“Integrating social customer relationship management into customer lifetime value: Empirical evidence from Vietnamese banking”

AUTHORS	Nguyen Ha Thach Pham Thi Kim Thanh Nguyen Thi Thanh Hien Nguyen Thu Hien

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Nguyen Ha Thach (Vietnam), **Pham Thi Kim Thanh** (Vietnam),
Nguyen Thi Thanh Hien (Vietnam), **Nguyen Thu Hien** (Vietnam)

INTEGRATING SOCIAL CUSTOMER RELATIONSHIP MANAGEMENT INTO CUSTOMER LIFETIME VALUE: EMPIRICAL EVIDENCE FROM VIETNAMESE BANKING

Abstract

In the context of rapid digital transformation in the banking sector of developing countries such as Vietnam, maintaining long-term customer value has become a critical challenge. Traditional Customer Lifetime Value (CLV) models, which mainly rely on transactional data, are often insufficient in capturing customer behavior in dynamic digital environments. This study aims to evaluate the integration of Social Customer Relationship Management (SCRM) into CLV models through the lens of the Technology-Organization-Environment (TOE) framework. Specifically, it analyzes how technological, organizational, and environmental contexts influence the implementation of SCRM, and how SCRM, in turn, affects three key components of CLV: customer acquisition, retention, and expansion. Data were collected from a survey of 425 banking professionals in Vietnam in October 2024 and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that SCRM has a positive and statistically significant impact on all three CLV components, with the strongest effect on customer retention ($\beta = 0.325$, $p < 0.001$). The technological ($\beta = 0.181$) and organizational ($\beta = 0.198$) contexts significantly influence the implementation of SCRM, while the environmental context does not show a meaningful impact. The study provides empirical evidence on the mediating role of SCRM and offers practical recommendations for banks to prioritize internal factors when developing strategies to enhance long-term customer value. As the empirical investigation was limited to the Vietnamese banking sector, the findings should be considered context-specific. To establish broader applicability, future studies should replicate this model in different national or industry contexts.

Keywords SCRM, CLV, TOE, acquisition, retention, expansion, banking, Vietnam

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Nguyen Ha Thach, Ph.D., Lecturer, Faculty of Business Administration, Industrial University of Ho Chi Minh City, Vietnam. (Corresponding author)

Pham Thi Kim Thanh, Msc, Lecturer, University of Finance – Marketing, Vietnam.

Nguyen Thi Thanh Hien, Msc, Lecturer, University of Finance – Marketing, Vietnam.

Nguyen Thu Hien, Msc, Lecturer, University of Finance – Marketing, Vietnam.

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INTRODUCTION

The rapid pace of digital transformation is fundamentally reshaping how banks create and sustain value, particularly in emerging economies like Vietnam. Between 2016 and 2022, the financial and banking sector experienced significant expansion, with the number of newly registered firms peaking at 1,867 in 2018 and maintaining a high level with 1,678 in 2022 (Statista, 2023). At the same time, customer behavior has shifted substantially toward digital platforms. As of Q1 2023, more than 57.6 million people in Vietnam were using digital banking services, and the total transaction value via mobile banking exceeded VND 12,000 trillion in Q3 2022 alone (Statista, 2023).

While this trend offers opportunities for improving operational efficiency and reaching more customers, it also presents new challenges in building long-term loyalty in a highly competitive and personal-

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ized digital environment. In this context, CLV has become a strategic metric, enabling banks to identify profitable customer segments and allocate resources effectively for acquisition, retention, and expansion. However, most traditional CLV models rely heavily on quantitative financial transaction data, which are often inadequate for capturing the multidimensional and real-time nature of digital customer behavior. The emergence of SCRM offers a new approach for understanding customer needs, expectations, and feedback across social platforms. Yet, the effective integration of this approach into CLV frameworks remains underexplored - especially in Vietnam's banking sector, where digitalization is shaped by overlapping technological, organizational, and environmental pressures. A lack of comprehensive understanding of the conditions that facilitate SCRM adoption limits the ability of banks to fully harness digital technologies in maximizing customer value.

This research addresses a critical gap by examining how these contextual factors influence SCRM implementation and, in turn, enhance long-term customer value in the digital banking landscape of emerging markets, with empirical evidence from Vietnam.

1. LITERATURE REVIEW AND HYPOTHESES

Customer Lifetime Value is a strategic indicator that guides long-term customer relationship strategies and value optimization across industries, especially in banking, where customer engagement is prolonged and service intensive. CLV provides insights not only into the financial contributions of individual customers but also into how firms can strategically allocate resources to enhance profitability over time (Ekinci et al., 2014; Gupta et al., 2006; Méndez-Suárez & Crespo-Tejero, 2021). Conceptually, CLV is operationalized through three dimensions: acquisition (CUAC), retention (CURE), and expansion (CUEX) of customer value streams (Kumar et al., 2023). Each component plays a unique role in driving sustainable growth, whether through attracting new customers, retaining existing ones, or increasing the value generated by loyal clients.

Modern advancements in data science have further elevated the predictive power of CLV models. Predictive algorithms, including regression and clustering techniques, have enabled banks to tailor services, improve forecasting, and develop more personalized customer interactions (Cowan et al., 2023; Gadgil et al., 2023). However, these models often overlook the complex behavioral and emotional dynamics of customer relationships, particularly those observables through digital and social channels. Sole reliance on transactional data restricts firms from capturing real-time customer signals, which are essential for relationship personalization in today's competitive landscape.

In response to these limitations, social customer relationship management (SCRM) emerges as a transformative extension of CRM, integrating social media data to enable more interactive and insight-driven engagements. SCRM enables organizations to monitor sentiment, track behavior, and engage in dialogue through digital platforms (Arora et al., 2021; Woodcock et al., 2011). This enriches the firm's capacity for customer understanding and responsiveness, positioning SCRM not only as a tool for operational support but also as a strategic asset for building loyalty, advocacy, and cross-selling (Choudhury & Harrigan, 2014; Sigala, 2018).

Empirical evidence supports the role of SCRM in strengthening all dimensions of CLV. In customer acquisition, it allows targeted marketing through behavioral segmentation (Alzaydi, 2024; Gräser et al., 2023). For customer retention, personalized and timely interactions build emotional connections and trust (Dewnarain et al., 2021; Ho et al., 2020). For customer expansion, SCRM enables firms to derive insights for cross-selling and value extension (Kong & Rahman, 2024). Thus, SCRM enhances CLV by transforming reactive management into proactive and personalized relationship strategies.

Despite these potential benefits, the integration of SCRM into CLV models remains underexplored in the context of emerging markets. Vietnam's unique digital landscape - with its accelerating transformation, youthful demographics, and evolving regulatory environment - demands contextualized investigation. Studies conducted in developed markets

may not sufficiently address structural or cultural differences that affect technology adoption and customer behavior in emerging economies. Therefore, a theoretically grounded framework is needed to unpack how internal and external factors influence SCRM's adoption and its contribution to CLV in Vietnam's banking sector.

The Technology-Organization-Environment framework offers a robust lens to explain organizational adoption of technological innovations. Developed by Tornatzky (1990), TOE posits that adoption is influenced by technological readiness, organizational capability, and environmental pressure. This framework has been widely applied to explain the diffusion of digital innovations such as blockchain and AI in banking and SMEs (Horani et al., 2023; Kajla et al., 2024; Yoopetch & Chareanporn, 2024; Zhong & Moon, 2023).

Technological context (TECO) encompasses the availability and compatibility of IT infrastructure, as well as innovation capability. Firms equipped with robust IT systems and advanced analytics are more capable of leveraging SCRM to personalize offerings and enhance customer understanding (Chatterjee et al., 2022; Gräser et al., 2023; Sigala, 2018). These technological capabilities are essential enablers for integrating SCRM into CLV models (Chatterjee et al., 2022; Morawiec & Sołtysik-Piorunkiewicz, 2023; Pathak et al., 2022; Ullah et al., 2021).

Organizational context (ORCO) includes structural attributes, leadership support, and cultural orientation. Organizations that cultivate innovation, cross-functional collaboration, and customer-centric values are more effective in implementing technologies like SCRM. Leadership commitment and strategic alignment enhance the likelihood of successful SCRM deployment (Gräser et al., 2023; Pathak et al., 2022; Sigala, 2018). Such environments help convert SCRM efforts into tangible improvements across acquisition, retention, and expansion dimensions (Chatterjee et al., 2022; Isensee et al., 2020; Malki et al., 2024; Trainor et al., 2014).

Environmental context (ENCO) refers to market dynamism, regulatory forces, and technological trends. In volatile environments, firms face greater pressure to differentiate via digital tools like SCRM (Chatterjee et al., 2022; Gräser et al., 2023; Morawiec & Sołtysik-Piorunkiewicz, 2023). However, regulatory compliance and customer data protection also shape the form and extent of SCRM implementation (Sigala, 2018). While external factors can incentivize or constrain adoption, their impact often depends on how well firms translate external cues into strategic action.

Although many studies have confirmed that SCRM plays a critical role in enhancing CLV, particularly in customer acquisition, retention, and expansion, empirical evidence in emerging markets remains scarce. Besides, few investigations have explicitly addressed how SCRM acts as a mediator within the TOE framework.

This study aims to analyze the impact of SCRM on customer lifetime value in Vietnamese banks. Based on the above theoretical rationale and supporting empirical findings, the following research hypotheses are proposed:

H1: SCRM positively influences CUAC.

H2: SCRM positively influences CURE.

H3: SCRM positively influences CUEX

H4: TECO positively influences SCRM.

H4a: SCRM mediates the relationship between TECO and CUAC.

H4b: SCRM mediates the relationship between TECO and CURE.

H4c: SCRM mediates the relationship between TECO and CUEX.

H5: ORCO positively influences SCRM.

H5a: SCRM mediates the relationship between ORCO and CUAC.

H5b: SCRM mediates the relationship between ORCO and CURE.

H5c: SCRM mediates the relationship between ORCO and CUEX.

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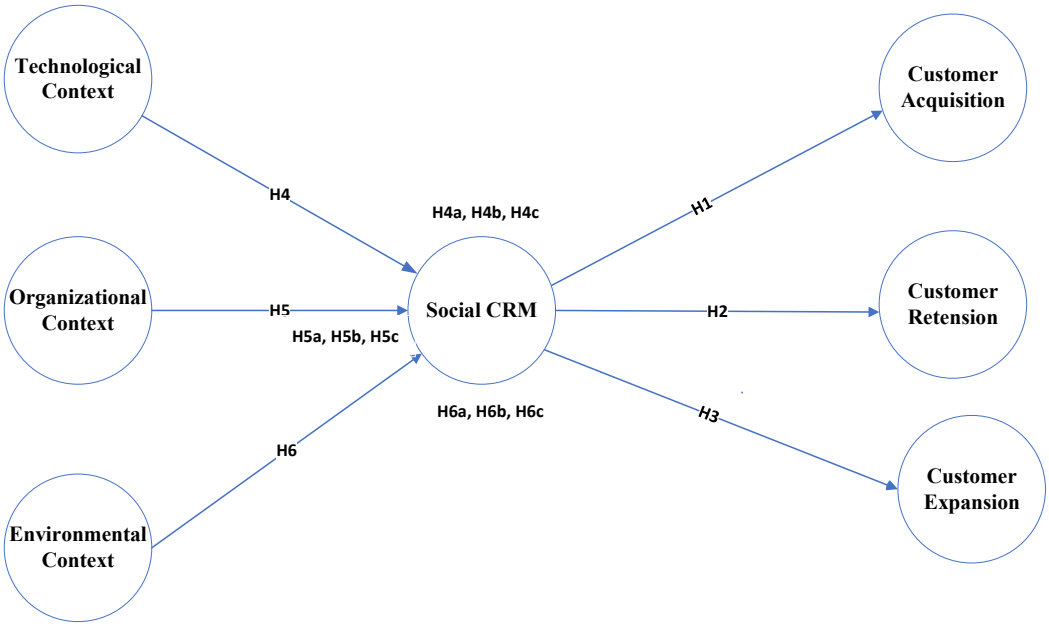

Figure 1. Proposed research model

H6: ENCO positively influences SCRM.

H6a: SCRM mediates the relationship between ENCO and CUAC.

H6b: SCRM mediates the relationship between ENCO and CURE.

H6c: SCRM mediates the relationship between ENCO and CUEX.

2. METHODOLOGY

This study employs a quantitative survey approach to examine the mediating role of SCRM in the relationship between TOE contextual factors and CLV within the Vietnamese banking sector. The research was conducted in three stages: (1) designing and validating measurement instruments, (2) collecting data via a cross-sectional survey, and (3) performing quantitative analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM).

The survey began with an introductory section, followed by a component dedicated to collecting demographic data from respondents working in the banking sector. To ensure the reliability and validity of the measurement instruments, this study adopted multi-item scales derived from well-established literature. These scales were carefully modified to align with the specific research context and objectives, ensuring both theoretical robustness and practical relevance.

All constructs were measured using validated multi-item Likert scale (1 = strongly disagree to 5 = strongly agree) adapted from prior studies. Items measuring SCRM value were adapted from the studies of Trainor et al. (2014) and Wang and Kim (2017). The constructs related to the technological context were drawn from the works of Al-Omoush et al. (2021) and Al-Bashayreh et al. (2022), while items addressing the organizational context were derived from Al-Omoush et al. (2021) and Medjani and Barnes (2021). For the environmental context, relevant scales were based on the research by Al-Omoush et al. (2021) and Shahadat et al. (2023). Additionally, metrics to assess customer acquisition and expansion were informed by the frameworks developed by Kantorová and Bachmann (2018) and Ibrahim et al. (2020). Finally, items evaluating customer retention were grounded in the work of Alshurideh et al. (2023) and Dewnarain et al. (2021).

To ensure representativeness and accuracy of the data, the survey was conducted using a combination of Google Forms and directly distributed questionnaires, which expanded the reach and

accessibility of the research. Specifically, to ensure scientific rigor and reliability, a filter question was employed to exclude participants without direct experience using SCRM, and incomplete responses were discarded. This process resulted in 425 valid responses, accurately reflecting the characteristics of the research sample. The survey was administered in October 2024 and targeted employees from different types of banks (state-owned, private joint-stock, and foreign-owned) and various departments such as marketing, credit, customer development, and service. The sample composition also reflects diverse job positions, including staff, middle managers, and department heads, which supports the generalizability of the findings across organizational hierarchies.

The dataset was analyzed using SmartPLS 4.0, a Structural Equation Modeling (SEM) software based on Partial Least Squares. To assess the measurement model, several reliability and validity metrics were employed, including outer loadings, Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). Discriminant validity was evaluated using the Fornell-Larcker criterion. Following this, the structural model was utilized to examine both direct and indirect hypothesized relationships among the constructs.

This approach aligns with modern experimental research, emphasizing the importance of collecting data from banking professionals to ensure precise information regarding technology integration and service effectiveness (Nguyen et al., 2022; Pathak et al., 2022).

Table 1. Research sample structure (n = 425)

Source: Synthesized by the authors from survey data.

Variables	N	%
Gender		
Male	128	30.1
Female	297	69.9
Bank		
Foreign-owned banks	111	26.1
Private joint-stock commercial banks	186	43.8
State-owned commercial banks	128	30.1
Department		
Customer service department	37	8.7
Business and customer development department	144	33.9
Marketing department	116	27.3
Credit department	89	20.9
Other	39	9.2
Years of service		
Less than 1 year	48	11.3
From 1 to 5 years	111	26.1
From 5 to 10 years	90	21.2
Over 10 years	176	41.4
Position (job title)		
Staff/specialist	331	77.9
Deputy head/ middle manager	68	16.0
Department head/branch director	26	6.1

Table 1 presents the structure of the research sample, which consists of 425 employees from various banks. The gender distribution is uneven, with 69.9% female participants and 30.1% male participants. The sample includes employees from three types of banks: 43.8% from private joint-stock commercial banks, 30.1% from state-owned commercial banks, and 26.1% from foreign-owned banks. In terms of departmental distribution, the sample is primarily drawn from the business and customer development department (33.9%) and the marketing department (27.3%), followed by the credit department (20.9%) and the customer service department (8.7%). Additionally, 9.2% of participants work in other departments. Regarding years of service, 41.4% of participants have over 10 years of experience, while the remaining groups have 1 to 5 years (26.1%) and 5 to 10 years (21.2%). In terms of job position, most participants hold staff or specialist roles (77.9%), while 16.0% are middle managers, and 6.1% hold senior leadership positions, such as department heads or branch directors. This distribution indicates that the research sample includes contributions from various levels and functions, ranging from early-career employees to experienced professionals and leaders in the banking industry.

3. RESULTS

Quantitative analysis was conducted with the support of Excel for preliminary data handling and SmartPLS 4.0 for model estimation. Adhering to the PLS-SEM approach suggested by Sarstedt et al. (2021), the results section first presents an evaluation of the measurement model, followed by the testing of structural paths to validate the research hypotheses.

The results presented in Table 2 demonstrate the reliability and validity of the measurement model in this study. Specifically, the outer loadings of all

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indicators exceed the threshold of 0.7, indicating a strong correlation between the observed variables and their respective latent constructs, which aligns with the established standard for indicator reliability (Sarstedt et al., 2021). Regarding internal consistency reliability, both Cronbach's Alpha (α) and Composite Reliability (CR) values for all constructs range from 0.838 to 0.937, surpassing the required threshold of 0.7, which confirms that the constructs have satisfactory reliability (Sarstedt et al., 2021). The AVE values for all constructs are above 0.5, ranging from 0.674 to 0.910, ensuring the convergent validity of the measurement model (Gupta et al., 2006; Sarstedt et al., 2021).

The VIF values for all constructs are below the threshold of 3.3, with values ranging from 1.689 to 3.050, indicating the absence of multicollinearity issues and confirming the stability and robustness of the research model (Kock & Lynn, 2012). These findings collectively indicate that the measurement model meets the necessary standards for reliability and validity, making it suitable for testing hypotheses related to the impact of SCRM on customer lifetime value in the banking sector.

The results presented in Table 3 show that the discriminant validity of the constructs in the measurement model is satisfied according to the

Table 2. Outer loadings, Cronbach's Alpha, CR, AVE and VIF

Sources: Author's study.

Constructs	Item	χ	α	CR	AVE	VIF
	TECO					
Technological context	TECO1	0.786	0.838	0.892	0.674	1.710
	TECO2	0.869				2.432
	TECO3	0.814				2.024
	TECO4	0.811				1.732
	ORCO					
Organizational context	ORCO1	0.875	0.869	0.889	0.910	2.536
	ORCO2	0.785				1.812
	ORCO3	0.867				2.092
	ORCO4	0.856				2.219
	ENCO					
Environmental context	ENCO1	0.841	0.840	0.893	0.675	1.893
	ENCO2	0.823				1.891
	ENCO3	0.845				2.021
	ENCO4	0.776				1.689
	SCRM					
Social customer relationship management	SCRM1	0.856	0.915	0.937	0.747	2.375
	SCRM2	0.860				2.709
	SCRM3	0.872				2.673
	SCRM4	0.887				3.050
	SCRM5	0.845				2.426
	CUAC					
Customer acquisition	CUAC1	0.890	0.877	0.914	0.728	2.545
	CUAC2	0.909				2.746
	CUAC3	0.847				2.199
	CUAC4	0.759				1.751
	CURE					
Customer retention	CURE1	0.805	0.846	0.896	0.684	2.048
	CURE2	0.856				2.248
	CURE3	0.823				2.127
	CURE4	0.822				2.100
	CUEX					
Customer expansion	CUEX1	0.857	0.850	0.908	0.767	1.936
	CUEX2	0.918				2.307
	CUEX3	0.851				2.083

Note: Outer loadings (χ); Cronbach's Alpha (α); Composite Reliability (CR); Average Variance Extracted (AVE).

Table 3. Discriminant validity assessment using the Fornell-Larcker criterion

Sources: Author's study.

	CUAC	CUEX	CURE	ENCO	ORCO	SCRM	TECO
CUAC	0.853						
CUEX	0.458	0.876					
CURE	0.505	0.595	0.827				
ENCO	0.182	0.184	0.356	0.822			
ORCO	0.290	0.343	0.497	0.264	0.847		
SCRM	0.165	0.238	0.325	0.211	0.269	0.864	
TECO	0.279	0.231	0.388	0.401	0.265	0.268	0.821

Fornell-Larcker criterion. This criterion requires that the square root of the AVE for each construct be greater than its correlations with other constructs. In this case, the diagonal values representing the square root of the AVE for each construct (CUAC = 0.853, CUEX = 0.876, CURE = 0.827, ENCO = 0.822, ORCO = 0.847, SCRM = 0.864, TECO = 0.821) are all higher than the corresponding off-diagonal correlations, confirming the discriminant validity of the model. Specifically, constructs like SCRM (AVE = 0.864) have lower correlations with other constructs, such as CUAC (0.165) and CUEX (0.238), thus meeting the condition for discriminant validity (Henseler et al., 2015; Sarstedt et al., 2021). These findings support the conclusion that each construct in the model is sufficiently distinct from the others, fulfilling the required conditions for discriminant validity.

The hypotheses were tested using Structural Equation Modeling (SEM), and the results are summarized in Table 4.

The results from the SEM tested the hypotheses regarding the impact of technological, organizational, and environmental factors on the implementation of SCRM and its influence on CLV.

The findings show that all direct effects of SCRM on the three components of CLV, customer acquisition, customer retention, and customer expansion, are strongly supported. Specifically, SCRM has a positive and statistically significant impact on customer acquisition (β = 0.165, p = 0.000), retention (β = 0.325, p = 0.000), and expansion (β = 0.238, p = 0.000). These results highlight that the implementation of SCRM helps banks not only

Table 4. Hypothesis testing

Sources: Author's study.

Hypothesis	β	SD	t	p-values	Results
Direct effects					
H1: SCRM → CUAC	0.165	0.045	3.708	0.000	Supported
H2: SCRM → CURE	0.325	0.048	6.825	0.000	Supported
H3: SCRM → CUEX	0.238	0.046	5.180	0.000	Supported
H4: TECO → SCRM	0.181	0.055	3.313	0.001	Supported
H5: ORCO → SCRM	0.198	0.047	4.191	0.000	Supported
H6: ENCO → SCRM	0.086	0.049	1.748	0.080	Supported
Indirect effects					
H4a: TECO→ SCRM→ CUAC	0.030	0.014	2.200	0.028	Supported
H4b: TECO→ SCRM→ CURE	0.059	0.021	2.770	0.006	Supported
H4c: TECO→ SCRM→ CUEX	0.043	0.016	2.634	0.008	Supported
H5a: ORCO→ SCRM→ CUAC	0.033	0.013	2.452	0.014	Supported
H5b: ORCO→ SCRM→ CURE	0.064	0.021	3.102	0.002	Supported
H5c: ORCO→ SCRM→ CUEX	0.047	0.016	2.924	0.003	Supported
H6a: ENCO→ SCRM→ CUAC	0.014	0.010	1.427	0.154	Rejected
H6b: ENCO→ SCRM→ CURE	0.028	0.018	1.572	0.116	Rejected
H6c: ENCO→ SCRM→ CUEX	0.020	0.013	1.556	0.120	Rejected

Note: β: path coefficient; SD: Standard Deviation.

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Source: Author's study.

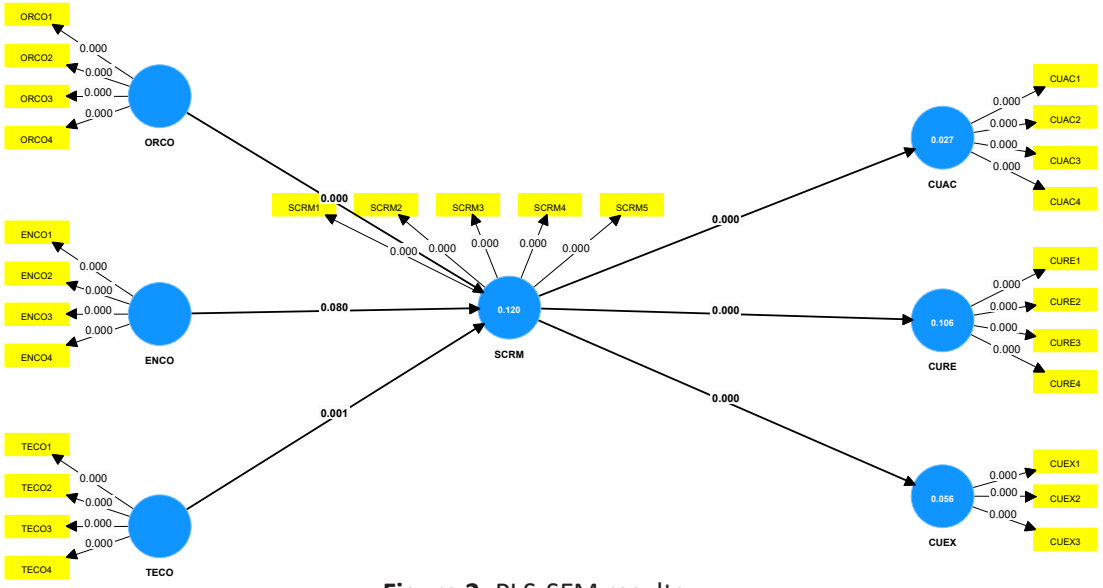

Figure 2. PLS-SEM results

attract new customers but also maintain and expand relationships with existing customers.

Regarding indirect effects, both TECO and ORCO significantly influence the implementation of SCRM, which in turn affects the CLV components. The results show that TECO has a strong impact on customer acquisition ($\beta = 0.030$, $p = 0.028$), retention ($\beta = 0.059$, $p = 0.006$), and expansion ($\beta = 0.043$, $p = 0.008$), similar to ORCO ($\beta = 0.033$, $p = 0.014$ to $\beta = 0.047$, $p = 0.003$). However, ENCO does not have a significant effect on CLV components through SCRM, as the p-values are greater than 0.05, indicating that the external environment does not play a strong role in SCRM implementation in the banking sector.

4. DISCUSSION

The results of this study reinforce the strategic importance of SCRM in shaping all three dimensions of CLV: acquisition, retention, and expansion. The findings indicate that SCRM significantly enhances CLV outcomes, with all paths demonstrating strong and statistically significant effects ($p < 0.05$). This echoes the conclusions of Udeh et al. (2024) who observed similar outcomes in banking industry, and Al-Omoush et al. (2021) who emphasized the role of CRM strategies, including SCRM, in improving relationship quality and long-term profitability.

Among the three dimensions of CLV, the strongest influence of SCRM was observed in customer retention ($\beta = 0.325$), consistent with findings from Menon and O'Connor (2007) and Al-Omoush et al. (2021). These results highlight how SCRM tools foster deeper customer engagement, trust, and satisfaction, crucial elements in competitive sectors like banking.

The study also confirms that both technological and organizational contexts indirectly enhance CLV via their effect on SCRM adoption. This aligns with Aung et al. (2024) who showed that integrating business intelligence with CRM significantly improves customer loyalty. Similarly, Gezahegn et al. (2024) found that organizational resources such as employee competence and knowledge management are critical enablers of CRM success. These findings underscore that successful SCRM implementation is not solely about technology but also requires strong internal alignment and cultural readiness.

This interpretation is further supported by Safari and Sahebodari (2023) who identified variables like customer engagement and analytics capabilities as key predictors of CLV in the banking industry. In this regard, our study reinforces the growing academic consensus that internal readiness, technological infrastructure and customer-centric culture, is more decisive than external conditions in driving SCRM outcomes.

Contrary to earlier expectations and studies like Zhou et al. (2023), this study found that environmental factors such as market competition and regulatory shifts did not significantly influence CLV via SCRM. One possible explanation is that Vietnamese banks, operating under relatively stable macroeconomic conditions and centralized regulatory oversight, may place more emphasis on internal innovation than reactive external adaptation. This interpretation is in line with Alanazi (2023) who argued that internal technological capabilities and leadership support are often more influential than environmental factors in ensuring CRM success.

From a managerial perspective, these findings suggest that banks aiming to enhance CLV through SCRM should focus first on strengthening digital infrastructure and organizational alignment. In the digital transformation era, this includes investments in AI, machine learning, and real-time customer analytics. Elareshi et al. (2023) also advocate for integrating social media channels into CRM workflows, which supports a multi-channel approach for personalized customer engagement.

In summary, this study contributes to the growing body of literature affirming the TOE framework as an effective lens to explain technology-driven customer strategies. By empirically validating the mediating role of SCRM between organizational/technological enablers and CLV outcomes, the study offers both theoretical and practical implications for enhancing CRM effectiveness in emerging markets.

CONCLUSION

This study sets out to examine how SCRM contributes to CLV within the banking sector, using the TOE framework as a theoretical foundation. By empirically analyzing survey data from banking professionals, the research demonstrates that SCRM significantly enhances customer acquisition, retention, and expansion, three core dimensions of CLV.

The findings underscore the importance of internal enablers, particularly technological readiness and organizational support, in facilitating effective SCRM adoption. In contrast, external environmental factors appear to play a more limited role in influencing CLV outcomes. This suggests that banks aiming to leverage SCRM must first invest in internal capabilities before responding to external market pressures.

From a theoretical standpoint, the study reinforces the relevance of the TOE framework in modeling CRM-related innovations in emerging markets. It extends prior work by showing how SCRM functions as a critical mechanism between internal contexts and customer value generation. For practitioners, the results emphasize the strategic value of aligning digital infrastructure, leadership support, and customer-centric culture to optimize relationship management.

Future research should consider integrating longitudinal designs to explore how SCRM practices influence CLV over time. Additionally, examining the role of customer segmentation, omnichannel engagement strategies, or AI-driven personalization could yield valuable insights into how banks may deepen customer relationships in increasingly digital environments. Comparative studies across industries or national contexts may also provide broader validation of the model proposed in this research.

AUTHOR CONTRIBUTIONS

Conceptualization: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Data curation: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Formal analysis: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Investigation: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Methodology: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.

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Project administration: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Resources: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Software: Nguyen Ha Thach.
Supervision: Nguyen Ha Thach.
Validation: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Visualization: Nguyen Ha Thach.
Writing – original draft: Nguyen Ha Thach, Pham Thi Kim Thanh, Nguyen Thi Thanh Hien, Nguyen Thu Hien.
Writing – review & editing: Nguyen Ha Thach.

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APPENDIX A

Table A1. Survey measurements

Constructs	No.	Items
Social CRM		**SCRM**
	SCRM1	We use customer data from social media to improve our understanding of customer preferences and behaviors.
	SCRM2	Social media allows us to personalize our marketing strategies and tailor services to individual customer needs.
	SCRM3	The use of social media platforms increases customer loyalty by fostering continuous engagement.
	SCRM4	Our social media presence helps us attract new customers and convert them into loyal, repeat buyers.
	SCRM5	We integrate social media data with other customer data sources to improve customer lifetime value
Organizational context		**ORCO**
	ORCO1	Our senior leadership actively supports the implementation and maintenance of SCRM.
	ORCO2	The size of our organization facilitates the implementation of SCRM technologies.
	ORCO3	We have sufficient financial and technological resources to support the implementation of SCRM.
	ORCO4	Our organization is always ready to adopt new technologies to support SCRM.
Environmental context		**ENCO**
	ENCO1	Competitive pressures drive us to implement SCRM technologies.
	ENCO2	Data protection regulations influence how we implement and maintain SCRM.
	ENCO3	We strictly comply with legal requirements when using SCRM for customer relationship management.
	ENCO4	Industry standards and trends play a significant role in our SCRM adoption decisions.
Technological context		**TECO**
	TECO1	Our technological infrastructure is sufficient to support the implementation of SCRM technologies.
	TECO2	Our existing systems are compatible with SCRM, making implementation smooth.
	TECO3	Our organization is technologically ready to adopt advanced systems like SCRM.
	TECO4	We have sufficient technological resources to support the implementation and maintenance of SCRM.
Customer acquisition		**CUAC**
	CUAC1	Our company integrates social media interactions into CRM to attract potential customers.
	CUAC2	We use SCRM to create personalized experiences that engage and convert prospective customers.
	CUAC3	SCRM helps us effectively track and analyze customer feedback from social media to improve acquisition strategies.
	CUAC4	Social media integration in our CRM system increases customer awareness and engagement.
Customer retention		**CURE**
	CURE1	We use personalized communication via SCRM to enhance customer loyalty and retention.
	CURE2	Real-time feedback through SCRM helps us resolve customer issues promptly and retain them.
	CURE3	Our SCRM system allows us to continuously tailor services based on customer preferences, enhancing retention.
	CURE4	Customers remain loyal because of the personalized experiences enabled by our SCRM.
Customer expansion		**CUEX**
	CUEX1	We use social media data from SCRM to identify potential new customer segments.
	CUEX2	Our SCRM helps us personalize marketing campaigns based on customer insights, expanding customer relationships.
	CUEX3	We leverage SCRM data to develop new services that align with the evolving needs of existing customers.

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