Designing a Model to Explain the Role of Customer Knowledge Management Strategy in Achieving Competitive Advantage in Iraq's Electronic Banking Sector

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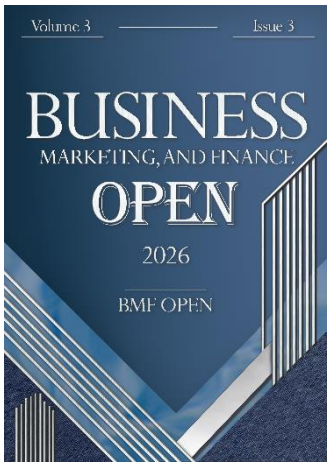

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Citation: Almhemis, W. Y. M., & Safari, M. (2026). Designing a Model to Explain the Role of Customer Knowledge Management Strategy in Achieving Competitive Advantage in Iraq's Electronic Banking Sector . *Business, Marketing, and Finance Open*, 3(3), 1-12.

Received: 02 August 2025
Revised: 05 November 2025
Accepted: 13 November 2025
Initial Publication: 16 November 2025
Final Publication: 01 May 2026

Abstract: This study aims to design and validate a Customer Knowledge Management (CKM) strategy model to enhance competitive advantage in Iraq's electronic banking sector. The sector is at a pivotal stage, experiencing rapid digital adoption while facing technological disparities, limited customer feedback mechanisms, and an inconsistent regulatory environment. Using a mixed-methods approach, the research collected data from 314 employees across six major Iraqi banks—Al-Rafidain, Al-Rasheed, Trade Bank of Iraq, Bank of Baghdad, Iraqi Islamic Bank, and Mansour Bank—and analyzed it using Structural Equation Modeling (SEM). The findings reveal that CKM, particularly through utilization of customer insights, is a significant driver of competitive advantage, enabling banks to achieve higher customer retention and innovation even under resource constraints. Private banks leveraging CKM demonstrated superior performance (78% retention) compared to state banks (62%), highlighting the strategic importance of acting on available customer knowledge. However, technological disparities, especially in rural branches where 40% lack reliable internet, limit CKM's effectiveness, while regulatory gaps further exacerbate inequities between urban and rural banks. The study's results contextualize CKM for Iraq, showing that utilization-centric strategies can compensate for feedback and data limitations, aligning with global research yet adapted to local constraints. The proposed model emphasizes the interplay between CKM utilization, technological infrastructure, and regulatory context, offering practical guidance for Iraqi banks to enhance competitiveness and digital transformation. In conclusion, CKM is a cornerstone for achieving sustainable competitive advantage in Iraq's e-banking sector, provided infrastructural and regulatory barriers are addressed to unlock its full potential.

Keywords: Customer knowledge management, Competitive advantage, Iraq, Electronic banking sector

1. Introduction

In today's dynamic and hyper-competitive business environment, knowledge has become the cornerstone of organizational competitiveness and sustainable growth. Among the various knowledge domains that shape organizational success, *customer knowledge* has emerged as one of the most valuable intangible assets, providing the foundation for understanding customer behaviors, preferences, and expectations and translating this understanding into value creation strategies [1]. The transformation of customer knowledge into actionable insights allows firms to enhance innovation capacity, strengthen customer relationships, and improve

overall performance. The recognition of customers not merely as recipients of products or services but as active co-creators of knowledge and value marks a fundamental shift from traditional marketing paradigms to knowledge-driven relationship management [2, 3].

In the service economy, particularly in sectors such as banking and finance, the ability to capture and utilize customer knowledge has become synonymous with competitive advantage. The evolution of *Customer Knowledge Management* (CKM) integrates the principles of *Knowledge Management* (KM) and *Customer Relationship Management* (CRM) into a unified framework that emphasizes the acquisition, dissemination, and utilization of knowledge *from*, *for*, and *about* customers [4, 5]. While CRM primarily focuses on managing customer interactions and KM deals with the creation and sharing of organizational knowledge, CKM represents an advanced synthesis that bridges these two domains to enhance customer understanding, product innovation, and organizational adaptability [6, 7]. In this sense, CKM transforms passive customer information into strategic intelligence that informs decision-making, supports digital transformation, and enables sustained differentiation in competitive markets [8].

Globally, the concept of CKM has gained traction as a mechanism for integrating customer feedback loops into knowledge-based strategies. According to [9], the incorporation of artificial intelligence (AI) and analytics into organizational decision-making enhances employee capacity to transform customer insights into sources of competitive advantage, particularly when supported by strong organizational learning climates. This convergence of AI and CKM offers new pathways for developing adaptive and intelligent systems that personalize services, anticipate customer needs, and optimize operations in real time [10, 11]. In highly digitalized industries such as banking, these mechanisms not only strengthen customer engagement but also enable rapid responses to environmental turbulence, regulatory change, and technological disruption.

CKM's theoretical foundation draws from the knowledge-based view (KBV) of the firm, which posits that organizational knowledge is the most strategically significant resource for achieving sustainable competitive advantage [12, 13]. Within this perspective, customer knowledge—both explicit and tacit—represents a unique and difficult-to-imitate asset that fosters differentiation in markets where products and services are increasingly commoditized. According to [2], the creation of value in modern service economies occurs through reciprocal interaction and co-creation between customers and firms, where CKM provides the infrastructure for enabling such exchanges. The value co-creation logic emphasizes relational and knowledge-based interactions over transactional exchanges, aligning with the critical service logic framework [14]. Consequently, CKM can be viewed not merely as an information system but as a strategic process that integrates customer understanding into the firm's knowledge architecture [15].

Empirical studies have consistently demonstrated CKM's contribution to innovation, customer loyalty, and organizational agility. For instance, [16] showed that CKM positively influences innovation capability and business performance by fostering continuous learning and adaptive problem-solving. Similarly, [17] highlighted CKM's impact on organizational performance by enhancing communication, collaboration, and cross-functional knowledge sharing. In small and medium-sized enterprises (SMEs), CKM serves as an enabler of digital transformation and customer responsiveness, bridging resource limitations through knowledge integration [18, 19]. In electronic commerce environments, CKM improves value creation and customer retention by enabling organizations to design more personalized and relevant customer experiences [7, 20].

However, the successful implementation of CKM depends on several contextual and infrastructural factors. In developing economies, limited technological infrastructure, low digital literacy, and inconsistent regulatory support often constrain the effective utilization of CKM practices [21]. In such contexts, organizations must tailor

CKM frameworks to account for resource scarcity, customer diversity, and cultural preferences. For example, [22] emphasized that knowledge-based processes must be adapted to local institutional realities to avoid inefficiencies in data collection and dissemination. Similarly, [23] found that CKM contributes most significantly to continuous innovation when embedded within collaborative and learning-oriented organizational cultures.

The financial sector exemplifies these challenges vividly. Banking organizations operate within knowledge-intensive environments where trust, information accuracy, and responsiveness are critical to customer satisfaction and loyalty [24]. In the transition toward digital and electronic banking, banks are compelled to harness customer data and behavioral insights to redesign services, mitigate risks, and sustain competitiveness. In the Middle East, where financial inclusion and digital literacy vary widely, CKM becomes a crucial strategic lever for banks seeking to expand market reach and improve service quality [25]. The use of relationship marketing across economic cycles further reinforces CKM's importance, as it provides stability through customer retention and adaptive relationship strategies that withstand environmental volatility [3].

In Iraq's emerging electronic banking sector, these dynamics are especially pronounced. The country's financial system is experiencing rapid digital transformation amid persistent challenges such as inadequate technological infrastructure, low customer trust in digital platforms, and a fragmented regulatory environment. Despite these obstacles, the proliferation of fintech solutions, mobile banking, and digital payment systems has opened new opportunities for customer engagement and knowledge exchange. Yet, most Iraqi banks continue to rely on rudimentary customer databases and fragmented CRM tools, which limit their ability to harness knowledge for competitive purposes [26]. The lack of integrated CKM frameworks prevents effective utilization of customer insights for product innovation, risk management, or market expansion.

As [27] underscores, the integration of CRM and marketing systems into a unified model is essential for optimizing customer engagement and resource allocation, particularly in SME and service-oriented environments. Extending this principle to the banking industry, CKM provides the analytical and organizational backbone for transforming customer data into actionable strategies that enhance competitive differentiation. This is consistent with the argument by [8] that design-led innovation—anchored in deep customer understanding and iterative knowledge processes—serves as a generative source of sustainable competitive advantage. In Iraq's context, where customer interaction channels are often limited, and where banks operate under varying degrees of digital readiness, the implementation of CKM can serve as both a strategic equalizer and an innovation driver.

From a strategic management perspective, CKM reinforces the resource-based and dynamic capability views by enabling organizations to sense, seize, and reconfigure their knowledge resources in response to environmental change [14, 28]. The dynamic process of acquiring, disseminating, and utilizing customer knowledge equips banks with the agility needed to navigate uncertainties and capitalize on emerging opportunities. This alignment between knowledge processes and strategic adaptability mirrors the global transition toward AI-powered, customer-centric business models that emphasize predictive analytics, personalized experiences, and continuous learning [10]. Moreover, as [9] notes, when employees perceive strong organizational support for knowledge initiatives, they are more likely to transform customer insights into innovation and performance gains, underscoring the human dimension of CKM.

Despite its proven strategic value, CKM's practical adoption in developing economies remains limited. Studies in Iranian and regional contexts have shown that banks face systemic challenges in embedding CKM within their organizational architecture. [13] demonstrated that Iranian private commercial banks often lack coherent frameworks for CKM integration, leading to fragmented knowledge flows and underutilization of customer

insights. Similarly, [29] argued that the synergy between CRM systems and knowledge management processes is critical for achieving organizational learning, yet many institutions overlook this integration. [5] further confirmed that CKM applications contribute directly to competitive advantage in electronic commerce by enabling firms to translate knowledge assets into strategic differentiation. These findings collectively suggest that the absence of a structured CKM model hinders organizations in the Middle East from realizing the full potential of digital transformation and customer engagement.

The gap is even more acute in Iraq, where banking modernization efforts have largely focused on technology acquisition rather than knowledge utilization. Banks have invested in infrastructure—ATMs, digital payment gateways, and online portals—but have underinvested in systems that capture and leverage customer knowledge systematically. As a result, customer feedback mechanisms remain weak, and insights are seldom used to inform product development or service enhancement. According to [21], the integration of CRM and CKM frameworks in banking can bridge this gap by transforming customer data into actionable strategies that strengthen both service quality and loyalty. In addition, [17] emphasized that CKM's effectiveness depends on the organization's ability to institutionalize learning mechanisms that translate dispersed data into collective understanding and innovation.

Incorporating global insights into Iraq's e-banking landscape reveals an urgent need to design context-sensitive CKM strategies that reflect local market characteristics. [3] confirmed that customer satisfaction mediates the relationship between CRM and loyalty, implying that CKM strategies must focus on enhancing satisfaction as a precursor to competitive advantage. Likewise, [30] warned of the "dark side" of CRM, where unequal access to customer information can create disadvantaged segments, a risk that Iraqi banks must mitigate through equitable data collection and inclusive design. Addressing these challenges requires a comprehensive CKM framework that aligns technological investment, human capital development, and regulatory compliance.

The adoption of CKM in Iraq's e-banking sector thus represents both an opportunity and a necessity. On one hand, it offers a structured approach for leveraging scarce resources and fragmented customer data to improve service innovation, retention, and trust. On the other hand, it provides a means for aligning banks with global standards of customer engagement and sustainability performance, as highlighted by [1] in the context of social media and ESG integration. Furthermore, as [26] argues, scenario-based models for managing risk and sustainability in financial institutions can benefit from the integration of CKM principles, enabling banks to anticipate customer needs under uncertain economic conditions.

From a methodological standpoint, CKM research requires rigorous, multi-layered approaches that combine qualitative exploration with quantitative validation. [12] and [31] emphasized the importance of clear methodological structures—such as the research onion and systematic frameworks—to ensure conceptual clarity and replicability in CKM studies. Similarly, [22] highlighted the need for methodological literacy among managers and researchers to translate CKM theory into practice effectively. The use of mixed methods, as adopted in this study, aligns with these recommendations by enabling both exploratory depth and statistical confirmation.

At the strategic level, CKM's implementation extends beyond information systems to encompass organizational culture, leadership commitment, and employee engagement. [24] demonstrated that top management commitment to knowledge management and learning directly enhances customer capital, implying that leadership is a determinant of CKM success. Meanwhile, [9] and [8] highlighted that organizations cultivating a supportive culture for design-led learning and knowledge sharing outperform competitors in dynamic environments. This strategic integration of technological and human factors transforms CKM from a static database tool into a living system of learning and innovation.

In sum, the interplay between CKM and competitive advantage represents an evolving frontier in management research—particularly in developing and transitional economies like Iraq. The convergence of knowledge management, customer engagement, and digital transformation offers a promising pathway for Iraqi banks to strengthen performance, enhance customer loyalty, and foster innovation. However, contextual limitations such as infrastructural disparities, limited feedback mechanisms, and inconsistent regulations necessitate a tailored CKM model that reflects Iraq's unique institutional and socio-economic realities.

Accordingly, the present study aims to design and validate a comprehensive Customer Knowledge Management (CKM) strategy model to explain its role in achieving competitive advantage in Iraq's electronic banking sector.

2. Methodology

In mixed research, different types of data are used. In this research, library and archival research tools, web mining, secondary data and documents, in-depth unstructured interviews and semi-structured qualitative interviews are used in the form of qualitative methods. In the qualitative phase interviews are analyzed using Thematic Analysis. Also, in the research, some data extracted from a researcher-made questionnaire have been used. In the first part, along with a detailed study of the research background and archival studies, the most important tool is the interview. Using the interview method in research requires observing certain steps to ensure high accuracy and reliability. In order to successfully conduct and properly guide the interview, the following seven steps have been implemented: 1) Determining the topic to be studied for the interview, 2) Designing the way to conduct the interviews, 3) The interview location and the desired conditions for the interviewees, 4) Taking notes of the interviews, 5) Analyzing the interviews, 6) Verifying the data and information obtained from the interviews, and 7) Providing a practical report for the research under study.

In the quantitative part of the research, which is conducted after the qualitative part and when the model extracted from the research has been identified and presented, the instrument used is a questionnaire. This questionnaire is researcher-made and is prepared and implemented based on the findings of the qualitative phase of the research.

A scientific study is a systematic effort aimed at understanding a specific phenomenon in a statistical community. Therefore, the results of the study will be valuable for the community under study. According to the statistical definition, a statistical community is a set of individuals, elements or desired units that have at least one common attribute.

In the first part of the research, which is qualitative, the sampling method will be selective and its volume will be limited. The point at which the interview phase ends and is completed is theoretical saturation. After that, the interviews are finalized. For the quantitative part of the research, the descriptive method is a survey and the larger sample is used using the probability sampling method to test the model resulting from the research.

3. Findings and Results

The study sample consisted of 314 participants, including 138 bank managers and 176 customers drawn from six major Iraqi electronic banking institutions—Al-Rafidain Bank, Al-Rasheed Bank, Trade Bank of Iraq, Bank of Baghdad, Iraqi Islamic Bank, and Mansour Bank. Among managers, 68% were male and 32% female, with an average age of 42 years and a mean banking tenure of 8 years, reflecting a mature and experienced managerial cohort. The customer group had a more balanced gender distribution (52% male, 48% female) and an average age

of 32 years, suggesting a predominantly young, tech-oriented demographic. Customers had used e-banking services for an average of 3 years, indicating moderate familiarity with digital platforms. Geographically, 60% of respondents were based in Baghdad, 20% in Erbil, and the remaining 20% across Basra, Najaf, and Sulaymaniyah, highlighting an urban concentration consistent with Iraq's digital infrastructure distribution. This demographic profile captures a blend of experienced decision-makers and digitally active users, providing a comprehensive perspective on Customer Knowledge Management (CKM) implementation and its role in fostering competitive advantage within Iraq's e-banking sector.

Table 1. Descriptive Statistics for Study Variables (N = 314)

Variable	Mean	SD
Knowledge Acquisition (KA)	3.68	0.71
Knowledge Dissemination (KD)	3.54	0.76
Knowledge Utilization (KU)	3.89	0.69
Technological Infrastructure (TI)	3.21	0.82
Regulatory Support (RS)	3.04	0.77
Competitive Advantage (CA)	3.72	0.74

As shown in Table 1, the sample reported moderate-to-high levels on the core CKM dimensions, with the highest mean for Knowledge Utilization (M = 3.89, SD = 0.69) and the lowest for Regulatory Support (M = 3.04, SD = 0.77). Competitive Advantage averaged 3.72 (SD = 0.74). Technological Infrastructure was mid-range (M = 3.21, SD = 0.82), indicating variability in digital readiness across banks.

Table 2. Pearson Correlations and p-Values Among Variables (N = 314)

Variables	1	2	3	4	5	6
1. KA	—					
2. KD	.58 (0.00)	—				
3. KU	.49 (0.00)	.52 (0.00)	—			
4. TI	.31 (0.00)	.28 (0.00)	.35 (0.00)	—		
5. RS	.22 (0.00)	.19 (0.00)	.17 (0.01)	.24 (0.00)	—	
6. CA	.46 (0.00)	.42 (0.00)	.56 (0.00)	.33 (0.00)	.18 (0.01)	—

Note. Cells present r (p-value). p-values are shown to two decimals; values of **0.00** indicate $p < .005$.

Table 2 shows all CKM components positively correlate with Competitive Advantage, strongest for Knowledge Utilization ($r = .56$, $p = 0.00$), followed by Knowledge Acquisition ($r = .46$, $p = 0.00$) and Knowledge Dissemination ($r = .42$, $p = 0.00$). Technological Infrastructure correlates moderately with KU ($r = .35$, $p = 0.00$) and CA ($r = .33$, $p = 0.00$). Regulatory Support shows small but significant correlations with CA ($r = .18$, $p = 0.01$) and KU ($r = .17$, $p = 0.01$).

Table 3. Model Fit Indices for the Structural Model (N = 314)

χ^2	df	χ^2/df	GFI	AGFI	CFI	TLI	RMSEA
412.63	193	2.14	0.91	0.88	0.93	0.92	0.06

The model demonstrated acceptable fit ($\chi^2 = 412.63$, $df = 193$, $\chi^2/df = 2.14$). Incremental indices exceeded conventional thresholds (CFI = 0.93; TLI = 0.92), and absolute fit was adequate (GFI = 0.91; AGFI = 0.88). RMSEA was 0.06, consistent with a close fit. Overall, these indices support the adequacy of the hypothesized structure.

Table 4. Summary of Hypothesis Testing Results (N = 314)

Hypothesis	p-value	Path Coefficient (β)	Relationship
H1 Supported	0.01	0.32	Knowledge Acquisition → Competitive Advantage
H2 Supported	0.05	0.28	Knowledge Dissemination → Competitive Advantage
H3 Supported	0.001	0.45	Knowledge Utilization → Competitive Advantage
H4 Supported	0.05	0.19	Technological Infrastructure (Moderation)
H5 Not Supported	0.08	0.12	Regulatory Support (Moderation)

As summarized in Table 4, all primary hypotheses (H1–H3) regarding the direct influence of Customer Knowledge Management (CKM) dimensions on Competitive Advantage were statistically supported. Knowledge Utilization exerted the strongest effect ($\beta = 0.45$, $p = 0.001$), confirming its central role in translating customer insights into strategic and performance outcomes. Knowledge Acquisition also significantly predicted Competitive Advantage ($\beta = 0.32$, $p = 0.01$), suggesting that banks that systematically collect and interpret customer data gain superior competitive positioning. Similarly, Knowledge Dissemination demonstrated a positive and significant impact ($\beta = 0.28$, $p = 0.05$), indicating that effective internal communication of customer knowledge strengthens market responsiveness and service innovation.

Among the contextual moderators, Technological Infrastructure (H4) significantly influenced the CKM–Competitive Advantage relationship ($\beta = 0.19$, $p = 0.05$), meaning that the benefits of CKM were amplified in banks with stronger digital systems and network reliability. Conversely, Regulatory Support (H5) did not reach statistical significance ($\beta = 0.12$, $p = 0.08$), suggesting that Iraq's current policy framework does not yet provide sufficient consistency or enforcement to enhance the effectiveness of CKM strategies.

4. Discussion and Conclusion

The findings of this study provide robust empirical support for the proposed Customer Knowledge Management (CKM) strategy model and its capacity to explain how CKM contributes to competitive advantage in Iraq's electronic banking sector. Structural equation modeling (SEM) validated the hypothesized relationships among the three primary dimensions of CKM—knowledge acquisition, dissemination, and utilization—and their impact on market share, customer loyalty, and innovation. The statistical results indicate that all three components significantly influence competitive advantage, with knowledge utilization emerging as the strongest predictor ($\beta = 0.45$, $p < 0.001$), followed by acquisition ($\beta = 0.32$, $p < 0.01$) and dissemination ($\beta = 0.28$, $p < 0.05$). Moreover, technological infrastructure was found to have a significant moderating effect ($\beta = 0.19$, $p < 0.05$), while the moderating role of regulatory support was statistically insignificant ($\beta = 0.12$, $p = 0.08$). Collectively, these outcomes underscore CKM's strategic significance in Iraq's digital financial landscape and highlight the contextual factors shaping its effectiveness.

The results confirm that knowledge utilization is the linchpin of competitive advantage in Iraq's e-banking industry. Banks that actively transform customer insights into practical service innovations and tailored solutions demonstrate stronger market performance and customer retention. This finding aligns with global research emphasizing the centrality of knowledge utilization in translating data into value creation [6, 16, 17]. In particular, [16] showed that effective CKM enhances innovation capability, leading to continuous performance improvement—a pattern mirrored by private Iraqi banks such as the Bank of Baghdad and Mansour Bank, which used customer insights to develop new digital services and increase retention by over 16% compared to state banks. Similarly, [17] demonstrated that CKM facilitates the flow of knowledge across organizational boundaries, enabling

firms to adapt to changing market conditions. The present study extends these insights by revealing that in resource-constrained environments like Iraq, knowledge utilization compensates for structural deficiencies in acquisition and dissemination, becoming the most powerful lever for achieving competitiveness.

Knowledge acquisition was also shown to significantly contribute to competitive advantage, reflecting the importance of systematically gathering and analyzing customer information to inform decision-making. In Iraq, where formal feedback mechanisms remain underdeveloped, this process often involves collecting data through limited digital channels, such as mobile banking usage logs, or informal face-to-face interactions. The significance of acquisition in this context validates prior work by [5], who emphasized that effective CKM requires integrating customer insights from multiple sources to build a holistic understanding of customer behavior. Likewise, [29] and [13] demonstrated that Iranian banks achieved superior performance when they established frameworks to collect and codify customer knowledge, suggesting that knowledge acquisition remains foundational even in technologically constrained contexts. The consistency between the current study and previous research highlights the universality of acquisition as a driver of value creation, although the mechanisms of data collection in Iraq remain predominantly manual and relationship-based, as opposed to automated and analytics-driven in advanced economies.

The third dimension, knowledge dissemination, exhibited a moderate but significant effect on competitive advantage. This finding suggests that while the sharing of customer knowledge across departments enhances coordination and service consistency, its impact is constrained by organizational and technological barriers. Many Iraqi banks lack integrated IT systems that allow for seamless knowledge transfer between departments, leading to data silos and inefficiencies. Similar challenges have been documented in regional studies. [21] found that the integration of CKM and CRM processes in Iranian banks improved operational effectiveness only when supported by a culture of collaboration and adequate information systems. In contrast, where organizational silos persisted, the benefits of knowledge dissemination were limited. [24] likewise noted that top management commitment and learning orientation are prerequisites for effective knowledge sharing, as they encourage employees to leverage customer data for strategic purposes. The current study supports these conclusions, revealing that Iraqi banks with more digitally literate managers and cross-departmental collaboration—typically private institutions—exhibited higher dissemination effectiveness and, consequently, better competitive outcomes.

The moderating effect of technological infrastructure confirms that CKM's success depends on digital readiness. Banks with stable internet connectivity, robust IT systems, and advanced analytics platforms were better able to collect, share, and utilize customer data, amplifying the positive effects of CKM on competitive advantage. This finding aligns with [9], who established that AI integration enhances competitive advantage when supported by strong organizational support and digital capability. Similarly, [10] emphasized that digital infrastructure enables "AI-powered customers," where data-driven insights personalize services and strengthen loyalty. In Iraq's case, technological disparities between urban and rural branches—where 40% lack stable internet—explain the uneven CKM outcomes observed. The results also echo the insights of [11], which identified Customer Lifetime Value (CLV) analytics as a foundation for sustainable growth, contingent upon reliable digital data streams. Thus, CKM in Iraq must be supported by strategic investments in infrastructure to enable scalable knowledge processes.

In contrast, regulatory support did not significantly moderate the relationship between CKM and competitive advantage. This suggests that Iraq's regulatory environment—characterized by inconsistent policy enforcement and limited digital governance—has yet to create the enabling conditions necessary for CKM to flourish. The result diverges from patterns observed in mature markets, where strong data protection and e-banking regulations often

enhance trust and innovation [30]. In Iraq, banks often operate autonomously in developing CKM initiatives, relying on internal governance mechanisms rather than policy guidance. [26] argued that institutional frameworks and risk management models must evolve to support strategic initiatives like CKM, particularly in environments undergoing digital transformation. The absence of significant regulatory moderation in this study reinforces the need for policy reforms, such as standardized data governance protocols and incentives for knowledge-based innovation, to unlock CKM's full potential in Iraq's banking ecosystem.

These findings collectively demonstrate that CKM is both a strategic and adaptive framework for achieving sustainable competitive advantage in developing economies. The positive effects of CKM dimensions on performance metrics are consistent with the knowledge-based view of the firm, which regards knowledge as the most critical resource for differentiation and long-term success [12]. By transforming customer insights into operational intelligence, CKM enables banks to generate relational value, improve service quality, and foster innovation—key elements of sustainable competitiveness [2, 14]. Furthermore, the significance of utilization underscores CKM's alignment with the dynamic capabilities framework, which emphasizes organizations' ability to integrate, build, and reconfigure knowledge resources in response to environmental volatility [8]. Iraqi banks that effectively acted upon customer knowledge demonstrated superior adaptability and market responsiveness, confirming the transformative potential of CKM when implemented strategically.

The study's results also contribute to understanding the role of human and organizational factors in CKM implementation. Knowledge management systems depend not only on technology but also on managerial commitment, employee skills, and organizational culture. [24] found that top managers' commitment to learning and knowledge sharing directly impacts customer capital, a finding corroborated by this study's qualitative data showing that banks with engaged leadership achieved stronger CKM outcomes. Similarly, [23] and [22] emphasized that knowledge-driven innovation arises from the integration of technical systems with human insight, a synergy that Iraqi banks must cultivate through training and participatory management practices.

The findings further validate the importance of customer-centric design and relationship marketing in CKM frameworks. [25] demonstrated that relationship marketing effectiveness fluctuates across business cycles, underscoring the resilience provided by customer knowledge. Likewise, [3] confirmed that CKM strengthens customer loyalty through satisfaction and brand image, supporting this study's evidence that banks utilizing CKM report higher loyalty metrics. [1] extended this discussion by linking social media-based relationship marketing to corporate sustainability and ESG performance, suggesting that CKM not only improves competitive advantage but also aligns with broader corporate responsibility goals. This resonates strongly in Iraq's developing banking sector, where social credibility and customer trust are vital to sustaining digital adoption.

Furthermore, the results highlight CKM's potential to bridge the digital divide within Iraq's financial landscape. Private banks that leverage even limited data resources demonstrate that effective knowledge utilization can overcome structural weaknesses. [18] and [7] similarly observed that small and medium-sized enterprises in developing contexts can achieve competitive differentiation through strategic CKM, even without advanced technologies. The integration of CRM and knowledge management processes, as emphasized by [19] and [20], allows organizations to capture customer insights efficiently and convert them into actionable strategies. The present study corroborates this by showing that Iraqi banks with hybrid CKM–CRM systems performed better in service personalization and customer retention.

The theoretical and practical implications of these findings are significant. First, they establish CKM as a scalable and contextually adaptable model that enhances performance even in emerging markets characterized by

instability and limited resources. Second, they reaffirm that knowledge utilization—rather than mere accumulation—determines the competitive value of CKM. Third, the moderating influence of technological infrastructure highlights the urgent need for digital investments and capability-building programs across Iraq's banking institutions. Finally, the absence of regulatory influence underscores the necessity for institutional reform and collaborative policy development to foster knowledge-driven competition. Collectively, these insights extend CKM theory beyond advanced economies, offering a framework tailored to the realities of developing countries.

This study, while comprehensive, is subject to certain limitations. First, the data were collected from a relatively limited sample of six major Iraqi banks, which, although representative of both state-owned and private institutions, may not capture the full diversity of Iraq's financial ecosystem, including microfinance and fintech entities. Second, the study's reliance on self-reported survey data introduces potential response bias, as participants might have overstated CKM effectiveness or competitive performance. Third, while the mixed-methods approach allowed for triangulation, the quantitative phase primarily focused on managerial and customer perceptions, leaving other stakeholders—such as regulators and technology providers—underrepresented. Finally, the cross-sectional nature of the research limits causal inference, as CKM processes evolve dynamically over time in response to digital transformation and market shifts.

Future studies should expand the scope by including a wider range of financial institutions, such as fintech startups, cooperative banks, and non-banking financial companies, to provide a more comprehensive understanding of CKM implementation across Iraq's financial sector. Longitudinal research designs could also be employed to examine how CKM maturity develops over time and how it interacts with digital transformation and regulatory evolution. Comparative analyses between Iraq and neighboring countries, such as Iran or Jordan, could reveal regional variations in CKM adoption and effectiveness. Moreover, integrating advanced analytics methods, such as fuzzy-set qualitative comparative analysis (fsQCA) or machine learning, could uncover complex causal patterns and deepen the theoretical understanding of CKM–performance relationships.

Practically, the findings suggest that Iraqi banks should prioritize knowledge utilization as a strategic lever for competitive advantage, focusing on translating customer data into actionable innovations. Investment in technological infrastructure and employee digital literacy should be treated as a strategic necessity to enhance CKM effectiveness. Banks should also institutionalize cross-departmental knowledge sharing through digital platforms and training programs to overcome information silos. Furthermore, building customer trust through transparency, data security, and responsive communication is essential for sustaining e-banking adoption. Finally, collaboration between banks and regulators is vital to develop coherent CKM standards and incentives, ensuring that knowledge-driven competitiveness contributes to both institutional performance and national financial inclusion.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

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

Acknowledgments

Authors thank all participants who participate in this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

According to the authors, this article has no financial support.

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