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Designing a Model of Digital Finance Development Based on I-Fintech: Towards a Roadmap for the Islamic Digital Economy

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ABSTRACT

Digital Economy, relying on emerging technologies like Fintech, is experiencing rapid growth and has resulted in the change of financial and economic models worldwide, thus potentially serving as a crucial factor in Digital Finance development. Considering the speed of these changes, policymakers and industry players should put the digital economy development program and the designing of new models on their agenda. In recent years, Islamic finance has witnessed significant growth due to digital technologies, and many Islamic countries have compiled strategic plans and a clear vision for the Islamic Digital Economy (IDE), which has created fierce competition between them. Therefore, this research aims to design a model of Digital Finance development based on I-Fintech and draw a roadmap for the IDE in Iran. The research method is the Multi-Grounded Theory which is a developed alternative approach to the grounded theory. The statistical population consisted of theoretical and experimental experts, chosen via purposive sampling. The research data was analyzed using MAXQDA and NVIVO in the qualitative section and Smart PLS and AMOS software in the quantitative section. Data analysis led to the identification of 6 paradigms, 36 main categories, and 64 sub-categories, and the research model was designed. The research findings confirm that the strategies and implications of the research model include the Compilation of an IDE Document, Building Regulatory and Supervisory Sandboxes, and establishing Regtech and Suptech. Finally, policy programs and operational solutions for the development of the Digital Finance Ecosystem in Iran are presented.

Keywords: Digital Economy, Islamic Fintech (I-Fintech), Digital Finance, Multi-Grounded Theory

1. Introduction

The digital economy is known as one of the most important financial and economic concepts in today's world, which includes all activities, interactions, and exchanges that are carried out through emerging technologies. The term "Digital Economy" has significantly expanded in recent years and it refers to a type of activity that has transformed conventional practices by using digital tools and emerging technologies (Williams, 2021).

The digital economy is based on digital products and includes all types of electronic commerce, electronic markets, electronic money, and financial transactions. In addition to the Information and Communication Technology (ICT) sector, the digital economy refers to the wide application of digital technologies in all fields including management, economics, and finance. This paradigm does not mean abandoning the input-oriented "traditional economy" model. In the knowledge-based economy, the main axis and driver of wealth production is knowledge and innovation. By benefiting from these technologies, traditional structures easily provide public services to citizens in the form of electronic government. By digitizing the production and distribution processes, businesses turn to the new e-commerce model and reach larger markets. By accessing information, companies and producers find their place in the global value chain and improve their competitive power through costs decreasing in the domestic and international arena (Sturgeon, 2021).

The crucial aspect to consider when defining the digital economy is the infrastructure issue. It fundamentally changes the operational processes of businesses and the way they interact with customers and consumers. Emerging technologies are creating new business models and forcing old industries to change or dissolve. This event creates new opportunities for innovation and growth. The application of these technologies and their crystallization in the concept of digital economy will play a significant role in sustainable growth and development.

International reports show that the digital economy is projected to constitute 30% of the worldwide gross product by 2030, with a persistent upward trajectory. Therefore, the policymakers and activists of this industry should move in a direction that has the most adaptation to the changes and benefit from its benefits. Of course, the role of governments in creating the necessary infrastructure for this issue is undeniable. They should provide space for the development of emerging technologies faster by legislating and solving the existing challenges.

The digital economy has three layers:

Core layer: This layer is related to the infrastructure of ICT which plays a basic role in the digital economy.

Emerging and Disruptive layer: This reference layer includes start-ups and top technology companies that were born in the digital age and are engaged in providing services. The activity of these institutions is in the fields of Fintech, Artificial Intelligence (AI), Blockchain, Internet of Things (IoT), Big Data, and other emerging technologies.

Traditional layer: This layer includes organizations and companies that existed before the digital era and want to use the capabilities of digital transformation to improve productivity and innovation as immigrants from traditional to modern form.

Considering that Fintech is part of the emerging and transformative layer of the digital economy, it possesses the potential to assume a crucial function in the advancement of digital finance. It refers to the effect of emerging technologies on the financial services sector, encompassing a range of innovations in products and instruments that have transformed the conventional ways of delivering financial services.

Digital financial services are financial services provided by emerging technologies such as Fintech and have a transformative effect on the financial and economic sectors. Digital finance has led to better and cheaper access to services, along with diversification of services and the design of new products.

Fintech focuses on digital transformation and emerging technologies to create new financial and economic models. International reports demonstrate that the evolution of the digital economy is evident due to the emergence of Fintech. Today, the term encompasses all technologies, innovations, training, and investments in the financial industry. The scope of Fintech is very wide and today this term includes all technologies, innovations, training, and investments in the financial industry.

According to a report published by Dinar Standard, the Fintech industry in Islamic countries has grown significantly in recent years. The Islamic financial system has seen significant growth in recent

decades, and the Islamic financial sector is experiencing rapid activity at the global level (DinarStandard, 2022).

The global Islamic Fintech report shows that the volume of transactions of the global I-Fintech market will reach 128 billion dollars by 2025, which shows a 160% increase compared to 2020. As one of the important countries of the Islamic world, Iran must stabilize its position in this competitive environment to become one of the leading countries in the IDE (GIFT, 2023)

There are several reasons for the necessity of digital transformation in Iran; Among them, benefiting from a young and educated workforce, reducing unemployment and subsequently helping to reduce the motivation for the migration of specialized and skilled labor, ending dependence on the input-oriented economy, especially the oil economy, preventing further destruction of the environment and water and soil resources, reducing environmental pollution caused by the process incomplete industrial development, interaction with the international economy and gaining a suitable position in the global value creation chain and finally improving productivity and creating economic growth and development based on knowledge and technology.

Reports show that Iran ranks 60th in the Global Innovation Index (GII), 91st in the Electronic Government Index (EGDI), 75th in the Readiness Index for Frontier Technologies, and 167th in the Electronic Participation Index. These indicators show the unfavorable situation of Iran, and it is necessary that in the framework of the digital economy paradigm, and of course, subject to having a road map, it can benefit from the tools of emerging technologies to advance the goals of economic growth and development (WIPO, 2023).

Iran's most important challenge in advancing its digital economy pertains to the lack of vision and clear strategies in a national document. A document that can specify the legal dimensions and regulation of new regulations, privacy, and data security, provision of human resources and creation of employment, social consequences, provision of infrastructure, and increasing the technical capabilities of governance policies and programs. A review of the efforts of many developed and developing countries shows that during the last decade, these countries have defined national digital transformation documents for themselves and defined their roadmap to achieve long-term goals.

Malaysia unveiled the National Digital Economy Plan in 2019, the main goal of which is to transform Malaysia into a high-income country with digital capability and technology-based technology that has become a digital pioneer in the Asian region. The goal of Malaysia's national digital economy program is to establish Industry 4.0, increase productivity in the manufacturing sector by 30%, improve Malaysia's position in the innovation capability index from 35th to 30th, and increase the skilled workforce from 18% to 50% in 2025. The digital economy strategy of the United Arab Emirates aims to improve the share of the digital economy in the non-oil economy from 9.8% in 2022 to 20% of the GDP in 2031. The vision of this country is to achieve the leadership role of digital transformation at the regional and global levels. Also, within the framework of "Project 2050", this country seeks to enhance its position within the global value chain, boost employment in the private sector, and promote the integration and utilization of technology in economic endeavors. The potential of the digital economy is so high that countries like India and Indonesia have been able to promote themselves to the category of emerging economies by using it. Also, digital technologies have provided a suitable opportunity for international companies to reach global markets and benefit from their opportunities for marketing their products.

In general, focusing on the digital economy by benefiting from the capacities of emerging technologies such as Fintech can cause economic development and, while strengthening Iran's role in the global value creation chain, turn our country into one of the technology hubs in the region. However, this important issue will not be possible without determining national policies and strategies in the field of the digital economy and digital finance.

Therefore, this research was conducted to design a model for the formation of the digital economy based on I-Fintech and the development of the digital finance ecosystem in Iran and seeks to address the questions below:

- What are the causal factors affecting the formation and execution of the IDE model in Iran?

- What are the endogenous factors affecting the formation and execution of the IDE model in Iran?
- What are the exogenous factors affecting the formation and execution of the IDE model in Iran?
- What are the effective strategies for the formation and execution of the IDE model in Iran?
- What are the consequences of the formation and execution of the IDE model in Iran?

The most important innovative aspect of the current research is the design and compilation of a comprehensive and operational model of the digital economy in Iran, which has not been done before in Iran. The important point in the current research is that the model presented in the research will be designed based on the local characteristics and economic conditions of Iran. In this research, a digital economy roadmap based on I-Fintech will be prepared in Iran. This will make coherent steps and plans to be implemented in this field and a clear vision of the future of the IDE in Iran will be seen. It is expected that this research will make a significant contribution to the progression of the digital economy and I-Fintech in Iran by providing a comprehensive and operational model. The implementation of this model can lead to increased efficiency, transparency, and innovation in the financial and economic sectors. This research also provides an overview of the present condition of the IDE in Iran, identifies key risks and opportunities, and suggests a framework for future research.

The organization of the paper is as delineated: In the second section, the domestic and foreign backgrounds of related research have been reviewed. Section 3 explains the methodology, and section 4 analyzes the data and research findings and presents the research model. The final section includes the discussion and conclusion, suggestions and solutions, challenges, and limitations of the research.

2. Literature Review

Considering the domestic and foreign research conducted in the field of the Digital Economy and I-Fintech and the newness of the subject in Iran, this research can fill the research gap in the literature on the subject. In recent years, research has been done in related fields, which will be discussed below.

Putri and Hanif (2024) investigated the role of Fintech in the propagation of Islamic finance in the digital age using the descriptive analysis method. The results showed a rising trend in the utilization of Fintech in Islamic finance under the influence of the Muslim population and highlighted the opportunities presented by Fintech for the advancement of Islamic financial instruments. Moreover, the results demonstrated that I-Fintech could play a crucial role in the progression of Islamic finance and facilitate the dissemination of Islamic financial products.

Gupta et al. (2024) examined the influence of social media on the progress of Fintech within the digital economy. Utilizing information sourced from the Scopus database, this investigation pinpointed pertinent keywords. The findings from the data analysis demonstrated a significant impact of social media on the advancement of Fintech within the digital economy. Furthermore, the study highlighted the diverse contributions of social media to the development of Fintech in the digital economy, encompassing networking, information dissemination, and promotional activities.

Astuti et al. (2023) investigated the evolution of the Islamic economy in the digital age, focusing on the role of Fintech, and used a qualitative method to analyze the evolution of Fintech in the field of Islamic economy. The acquisition of data was conducted via literature reviews and interviews with professionals. The findings showed that Fintech, serving as a form of digital financial advancement, holds the capability to expedite the progression of the Islamic financial domain and has a significant impact on financial inclusion and economic empowerment. Important Fintech tools in the advancement of the Islamic Economy include the availability of interest-free financing, halal investment, empowering individuals and small businesses, crowdfunding, P2P lending, and digital Sukuk. Promoting digital literacy, supporting the development of Islamic financial culture, creating collective awareness of the importance of financial integrity and ethics, and increasing Islamic financial literacy are some of the consequences of Fintech development in the Islamic economy.

Raimi et al. (2023) discussed the link between Fintech and the IDE from a cultural perspective. Using the qualitative approach, they answered the study

questions through critical discourse analysis. The outcomes showed that the achievements of Fintech in the IDE include businesses compatible with the principles of Sharia to present halal products and services, e-commerce based on Sharia, internationalization of Islamic financial products and services, and greater access to customers.

Seifollahi and Akbari (2023) identified the opportunities and obstacles of the digital economy in the progression of home businesses through in-depth semi-structured interviews and designed a conceptual framework using the thematic analysis method. The statistical community includes twelve people who were selected by purposeful sampling. The findings of the research showed that the concepts are in the form of two main themes of opportunities and challenges. The opportunities are in the form of five themes including networking capability, the convergence of technology with economic objectives, worldwide customer focus, the generation of job value, and the resilience of businesses. The challenges in the form of five themes include digital disparities in processes, the formalization of the informal economy tailored towards rural employment, negative societal impacts, cultural dimensions, technological hazards, and prospects.

Ahmadi (2023) investigated the advancement strategies of the digital economy in Iran. The findings demonstrated that the digital economy is the main driver of change and innovation in the world and Iran should adapt to it and use its opportunities. The advancement of the digital economy is not a choice but a requirement to solve part of the country's problems in Iran. Finally, solutions such as trying to deal with the departure of information technology experts from the country, direct and indirect government assistance to businesses active in the digital economy, changing policies, and comprehensive investment in the digital economy were proposed.

Barroso et al. (2022) focused on the rise of the Fintech industry and the digital transformation in banking. An analysis was conducted utilizing the VOS-Viewer software to categorize various keywords based on their co-citations and employing clustering methodologies. The findings demonstrated that the primary aim of the modern digital banking infrastructure is centered around empowering the customer as the primary catalyst for their activities, with the advancement of novel applications playing a crucial role in enhancing the overall user experience. The researchers also found that alliances should be created between Fintech and banks so that both can benefit from digitalization and current regulations should be revised through international standards.

Ray (2022) examined the relationship between digital transformation and Fintech in emerging markets using survey methods and thematic data analysis. Statistical analysis showed that digital transformation helps to make payments more effective and Fintech can play a key role in digital transformation. The outcomes confirmed that the growth of the digital economy requires digital transformation. They also found that cryptocurrencies have positive effects on payment systems in the Fintech industry.

Chen et al. (2022) investigated the link between the digital economy and Fintech using a two-way time-fixed effects model. The findings showed that the digital economy has the potential to enhance the Fintech sector, with the primary driver being the amplification of technological innovations to Fintech growth.

Vardomatskya et al. (2021) investigated the role of Fintech on the advancement of the financial industry in the digital economy. Through the utilization of institutional, retrospective, and comparative analysis, modeling, and usage forecasting, this research examined the correlation between Fintech and the digital economy. Findings indicated that IT enterprises can wield greater influence in the financial sector through the adoption of Fintech, promoting increased synergy among economic domains, and consequently fostering the emergence of novel, integrated industries rooted in digital technologies. Recommendations put forth encompass operational strategies such as facilitating the development of digital financial innovations, promoting the establishment of Fintech start-ups, aiding companies in the integration of digital financial technologies, and establishing a digital marketplace.

Abrorov and Imamnazarov (2021) investigated the influence of I-Fintech tools on the progression of the IDE in Uzbekistan. The analysis showed that increasing the issuance of Sukuk has a positive impact on economic growth because Sukuk is a suitable tool to reduce the level of risk by diversifying the portfolio and encouraging the issuer of Sukuk to execute more investment projects. Finally, the evidence confirmed

that I-Fintech will act as a new element in the advancement of the digital economy.

Za'aba et al. (2020) analyzed the role of I-Fintech as a driver in the IDE. A qualitative approach was adopted for this study, utilizing the content analysis technique on a range of published reports, magazines, and articles. The research findings highlighted the significance of I-Fintech within the IDE, outlining four key roles: enhancing the Islamic financial sector, supporting philanthropic endeavors, aiding small and medium enterprises, and promoting financial inclusion. Furthermore, the results underscored the expanding nature of the digital economy as a vital contributor to the global GDP. It is imperative not to overlook the IDE, as it serves as a crucial platform for the overall growth of the digital economy, with I-Fintech poised to play a pivotal role in its advancement.

Khaleghi (2020) investigated the drivers and challenges of the digital economy. The findings showed that the digital economy has introduced significant transformations to the conventional economy by reducing exchange costs and mediation, improving transparency and effectiveness, increasing the power of stakeholders and customers in various businesses, and focusing on advanced technologies and scientific processes.

Yarandi et al. (2020) evaluated the effect of the digital economy on the strategic model of knowledge and technology in Iran. This research was conducted using structural equation modeling using Smart PLS software, and the model for reaching the optimal situation in the digital economy was designed with the help of the four-stage Deming cycle or PDCA. The outcomes confirmed the fit of the structural model.

Asaadi (2020) investigated the impact dimensions of the digital economy on sustainable economic growth and fundamental changes in the classical economic system. The outcomes showed that the advancement of an economy based on digital platforms for developing countries is facing structural obstacles in production, trade, and competitiveness, low economic growth, and low productivity of production factors. This study argues that the new economic system created by reducing the costs of production and exchange increases the economic welfare of society. Also, the effect of technology and combined learning overcomes the principle of resource limitation in the economy and accelerates endogenous and sustainable economic growth with structural changes in the business environment. Finally, it emphasizes the role of governments in policymaking and providing the essential infrastructure for the formation of the digital economy.

3. Research Methodology

The present research is developmental and applied in terms of purpose, as it seeks to solve one of the important and current issues of Iran. In terms of the time of data collection, it is a cross-sectional survey; in terms of the nature of the data, it is mixed (quantitative and qualitative); and in terms of the research problem, it is descriptive and analytical. In terms of the method of data collection, it is documentary-library and field research. Descriptive research has both applied and basic aspects. In the applied aspect, the results are used in decision-making and planning, and the fundamental aspect deals with the discovery of facts and realities.

Given that the present research aims to design and develop a model of Islamic financial technology, the Multi-Grounded Theory (MGT) method is used in this research, which can be considered a new extension or modification of the grounded theory. The MGT framework was first introduced by Goldkuhl and Cronholm (2003) and it is a developed alternative approach to data analysis and theory development that does not rely solely on empirical validation but combines elements of induction and deduction to design a paradigmatic model and adds theoretical grounding to empirical grounding. Grounded theory is an approach that is conducted from an empirical perspective based on the context of the study. However, in MGT, three perspectives of theorizing, experience, and mechanisms of cognition are used to study the context. Many of the steps of the MGT are present in the grounded theory approach, but two main differences and advantages of the MGT method are (1) more systematic use of existing previous theories in the inductive approach. (2) Adding an explicit matching process between elements in the theory (internal grounding).

Figure 1 shows the research process and method. The paradigmatic model demonstrates the flow of processes and activities that have taken place in the context of the study and is one of the main pillars of the MGT method. In this method, data integration is of great importance. In open coding, the categories and their attributes have been designed and then how the

categories change along the defined dimensions have been specified. In axial coding, a systematic process is employed to enhance and associate the categories with subcategories. In the third stage, selective coding and the research paradigmatic model will be presented.

The data collection tool in the qualitative research approach will be semi-structured and in-depth interviews with theoretical and experienced experts, the characteristics of which are provided in Table 1. The data collection tool in the quantitative research approach will be a questionnaire that the researchers will develop based on the data collected in the qualitative research phase.

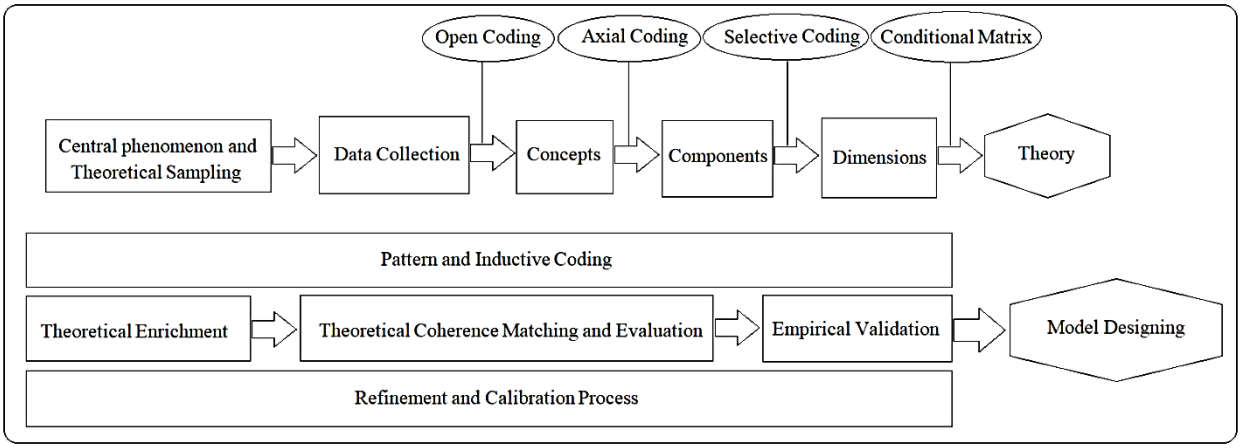

Figure 1. Research Process and Method

Table 1. Characteristics of the Interviewees

Theoretical Experts	Experienced Experts	Theoretical and Experienced Experts	Education	Work Place	Average Work Experience
Faculty members and outstanding professors of top domestic and foreign universities in Economics, Management, and Finance (14 Cases)	Experts in Digital Economy and founders of Fintech start-ups, managers of the stock market and insurance companies, banks and insurance companies, and active companies in the digital industry (12 Cases)	Policymakers and government managers in the fields of technology, economy, and digital (7 Cases)	MSc (12) PhD (21)	Iran (25) Malaysia (2) Turkey (2) Oman (1) Indonesia (2) Qatar (1)	12 Years

The proposed model in this research will be designed comprehensively and operationally based on the local coordinates of Iran. The qualitative research method and expert opinion will be used to prove the validity and efficiency of the research model. To this end, after explaining each of the presented models, the following tables will be provided to theoretical and experienced experts. The statements in this research will be designed based on the Likert scale in the efficiency section, and the respondents will be asked to score the mentioned models in the questionnaire on a multi-choice scale. Then, a numerical value will be assigned to them. In this research, the content validity method will be used to determine the validity, and before the questionnaires are developed, the opinions of 33 prominent experts in the fields of Fintech and Islamic finance will be used to make necessary modifications to the questionnaires. To ensure the validity and reliability of the quantitative and qualitative sections, the following were considered. To ensure the validity of the qualitative section, the following steps were taken:

a) Organizing processes for data recording and analysis: In the process of conducting interviews, recording, and note-taking were done carefully and in detail.
b) Verification by participants: 5 theoretical experts and 3 experienced experts reviewed the final report of the process and their specialized opinions were applied.
c) Diversification of participants: Diversity in experienced experts included founders, managers, and experts of startup companies and various institutions (stock exchange, insurance, bank) and diversity in theoretical experts included professors of prominent domestic and foreign universities in related fields who were interviewed.
d) Long-term research experience of researchers: The researchers had at least 12 years of experience and research experience in related fields. The research process also included data collection through interviews, field and documentary-library studies, data analysis and theorizing, and final approval for more than 2 years.

To ensure the reliability of the qualitative section, the following steps were taken, and the reliability coefficients of the extracted categories are presented in Table 2. Four criteria were used to accurately assess the validity of the qualitative analysis. The Holsti's coefficient of above 0.9 demonstrates a high level of confidence in the validity of the qualitative analysis. The Pi-Scott coefficient is another criterion for calculating the reliability coefficient, which is more appropriate, and a value of 0.85 was obtained, which is an acceptable number. The Krippendorff and Cohen's Kappa coefficients were estimated at 0.90 and 0.83, respectively, which are approved.

To ensure the validity and reliability of the quantitative section, three criteria listed in Table 3 were calculated. The AVE index for all constructs is greater than 0.5, which is approved. The closer the AVE index is to one, the higher the convergent validity. Cronbach's alpha for all constructs is greater than 0.7, which is acceptable. Composite reliability (CR) was also used to better assess reliability. The advantage of composite reliability over Cronbach's alpha is that the reliability of constructs is calculated not in absolute terms, but rather concerning the correlation of their constructs with each other. The CR for all constructs was found to be greater than 0.7, which is approved.

Table 2. Reliability Checking (Qualitative Section)

Criterion	Value
Holsti's Coefficient	0.92
Scott's Pi	0.85
Krippendorf Coefficient	0.90
Cohen's Kappa Index	0.83

Table 3. Validity and Reliability Checking (Quantitative Section)

Code	AVE	Cronbach Alpha	CR
C1	0.933	0.832	0.741
C2	0.867	0.725	0.824
C3	0.730	0.951	0.856
C4	0.681	0.853	0.913
C5	0.923	0.689	0.727
C6	0.743	0.727	0.819
C7	0.952	0.951	0.932
C8	0.734	0.782	0.725
C9	0.645	0.854	0.818
C10	0.842	0.681	0.934
C11	0.760	0.736	0.782
C12	0.781	0.845	0.835
C13	0.834	0.937	0.901
C14	0.653	0.844	0.863

Code	AVE	Cronbach Alpha	CR
C15	0.741	0.682	0.738
C16	0.685	0.819	0.772
C17	0.753	0.753	0.815
C18	0.860	0.927	0.923
C19	0.932	0.753	0.842
C20	0.658	0.806	0.741
C21	0.726	0.855	0.903
C22	0.841	0.914	0.862
C23	0.715	0.758	0.753
C24	0.946	0.805	0.845
C25	0.647	0.924	0.861
C26	0.914	0.863	0.764
C27	0.723	0.814	0.923
C28	0.616	0.753	0.855
C29	0.814	0.909	0.796
C30	0.795	0.842	0.844
C31	0.673	0.773	0.751
C32	0.583	0.861	0.834
C33	0.759	0. 795	0.922
C34	0.652	0.748	0.848
C35	0.709	0.856	0.765
C36	0.834	0.912	0.941

4. Results and Research Findings

The analysis of the research findings was conducted in two parts, quantitative and qualitative. In the qualitative approach, the data collection process included observation, interviews, documents and records, respondents' experiences and personal thoughts and experiences of the researchers until the data were saturated and reached theoretical sufficiency. In the qualitative approach, the research findings were analyzed in two dimensions, descriptive and survey. The process of theory formation in the grounded theory method is a movement from part to the whole. This method uses a series of systematic procedures to create a grounded theory about the phenomenon under study. In this approach, theoretical sampling was employed. Theoretical sampling is the process of collecting data to provide a model that is simultaneously collected, coded, and analyzed. In this research, MAXQDA and NVIVO software were used for qualitative analysis and coding. The analyses in this section include three stages open coding, axial coding, and selective coding. The research data in the quantitative phase were analyzed using Smart PLS and AMOS software. In the coding stages, 372 codes were identified, which after review and consideration were classified into 6 paradigms, 36 main categories, and 64 subcategories, which are detailed in Table 4.

Table 4. Paradigm and Related Categories

Paradigm	Categories	Subcategories
Causal Factors (P1)	Political and Economic Changes (C1) Administrative and Legislative Changes (C2) Technological and Communication Changes (C3) Social and Cultural Changes (C4) Environmental Changes (C5)	Administrative system and complex bureaucracy structure (S1) Non-smart and non-optimal budgeting in the country (S2) Imbalance between monetary and fiscal policies (S3) Increasing government intervention in the economy and price controls (S4) Lack of intelligent monitoring and auditing in the country (S5) Incorrect policies in the tax field (S6) Improper and non-transparent privatization (S7) Establishing complex rules and regulations, lack of transparency, and conflict of interests (S8) Weak and ineffective systems in electronic government (S9) Lack of optimal liquidity management (S10)
Endogenous Factors (P2)	Political and Economic Factors (C6) Cultural and Social Factors (C7) Shariah and Islamic Factors (C8) Infrastructure Factors (C9) Customers and Beneficiaries Factors (C10) Supervisory and Control Factors (C11) Investment Factors (C12) Rules and Regulations Factors (C13) Skill Factors (C14) Entrepreneurial Factors (C15) Cyber Security Factors (C16) Educational and Research Factors (C17)	Society's attitude towards technology and innovation (S11) Education level and access to education (S12) such as political stability and the rule of law (S13) Internet penetration rate (S14) Internet quality and stability (S15) Telecommunication infrastructure (S16) Privacy and security of users (S17) Laws and regulations to support digital businesses and e-commerce (S18) Technical and communication infrastructures (S19) Legal infrastructure (S20) Government investment (S21) Private investment (S22) Venture Capital (S23) The level of digital literacy in society (S24) Specialized skills of people in society (S25) The existence of an entrepreneurial culture (S26) Existence of security systems (S27) Creating strong security systems (S28) Specialized training and empowerment programs (S29) Establishment of research and development centers for emerging technologies (S30)
Exogenous Factors (P3)	The state of the world economy (C18) International sanctions (C19) Global competition (C20) Technological advances (C21)	Economic stability and global economic growth (S31) The emergence of new technologies such as AI, IoT, and Blockchain (S32) Competition between countries in attracting investment and digital businesses (S33) International trade agreements (S34) Non-compliance of domestic standards with international standards (S35)

Paradigm	Categories	Subcategories
Risks (P4)	Cybercrime (C22) Digital Divide (C23) Privacy Concerns (C24) Job displacement (C25) Over-reliance on Technology (C26) Environmental Impact (C27)	Data Theft (S36) Phishing (S37) Ransomware (S38) Unequal Access (S39) Digital Skills Gap (S40) Collection and Misuse of Personal Data (S41) Automation and Job threat (S42) Cyberwarfare (S43) Excessive Trust (S44) Technical Issues (S45) Energy Consumption (S46) E-waste (S47)
Strategies (P5)	Drawing the Roadmap of the IDE (C28) Risk Management Platform Design (S29) Fintech Sandbox Design (C30) Regtech Sandbox Design (C31) Suptech Sandbox Design (C32)	Compilation of The Data Governance System (C48) Compilation of new rules and standards (S49) Compilation of artificial intelligence document (S50) Compilation of big data document (S51) Blockchain document compilation (S52) Compilation of Internet of Things document (S53) Compilation of cloud computing document (S54) Formation of Jurisprudential Committee of Emerging Technologies (S55)
Consequences (P6)	Compilation of IDE Document (C33) Compilation of I-Fintech Document (C34) Establishment of Regtech (C35) Establishment of Suptech (C36)	Factors affecting sustainable growth and development (S56) Factors affecting the capital market (S57) Factors affecting the banking industry (S58) Factors affecting the insurance industry (S59) Factors affecting the financing system and Sukuk (S60) Components affecting the tax system (S61) Components affecting the audit system (S62) Factors affecting financial inclusion (S63) Factors Affecting Economic Resilience (S64)

Based on the proposed model, 6 paradigms were considered including causal factors, exogenous factors, endogenous factors, Risks, strategies, and consequences. To validate the model, the relationship between the questionnaire questions and the categories was examined to ensure that the latent variables were correctly measured. Therefore, the factor loading of the codes was calculated using AMOS and the results are presented in Table 5. Factor loading is a numerical value that indicates the strength of the relationship between a latent variable and a manifest variable in the analysis process. The factor loadings of all codes are greater than 0.6, which is completely satisfactory and approved. Also, given that the t-values are greater than the critical value of 1.96 (at a significance level of 0.05), the factor loadings of the codes are significant.

To investigate the quality of the categories of the research model, two indexes, "Cross-Validity Common (CV-Com)" and "Cross-Validity Redundancy (CV-Red)", were calculated using Smart PLS, and the results are shown in Table 6. According to the research of Hair et al. (2012), values above 0.35 indicate a strong level of quality. Therefore, the quality of the research model categories is confirmed at a strong level.

The research model is shown in Figure 2. Research findings revealed that factors affecting the digital economy can be classified into three axes: (1) Causal Factors: Political and Economic Changes, Administrative and Legislative Changes, Technological and Communication Changes, Social and Cultural Changes, Environmental Changes. (2) Endogenous Factors: Political and Economic Factors, Cultural and Social Factors, Shariah and Islamic

Factors, Infrastructure Factors, Customers and Beneficiaries Factors, Supervisory and Control Factors, Investment Factors, Rules and Regulations Factors, Skill Factors, Entrepreneurial Factors, Cyber Security Factors, Educational and Research Factors. (3) Exogenous Factors: The state of the world economy, International sanctions, Global competition, Technological advances.

Table 5. Factor Loading of Subcategories

Code	Factor Loading	t-value	Code	Factor Loading	t-value
S1	0.825	21.614	S33	0.917	16.072
S2	0.732	18.462	S34	0.753	27.351
S3	0.654	9.726	S35	0.681	14.427
S4	0.815	13.573	S36	0.735	10.542
S5	0.771	26.429	S37	0.834	21.753
S6	0.950	11.584	S38	0.805	9.811
S7	0.814	26.523	S39	0.667	17.455
S8	0.674	7.645	S40	0.826	11.827
S9	0.723	18.659	S41	0.748	15.632
S10	0.917	14.362	S42	0.659	25.134
S11	0.742	9.453	S43	0.847	20.676
S12	0.652	16.571	S44	0.782	18.314
S13	0.735	11.437	S45	0.851	11.427
S14	0.872	12.863	S46	0.672	26.963
S15	0.663	22.752	S47	0.804	9.817
S16	0.824	8.434	S48	0.742	13.834
S17	0.831	16.523	S49	0.825	27.452
S18	0.945	11.459	S50	0.761	18.731
S19	0.623	20.741	S51	0.865	12.845
S20	0.817	10.928	S52	0.764	24.467
S21	0.726	13.452	S53	0.926	19.733
S22	0.917	17.439	S54	0.683	14.189
S23	0.782	21.875	S55	0.782	22.543
S24	0.851	9.653	S56	0.906	21.817
S25	0.672	15.482	S57	0.758	16.540
S26	0.853	10.313	S58	0.950	11.725
S27	0.784	19.640	S59	0.846	23.608
S28	0.841	25.146	S60	0.679	15.765
S29	0.725	21.325	S61	0.753	8.413
S30	0.819	17.508	S62	0.824	13.439
S31	0.706	10.419	S63	0.741	20.528
S32	0.824	28.632	S64	0.937	17.663

Table 6. Checking Quality of Categories

Code	CV-Com	CV-Red	Code	CV-Com	CV-Red
C1	0.536	0.534	C19	0.572	0.414
C2	0.474	0.621	C20	0.481	0.537
C3	0.581	0.562	C21	0.522	0.646
C4	0.632	0.595	C22	0.617	0.474
C5	0.545	0.627	C23	0.493	0.691
C6	0.614	0.448	C24	0.712	0.517

Code	CV-Com	CV-Red	Code	CV-Com	CV-Red
C7	0.423	0.523	C25	0.811	0.383
C8	0.527	0.641	C26	0.651	0.451
C9	0.741	0.592	C27	0.372	0.705
C10	0.673	0.408	C28	0.465	0.381
C11	0.652	0.629	C29	0.582	0.462
C12	0.751	0.541	C30	0.527	0.647
C13	0.417	0.635	C31	0.646	0.521
C14	0.653	0.548	C32	0.762	0.445
C15	0.422	0.473	C33	0.563	0.632
C16	0.619	0.616	C34	0.640	0.525
C17	0.732	0.527	C35	0.581	0.411
C18	0.531	0.453	C36	0.529	0.637

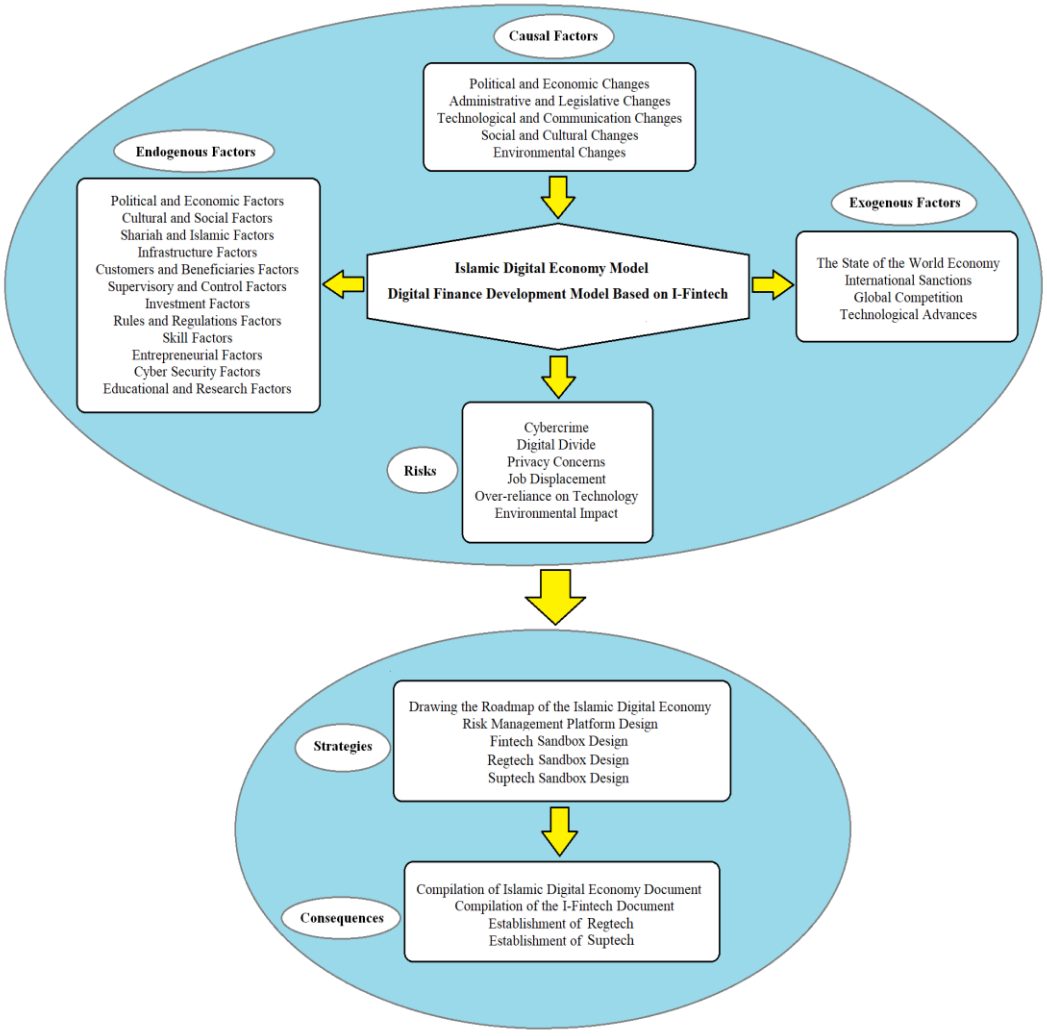

Figure 2. Research Model

To evaluate the performance of the research model and the fit of the model, 5 indicators listed in Table 7 were calculated. Model fit is a method for measuring the degree of compatibility and alignment between a theoretical model and an empirical model. The RMSEA index is less than 0.05, which indicates a good fit for the model. The GOF index is greater than 0.36, which confirms a strong level for the research model. The values of all three indices, AGFI, PNFI, and NFI, are above 0.9, which is acceptable and approved.

To evaluate the research quality, four criteria were used based on the research of Guba and Lincoln (1994) and Anney (2014): Credibility, Reliability and Stability, Confirmability, and Transferability. The final results of the research quality assessment were approved based on all criteria, which are detailed in Table 8.

Table 7. Checking Model Fit

Criterion	Value
RMSEA	0.027
GOF	0.614
AGFI	0.931
PNFI	0.948
NFI	0.919

Table 8. Research Performance Evaluation

Criterion	Activity Description and Final Evaluation
Credibility	To ensure credibility, participants with a maximum diversity of experiences in the relevant fields of expertise were selected. The sampling process continued until the data reached saturation. The organization of the processes for data recording and analysis, and for conducting interviews, recording, and note-taking was done carefully and in detail. To achieve content validity, a panel of experts was used to generate concepts and categories to code them and also to review them with the participants. The research validity was confirmed through formal and content validity and calculation of the relevant indices.
Reliability and Stability	In this paper, a research audit was used, which means that three external observers carefully reviewed the data to increase the research stability. Also, to increase the data reliability in similar conditions and time and changes in decisions made during the research process, it was tried to avoid prolonging the data collection time (conducting interviews) and all participants were asked about the same relevant field of expertise. Finally, the consistency, logicality, and coherence of the research findings were confirmed.
Confirmability	The final report of the analysis process was supervised and reviewed by theoretical and experimental experts, and their specialized opinions were applied. Also, the research process was made available to specialists in the research field, and the correctness of the research method was confirmed.
Transferability	The diversification of participants with high experiences and the use of specialized views on the research phenomenon increased the transferability of the findings. Also, due to the valid references and by providing accurate and applicable findings along with the drawing of strategies and consequences, the transferability was confirmed.

5. Discussion and Conclusion

The world is rapidly moving towards digitalization and it has surprisingly affected the economies of countries. Digitalization of the economy has become one of the main and dominant approaches in most countries of the world. The digital economy has a high share in developed countries and has created a lot of added value while developing countries have not yet fully benefited from the capabilities of the digital economy. Considering the traditional structures governing production and Iran's economic challenges, the progression of the digital economy is a requirement and not a choice to solve the country's problems in Iran. According to global statistics, the general situation of Iran in the indicators of the IDE is not favorable and the digital economy occupies a low share of the country's economy.

Considering that Fintech is one of the emerging layers of the digital economy, it plays a key role in the development of digital finance and can provide a suitable platform for the advancement of the digital finance ecosystem. Today, the path of sustainable growth and development passes through the path of the digital economy, and also, considering the importance and necessity of planning and policing in the IDE, it is

necessary to design a suitable model and develop a road map for the digital economy.

I-Fintech has attracted the attention of policymakers in Islamic countries due to its high potential for the progression of the digital economy. To benefit from the capabilities of I-Fintech, it is necessary to design and formulate a comprehensive and local model for the progression of the digital finance ecosystem in Iran. Considering the significant growth of I-Fintech in the world and the fierce competition of Islamic countries in the field of financial technology, this research focuses on the design of a digital financial model based on I-Fintech and drawing a roadmap for the IDE. For this purpose, this research was carried out in two parts, quantitative and qualitative, and the MGT method was used in theorizing and designing the model. The research model includes 6 paradigms, 36 sets, and 64 sub-sets.

Developing the digital economy infrastructure, removing obstacles and accelerating the formation of the digital economy ecosystem in Iran, supporting digital platforms and businesses in the country, creating a platform for the development of basic technology employment in the country, removing obstacles to the activity of Iranian platforms at the international level, and developing digital economy skills from Among the objectives of the present research.

Also, in parallel with the formulation of the road map, the network infrastructure should also be developed and the grounds for the formation and development of businesses should be provided, and the process of regulation, licensing, entering the stock market, and financing should be facilitated. On the other hand, information security is another challenge that must be solved for the digital economy to develop, because if there is a breach in information security, users' trust in e-commerce and the digital economy will be lost, which will be very difficult to restore. Iran needs extensive investments in the realm of information security. Revision of regulation and legislation in the digital economy is another point that should be applied. In various areas such as Blockchain, AI, and Big Data, responsible and decision-making institutions should enter and make effective revisions to laws and regulations.

The consequences of implementing the research model are summarized in several axes, which are mentioned below.

- Economic growth and development: By using digital technologies, businesses gain maximum productivity and gain new markets to offer their products and services. Start-up companies active in the field of technology and digital economy create new job opportunities and gradually increase the income of those active in this field ultimately leading to the flourishing of strategic industries.
- Reduction in costs: The utilization of digital technologies within the economy leads to a decrease in costs. Automatic processes (Automation) and online services, such as electronic banking and online shopping save money and time. Cloud computing and information-sharing services play an important role in reducing infrastructure costs.
- Stable security: New security techniques, authentication, and encryption in digital technologies are widely used in the digital economy. The security capabilities and authentication of users in electronic payments are one of the aspects of security in the digital economy that is developing day by day and leading to the improvement of the security of financial and economic services.
- Creating a competitive environment: The digital economy is the most competitive type of economy because, in the digital economy, users always have different options to choose from. In this way, companies providing services and products always try to improve their products and services compared to their competitors to attract customers and make more profit. The creation of this competitive environment leads to an enhancement in the quality of providing services and products
- Creating Jobs: The digital economy has the potential to generate employment opportunities and decrease the unemployment rate. Industries related to technology and services in this field create new and diverse jobs. Also, this economy allows people to start their businesses online and find new markets for their products and services.

Limitations and Challenges:

- Mandatory pricing: tariffs for internet and communication services and the price of various equipment and tools are determined mainly by the government at a low price. This price suppression has prevented investment in this sector.
- International sanctions: supply of equipment, access to international licenses and licenses, supply of new technologies, and many other activities in the first layer are not possible without communication with the world.
- Low level of venture capital: The knowledge of venture capital in Iran is very limited, the amount of investment in Iran's start-up ecosystem is very low, and financing for the progression of the digital economy is problematic.

Suggestions and Operational Solutions:

According to the research model, the following practical solutions are suggested for the digital economy development in Iran:

1) Compilation of a clear, transparent, and comprehensive perspective to accelerate the advancement of the digital economy in all economic sectors of the country
2) Providing digital skills needed by the country by improving the state of human resources skills
3) The evolution of government structures and governance of the country to specialize the trustees and policy-making bodies overseeing various areas of the digital economy such as Fintech, AI, Blockchain, and Big Data.
4) Creating technological connections in the industrial value chain in the context of digital developments
5) Reducing the technology level gap in the country's industrial sector with global pioneers by attracting appropriate domestic and foreign investments and accelerating the transfer of emerging technologies to transform various sectors in the country.
6) Allocation of various financial and tax incentives to encourage businesses to accelerate the realization of digital transformation through increasing the employment of specialized human capital and also implementing emerging technologies in the country's businesses.
7) Developing and strengthening the infrastructure for the use of AI the IoT and smart devices in the production sector
8) The formation of specialized research and educational cores with the cooperation of the public and private sectors of the country to accelerate the advancement of the IDE.
9) Promoting the main infrastructure of the digital economy, such as continuous access to high-speed and low-cost Internet
10) Development of a framework for providing all kinds of digital services to the general public

The digital economy development in Iran leads to transformation in the financial and economic sectors. This study offers significant perspectives on the obstacles and potentials of I-Fintech in Iran and formulates a framework for fostering the digital finance environment in Iran. The outcomes could be utilized by governmental bodies, policy formulators, and lawmakers to create measures and standards that facilitate the progress of the digital economy. In addition, the results can be utilized for startups, stock exchange companies, banks, and insurance companies to develop I-Fintech products and services. More investigations are needed to assess the impact of I-Fintech on the financial and economic system, its challenges and opportunities, and to create a framework for digital finance legislation.

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