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Modeling and Evaluating Customer Knowledge Management Processes in Industrial Companies Affiliated with the Mostazafan Foundation

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Abstract

The aim of this study is to model and evaluate customer knowledge management (CKM) processes in industrial companies affiliated with the Mostazafan Foundation. This research is applied in terms of purpose and descriptive-analytical in nature. It adopts a mixed-methods approach and has been conducted in both qualitative and quantitative phases. The statistical population in the qualitative section included academic experts and managers of industrial companies under the Mostazafan Foundation. Using the snowball sampling method and the principle of theoretical saturation, 12 individuals were selected as the sample. The data collection tool in the qualitative phase was a semi-structured interview, grounded in a previously extracted theoretical framework. Data analysis in this section was performed using grounded theory. The results of the qualitative phase were presented in the form of four main categories and nineteen subcategories. The quantitative part of the study was conducted using a researcher-made questionnaire derived from the qualitative model and distributed within the statistical population. After confirming the validity and reliability of the questionnaire, 213 participants were selected through random sampling to complete the questionnaires. The findings of the qualitative phase indicated that the dimensions, drivers, strategies, and consequences of the customer knowledge management model in the studied industrial companies include the following elements: assessment of the current state of organizational knowledge; collection, documentation, and transfer of customer knowledge; effective communication with customers and a comprehensive understanding of their needs and preferences; focus on the process of knowledge creation around the customer; psychological profiling and behavioral analysis of customers; customer feedback strategies (through surveys, comments, reviews, and interviews); emphasis on the company's knowledge-based products; reviewing the history of current customers (previous purchasing behaviors); implementing creative ideas for products and services; training in knowledge transfer and management methods; strengthening technological infrastructure; co-creation of value with customers; benchmarking sales of new products against competitors' products; measuring goal attainment levels; enhancing efficiency in customer service and customer orientation; digital self-service adapted to customer needs (in the area of customer support); intelligent routing of customer requests to relevant experts; maximizing value creation from knowledge; strategic-level knowledge management; and improving quality and speed in decision-making and customer service. The causal pathways and relationships between external and internal constructs of the structural model were validated using confirmatory factor analysis.

Keywords: Mixed-model, Customer Knowledge, Knowledge Management, Mostazafan Foundation

1. Introduction

In the evolving landscape of organizational competitiveness, customer knowledge management (CKM) has emerged as a cornerstone of strategic value creation and innovation. As the global economy continues to shift toward knowledge-intensive services and customer-centric operations, organizations increasingly recognize the necessity of leveraging customer knowledge to improve performance, drive innovation, and sustain competitive advantage. CKM, as a critical component of knowledge management, encompasses the acquisition, sharing, and utilization of knowledge about, from, and for customers in a structured and strategic manner (Abedi, 2022). In industrial enterprises, especially those operating under larger conglomerates such as the Mostazafan Foundation in Iran, CKM plays a pivotal role in transforming traditional processes into intelligent, agile, and market-responsive systems.

At the heart of CKM is the alignment between knowledge processes and customer relationship management (CRM) frameworks, which has been identified as a key enabler of innovation and value co-creation in contemporary organizations (Heidari et al., 2021). Recent studies highlight the increasing integration of CRM and CKM in industries seeking to create long-term, personalized customer relationships and enhance their adaptive capabilities (Teymourian et al., 2023). In this context, CKM not only supports customer engagement and loyalty but also enables firms to predict, analyze, and act upon customer preferences with greater precision (Zhang & Liu, 2022). In the banking and service sectors, CKM has been instrumental in enhancing innovation, performance, and customer satisfaction, offering a blueprint for its application in industrial domains (Sharifi et al., 2022).

The industrial sector, characterized by complex production systems and high customer customization needs, is especially suited for CKM applications. Organizations within this sector require structured mechanisms to gather customer insights, analyze behavior patterns, and integrate customer input into design and delivery processes (Khosravi & Rajabzadeh, 2023). This dynamic calls for a shift from passive data collection to proactive customer knowledge creation and mobilization—a shift that can significantly enhance the agility and responsiveness of firms (Moradi et al., 2022). In Iranian industrial companies affiliated with the Mostazafan Foundation, CKM has the potential to optimize knowledge flow, reduce redundancies, and enhance overall strategic decision-making.

The theoretical underpinnings of CKM are closely tied to knowledge-oriented leadership and organizational learning. Leaders who emphasize knowledge-sharing cultures and empower employees to interact meaningfully with customers create environments conducive to CKM success (Shemshadi, 2024). Furthermore, organizational learning practices facilitate the translation of individual knowledge into collective organizational capital, thus reinforcing CKM implementation (Soleimani & Geshani, 2023). The successful embedding of CKM in organizational routines often necessitates an alignment of culture, structure, and technology, reflecting the multidimensional nature of knowledge ecosystems (Khaksar et al., 2023).

In addition to internal capabilities, external factors such as market dynamics, technological innovation, and digital infrastructure significantly influence CKM outcomes. In particular, the application of digital platforms and smart technologies enables organizations to collect real-time customer feedback and behavioral data, facilitating adaptive and personalized interactions (Mahmoud et al., 2025). The integration of artificial intelligence into CKM processes further enhances the capacity to detect patterns, automate responses, and support decision-making at multiple organizational levels (Husayn, 2025). These advancements are especially critical for large-scale organizations that manage complex customer networks, such as those affiliated with the Mostazafan Foundation.

The relationship between CKM and organizational performance has been extensively documented across diverse contexts, including banking (Abedi, 2022), e-commerce (Sharifi et al., 2022), and SMEs (Chaithanapat et al., 2022). Studies have demonstrated that CKM contributes to both financial and non-financial performance by fostering innovation, enhancing customer satisfaction, and enabling efficient resource allocation (Rehman et al., 2022). Furthermore, CKM supports strategic adaptability, allowing firms to respond swiftly to environmental changes and emerging customer needs (Mahdi & Nassar, 2021). In the industrial sector, where customer feedback loops and after-sales services are crucial, CKM offers a mechanism for continuous improvement and value co-creation (Delshab et al., 2022).

In nonprofit and public sector organizations, CKM has also shown promising outcomes. For instance, research in nonprofit sports organizations illustrates that CKM mediates the relationship between innovation attitudes and performance, underscoring

its strategic significance beyond profit-driven settings (Delshab et al., 2022). Similarly, in social security and governmental organizations, quality management practices have been found to directly impact knowledge processes, highlighting the interdependence between process optimization and CKM outcomes (Al Shraah et al., 2022).

Despite its advantages, implementing CKM is not without challenges. Several studies underscore structural, technological, and cultural barriers that hinder effective CKM adoption. Organizational resistance to change, insufficient digital infrastructure, lack of employee training, and misalignment between departments can significantly limit CKM impact (Khosravi & Rajabzadeh, 2023). These constraints are particularly evident in traditional or bureaucratic institutions, necessitating a more flexible, learning-oriented approach (Kosklin et al., 2023). Overcoming these barriers often involves reengineering knowledge processes, fostering cross-functional collaboration, and investing in knowledge-enabling technologies (Demir et al., 2023).

In response to such challenges, contemporary research has proposed several implementation frameworks for CKM. These models typically involve stages such as knowledge acquisition, storage, sharing, and application, integrated into organizational processes through technological and human capabilities (Seifollahi, 2022). Effective CKM systems are characterized by feedback loops, continuous learning, and strong leadership support (Tariq et al., 2024). In organizations affiliated with the Mostazafan Foundation, where strategic alignment and public accountability are paramount, a customized CKM model that reflects institutional values, goals, and capacities is essential.

Moreover, CKM has proven to be a mediating variable in the relationship between knowledge management strategies and organizational innovation. For example, intellectual capital, when effectively managed and mobilized through CKM processes, enhances the firm's innovation potential and market performance (Hayaeian et al., 2022). Similarly, in knowledge-intensive firms, CKM acts as a facilitator for leveraging organizational knowledge assets toward customer-oriented innovation and service excellence (Mubarakh et al., 2025).

The role of customer trust and knowledge transparency is another critical dimension in CKM success. Empirical studies have shown that trust-based relationships strengthen knowledge-sharing behavior and foster deeper engagement with customers, leading to sustainable competitive advantage (Sutarso & Setyawan, 2022). In this regard, CKM also intersects with corporate social responsibility, ethical practices, and digital governance—all of which are becoming increasingly relevant in today's hyperconnected and transparent market environment (Gonçalves et al., 2022).

Furthermore, the shift toward digitalization and remote interactions—accelerated by global disruptions such as the COVID-19 pandemic—has amplified the strategic importance of CKM. The integration of CKM with digital innovation strategies enhances responsiveness, personalization, and customer retention (Mahdi & Nassar, 2021). In public and pharmaceutical organizations, CKM integrated with smart technologies has led to notable improvements in organizational efficiency and knowledge flow (Mahmoud et al., 2025).

Finally, cultural factors and national context play a vital role in CKM implementation. In countries such as Iran, where organizational structures and customer dynamics may differ from Western models, contextualized frameworks that align with local values and capabilities are necessary for successful CKM adoption (Safari et al., 2021). Research confirms that CKM models tailored to cultural, structural, and strategic contexts yield better outcomes in customer satisfaction and organizational learning (Vatan et al., 2024).

In conclusion, customer knowledge management stands as a multifaceted, strategic imperative for industrial organizations aiming to enhance their competitiveness, innovation capacity, and customer engagement. The existing literature affirms the relevance and impact of CKM across various sectors and contexts. However, for organizations such as those affiliated with the Mostazafan Foundation, a tailored and empirically grounded CKM model is essential to unlock its full potential.

The aim of this study is to model and evaluate customer knowledge management (CKM) processes in industrial companies affiliated with the Mostazafan Foundation.

2. Methods and Materials

In this study, the methodology was designed and implemented based on Saunders' Research Onion model. This model, which includes multiple layers ranging from research philosophy to data collection and analysis methods, provides a systematic framework for conducting research. The present study adopts a mixed-methods approach (quantitative–qualitative), and in order to achieve the main research objective, the combination of qualitative and quantitative components has been utilized in a complementary manner.

In the qualitative phase, the study has an exploratory nature and employs an interpretivist philosophy and an inductive approach to identify and deeply understand the underlying categories of the studied phenomenon. This phase was conducted using a single-case study strategy, where the target population consisted of academic experts in the field of business management and senior managers of industrial companies affiliated with the Mostazafan Foundation. Sampling in this phase was purposive, and 12 semi-structured interviews were conducted with informed and relevant individuals. The interview process continued until theoretical saturation was reached, such that no new data were obtained for further analysis. The primary data collection instrument in this phase was semi-structured interviews, designed based on key and open-ended questions. Qualitative data were analyzed using the thematic analysis method. The stages of thematic analysis included initial familiarization with the data, open coding, identification of initial themes, reviewing, and final definition of themes, which led to the extraction of the main dimensions of the study.

In the quantitative phase, the research was designed and conducted based on a positivist philosophy and a deductive approach. The statistical population in this phase included all customers of the industrial companies affiliated with the Mostazafan Foundation, and cluster sampling was employed. From among the accessible customers, a sample of 213 individuals was selected using Cochran's formula. The main data collection instrument in this phase was a researcher-made questionnaire, which was designed and developed based on the themes and dimensions extracted from the qualitative phase. This questionnaire included items to measure the key variables of the study. The validity of the questionnaire was examined using the opinions of experts in the field of management and methodology specialists, and its reliability was confirmed using Cronbach's alpha coefficient, which exceeded 0.7, indicating satisfactory reliability.

Quantitative data were analyzed using SPSS software. In this phase, descriptive analysis was initially performed to identify the demographic characteristics of the sample, and subsequently, inferential analyses were conducted to test the research hypotheses. In addition, confirmatory factor analysis (CFA) was used through AMOS software to validate the conceptual model and examine the factorial structure of the questionnaire. CFA was conducted to assess the relationships between variables and to confirm the constructs extracted from the qualitative phase, with the results indicating the model's fit with the collected data.

By integrating the qualitative and quantitative phases, this study was able to present a comprehensive model of customer knowledge management in industrial companies affiliated with the Mostazafan Foundation. The qualitative phase contributed to the identification of key dimensions and concepts, while the quantitative phase validated these concepts within the target population. Overall, confirmatory factor analysis played a critical role in the quantitative phase by validating the final model structure.

3. Findings and Results

In this section, to evaluate the significance of each organizing theme within each basic theme, an expert survey was conducted, and the most important categories were selected and incorporated into the thematic network model.

Table 1. Theme Screening

Organizing Themes	Basic Themes
Dimensions and Components of the Customer Knowledge Management Model in Industrial Companies Affiliated with the Mostazafan Foundation	Assessing the current state of knowledge within the organization
	Collection, documentation, and transfer of customer knowledge
	Effective communication with customers and comprehensive understanding of their needs and preferences
	Focus on the process of customer-centric knowledge creation
	Psychological profiling of customers and analysis of customer behavior
Drivers of the Customer Knowledge Management Model in Industrial Companies Affiliated with the Mostazafan Foundation	Customer feedback strategy (via surveys, comments, reviews, and interviews)
	Focus on the company's knowledge-based products

Outcomes of the Customer Knowledge Management Model in Industrial Companies Affiliated with the Mostazafan Foundation	Reviewing the background of current customers (previous purchasing behavior) Applying creative ideas for products and services Emphasis on training methods for knowledge transfer and management Strengthening technological infrastructure Collaborating with customers in co-creating value Benchmarking new product sales compared to competitors Measuring the achievement of established goals Increasing efficiency in customer service and customer orientation Digital self-service tailored to customer needs (in the domain of customer support) Intelligent routing of customer requests to relevant experts Maximizing value creation from knowledge and managing knowledge at a strategic level Enhancing decision-making quality and service speed for customers

Ultimately, the final model was derived from the basic, organizing, and global themes. This section illustrates how data were analyzed and how the basic, organizing, and global themes were extracted from the raw interview data shown in the above table. After the interviews were transcribed, quotations that explicitly or implicitly answered the research questions were selected, and the basic, organizing, and global themes were extracted accordingly. The thematic network structure comprises 19 organizing themes arranged under four predefined global themes.

To determine the validity of the variables in the first category, confirmatory factor analysis was employed. The output from AMOS software indicates that all factor loadings are above 0.60. According to the AMOS results, the calculated χ^2/df value is 1.73. A χ^2/df value below 5 indicates a good model fit. Furthermore, the Root Mean Square Error of Approximation (RMSEA) should be less than 0.08, and in this model, it is 0.045. The values of the GFI, AGFI, CFI, and NFI indices should all be greater than 0.90, and in this model, they exceed the required thresholds. Therefore, the data of this study show a good fit with the factorial structure of this scale, indicating alignment between the items and the variables of the first category.

Table 2. Fit Indices of the Variables in Category One

Index Type	Index Name	Abbreviation	Acceptable Fit	Research Value
Absolute Fit	Degrees of Freedom	DF	–	212
	Significance Level	P	Less than 0.05	0.000
	Chi-square to Degrees of Freedom Ratio	CMIN/DF	Between 1 and 5	1.73
	Chi-square Coverage Level	Chi-Square	Greater than 5%	0.4
Goodness of Fit	Comparative Fit Index	CFI	Greater than 0.90	0.934
	Adjusted Goodness of Fit Index	AGFI	Greater than 0.90	0.940
Comparative Fit	Non-Normed Fit Index	NNFI	Greater than 0.90	0.92
	Normed Fit Index	NFI	Close to 1	0.93
	Comparative Fit Index	CFI	Greater than 0.90	0.934
	Relative Fit Index	RFI	Greater than 0.50	0.64
	Incremental Fit Index	IFI	Between 0 and 1	0.6
Parsimonious Fit	Parsimonious Normed Fit Index	PNFI	Greater than 0.50	0.75
	Parsimonious Goodness of Fit Index	PGFI	Greater than 0.50	0.911
	Root Mean Square Error of Approximation	RMSEA	Less than 0.10	0.045
	Normalized Chi-square	CMIN	Between 1 and 3	2.2

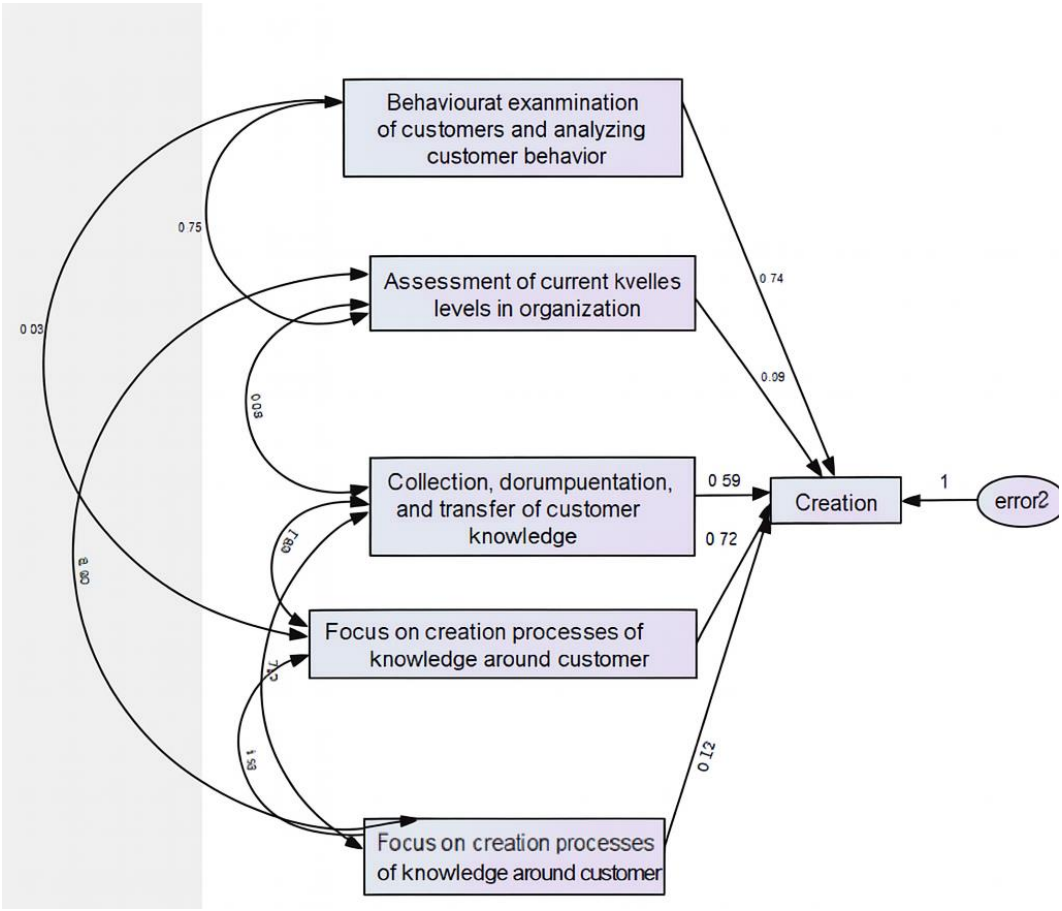

Figure 1. Path Analysis for Category One

To assess the validity of Category Two, confirmatory factor analysis was conducted. All factor loadings were above 0.60. According to the AMOS output shown in Table 3, the calculated value of χ^2/df is 1.58. A value of χ^2/df less than 5 indicates a good model fit. Moreover, the Root Mean Square Error of Approximation (RMSEA) should be less than 0.08, and in this model, it is 0.055. The values of the GFI, AGFI, CFI, and NFI indices should exceed 0.90, and the respective values in the evaluated model are above this threshold. Therefore, the data in this study exhibit an appropriate fit with the factorial structure of the scale, indicating alignment between the items and the variables in Category Two.

Table 3. Fit Indices for Category Two

Index Type	Index Name	Abbreviation	Acceptable Fit	Research Value
Absolute Fit	Degrees of Freedom	DF	–	212
	Significance Level	P	Less than 0.05	0.000
	Chi-square to Degrees of Freedom Ratio	CMIN/DF	Between 1 and 5	1.58
	Chi-square Coverage Level	Chi-Square	Greater than 5%	0.39
	Comparative Fit Index	CFI	Greater than 0.90	0.981
	Adjusted Goodness of Fit Index	AGFI	Greater than 0.90	0.941
Comparative Fit	Non-Normed Fit Index	NNFI	Greater than 0.90	0.90
	Normed Fit Index	NFI	Close to 1	0.92
	Comparative Fit Index	CFI	Greater than 0.90	0.981
	Relative Fit Index	RFI	Greater than 0.50	0.58
	Incremental Fit Index	IFI	0–1	0.74
Parsimonious Fit	Parsimonious Normed Fit Index	PNFI	Greater than 0.50	0.90
	Parsimonious Goodness of Fit Index	PGFI	Greater than 0.50	0.941
	Root Mean Square Error of Approximation	RMSEA	Less than 0.10	0.055
	Normalized Chi-square	CMIN	Between 1 and 3	1.8

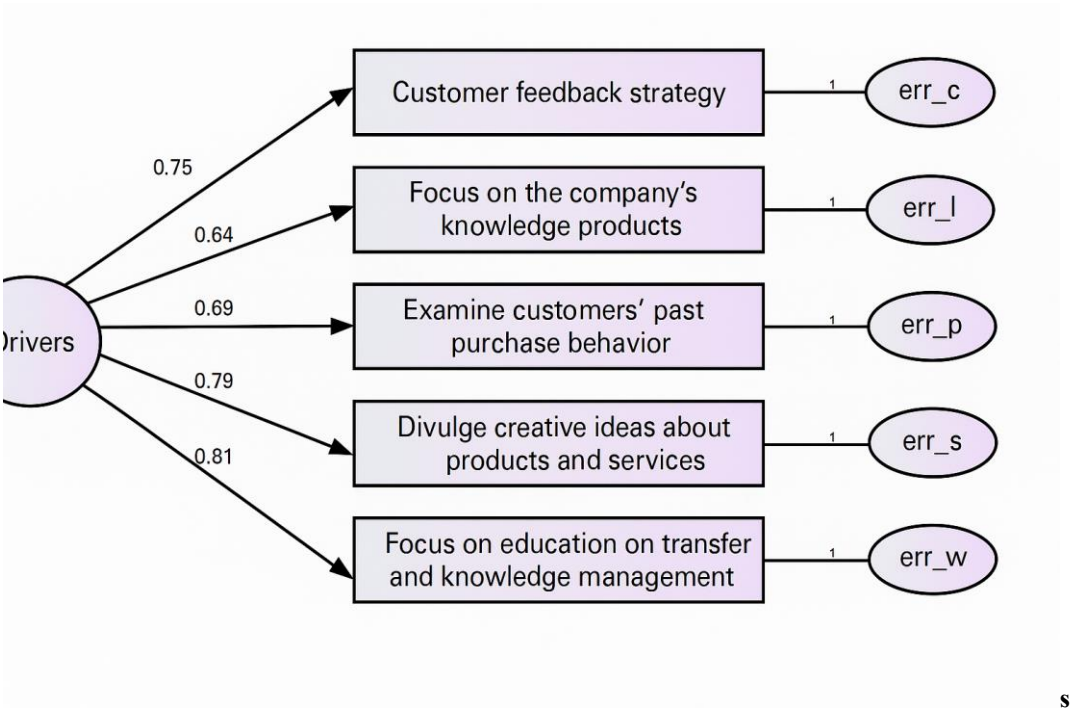

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Figure 2. Path Analysis for Category Two

The values on the paths represent factor loadings, all of which are greater than 0.60. According to the AMOS output presented in Table 4, the calculated χ^2/df is 2.96. A value of χ^2/df below 5 indicates an acceptable model fit. Additionally, the RMSEA should be less than 0.08, and in this model, it is 0.069. The GFI, AGFI, CFI, and NFI indices should all exceed 0.90, which they do in this model. Therefore, the data demonstrate a good fit with the factorial structure of this scale, indicating that the items align well with the variables in Category Three.

Table 4. Fit Indices for Variables in Category Three

Index Type	Index Name	Abbreviation	Acceptable Fit	Research Value
Absolute Fit	Degrees of Freedom	DF	–	212
	Significance Level	P	Less than 0.05	0.000
	Chi-square to Degrees of Freedom Ratio	CMIN/DF	Between 1 and 5	2.96
	Chi-square Coverage Level	Chi-Square	Greater than 5%	0.14
	Comparative Fit Index	CFI	Greater than 0.90	0.955
	Adjusted Goodness of Fit Index	AGFI	Greater than 0.90	0.941
Comparative Fit	Non-Normed Fit Index	NNFI	Greater than 0.90	0.90
	Normed Fit Index	NFI	Close to 1	0.99
	Comparative Fit Index	CFI	Greater than 0.90	0.955
	Relative Fit Index	RFI	Greater than 0.50	0.64
	Incremental Fit Index	IFI	0–1	0.59
Parsimonious Fit	Parsimonious Normed Fit Index	PNFI	Greater than 0.50	0.99
	Parsimonious Goodness of Fit Index	PGFI	Greater than 0.50	0.901
	Root Mean Square Error of Approximation	RMSEA	Less than 0.10	0.069
	Normalized Chi-square	CMIN	Between 1 and 3	1.9

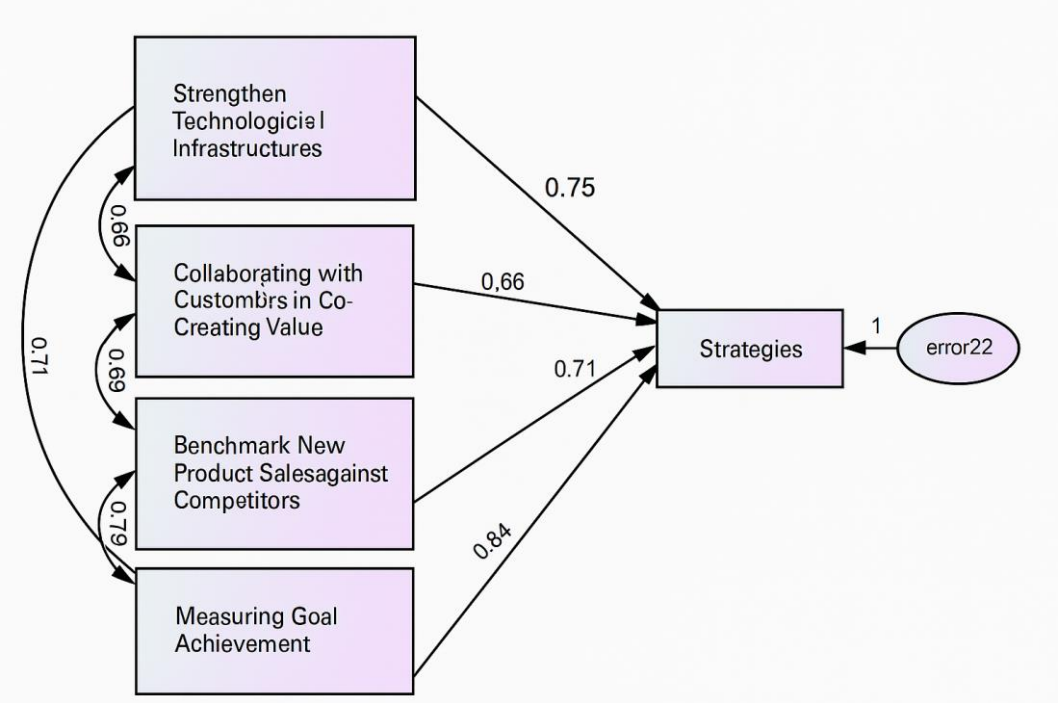

Figure 3. Path Analysis for Category Three

To evaluate the validity of Category Four, confirmatory factor analysis was used. The values on the paths represent factor loadings, all of which are above 0.60. The results of the model fit indices for the intervening factors are shown in Table 5. These results indicate that the indices CFI, GFI, NFI, RMR, and RMSEA fall within acceptable ranges, demonstrating that the study data fit well with the factorial structure of this scale and confirm alignment between the items and the construct of Category Four.

Table 5. Fit Indices for Category Four

Index Type	Index Name	Abbreviation	Acceptable Fit	Research Value
Absolute Fit	Degrees of Freedom	DF	–	212
	Significance Level	P	Less than 0.05	0.000
	Chi-square to Degrees of Freedom Ratio	CMIN/DF	Between 1 and 5	1.91
	Chi-square Coverage Level	Chi-Square	Greater than 5%	0.46
	Comparative Fit Index	CFI	Greater than 0.90	0.930
	Adjusted Goodness of Fit Index	AGFI	Greater than 0.90	0.947
Comparative Fit	Non-Normed Fit Index	NNFI	Greater than 0.90	0.94
	Normed Fit Index	NFI	Close to 1	0.933
	Comparative Fit Index	CFI	Greater than 0.90	0.918
	Relative Fit Index	RFI	Greater than 0.50	0.74
	Incremental Fit Index	IFI	0–1	0.62
Parsimonious Fit	Parsimonious Normed Fit Index	PNFI	Greater than 0.50	0.96
	Parsimonious Goodness of Fit Index	PGFI	Greater than 0.50	0.930
	Root Mean Square Error of Approximation	RMSEA	Less than 0.10	0.071
	Normalized Chi-square	CMIN	Between 1 and 3	2.3

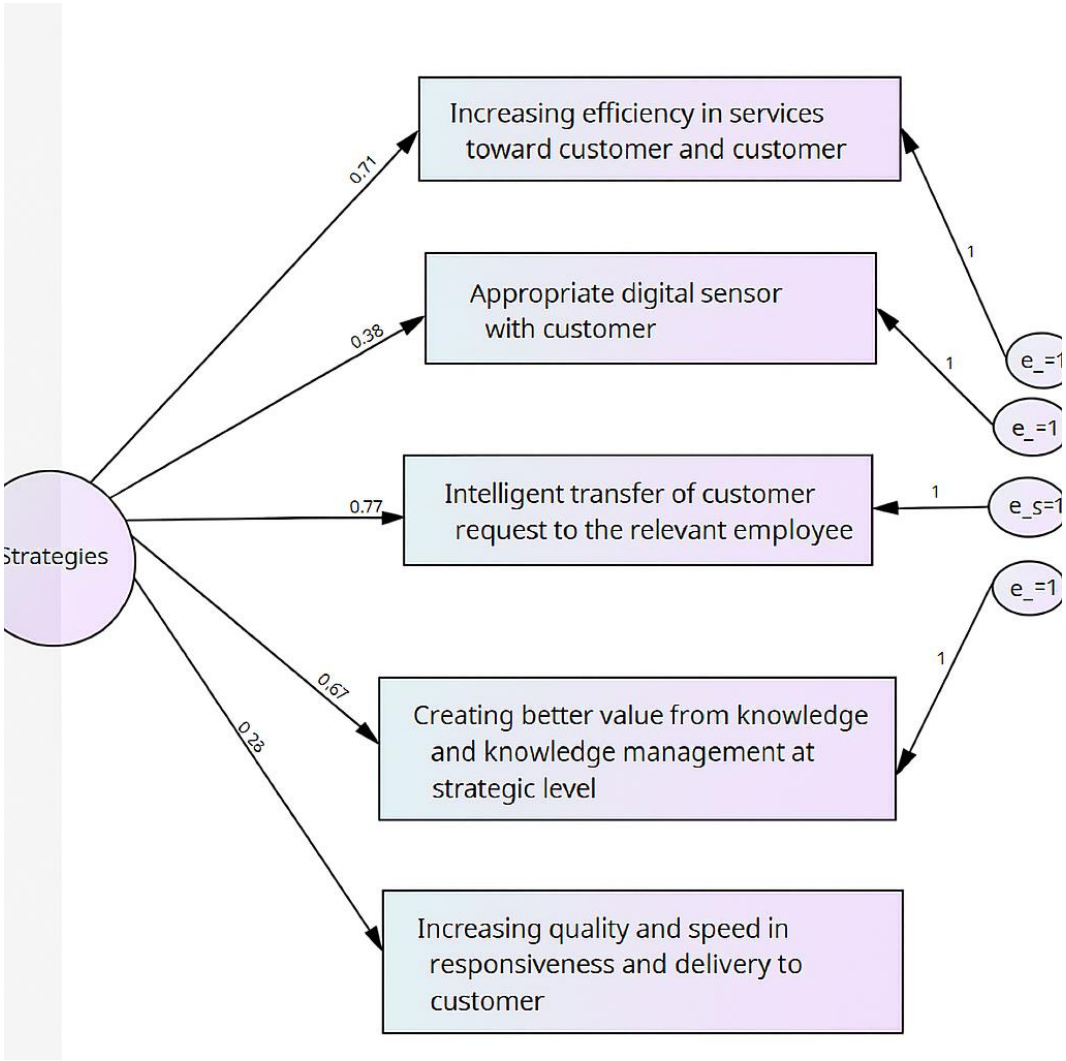

Figure 4. Path Analysis for Category Four

In this section, using the data collected through a questionnaire—designed based on the indicators identified in the qualitative phase and distributed among the statistical sample from the target population—the indicators related to the components were statistically analyzed quantitatively. The results are presented below.

Table 6. Model Fit Indices of the Research Model

RMSEA	RMR	CFI	NFI	AGFI	GFI	χ^2/df
0.090	0.133	0.845	0.887	0.841	0.835	2.858

The results indicate a relatively acceptable fit for the proposed model. After testing the measurement models, it is now necessary to present the structural model, which demonstrates the relationships among the latent variables in the study.

Regarding the significance levels of the coefficients, it is important to note that for a relationship to be confirmed or rejected, the CR (Critical Ratio) must be greater than 1.96 or less than -1.96. Any parameter value between these two thresholds is considered statistically insignificant. Values within this range indicate that the calculated regression weight does not significantly differ from zero at the 95% confidence level. The results of the structural model testing are presented in Table 7.

Table 7. Structural Model Results for Customer Knowledge Management in Industrial Companies Affiliated with the Mostazafan Foundation

Path	Standardized Estimate	Standard Error	Critical Ratio (CR)	Significance Level (P)
Category One → Customer Knowledge Management Model	0.420	0.056	4.018	0.000*
Category Two → Customer Knowledge Management Model	0.260	0.077	2.798	0.010*
Category Three → Customer Knowledge Management Model	0.680	0.045	3.813	0.000*
Category Four → Customer Knowledge Management Model	0.440	0.042	2.958	0.000*

*P ≤ 0.05

Accordingly, the research model was finally evaluated using AMOS software, and as observed, all relationships are confirmed at the 95% confidence level based on the path coefficients. The causal relationship pattern within the customer knowledge management model in industrial companies affiliated with the Mostazafan Foundation is presented in the table above. Based on the results, Categories One through Four have significant effects in the final research model.

4. Discussion and Conclusion

The findings of this study provided a comprehensive and empirically grounded model for Customer Knowledge Management (CKM) in industrial companies affiliated with the Mostazafan Foundation. Using a mixed-methods approach, the study identified and validated four main categories—dimensions and components, drivers, strategies, and outcomes of CKM. Confirmatory factor analysis (CFA) demonstrated that all four categories significantly contributed to the overall CKM model, with all factor loadings exceeding the acceptable threshold and path coefficients statistically significant at the 95% confidence level. The highest contribution belonged to the strategies category, followed by outcomes, components, and drivers. This hierarchy reflects the practical emphasis industrial companies place on action-oriented mechanisms to mobilize and apply customer knowledge.

The dimensions and components of CKM included key processes such as assessing organizational knowledge levels, collecting and documenting customer knowledge, understanding customer needs, and focusing on knowledge creation around customers. These findings confirm that CKM is not merely a repository function but a dynamic process that revolves around continuous engagement with the customer and strategic integration of customer insights into internal processes. This aligns with prior research emphasizing that knowledge creation and behavioral analysis of customers are central to developing competitive advantages in industrial and B2C environments (Sharifi et al., 2022; Zhang & Liu, 2022). Similar studies confirm that capturing and organizing customer knowledge are foundational for increasing customer satisfaction and product innovation (Heidari et al., 2021; Sutarso & Setyawan, 2022).

The second component of the model—drivers—highlights feedback strategies, knowledge-based product focus, technological infrastructure, and creative ideation as key catalysts of CKM. The emphasis on customer feedback via surveys, comments, and interviews confirms that CKM thrives in environments that encourage bidirectional communication and trust-based interactions. This is in line with the findings of (Zhang & Liu, 2022) and (Rehman et al., 2022), who argue that continuous feedback loops and customer participation mechanisms are essential to CKM maturity. In particular, the role of digital technologies in strengthening these loops has become increasingly significant. The integration of smart systems and data-driven platforms enables real-time customer feedback processing and actionable insights, as supported by recent studies on AI-enabled CKM in both public and private sectors (Husayn, 2025; Mahmoud et al., 2025).

The third category—strategies—was found to have the strongest influence on CKM performance. These include efforts such as strategic co-creation of value with customers, benchmarking product performance against competitors, and intelligent routing of customer requests. These strategies point to the increasing strategic nature of CKM as a tool not only for knowledge mobilization but also for collaborative innovation and operational excellence. The importance of co-creation in CKM has been emphasized by several scholars who see customer engagement as a mechanism for creating shared value and enhancing service differentiation (Chaithanapat et al., 2022; Mubarakh et al., 2025). Moreover, organizational adaptability through CKM

strategies allows firms to respond quickly to market shifts and customer expectations, reinforcing the role of CKM in dynamic capability development (Khaksar et al., 2023; Moradi et al., 2022).

The final category—outcomes—captured the tangible and intangible benefits of CKM implementation, such as increased service efficiency, strategic knowledge use, digital self-service, and improved decision-making. These results indicate that CKM impacts not only knowledge processes but also the broader performance indicators and customer satisfaction metrics.

Previous studies confirm that CKM directly enhances operational agility and strategic decision-making by making customer insights available to key decision-makers (Demir et al., 2023; Kosklin et al., 2023). Additionally, CKM outcomes such as customer self-service systems and smart routing of requests resonate with findings in service sectors, where automation and personalization go hand in hand (Al Shraah et al., 2022; Delshab et al., 2022).

Structurally, the confirmatory factor analyses conducted for each of the four categories confirmed the robustness of the proposed model. All factor loadings were greater than 0.60, and goodness-of-fit indices—including RMSEA, GFI, AGFI, and CFI—were within the acceptable range, confirming the internal consistency and construct validity of the measurement instruments. The path analysis showed statistically significant relationships between each category and the CKM construct, with strategies being the most influential predictor. These findings validate the proposed model and suggest that organizations aiming to implement CKM should prioritize strategic enablers and behavioral alignment with customers.

This model is also consistent with integrative frameworks presented in previous research, where CKM is embedded within broader knowledge management systems and supported by organizational learning and digital transformation initiatives (Shemshadi, 2024; Vatan et al., 2024). The emphasis on technological infrastructure and process integration suggests that CKM success depends not only on cultural readiness but also on digital maturity. As (Tariq et al., 2024) and (Mahdi & Nassar, 2021) argue, CKM must be aligned with innovation systems, knowledge worker productivity, and enterprise-wide digital strategies to yield sustainable competitive advantage.

Moreover, the findings underscore the role of contextual adaptation. In industrial companies affiliated with the Mostazafan Foundation—where organizational structure, strategic goals, and customer segments may differ from private-sector counterparts—a customized CKM model that reflects internal and external realities becomes essential. This aligns with (Abedi, 2022) and (Seifollahi, 2022), who emphasize the importance of sectoral customization and cultural sensitivity in CKM frameworks. Therefore, while the general architecture of CKM may be transferable across industries, its implementation should be tailored to local organizational characteristics.

Taken together, this research advances the understanding of CKM by offering a validated model grounded in empirical evidence from Iranian industrial companies. It highlights the multidimensional nature of CKM—spanning technical, strategic, behavioral, and cultural domains—and positions it as a core element in achieving innovation, performance, and customer-centricity in complex organizational settings.

This study, while rigorous in design and implementation, is not without limitations. First, the research was conducted within a specific institutional and national context—industrial companies affiliated with the Mostazafan Foundation in Iran—which may limit the generalizability of the findings to other sectors or countries. Second, the sample size in the qualitative phase was relatively small, comprising only 12 experts, and although theoretical saturation was achieved, broader participation might have uncovered additional dimensions. Third, the quantitative data were collected via self-report questionnaires, which may introduce common method bias and limit the objectivity of responses. Finally, the model was tested using cross-sectional data; hence, the study does not account for longitudinal effects or dynamic changes in CKM practices over time.

Future studies could explore the longitudinal implementation of the proposed CKM model to examine how customer knowledge processes evolve over time and how they influence firm adaptability and innovation. Comparative studies across industries or countries would also help determine the extent to which the model holds across cultural and sectoral contexts. Additionally, future research should incorporate technological variables such as AI, big data analytics, and machine learning capabilities to investigate how digital maturity enhances or moderates the effectiveness of CKM. Moreover, investigating the role of customer trust and psychological ownership in CKM success may provide valuable behavioral insights. Experimental or simulation-based studies could further validate the causal relationships proposed in the model.

Organizations seeking to implement CKM should begin by assessing their current knowledge infrastructure and customer engagement strategies. Establishing integrated systems for capturing, analyzing, and applying customer knowledge is essential.

Leadership should prioritize fostering a knowledge-sharing culture while investing in digital tools that enable real-time interaction with customers. Additionally, aligning CKM strategies with organizational goals and customer needs ensures that knowledge efforts translate into tangible outcomes. Companies should also train employees to interpret and act on customer insights, creating a feedback-driven, adaptive environment. By embedding CKM into strategic planning and operational routines, industrial firms can drive innovation, improve service delivery, and enhance customer loyalty.

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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