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Providing a model to explain the factors affecting the implementation of Electronic Customer Relationship Management (ECRM) with an emphasis on artificial intelligence components and its outcomes for banking customers

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Abstract

The objective of the present study is to provide a model to explain the factors affecting the implementation of Electronic Customer Relationship Management (ECRM) with an emphasis on Artificial Intelligence (AI) components and its outcomes for banking customers. In terms of its objective, the research method is developmental-applicable; and in terms of its execution, it is a mixed-methods (qualitative-quantitative) study. The statistical population in the qualitative section includes 10 experiential and academic experts, and the statistical population in the quantitative section consists of 8 experiential and academic experts, selected through purposeful snowball and judgmental sampling methods. Data collection tools included semi-structured interviews in the qualitative section and an ISM questionnaire in the quantitative section. To analyze the findings, thematic analysis based on open, axial, and selective coding was applied in the qualitative section, while Interpretive Structural Modeling (ISM) and interactive matrices were employed in the quantitative section. Research findings indicated that the successful implementation of ECRM in banks is influenced by a set of key factors, including technological factors (IT infrastructure, data quality, AI tools), organizational factors (top management support, organizational culture, processes), and human factors (employee skills, technology adoption). Furthermore, the results indicate that the application of AI components in ECRM leads to a significant improvement in outcomes such as customer satisfaction, trust, loyalty, customer experience, and value creation.

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Extended Abstract

Introduction

The digital initiatives of governments undertaken since the beginning of the last decade, coupled with the increasing penetration of the Internet in recent years, have led to a surge in the global digital population (this increase has been reported to be over 50% in the last decade) (Statista, 2020). The Internet has become a powerful tool for electronic customer relationship management (Almajali et al., 2022). As digital technology begins to blur the distinctions between data platforms, a relatively new field of science—namely, Electronic Customer Relationship Management (E-CRM)—is developing. Customers interact with companies through a variety of information channels, some of which are connected to Information and Communication Technology (ICT) applications via the Internet (Santy & Hardiyanti, 2019).

Intense competition, increasing globalization, and rising consumer expectations have forced banks to provide the best possible services to their customers, both to retain customers and to increase financial profitability (Gul et al., 2025). As a result, the business model has shifted from being bank-centric to customer-centric. Product homogeneity has only added to the burden of the banking industry, becoming a major challenge for maintaining customer satisfaction and loyalty during a significant transition in technology and customer behavior. Banks utilize various ICT strategies to improve their customer relationships (Al-Dmour et al., 2019).

The rapid expansion of digital banking has forced banks to transform their current strategy into an omni-channel strategy that includes the Internet, web, or physical branches (Shastri et al., 2020). Consequently, banks offer a wide range of digital products, including online banking, mobile banking, telephone banking, neobanking, self-service technology, and more. Every marketing campaign is primarily aimed at enhancing business profitability and developing and maintaining good customer relationships (Kotler & Keller, 2015). In managing a customer relationship system, it is necessary to analyze customer interaction data using appropriate tools. Today, these tools are developed and utilized through information technology capabilities. Therefore, to succeed in implementing a customer relationship management system, the factors affecting its implementation must first be examined and an appropriate model must be adopted. This will be addressed in this thesis through a mixed-methods (qualitative-quantitative) approach. Thus, the main question is formulated as follows: How can the factors affecting the implementation of Electronic Customer Relationship Management (ECRM) be explained, emphasizing artificial intelligence components and their subsequent outcomes for banking customers?

Theoretical Framework

Electronic Customer Relationship Management

Electronic Customer Relationship Management (ECRM) is an online delivery system of sales, marketing, and service designed to identify, attract, and retain a company's customers. The form of customer relationship management that is established through the use of information technology is referred to as Electronic Customer Relationship Management (Fuad & Abdullah, 2023).

Artificial Intelligence

Artificial Intelligence refers to the study of how computers can be made to perform tasks that humans currently perform correctly or better, and it is defined as the intelligence demonstrated by a machine or the computer science that attempts to create it (Zolghadr et al., 2025). Asadi et al. (2025) investigated the identification of primary elements and components

affecting electronic customer relationship management, and their results showed that variables related to causal factors—including human, technological, and support factors—along with contextual factors such as cultural and industry factors, and organizational factors including organizational design and customer-related factors, were identified and categorized as influential variables on electronic customer relationship management; furthermore, satisfaction and loyalty were recognized as the outcomes of implementing electronic customer relationship management. Additionally, Emami et al. (2025) examined the design of an AI-based customer relationship management model in digital service marketing within the health tourism industry, where the research results indicated that causal conditions included market competition enhancement, relationship improvement, automated data analysis, and empowerment, while contextual conditions consisted of customer data management and intelligent services; moreover, intervening conditions included efficient planning, resource savings, and customer behavior management, while the strategies in the study involved solving integration problems, information management issues, and planning challenges, leading to outcomes such as increased customer satisfaction, improved financial strength, customer loyalty, and time savings, with structural equation modeling results demonstrating that the dimensions loaded well onto the research variables and provided an appropriate description of them.

Research Methodology

The research method, based on its objective, is developmental-applicable; and in terms of execution, follows a mixed-methods (qualitative-quantitative) approach. The statistical population of the study in the qualitative phase consists of 10 experimental and academic experts, and in the quantitative phase, it includes 8 experimental and academic experts selected by purposeful snowball and judgmental sampling methods. The data collection tool in the qualitative section is semi-structured interviews, while the quantitative section utilizes the Interpretive Structural Modeling (ISM) questionnaire.

Research Findings

To analyze the findings, thematic analysis based on open, axial, and selective coding was utilized in the qualitative phase, while the Interpretive Structural Modeling (ISM) method and interactive matrices were employed in the quantitative phase. The research findings revealed that the successful implementation of ECRM in banks is influenced by a set of key factors, including technological factors (IT infrastructure, data quality, and AI tools), organizational factors (top management support, organizational culture, and processes), and human factors (employee skills and technology adoption). Furthermore, the results indicate that the application of artificial intelligence components in ECRM leads to a significant improvement in outcomes such as customer satisfaction, trust, loyalty, customer experience, and value creation.

Conclusion

The present study was conducted with the objective of providing a model to explain the factors affecting the implementation of Electronic Customer Relationship Management (ECRM), with an emphasis on artificial intelligence components and their subsequent outcomes for banking customers. The results of this research are consistent with the findings of Asadi et al. (2025), Emami et al. (2025), Hosseinimanesh et al. (2025), Karimi & Mahmoodi Ranani (2025), Zolghadr et al. (2025), Shiri & Hassoumi (2024), Pousti (2024), Sahoo et al. (2024), Amin Ravan & Ferdous Makan (2023), Sarfarazi et al. (2023), and Fuad & Abdullah (2023). Karimi & Mahmoodi Ranani (2025) demonstrated that the adoption of

artificial intelligence in e-commerce has a significant relationship with improving the business performance of small and medium-sized enterprises (SMEs). Furthermore, their research emphasizes the pivotal role of dynamic capabilities and entrepreneurial orientation in advancing AI adoption within the e-commerce sector, which in turn contributes to enhanced business performance; these results highlight the importance of developing technological capabilities and innovative approaches in SMEs to effectively exploit artificial intelligence and achieve growth and success. Given the dependence of intelligent ECRM on data and artificial intelligence, it is suggested that regulatory bodies facilitate the sustainable development of these systems by formulating transparent frameworks in the areas of privacy, AI ethics, and data security.

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Conflicts of Interest
The authors declare that they have no financial or non-financial, personal, professional, or institutional conflicts of interest relevant to this work.

Conflicts of Interest
The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability Statement
The data supporting the findings of this study are available from the corresponding author upon reasonable request.

AI Use Statement
The authors declare that no generative artificial intelligence (AI) or AI-assisted technologies were used in the preparation, writing, or editing of this manuscript.

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Ethics Approval
All procedures performed in this study were conducted in accordance with the ethical standards of the responsible institutional and national research committee.