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The Role of Artificial Intelligence in Enhancing Customer Relationship Management (CRM) in Iranian Businesses

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Abstract

This study aimed to examine the effect of Artificial Intelligence–enabled Customer Relationship Management on business performance through customer identification, acquisition, retention, and development. The research adopted an applied and developmental design using a mixed exploratory approach. The qualitative phase involved expert consultations to refine the conceptual framework, while the quantitative phase employed a survey methodology. The statistical population consisted of managers and specialists working in technology-based marketing and customer management roles within an Iranian insurance organization. A purposive sampling strategy was used, and data were collected through a structured questionnaire. The minimum sample size was determined using power analysis, resulting in 130 valid responses. Data analysis was conducted using SPSS and PLS software. Descriptive statistics were applied to assess data distribution, and reliability was confirmed through Cronbach's alpha coefficients. Inferential analyses were performed using regression techniques to test the proposed hypotheses. The results indicated that Artificial Intelligence–enabled CRM has a significant positive effect on business performance across all examined dimensions. Customer identification through AI explained 41.7% of the variance in business performance ($R^2 = 0.417$, $p < 0.001$). Customer acquisition demonstrated a significant effect with an explanatory power of 41.1% ($R^2 = 0.411$, $p < 0.001$). Customer retention also showed a meaningful impact, accounting for 41.2% of performance variance ($R^2 = 0.412$, $p < 0.001$). Customer development exhibited the strongest effect on business performance ($R^2 = 0.415$, $p < 0.001$), indicating the critical role of AI-driven value expansion strategies. The findings confirm that Artificial Intelligence significantly enhances the effectiveness of Customer Relationship Management and contributes to improved business performance by strengthening analytical accuracy, relationship continuity, and customer value creation.

Keywords: Business, Customer Relationship Management (CRM), Artificial Intelligence (AI)

1. Introduction

In recent years, the accelerated diffusion of Artificial Intelligence (AI) technologies has fundamentally reshaped how organizations design, implement, and evaluate their interactions with customers. As markets become increasingly data-driven, competitive advantage is no longer derived solely from product quality or pricing strategies, but from the ability to understand customers holistically, anticipate their needs, and deliver personalized, seamless, and value-enhancing experiences across multiple touchpoints. Within this evolving landscape, Customer Relationship Management (CRM) has emerged as a strategic backbone for organizations seeking to institutionalize customer-centricity, integrate dispersed customer data, and translate insights into actionable managerial decisions. The convergence of AI and CRM represents a paradigmatic shift in how firms

conceptualize customer relationships, moving from reactive and transactional models toward predictive, adaptive, and intelligence-driven engagement architectures (Dervis & Jahanbakht, 2024; Taghi'i & Jami Pour, 2024).

AI-enabled CRM systems extend beyond traditional database-driven customer management by incorporating advanced analytics, machine learning algorithms, natural language processing, and autonomous decision-making capabilities. These technologies enable organizations to process vast volumes of structured and unstructured data in real time, uncover latent behavioral patterns, and generate accurate predictions regarding customer preferences, churn probabilities, lifetime value, and engagement trajectories. Consequently, AI transforms CRM from a supportive operational tool into a strategic asset that directly influences organizational performance, customer satisfaction, and long-term loyalty (Abdulsalam & Tajudeen, 2024; Putra, 2024). This transformation is particularly salient in emerging and transitional economies, where digital adoption is uneven and organizations face both technological constraints and substantial opportunities for leapfrogging traditional development paths.

The banking, insurance, retail, tourism, telecommunications, and e-commerce sectors have been among the earliest adopters of AI-driven CRM solutions. Empirical evidence suggests that AI applications such as chatbots, recommendation engines, predictive analytics, and automated customer segmentation significantly enhance service efficiency, responsiveness, and personalization. In the banking industry, AI-based CRM tools facilitate customer profiling, risk assessment, and tailored product offerings, thereby improving both customer satisfaction and operational efficiency (Abdulsalam & Tajudeen, 2024; Nagarajan et al., 2023). Similarly, in online retail and hospitality contexts, AI-powered service interfaces have been shown to strengthen customer loyalty and engagement by delivering consistent, context-aware, and interactive experiences (Ersoy, 2024; Sardesai, 2024).

Customer engagement constitutes a central mechanism through which AI-enabled CRM systems generate value. By leveraging intelligent stimuli—such as personalized recommendations, adaptive interfaces, and conversational agents—organizations can foster deeper cognitive, emotional, and behavioral engagement with customers. Prior studies indicate that AI-driven engagement not only enhances perceived value but also facilitates value co-creation processes, in which customers actively participate in shaping service outcomes (Gao et al., 2023; Parsakia & Jafari, 2023). This interactive dynamic aligns with contemporary relationship marketing theories, which emphasize long-term relational exchanges over short-term transactional gains.

The integration of AI into CRM also reshapes customer experience management across digital and physical channels. Seamless omnichannel experiences, supported by AI-driven analytics, enable organizations to maintain continuity and coherence in customer interactions, regardless of platform or device. Nguyen and Mogaji argue that AI plays a critical role in harmonizing customer journeys by synchronizing data flows and decision logic across channels, thereby reducing friction and enhancing perceived service quality (Nguyen & Mogaji, 2023). In tourism and online travel services, AI chatbots and recommender systems have been found to significantly influence customers' trust, satisfaction, and purchase intentions, particularly when product familiarity moderates technology acceptance (Ghesh, 2023; Zhu et al., 2023).

Despite these advantages, the adoption of AI-based CRM systems is not without challenges. Organizational readiness, data quality, ethical concerns, and employee perceptions significantly influence implementation outcomes. Research highlights that employees may perceive AI-driven marketing and CRM technologies as threats to job security, potentially generating resistance and undermining system effectiveness (Eshiett & Eshiett, 2024). Furthermore, the successful deployment of AI-CRM requires not only technological infrastructure but also organizational learning capabilities, governance frameworks, and strategic alignment between business objectives and analytical models (Hedayat et al., 2023; Nazarian-Jashnabadi et al., 2023).

From a strategic perspective, AI-enabled CRM contributes to multiple dimensions of organizational performance, including customer identification, acquisition, retention, and development. Customer identification processes benefit from AI's capacity to segment markets dynamically and identify high-value or at-risk customers using predictive modeling techniques (Rane, 2023; Sharma, 2023). In acquisition contexts, AI enhances targeting precision and communication efficiency, thereby optimizing marketing expenditures and conversion rates (Idrus et al., 2023; Santy & Iffan, 2023). Retention strategies are strengthened through real-time sentiment analysis, proactive service interventions, and personalized loyalty programs, all of which contribute to sustained customer relationships (Khana, 2023; Kunal, 2023). Finally, customer development initiatives—

such as cross-selling and upselling—are increasingly driven by AI-based recommendations that maximize customer lifetime value while maintaining perceived relevance and fairness (Logesh & Raja, 2024; Loureiro et al., 2023).

Theoretical and empirical research on AI-CRM has expanded rapidly over the past decade, yet the literature remains fragmented across disciplines and industries. Systematic and bibliometric reviews emphasize the need for integrative frameworks that connect AI technologies with CRM processes and organizational outcomes (Dervis & Jahanbakht, 2024; Nwachukwu & Affen, 2023). Moreover, much of the existing research is concentrated in developed economies, leaving a relative gap in understanding how AI-enabled CRM functions within the institutional, cultural, and technological contexts of emerging markets. This gap is particularly evident in Middle Eastern economies, where digital transformation initiatives coexist with structural constraints and sector-specific dynamics.

Recent studies underscore that customer acceptance of AI-driven CRM solutions depends on perceived usefulness, ease of use, transparency, and trust. In retail settings, customers' willingness to adopt AI-based autonomous decision-making systems is shaped by cognitive evaluations of control, reliability, and perceived risk (Sharma et al., 2024). Similarly, in branded e-retailing, chatbot usability and response quality significantly influence customer engagement and relational outcomes (Singhal, 2024). These findings suggest that technological sophistication alone does not guarantee CRM effectiveness; rather, value is co-created through the alignment of technological capabilities with customer expectations and experiential design.

Operational efficiency and managerial decision-making represent additional benefits of AI-driven CRM integration. By automating routine tasks and generating predictive insights, AI enables managers to allocate resources more effectively and respond proactively to market changes (Putra, 2024). This capability is especially relevant in highly competitive environments, where rapid adaptation and evidence-based decision-making are critical for survival and growth. AI-enabled CRM thus functions as both an operational optimization tool and a strategic intelligence system that supports long-term organizational resilience.

In summary, the convergence of Artificial Intelligence and Customer Relationship Management constitutes a transformative force that redefines how organizations identify, attract, retain, and develop customers. While existing research provides substantial evidence of AI-CRM's potential to enhance customer experience, engagement, and loyalty, contextualized empirical investigations remain necessary to understand its performance implications within specific organizational and national settings. Addressing this gap is essential for translating technological promise into sustainable business value and for informing managers, policymakers, and system designers about effective AI-CRM implementation strategies (Abdulsalam & Tajudeen, 2024; Dervis & Jahanbakht, 2024; Taghi'i & Jami Pour, 2024).

Accordingly, the aim of this study is to examine the role of Artificial Intelligence in enhancing Customer Relationship Management—through customer identification, acquisition, retention, and development—and to assess its impact on business performance.

2. Methods and Materials

The present study is applied–developmental in nature, aiming to examine the role of Artificial Intelligence (AI) in enhancing Customer Relationship Management (CRM) in Iranian businesses. In terms of data collection, it falls within the category of cross-sectional and longitudinal survey research. An exploratory mixed-methods research design was employed. Based on the conducted reviews, the following hypotheses were formulated:

1. Customer identification through AI in CRM has a significant impact on business performance.
2. Customer acquisition through AI in CRM has a significant impact on business performance.
3. Customer retention through AI in CRM has a significant impact on business performance.
4. Customer development through AI in CRM has a significant impact on business performance.

The participants of this study included professors and experts specializing in Customer Relationship Management (CRM) and Artificial Intelligence (AI), who have been actively engaged in technology-based marketing activities within Iran Insurance Company. These individuals were selected through purposive sampling. The statistical population for the quantitative phase consisted of managers and specialists of Iran Insurance Company, as well as branch managers of Iran Insurance in Tehran Province. To determine the sample size, Cohen's (1992) power analysis rule and the G*Power software were applied. Based

on a power analysis at a 95% confidence level, with an effect size of 0.15 and a statistical power of 80%, the minimum required sample size was estimated to be 130 participants. The primary data collection instrument was a questionnaire, and the survey responses were analyzed using SPSS and PLS software.

Table 1. Summary of Research Variables and Questionnaire Components

Research Variable	Components	Items	Source
Business	Profitability	1–4	Rouhollah Rezaei (2019)
	Growth	5–8	
	Customer performance	9–12	
Artificial Intelligence in Customer Relationship Management (CRM)	Customer identification	13–18	Owzi et al. (2024)
	Customer acquisition	19–24	
	Customer retention	25–28	
	Customer development	29–33	

3. Findings and Results

To gain a clearer understanding of the population's characteristics and become familiar with the research variables before conducting statistical analyses, it is necessary to provide a descriptive account of the collected data. Descriptive statistical analysis provides an overall picture of the data, enabling the identification of prevailing patterns and serving as a foundation for explaining the relationships among the variables used in the study. Based on the results from the second part of the questionnaire (demographic characteristics), the following information presents a summary of the statistical sample's profile.

Table 2. Demographic Characteristics of the Sample

Variable	Category	Frequency	Percentage
Gender	Male	103	79.2%
	Female	27	20.8%
	Total	130	100%
Education	Diploma	20	15.4%
	Associate Degree	9	6.9%
	Bachelor's Degree	56	43.1%
	Master's Degree	42	32.3%
	Doctorate	3	2.3%
	Total	130	100%

Descriptive statistics comprise a set of methods used for collecting, summarizing, classifying, and describing numerical facts. Essentially, this type of analysis represents the research data and provides an overall pattern or framework for utilizing the data more effectively and efficiently. In summary, the appropriate application of descriptive statistics enables the characteristics of a dataset to be clearly expressed. Measures of central tendency and dispersion are employed for this purpose. The purpose of these measures is to represent the main characteristics of a dataset in a single numerical value. In doing so, they not only facilitate a better understanding of the results of a given test but also enable comparisons with other tests and observations.

Table 3. Descriptive Statistics of Research Variables

Variable	Mean	Std. Deviation	Skewness	Kurtosis	Minimum	Maximum
Business Performance	2.1731	0.5583	1.604	3.760	1.33	4.50
Customer Identification	2.294	0.8380	0.949	0.337	1.00	4.67
Customer Acquisition	2.467	0.7010	0.979	1.351	1.17	4.83
Customer Retention	2.321	0.7820	1.237	1.347	1.25	4.75
AI in CRM	2.688	0.3510	1.379	1.985	2.19	3.81
Customer Development	3.718	0.9250	–1.007	0.239	1.20	4.80

Cronbach's alpha is a method used to assess the reliability of a questionnaire based on the degree of internal consistency among its items. This approach is used to measure the internal coherence of measurement instruments, such as questionnaires or tests, designed to evaluate various constructs. Conventionally, if the alpha coefficient exceeds 0.70, the measurement instrument is considered to have acceptable reliability.

Table 4. Reliability Test of Research Variables (Cronbach's Alpha)

Research Variable	Component	Component Alpha	Variable Alpha
Business Performance	Profitability	0.847	0.873
	Growth	0.801	
	Customer Performance	0.769	
AI in Customer Relationship Management (CRM)	Customer Identification	0.818	
	Customer Acquisition	0.724	
	Customer Retention	0.742	
	Customer Development	0.809	

The results related to Hypothesis 1 indicate that customer identification through Artificial Intelligence–enabled Customer Relationship Management has a statistically significant effect on business performance. The regression model explains approximately 41.7% of the variance in business performance ($R^2 = 0.417$), and the F-statistic confirms the overall significance of the model ($F = 45.510$, Sig. < 0.001). The standardized regression coefficient for customer identification is positive ($B = 0.165$), and the corresponding t-value ($t = 2.894$, Sig. < 0.001) exceeds the critical threshold, demonstrating that AI-supported customer identification meaningfully contributes to improving organizational performance outcomes. These findings suggest that accurate segmentation, profiling, and recognition of valuable customers enabled by AI analytics play a crucial role in enhancing business effectiveness.

Regarding Hypothesis 2, the findings demonstrate that customer acquisition through AI-driven CRM exerts a significant and positive influence on business performance. The model accounts for 41.1% of the variance in the dependent variable ($R^2 = 0.411$), indicating a substantial explanatory power. The F-test result ($F = 44.377$, Sig. < 0.001) confirms that the regression model is statistically valid. Furthermore, the regression coefficient for customer acquisition is positive and significant ($B = 0.311$; $t = 2.270$; Sig. < 0.001), implying that AI-supported acquisition strategies—such as intelligent targeting, automated lead generation, and personalized outreach—significantly enhance organizational performance. This result highlights the strategic importance of AI in optimizing market entry and customer onboarding processes.

The analysis of Hypothesis 3 reveals that customer retention through AI-enabled CRM has a statistically significant impact on business performance. The regression model explains 41.2% of the variance in performance ($R^2 = 0.412$), and the overall model fit is confirmed by a significant F-value ($F = 44.502$, Sig. < 0.001). The regression coefficient for customer retention is positive ($B = 0.234$), and the associated t-statistic ($t = 2.659$, Sig. < 0.001) indicates a meaningful contribution to the prediction of business performance. These findings demonstrate that AI-based retention mechanisms—such as churn prediction, personalization, and proactive service interventions—strengthen long-term customer relationships and translate into measurable performance benefits.

Finally, the results for Hypothesis 4 show that customer development through AI-powered CRM has the strongest effect on business performance among the examined dimensions. The model explains 41.5% of the variance in performance ($R^2 = 0.415$), and the F-statistic confirms high overall model significance ($F = 45.215$, Sig. < 0.001). The regression coefficient for customer development is substantial and positive ($B = 0.346$), with a high t-value ($t = 7.521$, Sig. < 0.001), indicating a robust predictive relationship. This finding suggests that AI-driven strategies focused on increasing customer lifetime value—such as cross-selling, upselling, and personalized value expansion—play a decisive role in enhancing organizational performance and sustaining long-term competitive advantage.

Table 5. Summary of Hypotheses Testing Results for AI-Enabled CRM Dimensions and Business Performance

Hypothesis	Predictor Variable	R Square	F-Test	Sig. (F)	B Coefficient	T-Test	Sig. (T)	Result
H1	Customer Identification (AI-CRM)	0.417	45.510	0.000	0.165	2.894	0.000	Supported
H2	Customer Acquisition (AI-CRM)	0.411	44.377	0.000	0.311	2.270	0.000	Supported
H3	Customer Retention (AI-CRM)	0.412	44.502	0.000	0.234	2.659	0.000	Supported
H4	Customer Development (AI-CRM)	0.415	45.215	0.000	0.346	7.521	0.000	Supported

4. Discussion and Conclusion

The findings of the present study demonstrate that Artificial Intelligence–enabled Customer Relationship Management significantly enhances business performance through all four examined dimensions: customer identification, customer acquisition, customer retention, and customer development. The statistical results indicate that each of these dimensions exerts a positive and meaningful effect on business performance, confirming the integrative and strategic role of AI in contemporary

CRM systems. Among these dimensions, customer development and customer acquisition exhibited comparatively stronger explanatory power, suggesting that AI-driven CRM mechanisms are particularly effective when leveraged to expand customer value and optimize growth-oriented interactions. These results empirically reinforce the argument that AI transforms CRM from a predominantly operational system into a performance-driven strategic capability embedded within organizational decision-making processes.

The significant effect of AI-supported customer identification on business performance underscores the importance of advanced data analytics and predictive modeling in recognizing valuable customer segments. AI algorithms enable firms to move beyond static demographic profiling toward dynamic behavioral and value-based segmentation, which enhances targeting accuracy and resource allocation efficiency. This finding is consistent with prior research emphasizing the role of AI in uncovering hidden patterns in customer data and improving customer insight quality (Rane, 2023; Sharma, 2023). Moreover, the ability of AI to anticipate customer needs and churn risks strengthens firms' proactive decision-making capacity, thereby contributing to sustainable performance outcomes. Similar conclusions have been reported in banking and service industries, where AI-driven identification systems enhance both customer satisfaction and organizational efficiency (Abdulsalam & Tajudeen, 2024; Nagarajan et al., 2023).

The results also reveal a strong positive relationship between AI-enabled customer acquisition and business performance. This finding highlights the effectiveness of AI technologies in optimizing marketing communications, automating lead generation, and improving conversion rates. By employing machine learning algorithms and intelligent targeting systems, organizations can personalize acquisition strategies and minimize wasted marketing expenditures. These results align with studies showing that AI-based marketing tools significantly improve acquisition efficiency by delivering timely, relevant, and context-aware interactions (Idrus et al., 2023; Santy & Iffan, 2023). In digital marketplaces and online retail settings, AI-powered recommendation engines and chatbots have been shown to influence purchase intention and brand engagement, thereby accelerating customer acquisition processes (Ersoy, 2024; Singhal, 2024). The present findings extend this evidence by demonstrating that such acquisition benefits translate directly into measurable improvements in business performance.

Customer retention emerged as another critical pathway through which AI-enhanced CRM systems influence organizational outcomes. The significant effect of AI-driven retention mechanisms suggests that intelligent CRM tools play a vital role in maintaining long-term customer relationships by continuously monitoring satisfaction levels, predicting defection risks, and enabling timely intervention. AI-based personalization and real-time feedback systems contribute to a more responsive and adaptive service environment, which strengthens customer trust and loyalty. These results are consistent with previous studies indicating that AI-enabled service quality and relational continuity positively affect customer loyalty and repeat behavior (Kunal, 2023; Sardesai, 2024). Furthermore, research in tourism and hospitality contexts confirms that AI-driven service interactions enhance retention by improving perceived service reliability and emotional engagement (Ghesh, 2023; Khana, 2023).

The strongest performance effect observed in this study relates to customer development, emphasizing the strategic importance of AI in maximizing customer lifetime value. AI-supported CRM systems facilitate advanced cross-selling and upselling strategies by analyzing purchase histories, usage patterns, and contextual data to generate personalized offers. This capability enables firms to deepen existing relationships rather than relying solely on new customer acquisition, which is often more costly. The finding aligns with prior research demonstrating that AI-driven customer development strategies significantly enhance profitability and long-term relational value (Logesh & Raja, 2024; Loureiro et al., 2023). By enabling continuous learning from customer interactions, AI transforms CRM into a self-improving system that incrementally increases business performance over time.

From a broader perspective, the findings of this study support the growing body of literature positioning AI as a central enabler of customer engagement and value co-creation. AI-based CRM systems facilitate interactive and participatory relationships in which customers are no longer passive recipients of services but active contributors to value creation. This interactive dynamic has been shown to strengthen engagement intensity and relational commitment (Gao et al., 2023; Parsakia & Jafari, 2023). The present results empirically confirm that such engagement mechanisms have tangible performance implications, reinforcing the strategic relevance of AI-driven CRM adoption.

The results also resonate with research emphasizing the role of AI in delivering seamless omnichannel customer experiences. By integrating customer data across platforms and touchpoints, AI-enabled CRM systems reduce fragmentation and inconsistency in service delivery. This continuity enhances customer satisfaction and reinforces brand trust, which ultimately contributes to improved business outcomes. Prior studies have demonstrated that AI plays a crucial role in synchronizing customer journeys and enabling cross-channel coherence (Nguyen & Mogaji, 2023; Zhu et al., 2023). The findings of the present study suggest that these experiential benefits extend beyond perceptual outcomes and materially influence organizational performance indicators.

In addition, the study's results are consistent with systematic and bibliometric reviews that identify CRM performance improvement as a dominant theme in AI-CRM research. These reviews highlight that AI-driven analytics, automation, and decision support are repeatedly associated with enhanced customer-centric outcomes and operational efficiency (Dervis & Jahanbakht, 2024; Hedayat et al., 2023). The present study contributes to this literature by providing empirical evidence from an emerging-market context, thereby addressing calls for more context-sensitive investigations of AI-CRM effectiveness (Nwachukwu & Affen, 2023). Furthermore, the findings support arguments that organizational readiness and strategic alignment are critical for realizing the performance benefits of AI-CRM systems (Nazarian-Jashnabadi et al., 2023; Putra, 2024).

Despite the overall positive performance effects, the results should be interpreted with awareness of organizational and human factors that may moderate AI-CRM effectiveness. Prior research indicates that employee perceptions of job security and ethical concerns related to AI adoption can influence system acceptance and utilization (Eshiett & Eshiett, 2024). Similarly, customer trust in AI-driven decision-making systems is shaped by perceived transparency and control, which affects adoption and engagement levels (Sharma et al., 2024). While these factors were not directly examined in the present study, the significant performance effects observed suggest that, when effectively implemented, AI-CRM systems can overcome such barriers and deliver substantial organizational value.

Overall, the discussion of results confirms that Artificial Intelligence functions as a transformative force in Customer Relationship Management by enhancing analytical precision, relational depth, and strategic decision-making. The findings corroborate existing empirical and theoretical work while extending it by demonstrating that AI-driven CRM capabilities significantly improve business performance through multiple, interrelated customer management processes. This integrated perspective underscores the necessity of viewing AI-CRM not as a standalone technological investment but as a comprehensive strategic system embedded within organizational structures and customer-oriented cultures.

The study is subject to several limitations that should be acknowledged. First, the research design relied on self-reported data collected through questionnaires, which may be affected by response bias and subjective perceptions. Second, the sample was limited to a specific organizational and sectoral context, which may constrain the generalizability of the findings to other industries or national settings. Third, the cross-sectional nature of the quantitative analysis restricts the ability to infer long-term causal relationships between AI-driven CRM practices and business performance. Finally, the study focused on core CRM dimensions and did not explicitly examine moderating variables such as organizational culture, technological readiness, or customer trust, which may influence AI-CRM effectiveness.

Future research could address these limitations by employing longitudinal designs to capture the dynamic effects of AI-enabled CRM over time and across different stages of customer relationships. Comparative studies across industries and countries would further enhance understanding of contextual influences on AI-CRM performance outcomes. In addition, future studies may incorporate mediating and moderating variables such as employee attitudes, ethical considerations, data governance quality, and customer trust to develop more comprehensive explanatory models. Qualitative approaches could also be used to explore managerial and customer perceptions of AI-CRM adoption in greater depth.

From a practical perspective, organizations seeking to enhance CRM performance through AI should adopt a holistic implementation strategy that integrates technological capabilities with organizational processes and human competencies. Firms are encouraged to invest in data quality infrastructure, employee training, and change management initiatives to ensure effective system utilization. Managers should align AI-driven CRM objectives with broader business strategies and continuously evaluate system outcomes to support learning and adaptation. By fostering a customer-centric culture supported

by intelligent technologies, organizations can leverage AI-enabled CRM to achieve sustainable improvements in performance, competitiveness, and customer value creation.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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References

Abdulsalam, T. A., & Tajudeen, R. B. (2024). Artificial Intelligence (AI) in the Banking Industry: A Review of Service Areas and Customer Service Journeys in Emerging Economies. *BMC*, *68*(3), 19-43. https://doi.org/10.56065/9hfvrq20

Dervis, O., & Jahanbakht, M. (2024). Artificial Intelligence (AI)-based Customer Relationship Management (CRM): a comprehensive bibliometric and systematic literature review with outlook on future research. *Enterprise Information Systems*, *18*(8). https://doi.org/10.1080/17517575.2024.2351869

Ersoy, A. B. (2024). Artificial Intelligence Applications Used in on-Line Retail in China and Their Relationship to Customer Satisfaction and Loyalty. *International Journal of Business and Applied Social Science*, 8-17. https://doi.org/10.33642/ijbass.v10n3p2

Eshiett, I. O., & Eshiett, O. E. (2024). Artificial Intelligence Marketing and Customer Satisfaction: An Employee Job Security Threat Review. *World Journal of Advanced Research and Reviews*, *21*(1), 446-456. https://doi.org/10.30574/wjarr.2024.21.1.2655

Gao, L., Li, G., Tsai, F., Gao, C., Zhu, M., & Qu, X. (2023). The impact of artificial intelligence stimuli on customer engagement and value co-creation: The moderating role of customer ability readiness. *J. Res. Interact. Mark.*, *17*, 317-333. https://doi.org/10.1108/JRIM-10-2021-0260

Ghesh, N. (2023). The Artificial Intelligence-Enabled Customer Experience in Tourism: A Systematic Literature Review. *Tourism Review*, *79*(5), 1017-1037. https://doi.org/10.1108/tr-04-2023-0255

Hedayat, M., Rahimi, Z., Tajik, F., & Mahdizadeh, M. (2023). Artificial intelligence in customer relationship management: A literature review and research directions. Proceedings of the Eighth International and National Conference on Management, Accounting, and Law, https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://civilica.com/doc/1694415/&ved=2ahUKEwjA7_7I9OGOAxXlkokEHdhRIEUQFnoECBwQAQ&usg=AOvVaw22KjRh2pUrFnTiDfKemVk5

Idrus, S., Jannah, K. D., Wicaksono, M. B. A., Tanjung, S. P., & Amin, F. (2023). Digital Transformation and Artificial Intelligence in Marketing for Startups Using a Customer Knowledge Management Approach. *International Journal of Artificial Intelligence Research*, *6*(1). https://www.researchgate.net/publication/369913274_Digital_Transformation_and_Artificial_Intelligence_in_Marketing_for_Startups_Using_a_Customer_Knowledge_Management_Approach

Khana, A. (2023). Effectiveness of Artificial Intelligence in Building Customer Loyalty: Investigating the Mediating Role of Chatbot in the Tourism Sector of Pakistan. *International Journal of Academic Research in Business and Social Sciences*, *13*(9). https://doi.org/10.6007/ijarbss/v13-i9/18422

Kunal, K. (2023). A Behavioural Study on the Impact of Artificial Intelligence on Customer Services Retention in Telecom Industry. *Russian Law Journal*, *11*(5s). https://doi.org/10.52783/rlj.v11i5s.960

Logesh, M. S., & Raja, S. C. (2024). A Study on the Impact of Artificial Intelligence on Online Customer Satisfaction. *Ejf*, *03*(05), 133-144. https://doi.org/10.58394/ejf.2024.3514

Loureiro, S. M. C., Ferreira, M. M., Bilro, R. G., & Marquès, L. (2023). How Artificial Intelligence Tools Influence Customer Experience and Avoidance of Similarity. *Global Fashion Management Conference*, 646-649. https://doi.org/10.15444/gmc2023.07.07.04

Nagarajan, G., Arunadevi, R., Banu, R., Umesh, U., Sulthan Mohideen, A., & Lakshmi, M. R. (2023). Artificial Intelligence (AI) In Banking Industry and Customers Perspective. *Journal of Survey in Fisheries Sciences*, 1590-1596. https://sifisheriessciences.com/index.php/journal/article/view/846

Nazarian-Jashnabadi, J., Ronaghi, M., alimohammadlu, m., & Ebrahimi, A. (2023). The framework of factors affecting the maturity of business intelligence. *Business Intelligence Management Studies*, *12*(46), 1-39. https://doi.org/10.22054/ims.2023.74305.2346

Nguyen, N. P., & Mogaji, E. (2023). Artificial intelligence for seamless experience across channels. In *Artificial intelligence in customer service: The next frontier for personalized engagement*. Springer International Publishing. https://doi.org/10.1007/978-3-031-33898-4_8

Nwachukwu, D., & Affen, M. P. (2023). Artificial intelligence marketing practices: The way forward to better customer experience management in Africa (Systematic Literature Review). *International Academy Journal of Management, Marketing and Entrepreneurial Studies*, *9*(2), 44-62. https://www.researchgate.net/profile/Darlington-Nwachukwu/publication/369370172_Artificial_Intelligence_Marketing_Practices_The_Way_Forward_to_Better_Customer_Experience_Management_in_Africa_Systematic_Literature_Review/links/64181fe6a1b72772e411b0c9/Artificial-Intelligence-Marketing-Practices-The-Way-Forward-to-Better-Customer-Experience-Management-in-Africa-Systematic-Literature-Review.pdf

Parsakia, K., & Jafari, M. (2023). Strategies for Enhancing Customer Engagement Using Artificial Intelligence Technologies in Online Markets. *Journal of Technology in Entrepreneurship and Strategic Management (JTESM)*, *2*(1), 49-69. https://doi.org/10.61838/kman.jtesm.2.1.6

Putra, H. S. (2024). Exploring Business Potential Through the Application of Artificial Intelligence: Impact Analysis on Operational Efficiency, Decision Making, and Customer Experience. *Escalate*, *1*(02), 72-81. https://doi.org/10.61536/escalate.v1i02.24

Rane, N. (2023). Enhancing Customer Loyalty through Artificial Intelligence (AI), Internet of Things (IoT), and Big Data Technologies: Improving Customer Satisfaction, Engagement, Relationship, and Experience. *Internet of Things (IoT) and Big Data Technologies: Improving Customer Satisfaction, Engagement, Relationship, and Experience*. https://doi.org/10.2139/ssrn.4616051

Santy, R. D., & Iffan, M. (2023). The Effect of Artificial Intelligence and Gamification on Online Purchase Intention Mediated by Customer Experience: Study on Indonesian Marketplace Users. *Mix Jurnal Ilmiah Manajemen*, *13*(1), 227. https://doi.org/10.22441/jurnal_mix.2023.v13i1.015

Sardesai, S. (2024). Analysing the Impacts of Artificial Intelligence Service Quality and Human Service Quality on Customer Satisfaction and Customer Loyalty in the Hospitality Sector. *Turizam*, *28*(1), 37-48. https://doi.org/10.5937/turizam28-45450

Sharma, A. (2023). Analyzing the Role of Artificial Intelligence in Predicting Customer Behavior and Personalizing the Shopping Experience in Ecommerce. *Interantional Journal of Scientific Research in Engineering and Management*, *07*(02). https://doi.org/10.55041/ijsrem17839

Sharma, S., Islam, N., Singh, G., & Dhir, A. (2024). Why Do Retail Customers Adopt Artificial Intelligence (AI) Based Autonomous Decision-Making Systems? *Ieee Transactions on Engineering Management*, *71*, 1846-1861. https://doi.org/10.1109/tem.2022.3157976

Singhal, P. (2024). Understanding the Usability and Response Quality of Artificial Intelligence Chatbots on Customer Engagement in Branded Apparel E-Retailing. 403-420. https://doi.org/10.4018/979-8-3693-7620-1.ch020

Taghi'i, N., & Jami Pour, M. (2024). Exploring the role of artificial intelligence (AI) in customer relationship management (CRM). 1st International Conference on Information Technology, Management, and Computer, https://doi.org/10.1109/AICIT62434.2024.10730178

Zhu, Y., Zhang, R., Zou, Y., & Jin, D. (2023). Investigating Customers' Responses to Artificial Intelligence Chatbots in Online Travel Agencies: The Moderating Role of Product Familiarity. *Journal of Hospitality and Tourism Technology*. https://doi.org/10.1108/jhtt-02-2022-0041