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Proposing an Information Technology Management Model in the FinTech Sector Using a Mixed-Methods Approach (Case Study: Tehran Stock Exchange Organization)

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Abstract

The present study aims to propose an Information Technology (IT) management model in the FinTech sector using a mixed-methods (qualitative–quantitative) approach, with a case study of the Tehran Stock Exchange Organization. To achieve this goal, after reviewing the concepts of information technology and financial technology (FinTech), the study first identified the components and indicators and developed a conceptual model through qualitative methods, and then validated the model and examined the relationships among its components through quantitative methods. The statistical population in the qualitative phase consisted of experts in the field of financial technology, while in the quantitative phase it included employees of the Tehran Stock Exchange Organization. The qualitative sample comprised 10 experts selected based on theoretical saturation, and the quantitative sample consisted of 80 individuals determined according to the Krejcie and Morgan table, selected through simple random sampling. For data collection, interviews and questionnaires were used. The validity of the research tools was confirmed through content validity (by experts) and construct validity (via confirmatory factor analysis using SPSS and SmartPLS4 software). The reliability was verified using Cronbach's alpha coefficient and composite reliability. In data analysis, qualitative data were analyzed through interview coding, while quantitative data were examined using the Kolmogorov–Smirnov test to assess data distribution, and structural equation modeling (SEM) and path analysis were applied to validate the model and explore the relationships among variables. The qualitative findings revealed that in the proposed model, the causal conditions include (1) technology acceptance, (2) education and learning, and (3) infrastructure; the central phenomenon is (4) information technology management; the facilitators include (5) quality of financial services; the intervening conditions consist of (6) FinTech barriers and challenges; the strategy involves (7) financial knowledge management; and the consequences are represented by (8) IT management outcomes. The quantitative results indicated that technology acceptance, education and learning, and infrastructure have a significant positive effect on information technology management, which in turn enhances the level of financial knowledge management. Moreover, the results showed that the quality of financial services, as well as barriers and challenges, both directly and indirectly—through financial knowledge management—contribute to generating outcomes that improve IT management performance in FinTech organizations.

Keywords: Information Technology Management, Financial Management, Financial Technology (FinTech).

1. Introduction

The rapid evolution of financial technologies (FinTech) has fundamentally transformed the global financial landscape, creating new opportunities for innovation, efficiency, and inclusion while simultaneously presenting new managerial and regulatory challenges. FinTech integrates digital innovation with financial services, reshaping how individuals and organizations access, manage, and transfer financial resources (Kou & Lu, 2025). Over the past decade, the convergence of advanced technologies such as artificial intelligence, blockchain, big data analytics, and cloud computing has revolutionized traditional banking and financial systems (Branzoli & Supino, 2020). This transformation has also driven significant structural changes within global financial markets, particularly in the emergence of digital lending, mobile banking, and decentralized finance platforms (Cornelli et al., 2021). The pace of these technological disruptions underscores the need for robust information technology (IT) management frameworks that can ensure innovation alignment, regulatory compliance, and sustainable performance outcomes in financial organizations (Guo et al., 2023).

In the Iranian financial ecosystem, the FinTech sector has gained strategic significance as an enabler of modernization within the banking and capital markets. The Tehran Stock Exchange, for example, has increasingly leveraged digital platforms to enhance transparency, efficiency, and investor participation (Moradi et al., 2021). However, the management of IT within FinTech environments remains a complex endeavor that requires a systematic approach to integration, infrastructure, and knowledge management (Rahmani et al., 2022). Information technology management not only supports operational agility but also influences the development of digital products, financial innovations, and the quality of customer services (Salimian, 2021). These processes are deeply intertwined with digital literacy, cybersecurity, data governance, and technological readiness—all of which determine the success or failure of FinTech transformation initiatives (Molleti & Khanna, 2025).

Globally, FinTech has emerged as a key driver of financial inclusion and business growth, particularly in developing economies where access to traditional banking services is limited (Slazus & Bick, 2022). During the COVID-19 pandemic, FinTech adoption among small and medium-sized enterprises (SMEs) became essential for sustaining business continuity and digital operations (Anik et al., 2022). This highlights the dual role of FinTech as both an innovation catalyst and a resilience mechanism during periods of economic uncertainty. However, FinTech implementation also introduces new dimensions of financial risk and cybersecurity vulnerability, emphasizing the necessity of trust-building mechanisms and secure technological infrastructures (Shuhaiber et al., 2025). Research indicates that users' trust and perceived value are significantly affected by their levels of financial literacy, optimism toward technology, and perceived security risks (Usman et al., 2025). Therefore, trust management, technological infrastructure, and policy coordination have become critical components of IT management models in FinTech environments.

The expansion of FinTech has been strongly supported by advancements in IT architecture and information systems. Innovations such as Zero Trust Architecture (ZTA) in cloud environments have introduced comprehensive security frameworks that minimize cyber threats and data breaches (Molleti & Khanna, 2025). Such architectures are particularly vital for FinTech ecosystems that handle sensitive financial data and rely on multi-layered access protocols. Additionally, the integration of artificial intelligence and machine learning has transformed fraud detection mechanisms, enabling predictive and adaptive responses to fraudulent activity (Shoetan, 2024). However, while technology-driven solutions enhance operational efficiency, they also raise concerns about ethical practices, user privacy, and algorithmic transparency (Sampat et al., 2024). Consequently, FinTech development requires a balance between technological innovation and governance structures that safeguard users' rights and maintain market integrity.

The diversity of FinTech business models further complicates the management of information technology. Recent studies have shown that while FinTech firms often share similarities in innovation orientation, their business models vary significantly in structure, revenue generation, and risk management strategies (Laidroo et al., 2021). These variations necessitate adaptive IT management systems capable of addressing different technological requirements and market dynamics. For example, digital payment providers require real-time processing capabilities and cybersecurity protocols, whereas peer-to-peer lending platforms focus on data analytics and credit scoring algorithms (Branzoli & Supino, 2020). Moreover, the growing importance

of open banking frameworks and API-based integrations has reshaped how financial institutions interact with third-party developers and technology partners (Feyen et al., 2021). These trends underscore the increasing interdependence between financial innovation and IT infrastructure management.

In the Iranian context, the adoption of FinTech products and services among banking customers remains influenced by technological readiness, cultural attitudes, and regulatory environments (Khazaei et al., 2022). Developing countries often face structural barriers such as limited digital infrastructure, inconsistent regulations, and low levels of consumer trust (Safdari et al., 2021). In such contexts, effective IT management involves not only technological adaptation but also strategic policy frameworks that promote innovation while mitigating systemic risks. As suggested by (Vaghfi et al., 2021), financial knowledge management plays a central role in reducing organizational risk and enhancing financial decision-making efficiency. This perspective aligns with the broader understanding that IT management should be treated as a strategic function—one that integrates digital literacy, resource allocation, and performance monitoring across the organization (Komendani & Jowhari Pour, 2020).

Furthermore, FinTech development has far-reaching implications for financial structure, institutional behavior, and market competition. Evidence from developed economies shows that FinTech adoption has significantly altered the determinants of financial structure in technology-intensive industries, reshaping firms' access to capital and cost of financing (Vintilă et al., 2019). Similarly, empirical studies in China demonstrate that FinTech alleviates financial constraints for enterprises by enhancing credit availability and reducing transaction costs (Guo et al., 2023). These effects are particularly significant in economies where traditional financial intermediaries have historically limited outreach. Yet, the benefits of FinTech are not without caveats; the same digital mechanisms that enable financial democratization can also be exploited for money laundering and other illicit activities if not governed properly (Usman et al., 2025). The moderation of financial regulations and the promotion of financial literacy are thus essential for curbing these risks.

At the organizational level, IT management provides the structural foundation that supports FinTech operations, influencing efficiency, scalability, and compliance outcomes. The integration of IT governance with financial management systems enhances accountability, transparency, and decision-making effectiveness (Rahmani et al., 2022). Moreover, the digitalization of accounting and audit processes has improved control systems and financial reporting quality, as evidenced in studies on IT audit determinants and quality factors (Nguyen et al., 2020). These advancements not only improve organizational performance but also increase public trust in digital financial systems. The strategic alignment of IT management with organizational goals thus determines the sustainability of FinTech adoption and its contribution to national economic growth (Salimian, 2021).

While the benefits of FinTech are evident, several challenges hinder its seamless integration into financial ecosystems. These include technological barriers, data protection issues, regulatory fragmentation, and lack of standardized IT management frameworks (Kliber et al., 2021). Policymakers and industry leaders must, therefore, develop adaptive governance models that account for both local and global dynamics of FinTech evolution (Ferilli, 2025). The implementation of such models requires multidisciplinary collaboration between regulatory bodies, financial institutions, and technology providers. In this regard, the foresight approach proposed for Iran's banking industry emphasizes the necessity of strategic planning and innovation ecosystems that incorporate FinTech startups and research institutions (Moradi et al., 2021).

Education and capacity building represent another crucial dimension in IT management and FinTech adoption. As observed by (Seyedalaian & Salehi, 2021), the effective use of information technology in educational settings enhances learning outcomes and fosters technological adaptability. This principle also applies to organizational learning within FinTech environments, where continuous training ensures that employees remain competent in handling emerging digital tools. The alignment of learning, technological infrastructure, and organizational strategy is therefore vital for successful digital transformation (Rastgar & Farakhi Zadeh, 2021). Furthermore, the digitalization process must be accompanied by frameworks for assessing performance and mitigating risks through entropy-based and approximation-based analytical methods, ensuring that technological progress aligns with organizational goals.

The global FinTech landscape continues to evolve rapidly, with the rise of decentralized finance, crypto-assets, and embedded finance solutions challenging conventional financial models (Priyadarshi et al., 2024). The growing interconnection between digital currencies and financial technologies underscores the importance of integrating trust mechanisms, secure infrastructure, and knowledge management into IT governance systems (Shuhaiber et al., 2025). Future financial ecosystems will likely depend on how effectively institutions manage the intersection of technology, regulation, and user trust. The ongoing transformation calls for dynamic and inclusive IT management models that balance innovation with accountability and ethical responsibility (Sampat et al., 2024).

In summary, as financial markets worldwide shift toward digitalization, the role of IT management in FinTech organizations becomes increasingly strategic and multidimensional. Effective management frameworks must integrate technology acceptance, learning and training systems, infrastructural investments, knowledge management, and service quality enhancements to sustain competitive advantage and public trust (Hosseinzadeh & Moini, 2021). By leveraging data-driven decision-making, adaptive architectures, and collaborative governance mechanisms, financial institutions can harness the potential of FinTech while safeguarding against emerging risks (Feyen et al., 2021). The present study, therefore, seeks to develop and validate an information technology management model in the FinTech sector, focusing on the Tehran Stock Exchange Organization.

2. Methods and Materials

The present research is classified as a mixed-method study with an exploratory sequential development design, and in terms of implementation, it follows a mixed qualitative–quantitative approach. On the one hand, by conducting qualitative and exploratory research based on the grounded theory method, an effort was made to identify the necessary components; on the other hand, through quantitative research, the identified components were documented and their relationships analyzed. Therefore, this study employs a mixed qualitative–quantitative strategy.

In the first phase, using a library research method and semi-structured interviews with experts, the collected data were coded through open and axial coding using MAXQDA software. The indicators and components were identified, summarized, and refined. Subsequently, using the Delphi method, the indicators and components were finalized through expert validation. In the next phase, by means of selective coding, the final framework and structure of the model were formed. The research findings obtained from the Delphi process and the coding stages are presented as follows:

1. **First Stage: Open Coding (Initial Stage):** In grounded theory, open coding is an analytical process through which concepts are identified and developed based on their properties and dimensions. The interviews conducted with experts were fully transcribed into MAXQDA software, and the main concepts were extracted from each sentence and phrase of the interviews and relevant literature. These concepts were then conceptualized and labeled through codes.
2. **Axial Coding:** The basis of classification in axial coding relies on the review of previous studies, sufficient understanding of the subject, and theoretical mastery of the research field to find common features of indicators around a specific axis. At this stage, the shared features of the concepts were identified and categorized, resulting in the formation of categories and components. Here, the researcher performed categorization and began the analytical process, determining how various codes could be combined to form a coherent set of main and subcomponents.
3. **Selective Coding (Final Stage):** Finally, in order to demonstrate the relationships among the identified concepts and components, selective coding was carried out. Figure 2 illustrates the output of MAXQDA18 software in the selective coding stage. The theoretical model derived from this process is illustrated in the following conceptual structure:

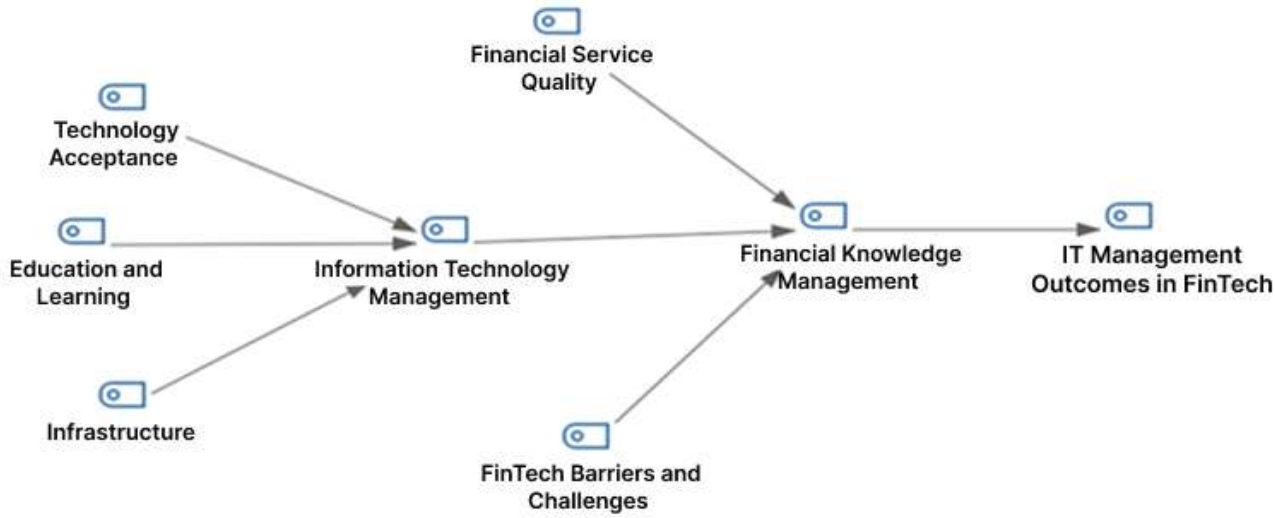

Figure 1. Selective Coding in MAXQDA18 Software

Additionally, during the Delphi process, to assess the validity of the indicators and components after open and axial coding, the opinions of 10 experts were collected through three rounds of questionnaires in a binary format ("yes" or "no"). Then, scores from 1 to 5 were assigned to determine the degree of importance of each indicator—from "very low" (1) to "very high" (5). Considering the acceptance criterion of a mean ≥ 3 on the five-point Likert scale, some indicators were excluded. Ultimately, 8 components and 56 indicators were confirmed by the experts. The results obtained from the three Delphi rounds and the approved indicators are summarized in Table 1 below.

Table 1. Summary of the Three Rounds of the Delphi Study

Main Concepts	Subconcepts	No.	Indicator	Expert Code
Causal and influential factors	Technology acceptance	1	Acceptance of IT advantages	A1
		2	Creating conditions for IT adoption	B1–H2
		3	Individual characteristics affecting technology adoption	E2
		4	Level of technological involvement affecting usage	E3
	Education and learning	5	Learning to use services	C1
		6	Training in how to use services	C2
		7	Using new generations of educational tools for FinTech application	D2
		8	Participation in learning to use financial technologies	G1
		9	Motivating individuals to learn	M2
	Infrastructure	10	Creating conditions for IT application	B2–N1
		11	Expanding mobile network coverage	F3
		12	Reducing data exchange costs and tariffs	F4
		13	Investment in ICT infrastructure	G3–H1–N2
		14	Recruitment of specialized staff	G4
		15	Increasing telecommunication bandwidth	N3
Central phenomenon factors	IT management	16	Information generation	A4–B3–D3–H3
		17	Organizing and processing information	A5–D4–E4–G7–H4–M4
		18	Displaying and disseminating information rapidly	A6–B4–D5–F6–H6–M6
		19	Financial data storage	B5–G6–M5–N6
		20	Timely transfer of useful information	F5–H5
Strategic factors	Financial knowledge management	21	Financial knowledge planning	A7–F8
		22	Organizing financial knowledge	A8–D6–E7–G9–M9
		23	Guiding and leading financial knowledge	A9–F9
		24	Investment management	B6–D8
		25	Financial knowledge generation	E6–G8–M8

		26	Use and exploitation of financial knowledge	F7–G10
		27	Proper segmentation of the organization's information capital	N8
		28	Storing and sharing explicit and tacit employee knowledge	N9
Contextual and facilitating factors	Financial service quality	29	Personalization of services	A11
		30	Data security in service provision	A12–D10–E10–F10–N12
		31	Technological innovations and techniques for customized financial services	B9–C10–E9–H9
		32	Low-cost financial service delivery using efficient installation tools	C11–G12–H10–N11
		33	24-hour access to online accounting databases	D9–F11–N10
		34	Data processing speed and faster service delivery	G11–M12
		35	Easy system updates	G13
Intervening factors and emerging obstacles	FinTech challenges	36	Data storage and transmission security	A14
		37	Legal constraints and requirements	A15–C13–F13
		38	Additional costs of constant high-speed internet access	B13–N13
		39	Ongoing financial tensions and economic crises	C12–D12–E12–F14
		40	Lack of appropriate regulations and supervisory challenges	D11–G15
		41	Absence of customer protection laws	G14
		42	Cyber risk and network security vulnerabilities	M14
		43	Weak connection network infrastructure	N14
Outcomes	Consequences of IT management in FinTech	44	Increasing business productivity and efficiency	A16–M16–H13
		45	Creating economic opportunities and development	A17–M17–B15–E13
		46	Rapid information exchange platforms	A18
		47	Reduced transaction costs	A19
		48	Improved living standards and quality of life	A20–E15
		49	Technological penetration into businesses	B14
		50	Entrepreneurship and employment development	C14
		51	Strengthening financial resource management capability	C17
		52	Accelerated changes in the financial services industry	F15
		53	Development of new customer-oriented products and services	F16–M16
		54	Cost reduction	G17
		55	Profitability and long-term business sustainability	G19
		56	Efficient financial service delivery	M15

In the quantitative phase, the present study is classified as applied research, since its results can be used to meet organizational needs and solve practical problems. The findings have broad and practical applicability. The research method is descriptive–analytical, employing confirmatory factor analysis (CFA) and path analysis within the framework of structural equation modeling (SEM).

For the theoretical dimension, the library research method (using articles, online texts, books, etc.) was applied. The required information was obtained through questionnaires and field data collection. Based on the determined sample size, data were collected, entered into Excel, and then imported into SPSS software for statistical analyses.

3. Findings and Results

To examine the validity of the designed questionnaire, the reliability test was first conducted using Cronbach's alpha and composite reliability. Table 2 presents the reliability of the questionnaire constructs. As observed, all components have coefficients above 0.7, indicating satisfactory reliability and internal consistency among the questionnaire components.

Table 2. Composite Reliability and Cronbach's Alpha

Research Variables	Cronbach's Alpha	Composite Reliability
Technology Acceptance	0.758	0.776
Education and Learning	0.734	0.760
Infrastructure	0.822	0.823
Information Technology Management	0.819	0.832
Financial Knowledge Management	0.855	0.871
Financial Service Quality	0.876	0.886
FinTech Barriers and Challenges	0.903	0.915
IT Management Outcomes in FinTech	0.932	0.938

To validate the model, the normality of the variables was first examined. The results of this assessment are summarized in Table 3.

Table 3. Kolmogorov–Smirnov Test for the Normality of Research Variables

Variable	z Statistic	Significance Level	Test Result
Technology Acceptance	0.154	0.000	Data are not normal
Education and Learning	0.114	0.012	Data are not normal
Infrastructure	0.105	0.029	Data are not normal
Information Technology Management	0.149	0.000	Data are not normal
Financial Knowledge Management	0.109	0.020	Data are not normal
Financial Service Quality	0.116	0.010	Data are not normal
FinTech Barriers and Challenges	0.120	0.006	Data are not normal
IT Management Outcomes in FinTech	0.108	0.023	Data are not normal

As shown in the table, the significance level for all variables is less than 0.05, indicating that the data distribution significantly deviates from normality; therefore, the data are non-normal. Consequently, nonparametric tests can be used for hypothesis testing. However, since SmartPLS software is robust to deviations from normality and can analyze both normal and non-normal data, it was utilized for hypothesis testing in this study.

Next, the model execution and hypothesis testing were conducted. To assess construct validity, measurement model fit, and structural equation modeling (SEM), SmartPLS software was employed. SEM consists of two main parts: confirmatory factor analysis (CFA) to validate the construct and structural validity, and path analysis to test the research hypotheses. In the measurement model, the relationship between indicators (questionnaire items) and their corresponding constructs was examined, while in the structural model, the relationships among latent variables were evaluated to test the proposed hypotheses. First-order confirmatory factor analysis was used because the latent variables had no subscales.

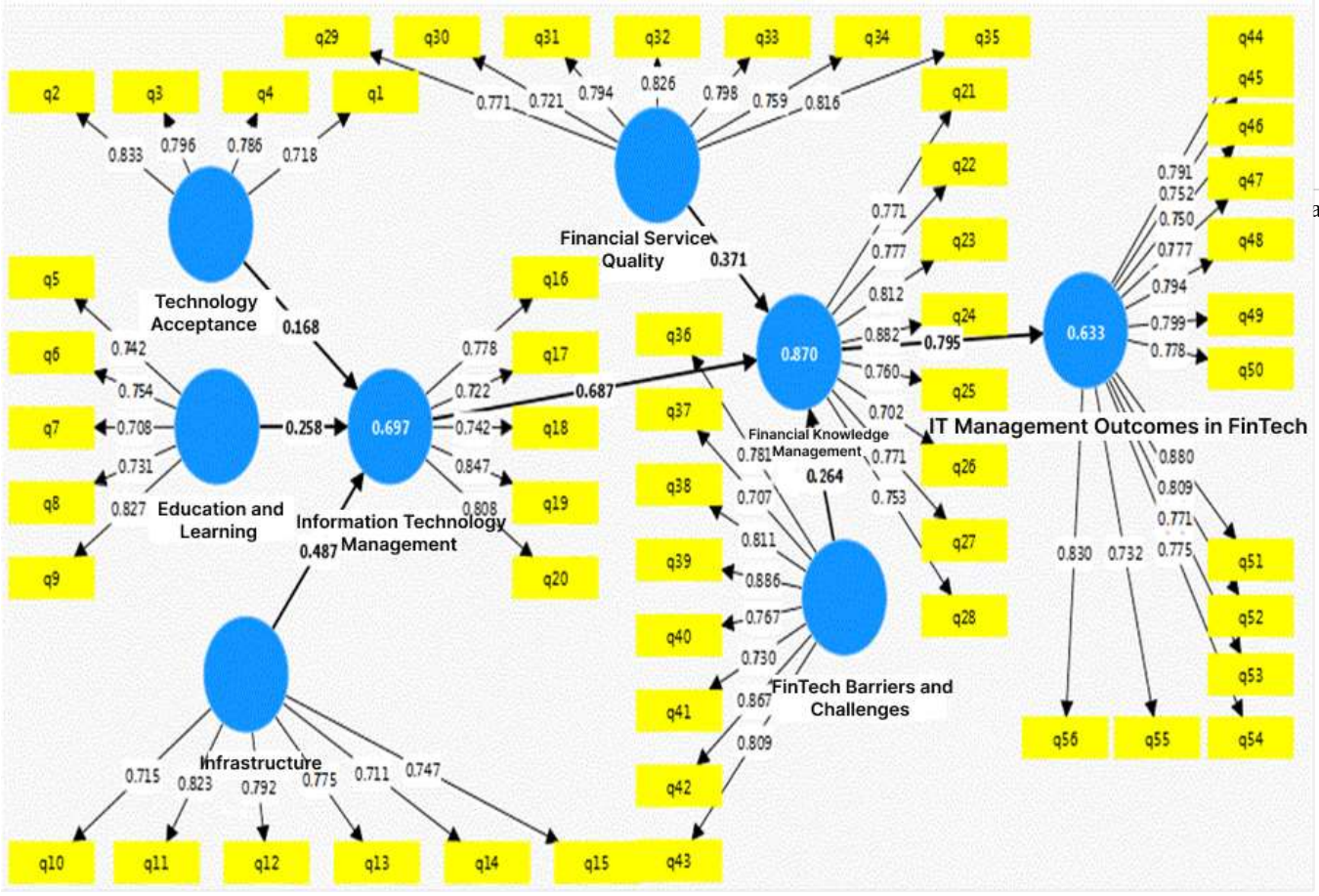

Figure 2. Measurement Model in the Standardized Coefficients Mode

According to Figure 2, the standardized path coefficients and their significance values are presented in Table 4.

Table 4. Relationships Among Components

No.	Path	Coefficient	Significance (t-value)	Result
1	Effect of Technology Acceptance on IT Management	0.168	2.657	Confirmed
2	Effect of Education and Learning on IT Management	0.258	2.339	Confirmed
3	Effect of Infrastructure on IT Management	0.487	3.733	Confirmed
4	Effect of IT Management on Financial Knowledge Management	0.687	8.332	Confirmed
5	Effect of Financial Service Quality on Financial Knowledge Management	0.371	3.686	Confirmed
6	Effect of FinTech Barriers and Challenges on Financial Knowledge Management	0.264	2.569	Confirmed
7	Effect of Financial Knowledge Management on IT Management Outcomes in FinTech	0.795	23.300	Confirmed

As shown in Table 4, all t-values exceed 1.96, indicating that all paths are statistically significant. Therefore, all hypotheses were confirmed, demonstrating that each proposed relationship in the model was supported by the data.

4. Discussion and Conclusion

The purpose of this study was to develop and validate an information technology (IT) management model in the FinTech sector, focusing on the Tehran Stock Exchange Organization. The model was designed using a mixed-methods approach that integrated qualitative grounded theory with quantitative validation through structural equation modeling. The results demonstrated that the proposed framework was statistically robust and theoretically sound, confirming significant relationships among the core constructs, including technology acceptance, education and learning, infrastructure, IT management, financial knowledge management, financial service quality, FinTech challenges, and IT management outcomes. The findings emphasize that technology acceptance, education, and infrastructural development serve as fundamental enablers of IT management in

FinTech ecosystems, while knowledge management and service quality act as strategic mediators that enhance overall efficiency and innovation capacity.

The quantitative results confirmed that technology acceptance exerts a positive and significant influence on IT management within the Tehran Stock Exchange context. This aligns with prior research highlighting the central role of user readiness and technological openness in driving FinTech adoption and digital transformation (Khazaei et al., 2022; Slazus & Bick, 2022).

In developing economies, where digital financial inclusion is still evolving, user trust, perceived ease of use, and technological literacy determine the success of IT-based services (Anik et al., 2022; Shuhaiber et al., 2025). As such, technology acceptance is not merely a technical matter but a socio-behavioral construct linked to organizational culture and management support (Guo et al., 2023). The findings corroborate the argument that enterprises with higher technology adoption capabilities face fewer financial constraints and are better able to leverage FinTech solutions for operational improvement (Guo et al., 2023). In the Iranian context, this relationship reflects the growing demand for integrating secure and efficient technological platforms into financial systems to enhance transparency, speed, and competitiveness (Moradi et al., 2021).

The findings also confirmed the significant positive impact of education and learning on IT management. This result underscores the pivotal role of human capital and organizational learning in fostering technological competency and innovation readiness. Education and continuous professional development help financial institutions adapt to digital change by strengthening employees' digital literacy and cognitive flexibility (Seyedalaian & Salehi, 2021). Studies have shown that when employees possess the necessary technological knowledge and problem-solving skills, they contribute to improving IT governance, risk management, and system performance (Rahmani et al., 2022; Rastgar & Farakhi Zadeh, 2021). In FinTech environments, such educational engagement ensures that organizations can effectively utilize new technologies like blockchain, artificial intelligence, and big data analytics (Kou & Lu, 2025). This finding aligns with (Vaghfi et al., 2021), who emphasized that financial knowledge management and employee competence are critical for risk mitigation and innovation sustainability. Therefore, building digital capabilities within financial institutions should be seen as a strategic investment that directly enhances IT management efficiency.

The study further demonstrated that infrastructure development significantly influences IT management, confirming that robust digital infrastructure is indispensable for sustaining FinTech operations. This finding is consistent with prior research that highlighted the importance of communication technology infrastructure in enabling digital finance growth (Hosseinzadeh & Moini, 2021; Safdari et al., 2021). Infrastructure is the backbone of digital transformation, encompassing both hardware systems and software ecosystems that facilitate secure, fast, and reliable financial transactions (Molleti & Khanna, 2025). The rise of mobile financial services, cloud-based platforms, and digital payment networks has underscored the necessity of scalable and resilient IT infrastructure (Cornelli et al., 2021; Feyen et al., 2021). In Iran, where financial institutions increasingly rely on domestic data centers and fintech platforms, improving infrastructure not only boosts operational capacity but also enhances cybersecurity and compliance capabilities (Moradi et al., 2021). Therefore, infrastructural investment remains a precondition for achieving sustainable IT management and enabling digital financial inclusion.

The structural model also confirmed that IT management positively affects financial knowledge management, reinforcing the notion that effective technological management enhances knowledge creation, storage, and dissemination across financial institutions. This relationship resonates with findings from (Vaghfi et al., 2021), who emphasized that financial knowledge management mediates the relationship between IT systems and risk management performance. The integration of knowledge management within IT frameworks allows organizations to transform data into actionable insights, thereby improving strategic decision-making and market responsiveness (Komendani & Jowhari Pour, 2020; Rahmani et al., 2022). Knowledge-based systems also facilitate collaboration across departments and ensure the continuous learning necessary to adapt to dynamic FinTech environments. Moreover, the interaction between IT management and knowledge management creates synergies that support the development of advanced analytics, predictive modeling, and customer intelligence systems (Guo et al., 2023; Kou & Lu, 2025). This interconnection illustrates that technology management is not only operational but also epistemic, serving as the foundation for organizational learning and digital innovation.

The study further revealed that financial service quality significantly influences financial knowledge management. High-quality digital services—characterized by accuracy, security, and responsiveness—foster consumer trust and improve knowledge flows between customers and service providers (Branzoli & Supino, 2020; Kliber et al., 2021). Quality assurance mechanisms ensure that users engage consistently with FinTech platforms, thereby generating valuable behavioral data that can be harnessed for decision-making and innovation (Priyadarshi et al., 2024). These results support (Anik et al., 2022), who found that reliable and well-designed financial applications improve business performance and customer retention, particularly during crisis periods such as the COVID-19 pandemic. Additionally, service quality directly affects customer satisfaction and adoption intentions, especially in environments where digital literacy and data privacy are major concerns (Sampat et al., 2024; Shuhaiber et al., 2025). Thus, managing IT systems to optimize service quality is essential for sustaining user confidence and expanding the FinTech customer base.

The model also identified FinTech challenges—including regulatory uncertainty, cybersecurity risks, and infrastructural deficiencies—as significant predictors of financial knowledge management. This finding aligns with global evidence suggesting that FinTech growth is constrained by inadequate regulatory frameworks and inconsistent governance mechanisms (Ferilli, 2025; Feyen et al., 2021). The "dark side" of FinTech, as described by (Sampat et al., 2024), involves issues such as data misuse, ethical dilemmas in AI deployment, and systemic vulnerabilities in digital payment networks. Moreover, the increasing complexity of FinTech ecosystems, driven by the integration of decentralized finance, cryptocurrencies, and third-party APIs, amplifies operational and compliance risks (Usman et al., 2025). Managing these challenges requires strong IT governance and risk management protocols that align with international best practices. The results of this study suggest that organizations capable of identifying and addressing such challenges are better positioned to utilize financial knowledge management as a strategic defense mechanism.

Finally, the analysis demonstrated that financial knowledge management strongly predicts IT management outcomes in FinTech firms. This implies that when financial institutions effectively manage their knowledge assets—through systematic documentation, analytics, and knowledge sharing—they achieve higher performance levels in IT management outcomes, including productivity, innovation, and customer satisfaction (Rahmani et al., 2022; Vaghfi et al., 2021). This is consistent with (Guo et al., 2023) and (Feyen et al., 2021), who emphasized that knowledge-based FinTech ecosystems enhance resource optimization and create positive feedback loops for technological advancement. Knowledge management facilitates better decision-making and enables organizations to align IT systems with strategic goals. Moreover, as (Laidroo et al., 2021) observed, the diversity of FinTech business models necessitates flexible IT frameworks that integrate knowledge flows across different service domains. Therefore, knowledge management serves as a bridge between human expertise and technological intelligence, leading to sustainable IT-driven value creation.

The overall results of this research are consistent with previous studies that emphasize the interdependence between IT management and FinTech performance across global contexts (Cornelli et al., 2021; Ferilli, 2025; Kou & Lu, 2025). Effective IT management enhances operational resilience, reduces transaction costs, and fosters innovation-driven competition in financial markets (Nguyen et al., 2020; Vintilă et al., 2019). Furthermore, the findings echo (Mamonov, 2020), who argued that information technology forms the foundation of FinTech innovation by enabling cross-sectoral collaboration between financial institutions and technology developers. In line with (Slazus & Bick, 2022), this study confirms that the combination of user acceptance, technological infrastructure, and knowledge management represents the core of digital transformation strategies in financial services. In essence, the validated model provides a comprehensive framework for understanding how IT management functions as both a driver and outcome of FinTech success, particularly in emerging markets such as Iran.

Despite its theoretical and empirical contributions, this study has several limitations. First, the sample size, although adequate for the applied statistical analyses, was limited to the employees of the Tehran Stock Exchange Organization, which may constrain the generalizability of findings to other financial institutions or countries with different regulatory environments. Second, the use of self-reported data through questionnaires introduces potential biases related to social desirability and response accuracy. Third, while SmartPLS software effectively managed the non-normal data distribution, it does not account for all potential endogeneity or latent interactions among variables. Additionally, the study primarily focused on the institutional and technological dimensions of IT management without incorporating detailed behavioral factors such as user resistance,

cultural attitudes, or leadership influence. Finally, the cross-sectional design limits the ability to infer causality or evaluate long-term effects of IT management interventions on FinTech performance.

Future studies should aim to replicate and extend this model across different financial institutions and sectors, including private banks, insurance companies, and FinTech startups, to test its robustness and cross-contextual applicability. Researchers could also employ longitudinal designs to examine how IT management practices evolve over time in response to technological innovation, regulatory shifts, and market disruptions. Moreover, integrating behavioral and psychological constructs—such as employee adaptability, digital trust, and innovation climate—would provide deeper insight into the human dynamics of IT management in FinTech contexts. Future research might also explore the moderating effects of regulatory quality, cybersecurity maturity, and organizational size on the relationships among the key constructs identified in this study. Comparative analyses between developed and emerging economies could shed light on global variations in FinTech adoption and IT governance practices.

From a practical perspective, financial institutions and regulatory authorities should prioritize the development of comprehensive IT management frameworks that integrate technological innovation with knowledge management, training, and security governance. Managers should invest in continuous education programs to improve employees' digital literacy and problem-solving capabilities, ensuring that staff can adapt to emerging FinTech technologies. Infrastructure development must remain a strategic priority, particularly in upgrading data centers, network bandwidth, and cloud-based systems to support secure digital transactions. Policymakers should also establish clear and adaptive regulatory frameworks that foster innovation while maintaining consumer protection and financial stability. Finally, FinTech firms should cultivate organizational cultures that value learning, transparency, and collaboration between technical and financial departments, enabling the sustained advancement of digital financial ecosystems.

Ethical Considerations

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

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Conflict of Interest

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