheung et al., 2023; Henseler, 2015). Table 1 reveals that the higher order construct measurement model meets CR, standardized loading, AE and Cronbach's alpha requirements. This study validates the higher order concept for measurement model evaluation. Each component was assessed for reliability and convergent validity. This study's LOC latent scores are used to assess HOC discriminant validity according to Sarstedt et al., (2019). The HOCs (CI, CR, CA, PM and CV) shows reliability and validity. Summarizing the results, all other constructs had reliability > 60 and convergent validity > 50 (Table 1).

Table 1: Higher Order Construct Validity and Reliability

Construct	AVE	CR	Cronbach's Alpha
Satisfaction	.620	.737	.912
CI	.647	.713	.710
CR	.537	.696	.790
CA	.701	.624	.721
PM	.640	.689	.703
CV	.579	.701	.752

Source: Author's Analysis

Discriminant Validity

The discriminant validity assessment ensures that a reflective construct has the strongest connections with its own indicators in the PLS path model (Hair et al. 2019). We check the CI, CR, PM, CA and CV's discriminant validity with the endogenous variable i.e., satisfaction reading CRM. Another thing we look at is their reliability and validity. According to Franke and Sarstedt (2019); Gold, Malhotra and Segars (2001), Fornell and Larcker's (1981) criterion shows that the construct's square root of AVE is greater than its correlation with all other constructs and HTMT is less than 90. Table 2 shows that measuring model has good discriminant validity for the constructs under study. In particular, all values are below 0.85, indicating construct discriminant validity. Each construct's correlations with indicators of other constructs are lower than those of the same construct, showing that they are separate and not significantly overlapping.

Table 2: Higher Order Construct Discriminant Validity: Heterotrait-Monotrait ratio (HTMT)

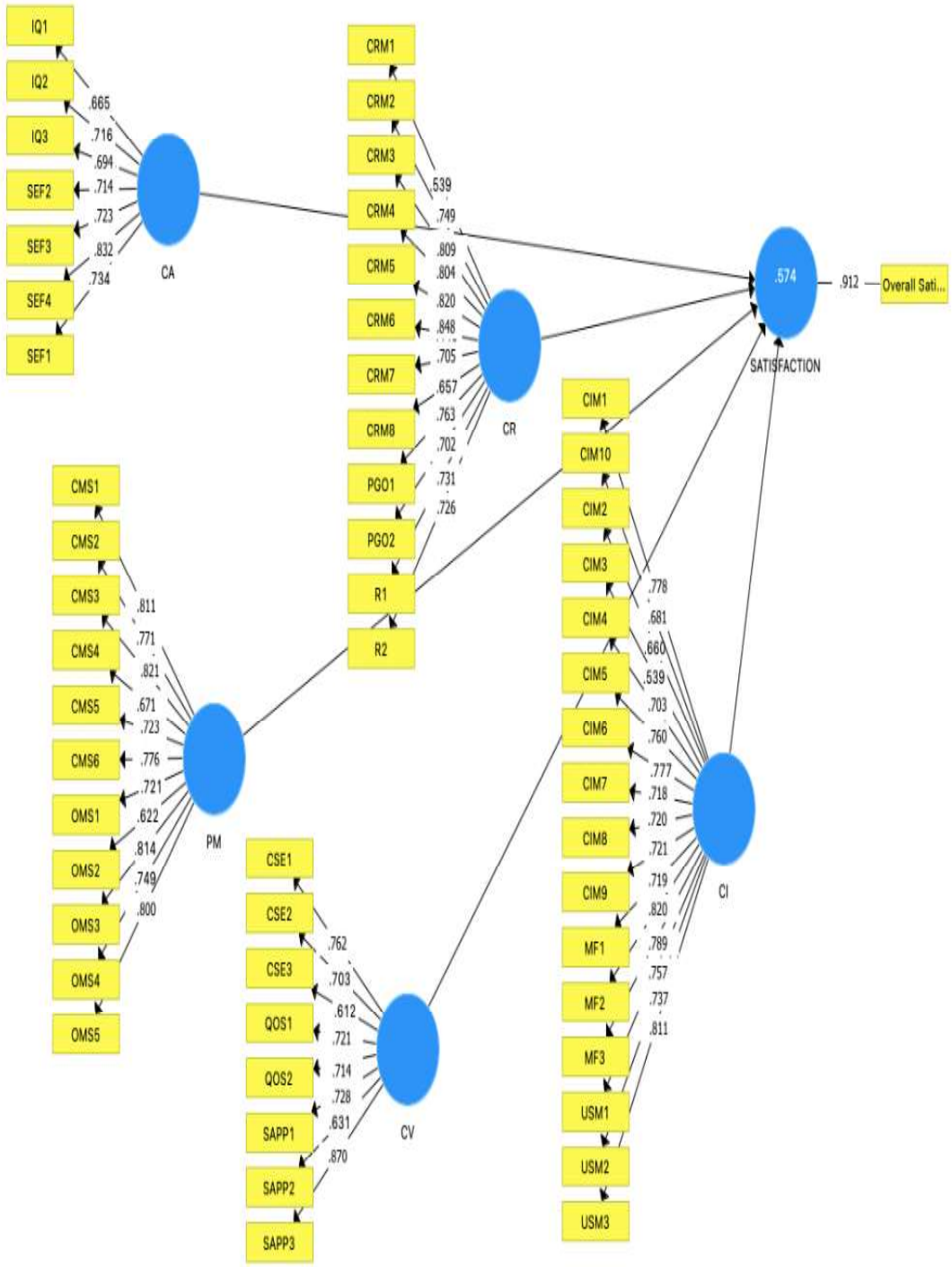
Construct	Satisfaction	CI	CR	CA	PM	CV
Satisfaction regarding CRM (Satisfaction)						
Customer Interaction (CI)	.678					
Customer Retention (CR)	.234	.533				
Customer Acquisition(CA)	.542	.674	.776			
Product Management(PM)	.573	.501	.654	.523		
Customer Value (CV)	.476	.478	.541	.435	.742	

Source: Author's Analysis

Assessment of Structural Model

The evaluation in PLS-SEM emphasizes the importance of path coefficients' significance and relevance, as well as the model's explanatory and predictive capabilities. The structural model mirrors the paths proposed in the research framework. The proposed paths in the research framework are evident in the structural model. Pathways' significance, along with R2 and Q2, is utilized for assessment. According to Figure 2, the model's R2 value is 0.574, which means that the independent variables in the model can account for about 57.4% of the variability in the dependent variable. Put simply, the independent variables (CI, CR, CA, PM and CV) explain 57.4% of the variation in dependent variable (Satisfaction). The R2 value for the dependent variable, which should be 0.1 or higher, serves as a measure of how strong each Structural path is in the model (Falk and Miller, 2014). Table 3 and Figure 2 display an R2 value of 0.574, considered substantial as it exceeds 0.1.

Figure 2: Measurement model with R2 value



Source: Author's Analysis

Therefore, predictive capability is established. Q2 further validates the predictive significance of endogenous elements. A Q2 value above zero suggests that the model is predictive (Q2 – 0.106). Furthermore, the model fit was assessed using SRMR. The SRMR score of 0.086 falls below the critical threshold of 0.10, suggesting a satisfactory model fit (Hair et al. 2019).

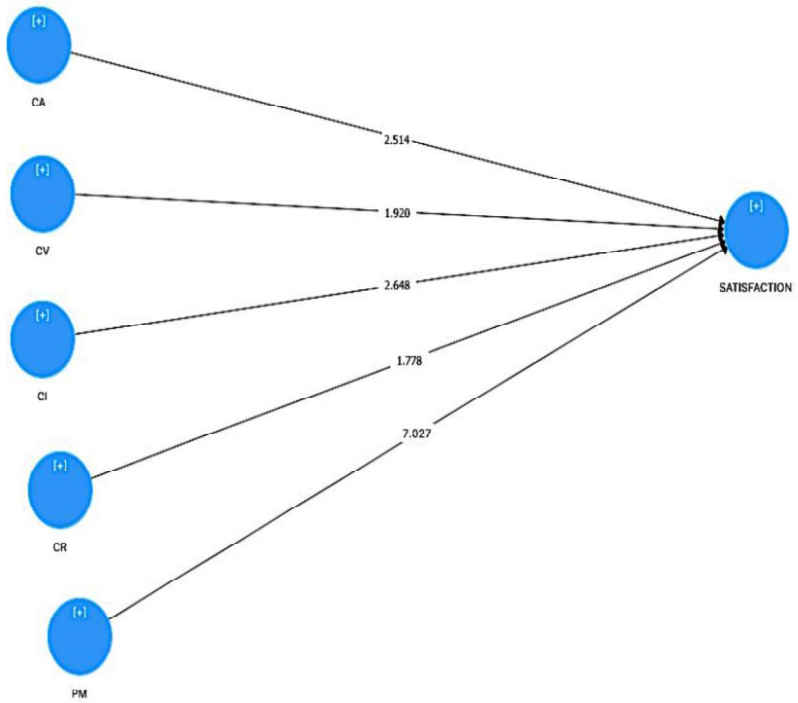
Table 2: Hypothesis Testing (Path coefficient)

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (ST DEV)	T statistics (O/STDEV)	P Values	Result
H1 CA ->	.067	.087	.078	2.514	.001	Supported
H2 CV -> S	.553	.156	.056	1.920	.002	Supported
H3 CI -> S	.987	.945	.059	2.648	.000	Supported
H4 CR -> S	.679	.768	.065	1.778	.001	Supported
H5 PM -> S	.084	.784	.054	7.027	.000	Supported
Goodness of the model	Estimate	Threshold				
R^2	0.574	More than 0.1				Acceptable
Q^2	0.106	Greater than 0				Acceptable
SRMR	0. 086	Less than 0.1				Acceptable

Source: Author's Analysis

CA, CV, CI, CR and PM significantly impact satisfaction (CA – S: β = 0.067, t = 2.514, p < 0.001), CV – S: β = -.553, t = 1.920, p < 0.002), (CI – S: β = .987, t = 2.648, p < 0.001), (CR – S: β = .679, t = 1.778, p < 0.001) and (PM – S: β = .084, t = 7.027, p < 0.000). Consequently, H1, H2, H3, H4 and H5 were supported. Results showed little impact on satisfaction.

Figure 3: Structural Model with T – Statistics



Source: Author's Analysis

The statistically substantial positive connection suggests that PM, CI and CA approaches could influence satisfaction a bit stronger. To increase satisfaction outcomes, customers may benefit from improving CV and CR processes. These findings might help decision making and resource allocation by highlighting the importance of critical factors in promoting AI outcomes and identifying areas where efforts might not be effective.

Discussion

In the Indian e-commerce sector, amidst intense competition and evolving customer demands, embracing a customer focused strategy is crucial for achieving success. E-commerce companies can foster trust and loyalty by focusing on customer interaction and offering personalized support and assistance at every stage of the customer journey.

To effectively engage with customers, businesses must initiate interactions, reply promptly to inquiries, and tailor communication to individual preferences (Davis et al., 2021). Customized interactions can improve customer satisfaction as clients recognize value and empathy from online businesses that utilize CRM efficiently. Responding promptly and effectively to customer inquiries in the Indian e-commerce sector can significantly impact satisfaction levels, given that customers often require assistance and guidance while shopping (Goutham et al., 2021; Davis et al., 2021). Utilizing different customer service channels, such as live chat support, email assistance and social media engagement has been proven to enhance customer satisfaction for e-commerce businesses (Kumar and Ayodeji, 2021).

Multiple strategies like loyalty programmes, personalized discounts and exclusive offers are employed to promote repeat purchases and foster long lasting customer relationships (Goutham et al., 2021). The study findings align with previous research indicating a significant correlation between customer loyalty and positive outcomes like satisfaction, commitment, profitability and sustained growth (AI-Adwan et al., 2020). Implementing retention strategies in the Indian e-commerce industry is essential for preserving customer loyalty in the face of fierce competition and high turnover rates (Kumar et al., 2020). To enhance customer satisfaction and encourage repeat purchases, e-commerce businesses can offer personalized incentives and rewards tailored to match customer behaviour and preferences (Varsha et al., 2021).

Strategies for customer acquisition include drawing in new customers to the e-commerce platform via focused marketing efforts, referral initiatives and strategic collaborations (Pasaribu et al., 2022). Research suggests that acquiring new customers can be more expensive than retaining existing ones. Implementing successful acquisition strategies can lead to an increase in market share revenue. In 2018, a study was conducted by Jaiswal and colleagues. Efficient customer acquisition strategies are crucial in the Indian e-commerce industry to expand the customer base and adjust to changing consumer preferences, ultimately enhancing satisfaction for new users (Goutham et al., 2021). By utilizing data analytics and market segmentation, e- commerce companies have the potential to enhance customer satisfaction through personalized experiences and targeted promotions for new users (Kumar and Ayodeji, 2021).

To enhance the shopping experience, it is essential to offer top-notch products, detailed product descriptions and easy to use navigation (Goutham et al., 2021). The study indicates that product related factors like quality, availability and presentation significantly influence customer satisfaction and purchasing decisions (AI-Adwan et al., 2020). Indian e-commerce platforms should adopt efficient product management strategies to tackle issues regarding product authenticity and quality, thereby building trust and assurance among customers (Kumar et al., 2020). By providing comprehensive product details, customer feedback and suggestions, e-commerce businesses can enhance customer satisfaction and loyalty (Kaul, 2017).

AI systems have made a notable impact on different sectors, such as gaming and education. In the gaming industry, AI technologies have facilitated the development of gamification strategies that utilize game elements to improve customer engagement and communication (Wagan et al., 2023). This method has proven effective in enhancing customer loyalty and productivity across various industries (Nam, 2021). AI has been applied in the education sector to enhance learning outcomes and efficiency. Intelligent tutoring systems offer personalized feedback and learning pathways, while AI agents improve student interaction and foster a sense of responsibility (Shankar, 2022). AI facilitates personalized learning through autonomous scoring, Chabot and the gamification of learning. In addition, AI can support simulations, serious games and the analysis of learning data (Ubah et al., 2022). AI-assisted systems could potentially transform the gaming and education sectors by improving engagement, customization and educational results.

In addition, the emergence of AI-assisted systems has significantly impacted sectors like gaming and education, fundamentally altering the execution of tasks and the delivery of experiences. The research study aimed to offer insight into the advantages and obstacles that AI presents in different industries based on the results obtained.

Artificial Intelligence has enhanced the gaming experience through the implementation of dynamic environments and customized interactions, leading to enhanced gameplay. It is crucial to address ethical challenges and biases to ensure inclusive experiences. Artificial Intelligence could improve personalized learning and boost educational outcomes. It is crucial to consider privacy and equality issues. Artificial Intelligence demonstrates creative potential but requires a thorough analysis of its ethical and societal implications. Collaboration across disciplines is crucial for maximizing benefits and minimizing risks.

Conclusion and Recommendations

Overall, the hypotheses put forth in this study are corroborated by the existing literature and empirical data, suggesting that effective Customer Interaction, Customer Retention, Customer Acquisition, Product Management and Customer value have a positive impact on customer satisfaction in Indian e-commerce websites. By adopting strong CRM practices and focusing on customer centric initiatives, e-commerce enterprises may improve satisfaction levels, cultivate loyalty, and stand out in a competitive market. This comprehensive analysis offers useful perspectives and practical suggestions for e-commerce organizations aiming to enhance CRM implementation and boost customer happiness in India. For this using the advanced AI and machine learning models to offer more accurate recommendations, personalized discounts and proactive customer support. It is recommended to use predictive analytics to anticipate customer needs and initiate tailored interactions before customers even ask. E-commerce platforms should leverage AI to segment customers based on behaviour and preferences offering personalized loyalty rewards. These rewards could include discounts, exclusive offers and special deals tailored to each customer's specific purchase patterns and preferences. E-commerce companies should foster collaborations with AI developers and researchers to keep up with emerging technologies. Investing in AI research and development can help explore innovative solutions that can enhance customer engagement and operational efficiency.

Limitations and Future Direction

Customers in different locations may face different AI adoption obstacles and opportunities. Age and gender can be used as moderators to study new dimensions and insights on AI-driven CRM adoption and outcomes. While AI-enabled CRM implementation holds great promise for Indian e-commerce companies, addressing limitations related to data privacy, digital divide, bias and regulatory challenges is crucial. By embracing ethical AI frameworks and focusing on personalized customer experiences, multi-channel integration and continuous learning, e-commerce companies can unlock the full potential of AI-driven CRM to drive customer satisfaction and business growth in India's dynamic e-commerce landscape. However, research on employee acceptance of AI-integrated CRM systems in India is limited, Future studies can explore the use behaviour of employees and the impact of AI-integrated CRM systems on organizational agility in India. Further research is needed to investigate the effective integration of human and AI capabilities to improve organizational agility. Exploring the significance of human judgement, intuition, and creativity in enhancing AI-driven insights and decision making. Exploring interdisciplinary research methods can offer a more profound understanding of the intricate relationships among technology, organizations and customers leading to a comprehensive grasp of organizational agility. Finally, it is essential to conduct longitudinal studies to evaluate the extended effects of AI-integrated CRM systems on organizational agility. It is essential to monitor organizational performance metrics consistently to detect trends, patterns and factors that support ongoing agility and competitive edge.

References

Abdi, H. (2010). Partial Least Squares Regression and Projection on Latent Structure Regression (PLS Regression). Wiley Interdisciplinary Reviews: Computational Statistics, vol-2, No-1, pp. 97-106. https://doi.org/10.1002/wics.51

Akhtar,P., Z.Khan, S.Tarba, and U. Jayawickrama. (2018). The Internet of Things, Dynamic Data and Information Processing Capabilities, and Operational Agility, Technological Forecasting and Social Change, vol-136, pp. 307-316. https://doi.org/10.1016/j.techfore.2017.04.023

Al-Adwan, A.S., H. Kokash, A. A. Adwan, A. Alhorani, and H. Yaseen. (2020). Building Customer Loyalty in Online Shopping: The Role of Online Trust, Online Satisfaction and Electronic Word of Mouth. International Journal of Electronic Marketing and Retailing, vol-11, No-3, pp. 278-306. https://doi.org/10.1504/IJEMR.2020.108132

Amroush, F., A. Baderddeen, & Yusef, T. (2008). Using Artificial Intelligence to Select the Optimal E-CRM Based Business Needs. Paper presented at International Engineering Sciences Conference IESC'08, pp. 1-4.

Becker, J. U., G. Greve, and S. Albers. (2009). The Impact of Technological and Organizational Implementation of Customer Relationship Management on Customer Acquisition, Maintenance, and Retention. International Journal of Research in Marketing, vol-26, No-3, pp. 207-215. https://doi.org/10.1016/j.ijresmar.2009.03.006

Bedi, K., M. Bedi, and R. Singh. (2022). Impact of Artificial Intelligence on Customer Loyalty in the Indian Retail Industry. Adoption and Implementation of AI in Customer Relationship Management (Chapter-2, pp. 26-39). https://doi.org/10.4018/978-1-7998-7959-6.ch002

Carpenter, S. (2018). Ten Steps in Scale Development and Reporting: A Guide for Researchers. Communication Methods and Measures, vol-12, No-1, pp. 25-44. https://doi.org/10.1080/19312458.2017.1396583

Chatterjee, S., R. Chaudhuri, D. Vrontis, A. Thrassou, and S. K. Ghosh. (2021). Adoption of Artificial Intelligence-Integrated CRM systems in Agile Organizations in India. Technological Forecasting and Social Change, vol-168, pp. 1-4. https://doi.org/10.1016/j.techfore.2021.120783

Chatterjee, S., S. K. Ghosh and R. Chaudhuri. (2020). Knowledge Management in Improving Business Process: An Interpretative Framework for Successful Implementation of AI–CRM–KM System in Organizations. Business Process Management Journal, vol-26, No-6, pp. 1261-1281. https://doi.org/10.1108/BPMJ-05-2019-0183

Chidlow, A., P. N. Ghauri, S. Yeniyurt, and S. T. Cavusgil (2015). Establishing Rigor in Mail-Survey Procedures in International Business Research. Journal of World Business, vol- 50, No-1, pp. 26-35. https://doi.org/10.1016/j.jwb.2014.01.004

Das, S., M. Mishra, and P. K. Mohanty. (2018). The Impact of Customer Relationship Management (CRM) Practices on Customer Retention and The Mediating Effect of Customer Satisfaction. International Journal Of Management Studies, vol-5, No-1, pp. 1-4. http://dx.doi.org/10.18843/ijms/v5i1(4)/15

Dhanesh, G. S., and G. Duthler. (2019). Relationship Management Through Social Media Influencers: Effects of Followers' Awareness of Paid Endorsement. Public Relations Review, vol- 45, No-3, pp. 44-50. https://doi.org/10.1016/j.pubrev.2019.03.002

Eriksson, T., A. Bigi, and M. Bonera. (2020). Think With me, or Think for me? On the Future Role of Artificial Intelligence in Marketing Strategy Formulation. The TQM Journal, vol-32, No-4, pp. 795-814. https://doi.org/10.1108/TQM-12-2019-0303

Gatla, R., A. Bansal, S. N. Bansod, I. Muda, H. Chowdhary, and M. Aarif. (2022) Artificial Intelligence Based E-Commerce Information Management Model. Paper presented at 5th International Conference on Contemporary Computing and Informatics (IC3I), pp. 2013-2018. https://doi.org/10.1109/IC3I56241.2022.10072663

Gnizy, I. (2019). Big Data and its Strategic Path to Value in International Firms. International Marketing Review, vol- 36, No-3, pp. 318-341. https://doi.org/10.1108/IMR-09-2018-0249

Goutam, D., B. V. Gopalakrishna, and S.Ganguli. (2021). Determinants of Customer Satisfaction and Loyalty in E-Commerce Settings: An Emerging Economy Perspective. International Journal of Internet Marketing and Advertising, vol-15, No-3, pp. 327-348. https://doi.org/10.1504/IJIMA.2021.115437

Hair, J. F., J. J. Risher, M. Sarstedt, and C. M. Ringle. (2019). When to Use and How to Report the Results of PLS-SEM. European Business Review, vol-31, No-1, pp. 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hinkin, T. R. (1995). A Review of Scale Development Practices in the Study of Organizations. Journal of Management, vol- 21, No-5, pp. 967-988. https://doi.org/10.1177/014920639502100509

Holbeche, L. S. (2018). Organisational Effectiveness and Agility. Journal of Organizational Effectiveness: People and Performance, vol-5, No-4, pp. 302-313. https://doi.org/10.1108/JOEPP-07-2018-0044

Ibrahim, A., S. D. R. Napian, A. Firanisa, Sartika, R. D. Sari, and M. Audya. (2020). The Effect of E-Commerce Application Service Quality of Customer Loyalty Using Customer Relationship Management Approach, Sriwijaya International Conference on Information Technology and Its Applications (SICONIAN 2019), pp. 680-687. https://doi.org/10.2991/aisr.k.200424.103

Jagtap, S., and L. N. K. Duong. (2019). Improving the New Product Development Using Big Data: A Case Study of a Food Company. British Food Journal, vol-121, No-11, pp. 2835-2848.

Jaiswal, A. K., R. Niraj, C. H. Park, and M. K. Agarwal. (2018). The Effect of Relationship and Transactional Characteristics on Customer Retention in Emerging Online Markets. Journal of Business Research, vol-92, pp. 25-35. https://doi.org/10.1016/j.jbusres.2018.07.007

Jayanti, R., A. Hafidzi, and A. Izzuddin. (2022). The Influence of Information Quality, Online Customer Reviews And Postage Subsidy Promos On Purchasing Decisions On E-Commerce Shopee. Proceedings of the 3rd International Conference of Business, Purwokerto, Central Java, Indonesia. pp. 10-11. http://dx.doi.org/10.4108/eai.10-8-2022.2320915

Kaul, D. (2017). Customer Relationship Management (CRM), Customer Satisfaction and Customer Lifetime Value in Retail. Review of Professional Management - A Journal of New Delhi Institute of Management, vol-3, pp. 55-60. https://doi.org/10.20968/rpm/2017/v15/i2/163914

Krishnareddy, K., Aravinda, T. V., Nair, K., Patel, U. K., Sadvokasova, G., and Susan, V. S. (2022). AI-based Fuzzy Clustering System for Improving Customer Relationship Management. In 2022, Sixth International Conference on I-SMAC, pp. 673-677.

Kumar, S., R. Singh, and A. Gupta. (2020). Impact of Product Management on Customer Satisfaction in E-commerce: A Study on Indian Consumers. International Journal of Research in Electronics and Computer Engineering, vol-8, No-4, pp. 22-36.

Muhammad, F., and H. Permana. (2019). Influence of Information Technology, Quality of Service, Trust, Price, Customer Satisfaction on E-Commerce. Quality of Service, Trust, Price, Customer Satisfaction on E-Commerce, vol-4, No-2, pp. 368-382. https://dx.doi.org/10.2139/ssrn.3311332

Nagaraj, P., V. Muneeswaran, A. Dharanidharan, M. Aakash, K. Balananthanan, and C. Rajkumar. (2023). E-Commerce Customer Churn Prediction Scheme Based on Customer Behaviour Using Machine Learning. International Conference on Computer Communication and Informatics. pp. 1-6. https://doi.org/10.1109/ICCCI56745.2023.10128498

Nam, H. W. (2021). Design of AI-Based Gamification Platform for Effective Educational Service Using Child Behavior Prediction/Change. Turkish Journal of Computer and Mathematics Education (TURCOMAT), vol-12, No-5, pp. 286-292.

Nataraj, S. (2010). Customer Retention – CRM application. Issues in Informations Systems, vol-11,No-2, pp. 44-47.

Nazir, S., and A. Pinsonneault. (2012). IT and Firm Agility: An Electronic Integration Perspective. Journal of the Association for Information Systems, vol-13, No-3, pp. 2-6. https://doi.org/10.17705/1jais.00288

Nguyen, B., and D. S. Mutum. (2012). A Review of Customer Relationship Management: Successes, Advances, Pitfalls And Futures. Business Process Management Journal, vol-18, No-3, pp. 400-419.

Osei, C., J. Amankwah-Amoah, Z. Khan, M. Omar, and M. Gutu. (2019). Developing and Deploying Marketing Agility in an Emerging Economy: The Case Of Blue Skies, International Marketing Review, vol-36,No-2, pp. 190-212. https://doi.org/10.1108/IMR-12-2017-0261

Pani, A. K., and P. Venugopal. (2008). Implementing e-CRM Using Intelligent Agents on the Internet. In 2008. International Conference on Service Systems and Service Management. pp. 1-6. https://doi.org/10.1109/ICSSSM.2008.4598509

Pasaribu, F., W. Sari, T. Bulan, and W. Astuty. (2022). The Effect of E-Commerce Service Quality on Customer Satisfaction, Trust And Loyalty. International Journal of Data and Network Science, vol-6, No-4, pp. 1077-1084. http://dx.doi.org/10.5267/j.ijdns.2022.8.001

Pillarisetty, R., and P. Mishra. (2022). A review of AI (Artificial Intelligence) Tools and Customer Experience in Online Fashion Retail. International Journal of E-Business Research (IJEBR), vol- 18, No-2, pp. 1-12. https://doi.org/10.4018/IJEBR.294111

Roba, G. B., and P. Maric. (2023). AI in Customer Relationship Management. Developments in Information and Knowledge Management Systems for Business Applications, vol-7, No-2, pp. 469-487. https://doi.org/10.1007/978-3-031-25695-0_21

Schoder, D., and N. Madeja. (2004). Is Customer Relationship Management a Success Factor in Electronic Commerce? J. Electronic Commerce Research., Vol-5, No-1, pp. 38-53.

Shams, S. R., D. Vrontis, A. Thrassou, C. Themistocleous, and M. Christofi. (2020). Stakeholder Dynamics of Contextual Ambidextrous Capabilities and Authenticity: A Conceptual Synchronisation for Competitive Advantage. Journal of General Management, vol-46, No-1, pp. 26-35. https://doi.org/10.1177/0306307020913688

Shankar, P. R. (2022). Artificial Intelligence in Health Professions Education. Archives of Medicine and Health Sciences, vol-10, No-2, pp. 256-261. https://doi.org/10.4103/amhs.amhs_234_22

Sohail, M., Z. Mohsin, and S. Khaliq. (2021). User Satisfaction with an AI-Enabled Customer Relationship Management Chatbot. In International Conference on Human-Computer Interaction, ed. C. Stephanidis, M. Antona and S. Ntoa, pp. 279-287.

Suresh, A., and N. J. Rani. (2020). Consumer Perception towards Artificial Intelligence in E-Commerce with Reference to Chennai City, India. Journal of Information Technology and Economic Development, vol-11, No-1, pp. 1-14.

Thandekkattu, S. G., and M. Kalaiarasi. (2022). Customer-Centric E-Commerce Implementing Artificial Intelligence for Better Sales and Service. In Proceedings of Second International Conference on Advances in Computer Engineering and Communication Systems: ICACECS 2021, Singapore: Springer Nature Singapore. pp.141-152.

Ubah, A. E., E. P. Onakpojeruo, J. Ajamu, T. R. Mangai, A. M. Isa, N. B. Ayansina, and F. Al-Turjman. (2022). A Review of Artificial Intelligence in Education. In 2022 International Conference on Artificial Intelligence of Things and Crowdsensing (AIoTCs). pp. 38-45. https://doi.org/10.1109/AIoTCs58181.2022.00104

Varsha, P. S., S. Akter, A. Kumar, S. Gochhait, & B. Patagundi. (2021). The Impact of Artificial Intelligence on Branding: A Bibliometric Analysis (1982-2019). Journal of Global Information Management (JGIM), vol-9, No-4, pp. 221-246. https://doi.org/10.4018/JGIM.20210701.oa10

Vrontis, D., A. Thrassou, G. Santoro, and A. Papa. (2017). Ambidexterity, External Knowledge and Performance in Knowledge-Intensive Firms. The Journal of Technology Transfer, vol-42, No-2, pp. 374-388. https://doi.org/10.1007/s10961-016-9502-7

Wagan, A. A., A. A. Khan, Y. L. Chen, P. L. Yee, J. Yang, and A. A. Laghari. (2023). Artificial Intelligence-Enabled Game-Based Learning and Quality of Experience: A Novel and Secure Framework (B-AIQoE). The Journal of Sustainability, vol-15, No-6, pp. 53-62. https://doi.org/10.3390/su15065362

Wandoko, W., and I. E. Panggati. (2022). The Influence of Digital Influencer, e-WOM and Information Quality on Customer Repurchase Intention toward Online Shop in E-Marketplace During Pandemic COVID-19: The Mediation Effect of Customer Trust. Journal of Relationship Marketing, vol-21, No-2, pp. 148-167. https://doi.org/10.1080/15332667.2022.2035198

Willaby, H. W., D. S. Costa, B. D. Burns, C. MacCann, and R. D. Roberts. (2015). Testing Complex Models with Small Sample Sizes: A Historical Overview and Empirical Demonstration of What Partial Least squares (PLS) can offer differential Psychology. Personality and Individual Differences, vol-84, No-2, pp. 73-78. https://doi.org/10.1016/j.paid.2014.09.008

Wold, S. (2001). Personal Memories of the Early PLS Development. Chemometrics & Intelligent Laboratory Systems, vol- 58, No-7, pp. 83-84.