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Providing a Model of Customer Experience Knowledge Management and Its Effectiveness Evaluation in The Fintech Ecosystem

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ABSTRACT

Despite the many studies conducted in knowledge management and experience management, providing a model in knowledge management of customer experience is an issue that needs to be addressed. The paper was conducted with two purposes: 1. Providing a model of customer experience knowledge management and 2. its effectiveness evaluation in the Fintech ecosystem from the experts' perspective. The research is a descriptive and analytic survey type. The research method is Grounded Theory. In order to achieve the first purpose, 48 articles were selected, studied, and opinionated by purposefully sampling people. After reading and analyzing articles, customer knowledge experience concepts were extracted and categorized based on the phenomena, context, cause, intervention, strategy, and consequence. Then, the relationship between the concepts was designed as a model. Based on those propositions, the customer knowledge experience management model was provided, and the fitting test was tested and approved. In order to achieve the second purpose, a questionnaire was designed based on four components, including 1- Understanding the importance of customer experience knowledge management, 2- the role of tacit knowledge in customer experience, 3- the effectiveness of customer experience knowledge, and 4- Applying knowledge of customer experience. The results showed that from the point of view of experts, the effectiveness of customer experience knowledge management in the Fintech ecosystem leads to improving marketing performance, better management of products and services, and increased customer satisfaction.

Keywords

Fintech, Theory building, Customer experience, Knowledge management, Grounded theory.

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1. Introduction

The studies show that the knowledge of customer experience in Fintech is a topic that has not been addressed much. Transforming customer experience into knowledge and using it optimally to increase customer satisfaction, improve service and product delivery to Fintech customers, and improve marketing performance for Fintech companies shows the necessity and importance of the research (Rahmani et al., 2022). Customer experience management is a kind of knowledge management but with repetition conditions. This iteration is the concept of the customer life cycle, which begins with identifying sources containing the experience; experiences are extracted, edited, stored, and transferred to the right person or people. After evaluation, this knowledge transfer is either confirmed or rejected, and, in any situation, it may be estimated as useful and applicant (Schneider, 2009). Experience is "a personal and mental part of people's structural and personality change" (Jaziri, 2019). The concept of customer experience is multidimensional and is analyzed from different perspectives, with distinct capacities, and in different industries (Barbu et al., 2021). Identifying aspects that result in a service experience being vividly memorized by the customer and subsequently relived is important for service businesses because it influences consumer behaviors such as word of mouth and repeat purchasing (Kim et al., 2022). The acquired experience can only be reused when the last stage of experience management (sharing) is also done effectively (Schneider, 2009). Customer experience knowledge management is an organized effort to use customer knowledge to improve the organization's performance (Teran-Bustamante et al., 2021). According to the customer knowledge literature, there is a consensus that customer knowledge is classified into three types of knowledge: "knowledge for", "knowledge about," and "knowledge from" (Desouza et al., 2005). Research during the last few decades shows that tacit knowledge, which is the knowledge obtained from experience, is the basis of all other forms of knowledge, which allows the interpretation and logical application of knowledge at its highest level to the concept of wisdom (Sanzogni et al., 2017). The purpose of knowledge management is not the management of all knowledge but the management of that knowledge, which includes the collective knowledge and the ability of all knowledge-oriented employees of the organization, customers, and stakeholders. That knowledge increases the organization's performance and achieves specific goals, which can differentiate products and services and help meet customer needs (Alryalat et al., 2008). Digital transformation in business processes has led to the emergence and development of initiatives such as financial technology, which provide numerous services such as payment and e-commerce, e-insurance, and cryptocurrencies such

as Bitcoin (Suryono et al., 2020). Fintech is the innovative use of technology in providing financial services to customers and users who previously used traditional ways to do financial operations (Anshari et al., 2018). For example, Fintech lenders can compensate for financial and credit deficiencies in areas where bank offices are less accessible (Jagtiani et al., 2018). Fintech is the future of banking and finance, easily available to financial service providers (same source). Fintech can be any innovative idea that improves financial services processes by providing technological solutions according to various business conditions (Suryono et al., 2020). The advancement of financial technologies has led to innovation in this field and, subsequently, the development of banking and payment services in the Fintech ecosystem (Zhang et al., 2020). Part of the motivation for Fintech is that information technology has made everything cheaper and more functional, from computers to cars., However, the unit cost of financial intermediation has not changed much in the last century. Therefore, one of the Fintech's promisesFintech is to unveil cheaper ways to overcome financial contractions and cost reduction of financial services to improve consumer welfare (Thakor, 2019). Also, Fintech markets have received widespread attention from researchers, research institutes, and public or private organizations (Anshari et al., 2018). It should be noted that most knowledge is stored in the human brain, regardless of the production or flow of knowledge; this is the performance of people, which is the basis of evaluation (Zhou et al., 2020). So, the customer experience can be identified as an indicator for discovering, extracting, and exploiting knowledge in the form of a new knowledge management model. This study seeks to provide a model in the field of knowledge management and customer experience research and then measure the effectiveness of this model in the Fintech ecosystem through the review of existing studies. The main questions of this research are:

RQ1: What are the main components of the customer experience model based on knowledge management?

RQ2: What are the performance effects of customer experience management based on knowledge management in the financial technology ecosystem?

In order to answer these questions, customer's comments in the field of financial technology were analyzed, and new concepts, models, and theories were presented. In the end, the limitations and contributions of the study were discussed.

2. Literature review

Due to rapid business changes, knowledge has become the primary source of increasing competitive advantages for organizations. In the meantime, customer knowledge has gained particular importance. The salient and main points of developing the customer knowledge

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management process include three parts: 1- the knowledge process about the customer, 2- the knowledge process for the customer, and 3- the knowledge process from the customer (Alryalat et al., 2008). Related activities to customer experience are categorized into seven steps:1- Collecting experience from sources, 2- modeling (finding the appropriate method to provide reusable experience and shaping it, if needed), 3 - Storing experiences, 4- Reusing (use of previous experience to solve a new problem), 5- Evaluating (evaluation of experience during re-use in terms of suitability of selected experience), 6- Checking correctness and accuracy of recovered experience and 7- Maintaining (updating experience) (Bergmann, 202). Figure 1 presents the necessity of developing the knowledge management and customer experience model as a theoretical framework (Rahmani et al., 2022). Customer experience research started in the early 2000s, creating value for customers and financial technology companies (Addis et al., 2001).

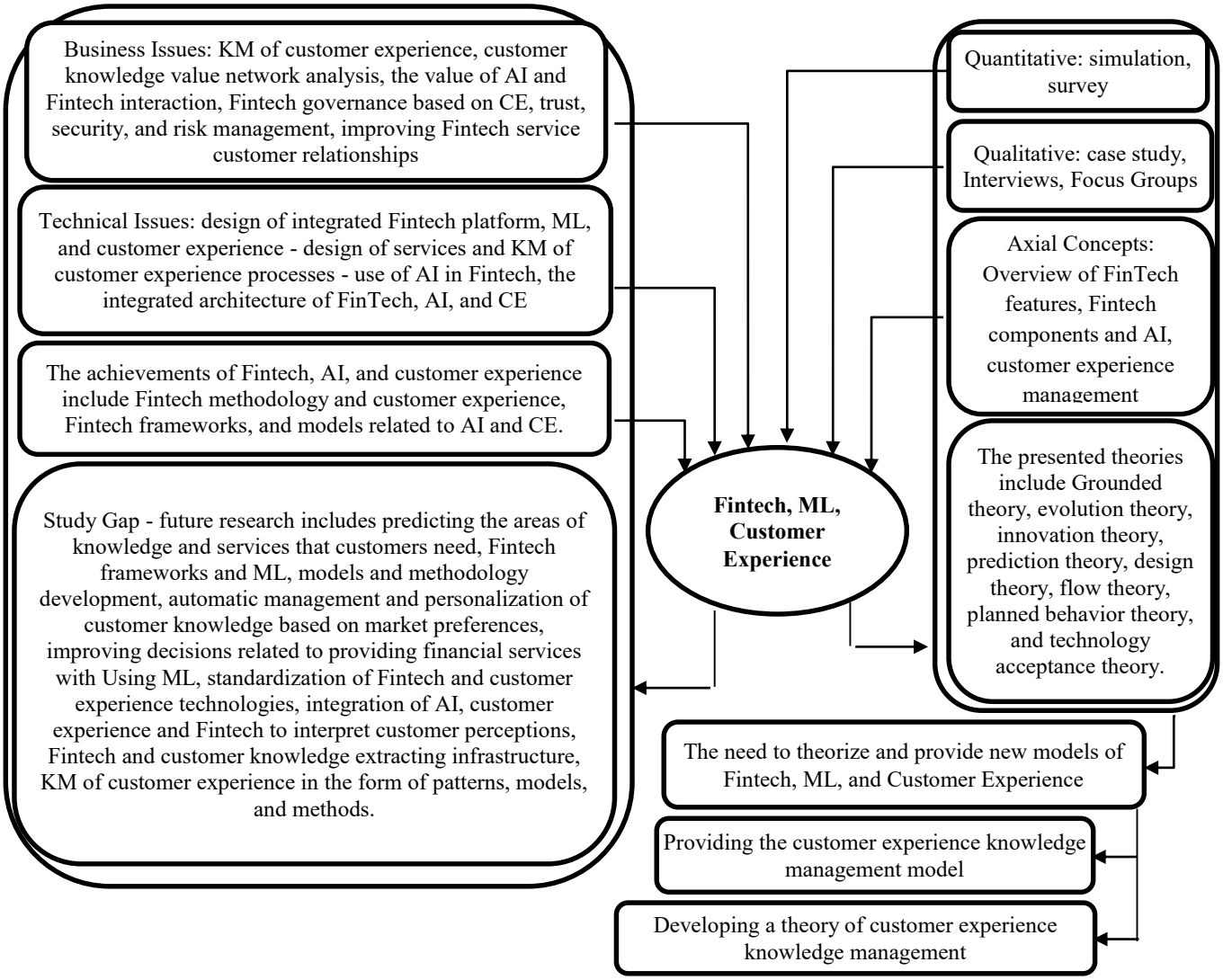

Figure 1. A framework based on the research in fintech, machine learning, and customer experience for future studies (Rahmani et al., 2022).

The necessity and need for customer experience management and its management in various digital channels and networks, including financial technologies for business success, has made investing in customer experience lead to effective results in businesses (Izogo et al., 2018). Customer experience measurement is very complicated because the experience does not include all dimensions, and it is the responsibility of the researcher to determine which characteristics and dimensions exist inside or outside the person or organization that affect the customer experience. which of these features is the most important (Maklan and Klaus, 2011). The Fintech industry's growth accompanied the financial crisis of 2008, as consumers faced difficulties accessing traditional financial services (Knight et al., 2020). The concept of customer experience faces new capacities in new technologies, especially those that lead to Fintech development Fintech (Hoyer et al., 2020). Fintech companies create new value for consumers by focusing on technology-based customer experience (Rangaswamy et al., 2022). Customer experience is a psychological construct that includes a mental response to a customer's interaction with a company, its brands, services, or products (Rose et al., 2012). Customer experience defines a cognitive and emotional state resulting from concepts' production in a cultural context (Waqas et al., 2021). More coordination with customers positively influences business customer experience, and Customer engagement positively influences business customer experience (Ruiz-Alba et al.,2023). Customer experience is a multidimensional structure formed based on the customer's cognitive, emotional, behavioral, sensory, and social responses to a company's offers over time (Lemon et al., 2016). Customer experience is a set of a customer’s cognitive, emotional, social, physical, and sensory responses after interacting with an organization, its products, and its brands (Keiningham et al., 2017). Customer engagement is interrelated with relationship marketing, resulting in an active conceptualization of the customer that co-creates the value of engaging customers in co-creation activities amongst service ecosystems (Rather et al., 2022). Cognitive experience indicates how customers think; emotional experience shows how they feel; social experience refers to customer interactions with others, and physical experience shows interactions with tangible products or contact points. Also, sensory experience refers to customer responses perceived through the senses (Ameen et al., 2021). Customer experience is a mental action formed from activity in a specific context for each person. It is affected by socio-cultural elements, education, expectations, and skills in using Fintech applications (Hollebeek et al., 2011). Fintech usually implements solutions to meet customer needs by leveraging emerging technologies to create a comprehensive and advanced customer experience by gathering different services on a single

platform (Riemer et al., 2021). Fintech companies enrich the customer experience by providing access to automated and streamlined processes (Vasiljeva et al., 2016). When using Fintech services, customers do not want to waste time learning how to use the service or even waiting for the service to be completed, so ease of use is an important element in the technology-based financial environment for customers (Lee, 2009). Customer experience management is a fundamental theoretical framework that can convert customer experience data into customer knowledge (Jaziri, 2019). Tacit knowledge, which is the knowledge obtained from experience, is the basis of all other forms of knowledge, which brings the possibility of logical interpretation and application of knowledge to the highest level, the concept of wisdom (Sanzogni et al., 2017). Knowledge management guarantees competitive advantages when intellectual capital is considered perceivable knowledge that can be converted into value extraction and creation (Teran-Bustamante et al., 2021). A knowledge management framework consists of five main processes: 1) Transfer of knowledge from one person to another, 2) storing knowledge in the database, applying knowledge and exploiting it to innovate processes to create competitive advantage, 3) Creating knowledge through internalization, 4) composition, externalization, and socialization through interview with experts, and 5) acquiring knowledge from the out -of - organization environments such as receiving customer experience, competitors or other suppliers (AlGhanem et al., 2020). Common challenges in Fintech, include investment management, customer management, laws and regulations, integration of information technology, privacy and security, and risk management (Lee et al., 2018). Fintechis considered a distinct level that mainly describes the financial technology sectors in a wide range of operations for companies or organizations and is often associated with improving information technology applications (Gai et al., 2018). Customer experience is increasingly recognized as an important phenomenon in managerial practice, which has many implications for establishing customer relationships (Andreini et al., 2019). Regarding the concept of customer experience, conducted studies have emphasized the importance of customer experience and organizations' opportunities to use a strong and long-term customer experience (Lemon et al., 2016). Companies' interactions with customers or their offers lead to customer experiences, which determine how the customer will react to the company in the future (Brakus et al., 2009). Based on customer experience management studies, It was found that in the ranking of use, the Flow-Theory is highest. Respectively, stimulus-organism-response framework theory, service governance theory, technology acceptance model theory, and theory of planned behavior, justice theory, reconstruction memory theory, interaction-symbolic theory, theory of optimal experience are the next theories used in research. While it is usually borrowed from other

theories for emerging fields, such as artificial intelligence in financial technology (Murray et al., 1995). Studies that lead to borrowing and extending the theory have developed the maturity of the original field, while the scope of application may be immature (Leong et al., 2017). An item that is rarely seen in studies is the connection between artificial intelligence and customer experience. At the same time, conversational AI models can positively impact these aspects of the customer experience. However, more research is needed to understand the specific factors that influence the impact of conversational AI models on customer experience (Abdelkader, 2023).

Table 1. Important journals in the field of fintech in science direct and elsevier (Rahmani et al, 2022)

Row	Journal Name	Reason For Importance	QTY	Present
1	Dublin Business School	St Ireland 2021	1	5%
2	Energy / ScienceDirect	IF = 7.147	1	5%
3	Computer Standards & Interfaces/ Elsevier	IF =2.487	1	5%
4	Research in International Business and Finance	IF=4.091	1	5%
5	Kelley School of Business Business Horizons Journal /ScienceDirect	Ranked 25th in the world in 2021	1	5%
6	Network and Computer Applications	IF = 6.363	1	5%
7	High Technology Management Research	Rank 6 among 108 computer magazines in the world	1	5%
8	Economics and Business	IF=4.076	1	10%
9	Borsa _Istanbul Review/ ScienceDirect	IF = 3.94	1	5%
10	Banking and Finance	IF = 3.348	1	5%
11	International Journal of Information Management	Rank 1 out of 86 technology fields and IF = 18. 958	1	5%
12	Journal of Financial Economics	IF = 6.988	1	5%
13	IATSS Research	IF=2.86	1	5%
14	International Journal of Engineering & Technology	IF = 1.27	1	5%
15	Federal Reserve Bank of Philadelphia	The central bank- Ranks 18	1	5%
16	Bank of England	The central bank won the GO 2020 global award	1	5%
17	Procedia Computer Science	IF =3.0	1	5%
18	Journal of Business Economic	IF = 2.39	1	5%

In the studies carried out for this research and subsequently the general look at the research in the field of financial technology regarding the distribution of publications, references, and other matters, Table 1 shows the distribution and number of articles published in prestigious journals.

Table 2. The important subjects in fintech research (Rahmani et al., 2022)

Subjects in Fintech	Axial coding	Open Coding
1 Economic issues and business strategy	FintechNetwork Analysis Creating Common Value Fintech governance and legal issues Trust, Risks, and Security Knowledge development, sharing, and management Fintech strategies and process management Fintech Strategy Fintech Price Analysis Fintech Digital Marketing	Knowledge development and sharing Impact of technology platforms Fintech governance and regulatory stability Trust and Risk Determination Fintech value creation strategies and competitive advantage Business requirements Disruptive transformation, business intelligence Resource sharing, organizational agility Intranet competition, better performance, Fintech adoption, Process Management, FintechGlobal Competition
2 Technical and technological issues	FintechPlatform Design, Design of Fintech Services and Processes, FintechTechnologies, Fintech Architecture, Integration and Interoperability of FintechSystems, FintechIoT, FintechSmart Payment, FintechDecision System, The use of AI in Fintech	Process Management of Technical Issues Fintech Platform Design Process FintechComponents Fintech Infrastructure Support Service Oriented Architecture Organizational Architecture Innovation
3 Conceptualization of Fintech	Development and Management of Fintech Fintech Projects The Origin and Characteristics of Fintech Creation of Fintech Society	Fintech Conceptualization FintechOverview Fintech Implementation FintechProject Management Fintech Development and Evolution New Concepts of Fintech
4 Fintech Achievements	Fintech Methodologies Fintech Frameworks FintechModels Fintech Applications	Fintech Applications Fintech Products and Services Process Interoperability Framework Fintech Formation Methodology Fintech Integration Framework Simulation Framework Dynamic Integration Framework Coordination Model Fintech Business Modeling
5 Political orientation and start-up issues	Fintech Policies	Fintech start-up Financial consolidation system

In order to theorize, Reviewing the topics, issues, and content of the articles in the Fintech area is a significant step. For this purpose, Table 2 was examined. In the table, the issues of business, economy, technical and technological strategy, new concepts in Fintech, the latest achievements, political orientations, and policy-making for Fintech startups have been researched. As shown in Table 2, financial technology research can be classified into 5 main topics, and 2 axial codes and open codes are considered for core and applied topics in the articles, respectively. The main topics include business, economics and strategy, technical issues, financial technology conceptualization and achievements, political orientations, and

startups. The subject of business, economy, and strategy includes 18 open codes and 11 Axial codes, and 13 open codes and 9 axial codes are seen in the technical subject. The conceptual subject of financial technology has 6 open codes and 4 axial codes, and financial technology achievements include 9 open codes and 4 axial codes. Finally, political orientation and start-up topics include 2 open codes and 1axial code.

Table 3. Important journals in the field of customer experience (Rahmani et al., 2022)

Row	Journal Name	Index	Impact Factor	QTY
1	Journal of Marketing	JCR	9.462	4
2	Journal of Marketing Management	Scopus	6.96	2
3	Journal of Operations Management	JCR	6.97	2
4	Journal of Product and Brand Management	Scopus	4.355	2
5	Journal of Promotion Management	SJR	2.357	2
6	Journal of Relationship Marketing	SJR	1.781	1
7	Journal of Retailing	Scopus	5.245	6
8	Journal of Retailing and Consumer Services	Scopus	7.135	5
9	Journal of Services Marketing	SJR	4.466	2
10	Journal of Service Research	SJR	10.667	1
11	Journal of Strategic Marketing	Scopus	3.602	1
12	Journal of the Academy of Marketing Science	JCR	9.481	5
13	Journal of Travel Research	Scopus	5.169	1
14	Marketing Science	JCR	2.490	1
15	Marketing Theory	Scopus	4.343	2
16	Psychology and Marketing	JCR	2.23	1
17	Journal of Brand Management	Scopus	3.500	10

To ensure that the selected customer experience articles were extracted from authentic publications, refer to Table 3. The table includes the journal names, Index, impact factor, and the number of articles studied in the present research.

Table 4. Selection articles on customer experience management based on keywords.(Waqas et al., 2021)

A selection of customer experience articles based on the keywords below	The number of retrieved articles From 1998 to 2022	The Number of stored Articles from1998 to2022
Experience Management	25	20
Customer Experience	23	19
Consumer Experience	13	13
Online/Web/Internet Experience	12	10
Brand Experience	33	32
Product /Service Experience	8	7
Shopping Experience	10	9
Experience	11	9
Total	135	119

As Table (4) indicates, the keywords based on which articles in the field of customer experience management were searched, selected, included, referred to, and exploited.

Here, the need to examine the theories used in customer experience management research became more important. Customer experience is increasingly recognized as an important phenomenon in managerial performance, which has many implications for creating customer relationships (Andreini et al., 2019). Many articles and research literature have been published about customer experience. Studies indicate the importance of customer experience and the opportunity for organizations to use the development of a strong and long-term customer experience (Lemon et al., 2016). Among the theories used in customer experience management research, the studies show that flow theory ranks highest with 8 cases, stimulus-organism-response framework theory with 5 cases, service governing theory with 4 cases, and technology acceptance model theory with 3 cases. The used case is the theory of planned behavior with 2 cases, and theories of justice, restorative memory theory, interaction-symbolic theory, and theory of optimal experience are used in 1 case each.

3. Methodology

For studying and reviewing articles, it is necessary to draw the processing steps (Petersen et al., 2015). So, first, the process map of selection and review of sources for the research was designed (Figure 2).

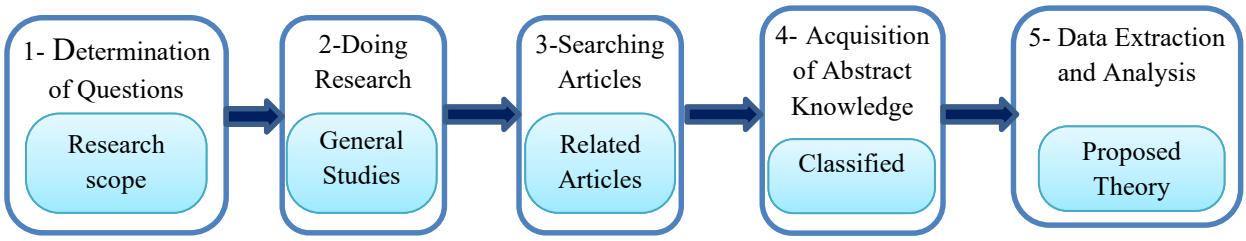

Figure 2. Process map of selection and review of articles

The current research aims to provide a customer experience knowledge management model. The research method is Grounded Theory with an analytical and qualitative approach. Also, using the GT method helps us to find the answers to the research questions. First, The components of the customer experience knowledge management model should be determined. Including requirements analysis and the necessity of theorizing in the field of customer experience knowledge, Correct selection of informational and knowledge-based resources in the field of customer experience knowledge management, Identifying and determining the concepts of customer experience knowledge management, Classification of common content concepts related to customer experience knowledge management, Classification of related concepts to the customer experience knowledge management based on the phenomenon, the context, the cause, the interventionist, the strategy, and the consequence. They are also

determining the hypotheses resulting from the relationship between the phenomenon, context, cause, interventionist, strategy, and consequences to realize the customer experience knowledge management model and Goodness-of-Fit Test of the customer experience knowledge Management model. Second, The measure of the significance of improving marketing performance, the effect on better management of products and services, and increasing customer satisfaction in the Fintech ecosystem should be investigated. In order to collect data, the descriptive method and review of previous articles have been used. In response to the second question of the research, which is to measure the effectiveness of the Customer Experience Knowledge Management Model in the Fintech Ecosystem, a survey of connoisseur experts was conducted and investigated. These two approaches focus on four key issues, i.e., sampling, creativity, reflection, and accuracy, as the basis for using Grounded Theory (Cutcliffe, 2000). So, to reach comprehensive research literature, the correct extraction of concepts and the relationship between the variables were investigated and analyzed because applying the Grounded Theory is in search of pointing to the meaningful relationships between the variables (Wolfswinkel et al., 2013).

According to these approaches to a more detailed review and choosing the correct articles, Silva's 2015 research for articles choosing process was used. A systematic review process that includes the following steps:

1. Identifying and extracting articles from scientific databases and removing duplicate records used for this research through the keywords Fintech, financial technology, customer experience management, customer experience knowledge management, presenting knowledge management models and theories in financial technology research.
2. Screening by reading the titles and abstracts of the extracted articles, selecting relevant articles, and removing unrelated articles.
3. Re-screening and studying the introduction and conclusion of the articles screened in the previous stage, selecting relevant articles, and removing unrelated articles.
4. Final evaluation of the extracted articles from the previous stage by studying them and considering the research objectives and,
5. final selection of articles (Silva, 2015). The nature of methods and methodologies in Fintech area research are shown in Table 2. For instance, descriptive statistics have been used in the research of comparisons between banks, shadow banks, and Fintech companies (Buchak et al., 2018).

In some cases, hypothesis suggestions, empirical analysis, and regression have been used to compare the features and regulations of financial innovations (Knyazeva, 2019). The research was studied and reviewed 75 high-quality sources regarding the index and impact factor of scientific publications and authoritative magazines. Finally, 48 articles were selected for analysis. In the analysis stage, articles with open codes with the highest semantic load and more

similar to Axial code in customer experience knowledge management concepts and terms of methods, theories, and future study gaps were used. In the second stage, the opinions of 20 Fintech experts, including 5 Business development managers, 7 Knowledge managers, 4 Sales and marketing managers, and 4 Business analysts, all senior financial and e-commerce experts with more than ten years of experience and expertise, were used. Accordingly, two targeted sampling methods, i.e., 1) the method of maximum difference of characteristics and dimensions of customer experience knowledge management phenomenon according to the selected samples and 2) the criterion-based method, were used in order to select a clear criterion (Lindlof, 2011).For this purpose, a questionnaire with 20 questions in the form of a four-level spectrum and the options "very little", "low", "moderate", "much" and "very much" were used. The components, including the importance of customer experience knowledge management, the role of hidden knowledge in customer experience, the effect of customer experience knowledge, and the application of customer experience knowledge were graded and measured from 0 to 4, respectively. The questionnaire content validity was evaluated and classified in the three-part Likert scale by qualified experts through the content validity ratio using three items ("it is necessary", "it is useful, but not necessary" and "it is not necessary"). Experts considered more than 80% of the questions necessary, and the content validity was confirmed. The usefulness was evaluated to ensure the questionnaire's reliability by receiving the opinions of 15 Fintech experts and estimating Cronbach's alpha equal to 85%. In terms of quantitative data analysis, the results were obtained using multivariate analysis of covariance and smart-Pls software. In continue, the Composition of Questionnaire Questions, Cronbach's Alpha, and CR Values is shown in Table 5.

Table 5. The composition of questionnaire questions, cronbach's alpha, and cr values

	Construct	Questions NO	Cronbach's alpha	CR	Total
Customer experience knowledge management	Understanding of the importance of customer experience knowledge management	1 to 4	0.753	0,864	**80%**
	The role of hidden knowledge in customer experience	5 to 10	0.902	0.921	
	The effect of customer experience knowledge	11 to 15	0.822	0.896	
	The application of customer experience knowledge	16 to 20	0.793	0.801	

4. Results

First, in order to provide the model of customer experience knowledge management, 6 main stages were identified and designed. In this way, the means of the main question of the research identifying the main components of the model of customer experience knowledge management

was answered. Following, The Main Stages and Components of Developing the Model of Customer Experience Knowledge Management are shown in Figure 3.

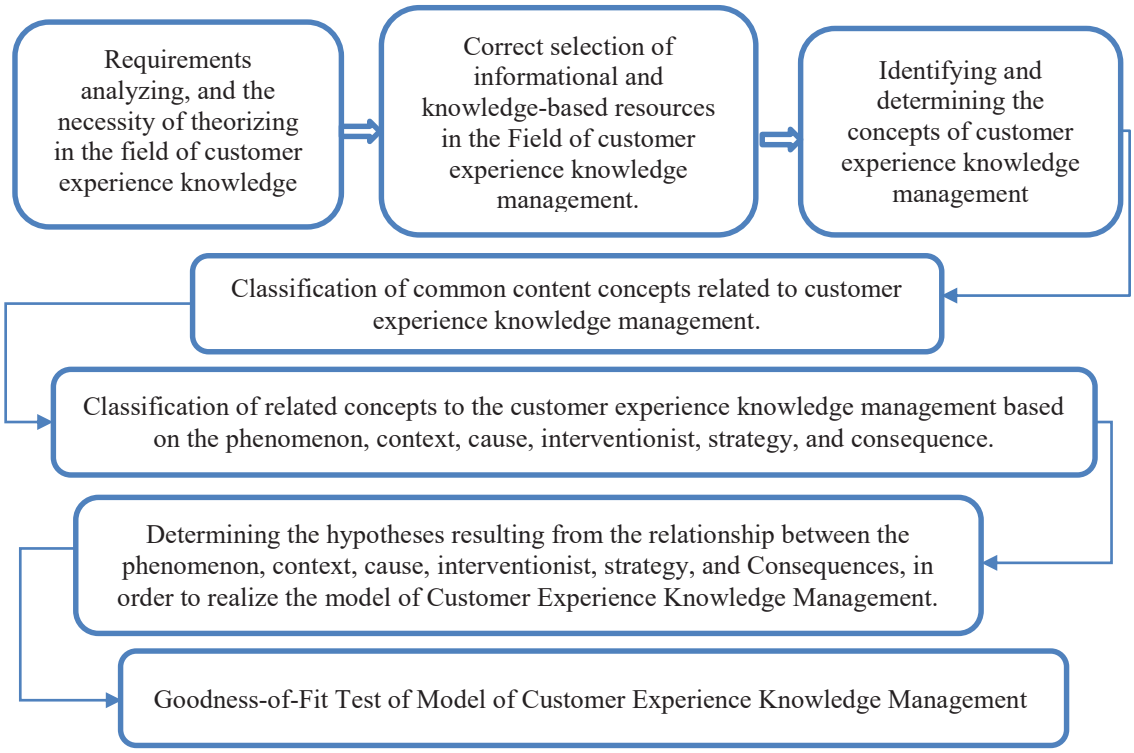

Figure 3. The main stages, and components of the developing the model of customer experience knowledge management

As shown in Table 6, in the first stage, needs analysis and the necessity of theorizing in the field of customer experience are examined. The studies show that This necessity is presented as a framework (Rahmani et al., 2022). In the second stage, the correct selection of articles and publications in Knowledge Management, Customer Experience, and the Fintech ecosystem were identified, selected, and reviewed. The third stage, which includes open coding, in order to determine the related concepts to knowledge management of customer experience by analyzing the content of selected articles, related concepts to experience issues, knowledge management, and knowledge management of customer experience were extracted. In the fourth stage, for classifying the related features to customer experience knowledge management in terms of common contents, the second stage of open coding was done.

In the last stage doing the Axial coding, the concepts, and features corresponding to the subject of the phenomenon, which in the current study is the component of Customer Experience Knowledge Management, were classified based on the following components: The Context, cause, or necessity of paying attention to the customer experience knowledge management, intervention including barriers and facilities which could have negative or positive effects on implementation to use of this model in the Fintech ecosystem, strategy, and

providing practical solutions for the customer experience knowledge management In Fintech ecosystem and the consequences, which is the results of applying or not applying the strategies.

Table 6. Open coding, and axial coding of the customer experience knowledge management components

Category	Concept
The phenomenon of attention to customer experience knowledge management	Understanding the importance of customer experience knowledge management, the role of tacit knowledge in customer experience, the impact of customer experience knowledge, and the application of customer experience knowledge.
The reasons, necessity, and, paying attention to the customer experience knowledge management.	The market needs customer experience knowledge, business development needs customer experience knowledge, knowledge of customer experience as a data analysis training tool, tacit knowledge of every customer experience, the appropriateness of effective knowledge with the level of customer experience, and using customer experience as applied knowledge.
Contexts of customer experience knowledge management	Customer experience knowledge is acquired, Customer experience knowledge is citable, Customer experience knowledge is transferable, and Customer experience knowledge can be learned, Customer experience knowledge is endless.
Strategies to create customer experience knowledge management	To create customer experience knowledge, Discover customer experience knowledge, Store customer experience knowledge, Share customer experience knowledge, Apply customer experience knowledge, Refine customer experience knowledge, Cultivate customer experience knowledge, and Select the best-experienced and knowledge-owner customers.
Negative intervention - effective barriers to applying strategies of customer experience knowledge management	Using the knowledge of wrong customers' experience, Cultivating knowledge from the unprincipled customer experience, Citation to knowledge derived from emotional customers experiences.
Positive intervention - effective facilitators to applying strategies of customer experience knowledge management	Having quality knowledge from repeated experiences
The consequences of applying the strategies of customer experience knowledge management	Increasing awareness and focusing on the real needs of customers, Identifying the right experience from the wrong experience, the opportunity to create new knowledge from customer experience, and increasing wisdom from valid knowledge.
Consequences of not applying strategies of customer experience knowledge management	Applying knowledge from the wrong experience, Lack of wise decision-making from successful customer experiences. Applying immature experience, Sharing unprincipled knowledge of customer experience as effective knowledge.

The axial coding stage aims to create a relationship between the components of the phenomenon, context, cause, interventionist, strategy, and consequences, which leads to the model. On the other hand, selective coding, which is based on axial coding, answers the hypotheses and customer experience knowledge management model, and the result is the customer experience knowledge management model. Figure 4 shows how the phenomenon is created from causal conditions. How does it lead to carrying out strategies by the influence of the contexts and interveners, and what consequences will be obtained?

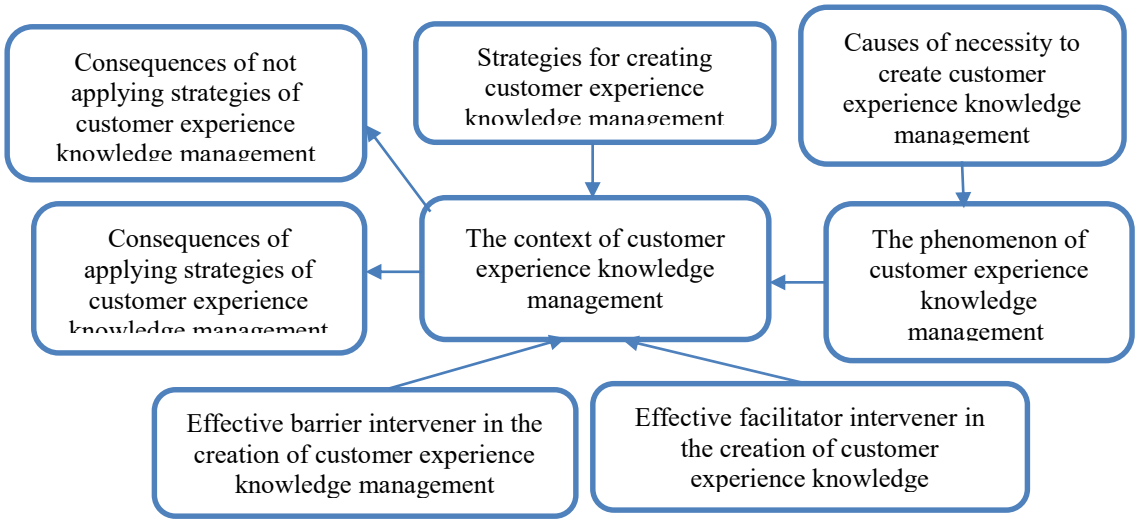

Figure 4. The axial coding paradigm of customer experience knowledge management
the research achievement: providing a model of customer experience knowledge management

By examining the governing theorems on the internal relationships between components (Table 6), which is based on selective coding, the model of customer experience knowledge management was developed.

Theorem 1. The causes and necessity are effective in paying attention to the phenomenon of customer experience knowledge management.
Theorem 2. Paying attention to the phenomenon of customer experience knowledge management is effective in developing efficient strategies for creating this phenomenon.
Theorem 3. Contexts of customer experience knowledge management effectively create customer experience knowledge management strategies.
Theorem 4. Barrier intervention factors disrupt the creation of strategies for customer experience knowledge management.
Theorem 5. Facilitator intervention factors help to create strategies for customer experience knowledge management.
Theorem 6. Applying the strategies of customer experience knowledge management has positive results.
Theorem 7. Not applying the strategies of customer experience knowledge management have negative consequences.

4.1. Model Fitting

In order to ensure the accuracy of the findings of the model, the validity of the process of each concept and category was measured by six experts in the field of KM and Fintech. Also, the Kappa index was calculated to determine the coefficient of agreement between the researcher and KM experts. The Kappa index showed 72% in the stage of extracting concepts and 81% in the stage of categorizing concepts. Considering that both values are in the range of 61% to 80%, the level of agreement is acceptable and has good reliability.

Regarding process validity measurement, the content validity ratio was calculated based on %99 for six experts in KM and customer experience management. In Table 7, the ratio values

of the content validity show that more than 95% of the experts considered the concepts of customer experience knowledge management essential in the Fintech ecosystem. Therefore, the model of customer experience knowledge management was recognized as valid.

Table 7. Validation of model of customer experience knowledge management

Category	CVR	Concept	CVR
The phenomenon of attention to customer experience knowledge management	1	Understanding the importance of customer experience knowledge management	1
		The role of tacit knowledge in customer experience	1
		The effect of customer experience knowledge	1
		Applying customer experience knowledge	1
The reason and necessity to attention to the customer experience knowledge management	1	The market needs to customer experience knowledge	1
		Business development needs to customer experience knowledge	1
		Knowledge of customer experience as an educational tool for data analyzing	99%
		Tacit knowledge in every customer experience	1
		The ratio of effective knowledge to the level of customer experience	1
		Using customer experience as applied knowledge	1
Contexts of customer experience knowledge management	1	the knowledge of customer experience is to be acquired.	1
		Knowledge of customer experience is endless.	1
		Knowledge of customer experience is Citable.	1
		Knowledge of customer experience is transferable.	1
		Knowledge of customer experience could be learned.	1
Strategies for creating customer experience knowledge management	1	knowledge creation of customer experience	1
		Selecting the best experienced and knowledgeable customers	1
		Discover knowledge of customer experience	1
		Storage knowledge of customer experience	1
		Sharing knowledge of Customer experience	1
		Applying knowledge of customer experience	1
		Refining knowledge of customer experience	1
		Cultivating knowledge of customer experience	1
Effective barrier intervener conditions in applying strategies of customer experience knowledge management	1	Applying knowledge of the wrong customer experience	1
		Cultivating knowledge from the unprincipled customer experience	99%
		Relying on knowledge acquired from customers' emotional experience	1
Effective Facilitator intervener conditions in applying strategies of customer experience knowledge management	1	The possibility of having high-quality knowledge acquired from repeated experiences	1
The consequences of applying strategies of customer experience knowledge management	1	Awareness promotion and focusing on the real needs of customers	1
		Distinguishing the right experience from the wrong experience	1
		Opportunity to create new knowledge from customer experience	1
		Wisdom promotion from credible knowledge	1
The consequences of not applying strategies of customer experience knowledge management	1	Applying knowledge of the wrong experience	99%
		lack of wise decision-making from a successful customer experience	1
		Applying immature experience	1
		Sharing unprincipled knowledge of customer experience as an effective knowledge	1

In order to investigate the effectiveness of the customer experience knowledge management model in the Fintech ecosystem, a questionnaire that includes 20 questions focusing on the four main components of customer experience knowledge management was designed. The questionnaire includes 1- Understanding the importance of customer experience knowledge management, 2- The role of tacit knowledge in customer experience, 3- The effeteness of customer experience knowledge, and 4- Applying customer experience knowledge was provided to 25 experts of Fintech. The answers were received and then analyzed through a multivariate analysis of variance.

The findings show that customer experience knowledge management significantly leads to improved marketing performance (F=04.74, P>50.5), improved product and service management (F=94.19, P>50.5), and increased customer satisfaction (F=26/11, P>50/5).

Therefore, it can be concluded that customer experience knowledge management has an effect on Fintech marketing processes based on:

1. Real customer needs, product and service selection
2. Real customer expectations
3. Customer satisfaction, and finally, will lead to a transformation in the management development of Fintech ecosystems.

5. Discussion and conclusion

The research was conducted to develop the customer experience knowledge management model and its effectiveness evaluation in the Fintech ecosystem. For this purpose, first, related articles were selected from authoritative publications as references. Through Axial and selective coding and the relationship between the components based on the Grounded Theory methodology, four main components include 1- Understanding the importance of customer experience knowledge management,3- The role of tacit knowledge in customer experience, 3-The effectiveness of customer experience knowledge, and 4-Applying customer experience knowledge from within The contents were extracted. Then, the relationships between the components were discovered and analyzed. The developed model of the research was provided in a new and combined form compared to other theories in the field of Fintech. Finally, based on the opinion of experts, the model was confirmed in terms of reliability and validity. The components of the model of customer experience knowledge management finding were determined including Requirements analysis and the necessity of theorizing in the field of customer experience knowledge, Correct selection of informational and knowledge-based resources in the Field of customer experience

knowledge management, Identifying and determining the concepts of customer experience knowledge management, Classification of common content concepts related to customer experience knowledge management, Classification of related concepts to the customer experience knowledge management based on the phenomenon, context, cause, interventionist, strategy, and consequence, Determining the hypotheses resulting from the relationship between the phenomenon, context, cause, interventionist, strategy, and Consequences, in order to realize the model of Customer Experience Knowledge Management, and Goodness-of-Fit Test of model of Customer Experience Knowledge Management. The second finding was the significance of improving marketing performance, better management of products and services, and increasing customer satisfaction in the Fintech ecosystem. The study's results could lead to a transformation in managing the development of Fintech ecosystem businesses through the acquired knowledge from the customer experience. From an innovative point of view, developing the customer experience knowledge management model is considered the research's innovation. It is suggested that other researchers investigate the effectiveness of this innovation in a different business environment or through quantitative methods. As a limitation of the research, the focus was on the Fintech ecosystem, so focusing on payment channels, the results will probably be more specialized.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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