

Citation: Akbarpour Noshari, H., Horri, M. S., & Nouri, I. (2025). Presenting a Paradigmatic Model of Financial Technology in Small and Medium-Sized Enterprises in Gilan Province. *Digital Transformation and Administration Innovation*, 3(2), 1-8.

Received date: 2025-04-01

Revised date: 2024-10-03

Accepted date: 2025-02-10

Published date: 2025-02-27



Presenting a Paradigmatic Model of Financial Technology in Small and Medium-Sized Enterprises in Gilan Province

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Abstract

The objective of the present study was to propose a paradigmatic model of financial technology (FinTech) in small and medium-sized enterprises (SMEs). This research employed a qualitative method and was applied in nature. The statistical population included scholarly articles and documentation as well as experts such as managers in financial and banking businesses, university faculty members, and information technology specialists. Participants were selected purposefully using the snowball sampling method. Accordingly, interviews were conducted with 17 experts. The research instrument consisted of semi-structured interviews, the validity of which was evaluated using face validity, and reliability was assessed through inter-coder agreement. Thematic analysis was employed to analyze the data. Findings revealed that the paradigmatic model comprises: Causal factors including marketing mix, strategic thinking, team characteristics, communication, and interactions; FinTech outcomes including efficiency and effectiveness; Intervening factors including investment risks, trust-building, and overcoming barriers to implementation; Strategies including attracting investors, securing financing, and enhancing financial and technical knowledge; FinTech consequences including achieving personal success, creating value for society, and generating value for businesses.

Keywords: Financial Technology, Small and Medium-Sized Enterprises, Paradigmatic Model

1. Introduction

Companies operating in the field of financial technologies are generally startups seeking to integrate themselves into financial systems and challenge traditional firms. The FinTech revolution is regarded as one of the most significant transformations in the financial services sector in recent decades. Although the expansion of FinTech brings numerous advantages, the emerging nature of the industry presents major obstacles to its development, making it essential to understand these challenges in order to overcome them (Acar & Çıtak, 2019).

Startups experience rapid growth and are formed to deliver innovative and sustainable solutions to market needs. These companies are usually based on high-risk ideas, and their growth and survival depend on the use of technology. Therefore, the use of financial technology is an integral part of their strategy. Several factors can be identified for the rise and expansion of FinTech startups. FinTech is essentially considered an alternative to traditional financial procedures. The first factor is the evolution of new technological paradigms, including the Industrial Internet of Things, mobile applications, cryptocurrencies,



blockchain, and artificial intelligence. The appeal of FinTech lies in the trust and reliability it offers, especially following the financial crises of 2008 (Zinchak, 2020).

Secondly, the financial innovations emerging from this approach increase agility, efficiency, and effectiveness, while reducing costs and enhancing organizational integration. Thirdly, FinTech is in complete alignment with technology, continuously enabling startups to leverage the latest technological advancements (Jaksic & Marinc, 2015).

Financial technology refers to the use of information technology to perform financial operations in businesses, ranging from the provision of digital currency to financial and accounting tasks. With the proliferation of internet and digital advancements—especially the use of smartphones—financial technology has expanded widely. FinTech has extended beyond the counters of banks and offices of commercial firms into the personal digital tools of individuals, offering various types of financial services to personal users (De Roure et al., 2016).

Financial technologies go beyond applying technology to banking, securities, payments, and insurance. FinTech signifies the creation of new opportunities that previously did not exist. For this reason, FinTech subsets—such as LendingTech, cryptocurrencies and digital assets, WealthTech, InsurTech, RegTech, and other emerging domains—introduce novel financial models that have not been previously experienced (Kou & Lu, 2025).

Small and medium-sized enterprises (SMEs) are private economic entities with limited market shares consisting of local customers and play a significant role in revitalizing local communities (Krüger & Meyer, 2021). These businesses typically struggle to survive and are vulnerable in competition with large corporations (Nevskaya et al., 2021). SMEs play a strategic role in the economy, yet their development remains slow due to limited access to financial resources. In 2018, the U.S. government mandated banks to allocate 20% of credit to SMEs. However, many SMEs are still unable to access capital from financial institutions due to insufficient collateral, high-interest rates, and administrative bureaucracy (Haider, 2018).

The advancement and adoption of FinTech in businesses have also encouraged SMEs to embrace this technology. The rapid growth of technology and the unique characteristics of SMEs—such as agility and technology-centered approaches—have increased the rate of FinTech adoption (Sheng, 2020).

According to the Global Competitiveness Index of the World Economic Forum, Iran's financial system faces challenges such as difficulties in SME financing, lack of access to venture capital, insufficient banking integrity, and a significant credit gap. In the insurance sector, Iran's insurance penetration rate is considerably lower compared to developed countries with a penetration index of 7. In the era of modern communication and rapid information exchange, traditional banking models no longer meet the increasing demands of customers. Collaboration between banks and FinTech startups to transition toward digital banking has become essential. The insurance sector also needs transformative mechanisms to enhance customer service delivery and increase the appeal of its offerings. Attracting investments in the stock market requires public support and improved public information dissemination (Pahlavaniyan, 2022).

In recent years, numerous studies have been conducted on FinTechs. Much research has focused on operational methods and FinTech pricing; however, there has been no comprehensive study in Iran on the development of a FinTech model for SMEs. Hosseini (2021) examined the dimensions of the financial technology ecosystem on startups and concluded that there are significant relationships between e-commerce costs, lending, and revenue with startups, although investment did not show a significant relationship with startups (Hosseini, 2021). Payandeh, Montazeri, and Shahbazi (2021) identified five optimal collaboration patterns among banks: the exemplary model, transformation-seeking model, acceleration model, strategic model, and investment model. They also noted that due to the lack of diversity in FinTech types and business models, most of the studied banks fall into a single cluster and exhibit similar behavior. Moreover, the results showed that the distinction between public and private banks does not act as a differentiating factor in bank–FinTech relationships (Payandeh et al., 2021). Paulet and Mavoori (2020) emphasized that the digital revolution has fundamentally changed the business environment. Researchers and policymakers are striving to understand its structural development across various sectors. In the financial services landscape, most banks have acknowledged the importance of new technologies for improving performance and customer satisfaction (Paulet & Mavoori, 2020).

Khalil (2022) concluded that a digital business strategy is positively associated with business process innovation and financial performance. Blockchain adoption mediates the relationship between digital business strategy, business process



innovation, and financial performance. Information technology alignment moderates the relationship between blockchain adoption and process innovation (Khalil, 2020). Kumari and Devi (2022) found that the emergence of new technologies has enabled banks and financial services worldwide to leverage their benefits. The rapid development of information technology, internet connectivity, and smartphones has significantly influenced banking and financial services. The integration of FinTech and blockchain is purposefully transforming digital banking services (Kumari & Devi, 2022).

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To implement and expand FinTech in SMEs, the first step is to design and propose a financial technology model that identifies the key variables influencing FinTech adoption and their effects. This aids managers and business owners in effective planning and organization tailored to their specific business contexts. Therefore, there is a need to develop an appropriate model for FinTech adoption that defines the critical and influential factors and their interrelations.

For developing a FinTech model in SMEs, the first issue is identifying the model's components and indicators. The second issue is determining how these identified factors affect the performance of SMEs. Since the components and indicators of FinTech models in SMEs vary by country-specific circumstances, this research proposes a contextually appropriate model for FinTech adoption in SMEs in Gilan Province and addresses the above issues accordingly.

2. Methods and Materials

The method employed in this study is qualitative and, in terms of purpose, is applied research. The statistical population of the present study consists of two sections: the first includes academic articles and scientific documents, and the second comprises subject-matter experts such as managers in financial and banking businesses, university faculty members, and IT professionals. Accordingly, the experts consisted of university faculty members with at least 15 years of teaching and research experience in the fields of financial management, accounting, and business management. The second group included professional experts holding at least a master's degree and a minimum of 15 years of experience in financial aspects of businesses.

The sampling was conducted purposefully using the snowball method. Consequently, interviews were conducted with 17 experts. The research instrument was semi-structured interviews, the validity of which was assessed using face validity, and reliability was evaluated through inter-coder agreement. The data analysis method used was thematic analysis.

3. Findings and Results

Initially, through a review of the literature and prior studies, factors and components related to small and medium-sized enterprises (SMEs) were identified. Subsequently, for each extracted factor, corresponding sub-factors were identified from relevant sources. The frequency of each sub-factor's occurrence in the literature was calculated and presented in the following table.

Table 1. Factors and Sub-Factors of Financial Technology in Small and Medium-Sized Enterprises

No.	Concept	Frequency	Category
1	Market opportunity identification	4	Customer acquisition (Marketing Mix)
2	Market advertising	4	
3	Target market selection	3	
4	Product introduction (value creation, localization, innovation)	5	
5	Marketing communications	4	Strategic thinking in financial transparency, control, and security
6	Competitor monitoring	2	
7	Market analysis	3	
8	Financial integration	8	
9	Reliable and structured financial database	7	Team characteristics (Efficiency in financial operations)
10	Financial security establishment	10	
11	Integration of financial procedures	8	
12	Financial transparency	9	
13	Comprehensive and integrated financial control	9	Team characteristics (Efficiency in financial operations)
14	Knowledge of technical and financial issues	5	
15	Presence of specialized personnel	6	
16	Prevalence of financial, legal, contractual, and insurance issues online	5	



17	Team communication and transparent internal relationships	4	Communication and Interactions
18	Interaction with financial, legal, and stakeholder institutions	3	
19	Cyber regulation and laws	4	Macro-environmental factors
20	Cultural factors and public digital literacy	6	
21	Internal policies in virtual financial operations	5	
22	National technological infrastructure and support	5	
23	Emergence of new technologies	10	Global trends
24	Emergence and expansion of global technology standards	9	
25	Centralized cost control	10	Business success
26	Financial performance (sustainable profitability and revenue generation)	12	
27	Market development (active user count, transaction market share)	13	
28	Increased business value	10	
29	Conditions of ambiguity and uncertainty	10	Investment risks
30	Limitations on foreign investment	8	
31	Lack of awareness in judicial institutions	8	
32	Difficulty interacting with government agencies	11	
33	Financial provision	11	Investor attraction
34	Comprehensive support	8	
35	Facilitation of investor relations and processes	10	
36	Market and user trust-building	12	Trust-building
37	Investor trust-building	8	
38	Team member trust-building	6	
39	Development of personal networks	3	Achieving personal success
40	Higher social status	4	
41	Personal financial management	7	
42	Lifestyle change	7	Value creation for society
43	Enhancing quality and integrity of financial operations	9	
44	Improving people's quality of life	9	
45	Easier business control	10	Value creation for businesses
46	Business expansion	8	
47	Facilitating and accelerating financial services	7	
48	Reduction of overhead and administrative costs	9	

The analysis of the identified factors and sub-factors in the reviewed sources indicates that 12.3% relate to the factor of business success, 11.7% to investment risk factors, 10.7% to strategic thinking, 10.4% to value creation for businesses, 9.1% to investor attraction, 8.5% to trust-building, 7.3% to value creation for society, 6.3% to macro-environmental factors, 6% to marketing mix, 5.4% to global trends, 5% to team characteristics, 3.2% to communication and interactions, and 2.8% to achieving personal success.

To develop a conceptual model and integrate the identified FinTech factors, interviews were conducted with subject-matter experts. The transcribed interviews were reanalyzed, and statements and ideas that reflected relationships between main and sub-factors were carefully considered. The financial technology factors in small and medium-sized enterprises include causal factors as drivers for FinTech adoption, including marketing mix, strategic thinking, team characteristics, and communication and interactions; contextual conditions, including macro-environmental factors and global trends; business performance outcomes, including business efficiency and effectiveness; intervening factors, including investment risks and trust-building barriers; and FinTech implementation strategies, including investor attraction, financial provision, and enhancement of financial and technical knowledge. Ultimately, the value generated by FinTech implementation includes value creation for businesses and personal financial management (achieving personal success).

Causal factors are the drivers for initiating or adopting FinTech. In other words, these factors influence both the emergence and performance of FinTech in SMEs. Once the driving factors of FinTech adoption and its impact on performance are identified, the necessity of FinTech implementation becomes evident. However, the implementation of FinTech is influenced by two categories of factors. The first includes intervening factors, such as risks and obstacles to implementation, which—according to numerous studies—must be considered in order for the FinTech strategy to treat them as both risks and opportunities. The second category includes contextual factors for FinTech adoption, encompassing the domestic environmental conditions and the technological competition landscape. These factors may serve both as platforms for



implementation and as opportunities for expanding FinTech adoption. They influence strategic directions and should be considered alongside risks in the formulation of FinTech implementation strategies.

Strategies refer to the actions or interactions that impact the implementation of FinTech and its resulting outcomes. The goal of these strategies is to achieve outcomes such as value creation for businesses and personal financial management (achieving personal success).

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The identified factors were introduced as FinTech adoption components in businesses, and to localize them for businesses in the Iranian context, expert opinions were solicited. The experts' views were analyzed using the fuzzy Delphi method, and after two rounds—removing four sub-factors—forty-four sub-factors were finalized across eleven main factors. The conceptual model of FinTech adoption in Iranian SMEs was developed based on expert opinions (Table 2).

Table 2. Factors and Sub-Factors of FinTech Adoption in Iranian Small and Medium-Sized Enterprises

FinTech Outcome	Implementation Strategy	Micro Intervening Factors	Macro Intervening Factors	FinTech Effects	Causal Factors (Drivers)
Value creation for businesses	Investor attraction and financing	Investment risks	Internal macro-environmental conditions	FinTech effects on business: Efficiency + Effectiveness	Customer acquisition (Marketing Mix)
Personal financial management (Achieving personal success)	Enhancing financial and technical knowledge	Trust-building (removing adoption barriers)	Global trends (dynamic and complex technologies)		Strategic thinking in financial transparency, control, and security Financial communication and interactions Team characteristics (Efficiency in financial operations)

Based on the reanalysis of research data and the above discussions, Figure 1 presents the conceptual model for FinTech adoption in small and medium-sized enterprises.

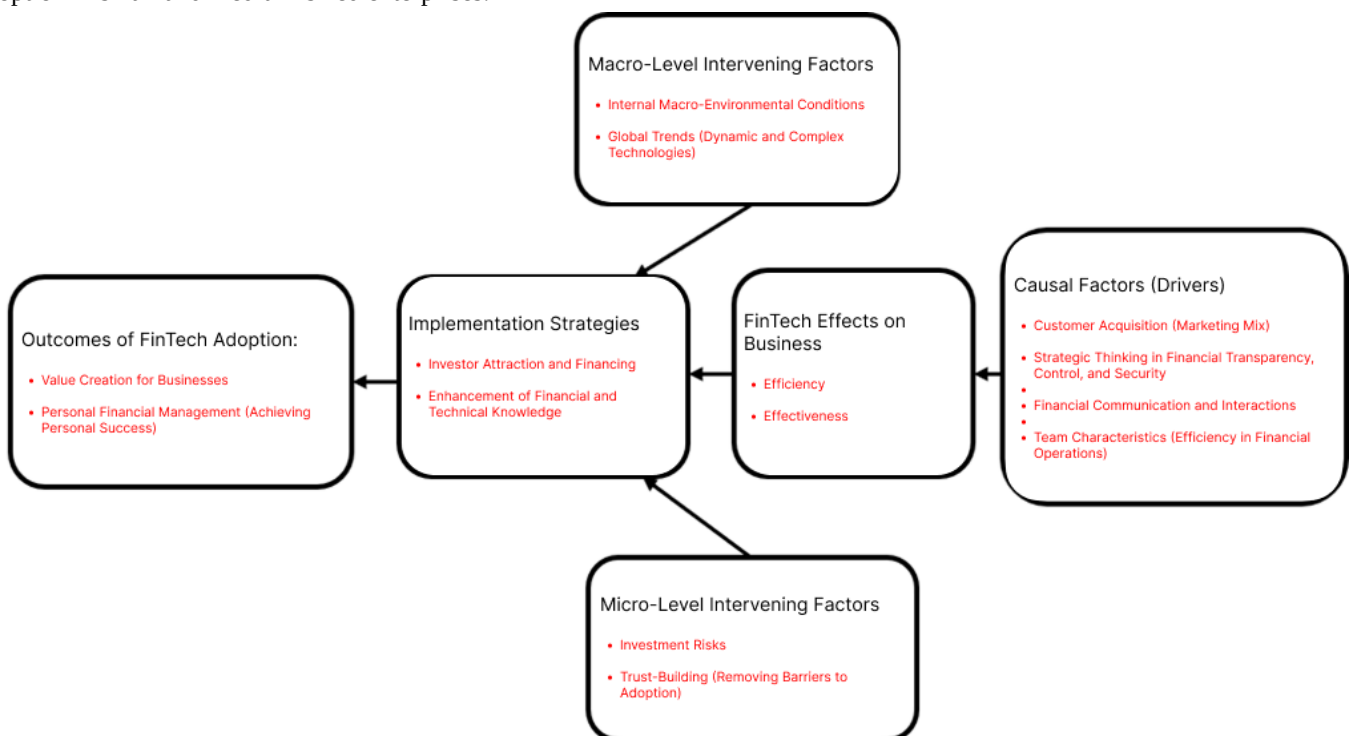


Figure 1. Conceptual Model of FinTech Adoption in Small and Medium-Sized Enterprises

4. Discussion and Conclusion



Small businesses are the backbone of the economy and the largest job creators worldwide. However, many small business owners face challenges in managing financial affairs and securing the capital needed to launch or grow their enterprises. FinTech has proven highly effective in alleviating and reducing financial difficulties for businesses. The objective of this study was to propose a paradigmatic model of financial technology in small and medium-sized enterprises (SMEs) in Gilan Province.

The findings showed that FinTech factors in SMEs include causal factors as the main drivers of FinTech adoption: marketing mix, strategic thinking, team characteristics, and communication and interactions. Strategic thinking in financial transparency, control, and security enables businesses to maintain well-structured and controlled financial strategies. As emphasized in management literature, the foundation of business operations lies in strategic thinking and projecting a vision for transparency and financial security. This serves as a key motivator for adopting FinTech in businesses. FinTech managers and investors, by implementing successful programs, can achieve sustainable profitability, revenue generation, and increased shareholder value. The ability to attract a large user base and capture a share of the transactional market—along with the scalability of FinTech businesses—depends on enabling conditions such as legal, regulatory, cultural, and technical infrastructures, as well as international policy frameworks. The speed and ease of financial communications and interactions enhance business performance and success. FinTech provides this speed and ease, making improved financial communication one of the primary drivers for FinTech adoption, as confirmed by multiple sources and recognized in this study as a key sub-factor in the FinTech implementation model. Sheng (2020) defined FinTech as innovations that allow businesses to use technology-based tools to deliver financial services more efficiently and rapidly (Sheng, 2020).

Macro-level intervening factors include environmental conditions and global trends. Environmental factors refer to the state of the business climate, economic conditions, and cultural readiness for adopting information technology in financial operations. FinTech contributes to the development and efficiency of financial systems, acts as a catalyst for economic growth, and enhances financial capacity. FinTech activity is governed by supply- and demand-side factors such as unmet demand, financing costs, and regulatory conditions. These align with the prior findings (Kou & Lu, 2025; Kumari & Devi, 2022; Pahlavaniyan, 2022; Payandeh et al., 2021).

Developing a model tailored to the structure of SMEs and considering the cultural and infrastructural characteristics of the country yields multiple outcomes for small and medium-sized business units. These outcomes include improved business climate and performance, contributing to national development and aligning enterprises with global technological advancements. These outcomes correspond to those reported in prior studies (Haider, 2018; Kumari & Devi, 2022; Moradi et al., 2021; Pahlavaniyan, 2022; Payandeh et al., 2021).

Micro-level intervening factors include investment risks and trust-building barriers in FinTech adoption. Building trust among managers and customers through communication skills can enhance FinTech adoption in Iranian businesses. Nevertheless, FinTech innovations remain vulnerable to traditional financial risks. Over time, FinTech can intensify cross-border competition in financial services, distribute risk across multiple markets, and play a significant role during financial crises (Kou & Lu, 2025). Supporting factors for developing innovative business models for credit intermediation, improved credit risk assessment methods, and the implications of such innovations for credit access can enhance traditional credit risk models, as FinTech borrowers typically lack access to financial resources and present higher risk compared to traditional bank borrowers (Moradi et al., 2021).

FinTech adoption in businesses involves two key strategies: (1) attracting investors and (2) increasing financial and technical knowledge. In this regard, managers can implement programs such as intelligent investor attraction, targeting niche markets, selecting the right team members and investors, and devising competitive strategies against larger firms. The results of these efforts include improved public health, poverty reduction, lifestyle changes, increased social interaction, higher profitability, reduced service delivery costs, and greater financial transparency.

Ultimately, FinTech implementation yields two main outcomes: (1) achieving personal success, related to financial self-management of business owners and managers, and (2) value creation for businesses. Financial management in SMEs should account for the lack of robust systems and infrastructure, which are typically absent in terms of users, hardware, and software. Thus, providing financial management services to business owners through FinTech is essential and feasible.

Based on the findings and in line with the process-oriented approach to applying the conceptual model, the following recommendations are offered for SMEs:



a) Due to the impact of the marketing mix on customer acquisition in FinTech adoption in SMEs—and given the diversity and specific effects of each marketing element—it is recommended to evaluate how each element is applied and implemented based on different customer segments. These elements should be consistently utilized throughout the customer acquisition and retention process. After appropriately implementing marketing mix strategies, the performance of FinTech in delivering business products and services should be assessed in terms of market orientation and customer acquisition, as this will increase customer satisfaction and loyalty by enhancing their perceived utility of FinTech.

b) As indicated in the findings, strategic thinking in financial transparency, control, and security helps businesses maintain structured and controlled financial strategies. Therefore, developing a strategic plan with a vision for financial transparency and control significantly influences FinTech adoption. It is advised that SME managers and investors develop strategic plans aimed at attracting a large user base and capturing market share. Additionally, alongside planning, an evaluation and monitoring system should be developed to continuously track the implementation of these plans, analyze ongoing performance, and address deviations as they arise to ensure improved FinTech adoption.

c) To strengthen the "team characteristics" factor as a driver and input in the FinTech adoption process, it is necessary to enhance the capacity, skills, and efficiency of human resources. It is recommended that human resource management in businesses, by benchmarking against leading enterprises and localizing practices accordingly, take steps to attract, retain, and develop human capital for effective FinTech utilization.

Ethical Considerations

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

Acknowledgments

Authors thank all who helped us through this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

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

References

- Acar, O., & Çıtak, Y. E. (2019). Fintech integration process suggestion for banks. *Procedia Computer Science*, 158, 971-978. <https://doi.org/10.1016/j.procs.2019.09.138>
- De Roure, C., Pelizzon, L., & Tasca, P. (2016). *How does P2P lending fit into the consumer credit market?*
- Haider, H. (2018). *Constraints to business growth in low-and medium-income countries*. <https://opendocs.ids.ac.uk/ndownloader/files/48259375>
- Hosseini, M. A.-S. (2021). Examining the impact of fintech ecosystem dimensions on business models, investment decision-making, and financial challenges. Proceedings of the First International Conference on Advances in Management, Economics, and Accounting, Sari. <https://civilica.com/doc/1463337/>
- Jaksic, M., & Marinc, M. (2015). The future of banking: The role of information technology. *Bancni vestnik: Banking sector at the crossroads: challenges for the future*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2656388
- Khalil, M. (2020). Financial Citizenship as a Broader Democratic Context of Financial Literacy. *Citizenship, Social and Economic Education*, 1-14. <https://doi.org/10.1177/2047173420948411>
- Kou, G., & Lu, Y. (2025). FinTech: a literature review of emerging financial technologies and applications. *Financial Innovation*, 11(1), 1. <https://doi.org/10.1186/s40854-024-00668-6>
- Krüger, N. A., & Meyer, N. (2021). The development of a small and medium-sized business risk management intervention tool. *Journal of Risk and Financial Management*, 14(7), 310. <https://doi.org/10.3390/jrfm14070310>
- Kumari, A., & Devi, N. C. (2022). The impact of fintech and blockchain technologies on banking and financial services. *Technology Innovation Management Review*, 12(1/2). <https://doi.org/10.22215/timreview/1481>
- Moradi, S., Naderi, N., & Delangizan, S. (2021). Foresight of the Iranian banking industry with an emphasis on the role of fintech startups in the horizon of 2025. *Studies in Intelligent Business Management*, 10(38), 37-67. https://ims.atu.ac.ir/article_13165.html



- Nevskaya, M., Seleznev, S., Masloboev, V., Klyuchnikova, E., & Makarov, D. (2021). Involving small and medium-sized mining industry businesses in mining waste processing in the Russian Federation. *Mineral Economics*, 34, 81-86. <https://doi.org/10.1007/s13563-020-00222-7>
- Pahlavaniyan, M. (2022). *Designing a framework to evaluate the role of financial citizenship in determining Iran's transition pathway to emerging financial technologies* Faculty of Economic and Administrative Sciences, University of Mazandaran].
- Paulet, E., & Mavoori, H. (2020). Conventional banks and Fintechs: how digitization has transformed both models. *Journal of Business Strategy*, 41(6), 19-29. <https://doi.org/10.1108/JBS-06-2019-0131>
- Payandeh, R., Manteghi, M., & Shahbazi, M. (2021). Analyzing and uncovering patterns of collaboration between Iranian banks and fintechs. *Innovation Management*, 10(1), 161-188. https://www.nowavari.ir/article_132274.html?lang=en
- Sheng, T. (2020). The effect of fintech on banks' credit provision to SMEs: Evidence from China. *Finance Research Letters*, 101558. <https://doi.org/10.1016/j.frl.2020.101558>
- Zinchak, A. (2020). *Developing marketing strategy for fintech start-up* <https://www.vdu.lt/cris/entities/etd/cc7ba597-f942-456b-b732-c986260a8416>

