

## RESEARCH ARTICLE

## Open Access

## Designing a Systemic Model for Promoting the Adoption of Virtual Banking in Iran's Banking Industry

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### Abstract

This article was conducted with the aim of providing a model of acceptance of virtual banking in the banking industry of Iran. The method of conducting the research was based on the pluralism of the ground theory in the data, which according to conducting the research at first using library studies, identifying the constituent elements of participation after in-depth interviews with 20 professional and scientific experts, in order to extract the elements and Thematic analysis method was used to group them. The output of this stage was the identification of 111 indicators in the form of 5 main dimensions and 12 sub-dimensions. Convergent and divergent validity were used to determine the validity, and the results were at the desired level, and the results showed that in order to accept virtual banking in the banking industry of Iran, considering the current situation and the complexities of banking in Iran, a strategic plan regarding virtual banking should be prepared and compiled, which the attention of the authorities And those involved in this field are essential to the capacities of the private sector in banking activities and the expansion of banking facilities. But in order to solve the problems, pay attention to the organizational strategies that include the formulation of a strategic plan for the participation of the private sector and the use of control and evaluation tools to ensure the effectiveness of teamwork and partnership in banking, along with creating a working environment with trust and honesty among customers to improve communication. Personal and interpersonal among the participants can provide a sustainable basis for the adoption of virtual banking.

**Keywords:** *Virtual banking, Iranian banking industry, Grounded Theory.*

### Introduction

Basically, in every two decades, electronic business facilities are provided according to the capabilities of the information technology of that era. While ATM machines and credit cards were introduced in the first twenty-year era, in the second era, it became possible to use electronic data exchange and the international banking system (Babarinde, 2022: 6). But in the third era, with the development of the Internet and its commercial applications, a

fundamental change has been made in this period. In such a way that in the evolutionary process of e-commerce, a noticeable distinction can be made between traditional e-commerce and its internet type (Rezaei et al., 2021: 29). Currently, the Internet network has become a great platform for conducting commercial transactions and marketing, especially in banks (Davoodi et al., 22: 11). The use of internet bank services, one of the

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new achievements of the information age, has greatly changed the world trade and transformed the commercial rules and created great advantages in business methods (Erfani & MohammadMoradi, 2022: 541). Online shopping in the world is becoming more economical and convenient than before and allows customers to compare the price/quality in a better way. And it has led to more customer satisfaction than before, and most people prefer to make their purchases through the Internet and online, as well as deposit their money through the Internet Bank (Denghua et al., 2021).

Banks always seek to fulfill the expectations and needs of their customers. By facilitating communication with customers and increasing its speed and effectiveness, information technology provides the basis for improving performance and innovation in providing services. Failure to pay attention to the added value and customer satisfaction will reduce the future referrals of customers and also lose customers' support for the bank, and ultimately it will not be possible to achieve the bank's goals. In recent years, however, the formation and emergence of online banking services has expanded in the world (Ahmadyan & Ghasemi, 2021: 453). Today, societies have become increasingly dependent on computers and computer networks, and a suitable interactive environment has been provided to establish communication between people. Geographical distance and borders have lost their importance and the expansion of new communication and electronic media and the Internet has created a space called virtual space. Virtual space is a global space; Boundless, beyond space and beyond time (Kian Mehr et al., 2021: 167). Virtual banking is created in virtual space and with the help of it, people can benefit from all kinds of electronic services, many of which require the existence of electronic payment, without going to bank branches and through computers, mobile phones and devices. Shop ATMs can

use banking services (Gholamian et al., 2021: 53). In this way, virtual banks are a new generation of banks that offer a variety of banking products and services to the public using the latest achievements in information and communication technology and without the need for a physical branch (Lionello et al., 2020: 622). Virtual banking is a new field in the virtual space and the world of e-commerce, which provides a very suitable position for providing banking services. Although electronic banking, internet banking and virtual banking coincide with each other in some cases, they also differ from each other in some cases (Mir et al., 2022: 89). In fact, virtual banking means the presence of banks in virtual space with its general concept. This is fundamentally different from internet banking services, mobile banking, bank cards, and generally the services we refer to as electronic banking. Considering that the Internet is the most important tool used in virtual banking, perhaps it can be said that the most advanced example of Internet banking is virtual banking (Karami et al., 2020: 223). Although the banking industry in Iran has made significant progress in the use of electronic banking services in the last two decades, it is still far from the concept of virtual banking, and it is necessary to implement solutions and measures to spread the acceptance model of virtual banking and facilitate the increasing tendency towards it. be presented (Fakheri, 2021: 208).

The importance of this issue can be examined and verified from several aspects.

1. virtual banking is basically a type of electronic banking according to some researchers, and according to others, it is an upgraded type of traditional electronic banking (Sultan Khan, 2021: 328).
2. The lack of proper hardware, software and telecommunication infrastructures has been one of the influential factors in the non-expansion of virtual banking, but the adoption of virtual banking is one of the

important issues that can be considered in the competitive environment of banking.

3. Virtual bank is a computerized bank that is able to perform most of the banking tasks that normal banks do, with the difference that there is no need to go to the branch and people can access it from any computer at home. They can do their desired banking and business affairs (Saeidi et al., 2021: 176). In other words, in virtual banking, all steps, from depositing money for deposit to receiving and transferring funds and exchanging bank documents with all countries of the world, etc., are done through computers. Implementation of anti-money laundering laws, high security and transparency of exchanges will be possible with the establishment of these banks (Yakubu & Muhammed, 2020: 400).

The necessity of reviewing this article can be reviewed from several aspects. First, virtual banks are a new generation of banks that use the latest achievements in information and communication technology and offer various banking products and services to the public without the need for a physical branch. 24-hour access (at any time and place), ease, access, speed and security are among the advantages of such banks (Chavda, 2021: 149). Second, the acceptance of virtual banking requires that people be aware of its benefits. If people used to save their money in banks, using virtual banks will save their time as well (Skeie, 2019: 80). Time is the most valuable human asset, which cannot be recycled in any way due to the shortness of human life on this planet. Among the benefits that help the acceptance of virtual banking are the reduction of social problems such as inner and outer city travel and as a result the reduction of opportunity costs, virtualized business prosperity and the liberation of banks in providing certain services and creating opportunities for Introducing new products ( Mirfallah Lialestani & Khamseh, 2021:

160) Despite the mentioned advantages, virtual banking has evolved all over the world, but it has not been universally accepted. Some countries prefer a hybrid approach and this is because of the obstacles that virtual banking is facing (Javid et al., 2021: 27).

Now, the basic question is, what are the components of the virtual banking acceptance model in Iran's banking industry?

### Research Background

The results of the research by Aghanoori Kopaei et al. (2021) entitled: "Presenting a model to identify the challenges of virtual currencies in the marketing of the banking industry of Iran" showed that causal conditions have been identified as one of the important dimensions of digital currencies. The causal conditions identified in this research are a combination of three categories of technological, economic, and regulatory factors, and in particular, regulatory factors are of great practical importance. The results of the article by Asadollah et al. (2021) "Open Innovation" once again emphasizes the importance of the cooperation of the banking system with financial technology and financial start-ups. Therefore, it is suggested that these companies be considered as the main elements of the network of partners and suppliers in the open banking business model. Financial technology can lead to the improvement of infrastructure and supply chain, increasing competitive advantage, improving customer orientation and excellence in quality management, and complementing the banking system. The results of Mohammad Ebrahimzadeh Sespasgozar et al.'s research (2018) as: "Investigation of the influencing factors on the acceptance of digital technologies in the banking system" showed the effect of perceived ease and perceived usefulness on approval attitude and the effect of attitude and perceived usefulness on creating intention to use in direct customers and It is significant and the effect of behavioral

control on creating intention to use is significant and opposite. But the effect of subjective norms on the intention to use has not been confirmed. The results of Ale Emran et al.'s research (2019) entitled: "The effect of the Internet on the efficiency of the banking system (a case study of selected banks in Iran)" showed that the number of Internet customers of banks and the number of Internet transactions have a positive and significant effect on the efficiency of the banking system in Iran. In the long term and with other factors being constant, if the number of internet customers increases by 1000 units, the rate of return on assets and the rate of return on equity will increase by 0.18% and 0.16%, respectively. Also, an increase of 1000 units in the number of internet transactions of banks has improved their assets' earning rate and their equity's earning rate by 0.17 and 0.13%, respectively. The results of Saadi et al.'s article (2019) entitled: "Investigation of barriers to electronic banking in Iran with a meta-analysis approach" showed that meta-analysis in the field of barriers to electronic banking of 7 variables shows that managerial barriers with an effect size of 0.751, cultural barriers with Effect size of 0.598 and legal obstacles with effect size of 0.579, technical obstacles with effect size of 0.544, and economic obstacles with effect size of 0.518 have the greatest deterrent effect in the establishment and development of electronic banking. The results of Alhumoudi's (2022) article titled: "Electronic banking performance and the mediating effect of customer satisfaction: structural equation model approach" showed that it identifies four main components of electronic banking: efficiency, reliability, service quality, and customer satisfaction.

Belbergui (2021) in an article entitled: "Overview of electronic banking: concepts, challenges and solutions" believes that the age of people, level of education, amount of income as well as their job and people's willingness to do banking matters There is an

electronic relationship. Mashali (2020) in an article entitled: "Development of electronic banking channels and market share in developing countries" reached the conclusion that the implementation of monetary and financial policies by the central bank and the government to achieve the goals Due to the uncertainty of the demand for money, it sometimes brings the opposite result.

The innovation of the current article can be examined in several ways:

1. First; Analyzing and identifying the constituent elements of participation in virtual banking;
2. Identifying and solving the main problems in virtual banking and providing organizational strategies to solve existing problems;
3. Designing and presenting a virtual banking acceptance model in Iran's banking industry.

### Method

According to the subject of the research, which is to present the virtual banking acceptance model in the banking industry of Iran, this research will be analyzed using the theme analysis method. Therefore, the methods of collecting information are different in different stages. a) Collecting information and identifying the factors in the phase of identifying and studying related articles and books and interviewing experts, then according to the above question, there is a need to choose a specific criterion for including or not including the articles and works done in order to That way, we can be sure about the good formation of the research. These criteria are necessary because as filters, they eliminate incorrect and irrelevant information. For this purpose, in order for a study to be considered in the systematic review of this research, it must first be a scientific article published in a university journal that has a scientific review, in addition to the fact that it must have been published between 2000 and 2019. In addition,

it should have been taken into consideration, whether in an operational method or conceptually, it has an effect on the goals of the research (–study) and since the concepts and ideas in management progress and develop very quickly, for this reason. Articles older than fourteen years are not considered suitable because it can cause problems and distort the results. Of course, it should be noted that in addition to the articles selected based on the above criteria, some articles in lower-ranked journals and even articles presented in conferences have been taken into consideration in order to have a more comprehensive access to We have literature related to this field. Searching of articles in information databases has been done. At the stage of searching for articles, it is necessary to use a suitable search strategy to identify potential articles for literature review. In the continuation of the recognition phase, in order to complete the information and enrich the theoretical grounded, as well as paying attention to the conditions, through in-depth interview sessions with experts and experts. In qualitative research, a comprehensive interview or a targeted conversation is one of the well-known methods used to collect data. The ascending form is used.

b) Model design phase, in this phase the goal is to determine the content codes and finally determine the relationship between them.

c) evaluation phase. In the second stage, using the data collected from interviews and other available data, as well as using tools such as questionnaires, quantitative information is collected about the phenomenon under study. At this stage, the collected information is analyzed using statistical techniques and the final research model is tested using statistical methods such as structural equation model and path analysis. For this purpose, structural equation modeling based on partial least squares has been used. In the following, this method will be examined in detail.

Therefore, the research method is a combination design (qualitative-quantitative) of the type of pluralism in the data, which according to conducting the research in three separate phases, in the first step by using library studies, some of the constituent elements of the identification model and then to In order to localize and identify other factors affecting the model, after an in-depth interview with 20 professional and scientific experts (based on studies and interviews, the statistical population of this research includes the study of some articles and books related to the subject and 20 experts). professors and bank managers in the province), using the purposeful sampling method, 20 experts were selected as a quantitative sample. Theme analysis method was used to extract elements and group them. Finally, the proposed model using equations A structure based on partial least squares approach will be tested and measured.

## Findings

In order to formulate and present a model for the adoption of virtual banking in the Iranian banking industry in order to achieve the research goals, a number of 45 articles were identified through a systematic review, and after reviewing and using the content analysis method, the factors and elements that constitute the role of virtual banking acceptance factors in the banking industry Iran, which is stated in the theoretical literature, was identified. At this stage, in order to complete and localize, through interviews with the studied experts and then analyzing the content of the materials stated during the interviews, other effective elements in shaping the presentation of the model were obtained.

Causal conditions: Causal conditions are a set of events and conditions that affect the central category. The most important factors affecting all three central phenomena are as follows.

Table 1

*Conceptual categories constituting the theme of causal factors (research findings)*

Main category	Subcategory	Related topic	Reagent	
<b>Causal factors the adoption of virtual banking in Iran's banking industry</b>	Employee characteristics	Motivating employees	Internal inclination of employees to virtual banking	
			Employees' desire for virtual banking knowledge skills	
			Interest in virtual banking	
			Interest in continuous learning of virtual banking skills	
			Positive attitude of employees towards virtual banking	
			Employees' positive attitude towards knowledge sharing in virtual banking	
		Employee views	Interest in career challenge and continuous training in virtual banking	
			Abundant attention and interest in the work environment in virtual banking	
			Adaptability to different conditions in virtual banking	
			Ability of employees	The efforts of employees to strengthen individual characteristics
				Awareness and understanding of complex issues in virtual banking
				Ability to communicate and transfer thoughts and feelings to others
	Organizational leadership	Appropriate targeting and efforts to achieve goals	Needs assessment of organizational goals in virtual banking	
			Ensuring that virtual banking goals are achievable	
			Providing constructive suggestions to advance goals in virtual banking	
		Using incentive and reward system	Rewarding innovative actions and thoughts in virtual banking	
			Encouraging group activities of employees in virtual banking	
			Encouraging employees to share knowledge	
			Establishment of service compensation system in virtual banking	
			Increasing incentives and organizational drivers in virtual banking	
			Management skills	Existence of tourism-oriented management in virtual banking
		Having the skills to evaluate the performance of employees		
		Documentation of knowledge in virtual banking		
		Having critical thinking in virtual banking		
		The ability to solve problems in virtual banking		
		Smart leader	Supporting and strengthening creativity in virtual banking	
			Creating a clear and open environment and strengthening the spirit of criticism	
Motivating and empowering employees in virtual banking				
Self-confidence and self-belief and intelligence				
Creating opportunities for the advancement of employees in virtual banking				
Organizational Structure	Organizational learning	Organizational knowledge as the capital of the organization		
		Learning and sharing the knowledge gained by members in virtual banking		
		Sharing knowledge gained by members in virtual banking		

Main category	Subcategory	Related topic	Reagent
		Organizational Culture	Paying attention to the knowledge-seeking culture in virtual banking
			The participation of organization members in strengthening the norms of the organization
			Strengthening the sense of connection between organization members in virtual banking

**Contextual conditions or the prevailing context:** are the set of conditions that provide the context of the phenomenon in question and influence the behaviors and actions. The conditions of the aerial context of the central category affect the results resulting from it. In

this research, the background conditions are divided into two main categories; hardware and equipment, laws and policies, but it affects the results of the central phenomena of this research.

Table 2

*Conceptual categories constituting the theme of Contextual factors (research findings)*

Reagent	Related topic	Subcategory	Main category
<b>Contextual factors of acceptance of virtual banking in the banking industry of Iran</b>	<b>Facilities</b>	Access to facilities	Easy access of employees to organizational information
			Employee access to information technologies and systems
			Access to modern hardware technologies
			Access to the virtual network as a source of knowledge
	Infrastructures		The presence of technological and modern equipment in virtual banking
			The existence of technological infrastructures in virtual banking
			Pursuing the rapid and continuous growth of technological changes
			Adaptation and coordination of the organization with rapid changes in technology
	Rules and policies	Organizational support	Providing an organizational environment for knowledge sharing
			Organizational management support of employees' performance
			Creation of employee talent management
			Providing conditions for learning and growth
Organizational policies		Strengthening individual characteristics, motivations and perseverance in members	
		Moving in the direction of profitability of the organization and customer satisfaction	
		Promoting knowledge management through guidelines and rules	
		Having a competitive advantage in virtual banking	
			Establishing a relationship between knowledge management and long-term strategy

**Intervening conditions:** mediating conditions are general and broad, which affect the way of action/reciprocal actions. In the current research, based on the content analysis of the interviews,

the following categories have been extracted as intervening conditions:

Table 3

*Conceptual categories forming the theme of intervening factors (research findings)*

Reagent	Related topic	Subcategory	Main category
<b>Intervening factors of acceptance of virtual banking in the banking industry of Iran</b>	The level of knowledge of the organization	Knowledge identification	Analysis of existing knowledge to identify the necessary knowledge of virtual banking
			Determining the mechanism of acquiring knowledge optimally
			Identifying strategic points of knowledge
		Knowledge Application	Sharing intellectual and creative resources of virtual banking
			Efforts to produce knowledge in the organization
			Show and facilitate the supply of knowledge for employees
	Organizational communications	Internal communication	Helping employees to apply knowledge in virtual banking
			Continuous communication between employees
			Establishing cross-organizational connections
		Response speed	Speeding up problem solving and decision making
			Performing joint tasks in collaborative working conditions
			The quick response of the organization to new ideas and models in virtual banking
Organization modernization	Use of office automation system	Application of technologies in daily work activities in virtual banking	
		The ability to quickly search for information in cyberspace	
		Using technology in knowledge sharing	
	Use of MIS	Information platform using MIS	
		Using information technology to increase speed and accuracy	
		Facilitating access to system information for employees	

**Strategies:** The desired strategies refer to providing solutions to face the studied phenomenon, whose purpose is to "manage, deal with, accomplish and show sensitivity to

the studied phenomenon." which is extracted in the following form in the case of this research.



Table 4

*Conceptual categories constituting the theme of strategies (research findings)*

Reagent	Related topic	Subcategory	Main category
<b>Adoption strategies of virtual banking in Iran's banking industry</b>	Axial regulation	Attention to the mission of the organization	Long-term targeting in virtual banking
			Compilation of the organization's strategic knowledge plan
			Providing strategic options in the organization according to opportunities
		Attention to teamwork	Formation of interactive groups in organizations
			Attention to the collective memory of employees
			Encouraging team building and employee participation in team work
	Pivotal development	Performance Assessment	Continuous evaluation of departments and levels of the organization
			Evaluation of the level of implementation of knowledge management in the organization
			Evaluating the effectiveness of organizational activities
		In-service training	Using control and evaluation tools to ensure organizational effectiveness
			Holding educational workshops for employees in virtual banking
			Development of training programs for skill enhancement
Quality management	Training in the field of access to information		
	The existence of honesty and integrity among employees		
	Improving personal and interpersonal communication among employees		
			Creating a work environment with trust and honesty
			Increasing trust in the organization to realize learning in the organization
			Improving the speed and quality of customer communication in virtual banking
			Trying to achieve customer satisfaction
			Modeling successful virtual banking abroad

**Consequences:** Consequences are the results obtained from the strategies and actions related to the central category.

Table 5

*Conceptual categories forming the theme of consequences (research findings)*

Reagent	Related topic	Subcategory	Main category
<b>Consequences of accepting virtual banking in Iran's banking industry</b>	Human resources management	Employee commitment	High sense of responsibility of the employees for the assigned duties
			High commitment of organization members to their organizational goals and roles
		Capacity building in employees	Improving the qualitative capabilities of employees
			Flexibility of employees in facing problems
			Improving employee performance through member participation and cooperation
			Participation and continuous learning of employees to improve job performance
	Organizational dynamics	Organisational Learning	Dissemination of employee learning throughout the organization
			Action for learning
			Providing the right knowledge at the right time to the right person to maintain an advantage
		Gaining a competitive advantage	Integrating and coordinating knowledge as one of the ways to achieve and maintain competitive advantages
			Improving the competitive position of products
			Following the best solutions and procedures in order to adapt to the changes
Organizational entrepreneurship	Organizational Excellence	Organizations' environment in order to achieve competitive advantage	
		Achieving organizational goals with maximum effectiveness	
		Achieving organizational productivity	
	Innovation	Achieving progress and excellent performance of the organization	
		Doing creative work by members in virtual banking	
		Value creation through the application of knowledge in the organization	
profitability	profitability	Achieving organizational goals with high profitability	
		Participation in cost reduction and high added value in virtual banking	

In order to measure the validity of the research tool, the convergent validity technique (AVE index) was used. According to the values of Table 6, the index related to convergent validity indicates that the validity of the sub-categories of causal, contextual and structural factors and strategies and consequences in the situation They are in a

favorable position. The values related to Cronbach's alpha coefficient and combined reliability indicate the high measurement accuracy of the tool under the high category, as a result of the reliability of this tool. Also, the total Cronbach's alpha coefficient related to the concept of the model in this questionnaire is estimated at 0.85.

Table 6

*Indicators for evaluating the validity and reliability of the tool under the influential categories in shaping the virtual banking acceptance model in the banking industry of Iran.*

Reliability		Convergent validity		Subcategory	Main category
Composite reliability	Cronbach's alpha	AVE			
0.8834	0.8223	0.7975		Characteristics of people	National factors
0.8834	0.8223	0.7975		Leadership of organizations	
0.9168	0.9626	0.9209		The structure of organizations	
0.7820	0.7054	0.7588		Hardware and equipment	Underlying factors
0.7936	0.8310	0.7713		Laws and policies	Intervention factors
0.8208	0.8406	0.7352		Communications between organizations	
0.8655	0.8940	0.7008		Updated organizations	
0.7655	0.8706	0.7405		Axis criteria	Factors of strategies
0.7725	0.7119	0.8276		Axial development	Factors of consequences
0.9168	0.9626	0.9209		human resource Management	
0.8326	0.7805	0.7963		Organizational dynamics	
0.8324	0.8946	0.8876		Organizational entrepreneurship	

Table 7

*Values of sub-category factor loadings and sub-category instrumental factors influencing the formation of virtual banking acceptance pattern in Iran's banking industry.*

P	Critical value	Factor loading	subcategory	P	Critical value	Factor loading	sub-dimensions	Main dimensions
0.0001	11.25	08.83	EliA1	0.0001	10.91	0.89	Characteristics of Staff	National factors
0.0001	11.27	0.83	EliA2					
0.0001	14.1	0.95	EliA3					
0.0001	18.2	0.95	EliB1	0.0001	13.87	0.84	Leadership of organizations	
0.0001	14.5	0.84	EliB2					
0.0001	10.54	0.72	EliB3					
0.0001	6.3	0.72	EliC1	0.0001	7.33	0.80	The structure of organizations	
0.0001	9.22	0.91	EliC2					
0.0001	8.66	0.83	EliC3					
0.0001	6.7	0.70	ZamineA1	0.0001	6.86	0.85	Hardware and equipment	Underlying factors
0.0001	5.84	0.67	ZamineA2					

P	Critical value	Factor loading	subcategory	P	Critical value	Factor loading	sub-dimensions	Main dimensions
0.0001	5.3	0.70	ZamineB1	0.0001	7.56	0.99	Laws and policies	
0.0001	8.62	0.94	ZamineB2					
0.0001	18.5	0.98	SakhA1	0.0001	4.46	0.83	Communications between organizations	Interventional factors
0.0001	13.3	0.72	SakhA2					
0.0001	2.12	0.62	SakhB1	0.0001	3.12	0.67	Updated organizations	
0.0001	3.46	0.85	SakhB2					
0.0001	3.45	0.99	SakhB3					
0.0001	9.12	0.84	RahbordA1	0.0001	9.53	0.9	Axis criteria	Factors of strategies
0.0001	8.52	0.7	RahbordA2					
0.0001	10.6	0.86	RahbordA3					
0.0001	6.6	0.68	RahbordB1	0.0001	7.91	0.97	Axial development	
0.0001	7.65	0.77	RahbordB2					
0.0001	8.96	0.93	RahbordB3					
0.0001	0.85	0.28	PayamadA1	0.0001	1.49	0.81	human resource Management	Factors of consequences
0.0001	1.49	0.99	PayamadA2					
0.0001	6.5	0.91	PayamadB1	0.0001	6.17	0.91	Organizational dynamics	
0.0001	4.63	0.77	PayamadB2					
0.0001	4.76	0.80	PayamadB3					
0.0001	3.33	0.72	PayamadC1	0.0001	4.43	0.86	Organizational entrepreneurship	
0.0001	4.09	0.85	PayamadC2					

### Model design

The model of the comprehensive model is based on the above model and the findings of the content analysis stage, based on which each of the latent variables (dimensions) along

with the observable variables (codes) can be presented in the form of a drawing model. In this research, with a new approach and using applied methods, which is being done for the first time. The research paradigm is as follows.

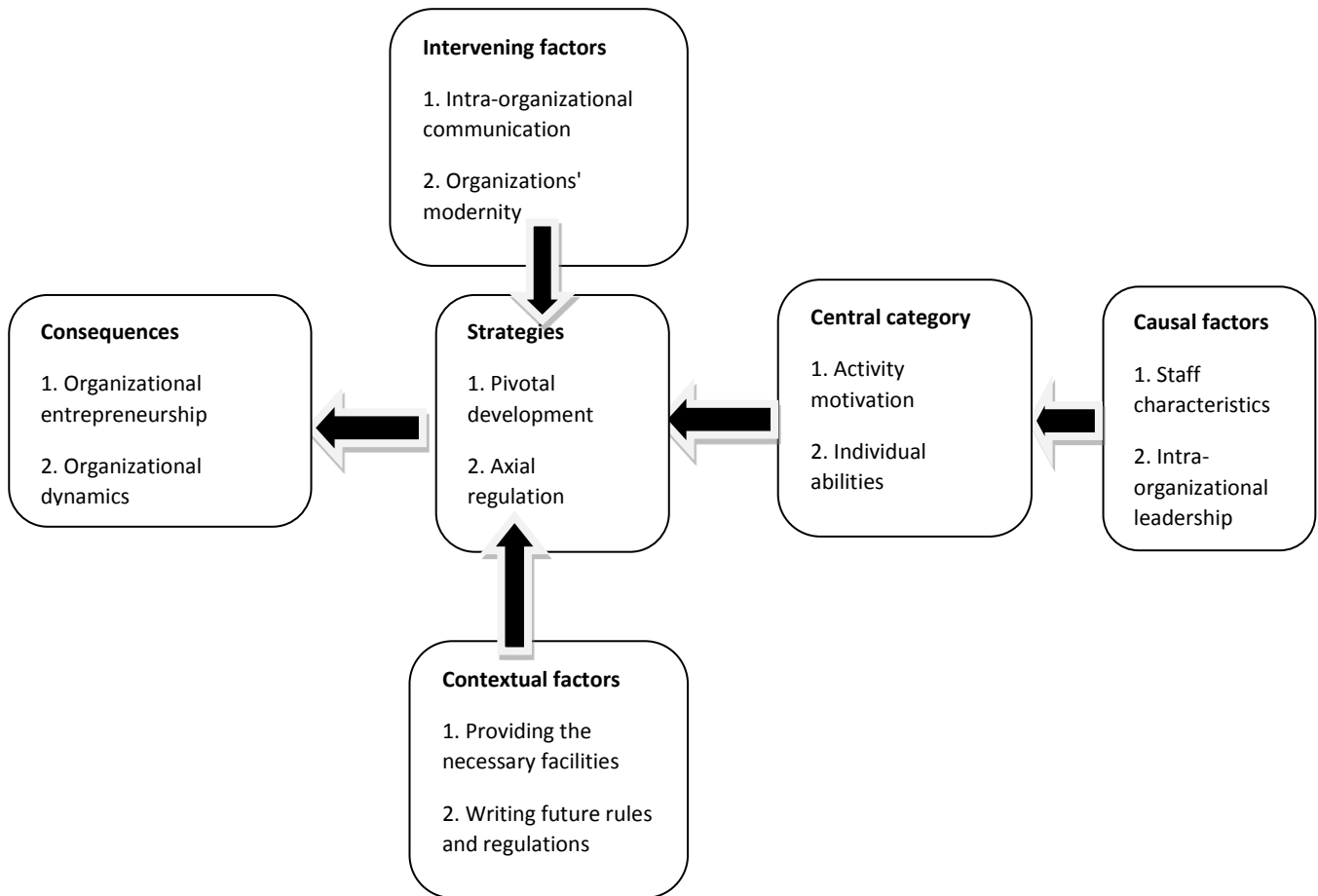


Fig 1. *Virtual banking adoption paradigm in the banking industry of Iran*

Despite the fact that in some researches, the reasons for the tendency to use virtual banking have been investigated, but due to the different conditions, it can be done in the field of banking management of Iran according to the comprehensive approach of this research. In

the end, due to the fact that there has not been a researcher who comprehensively conducted both the process of model design and evaluation of the desired model in the form of a research, it shows the place of innovation in this research.

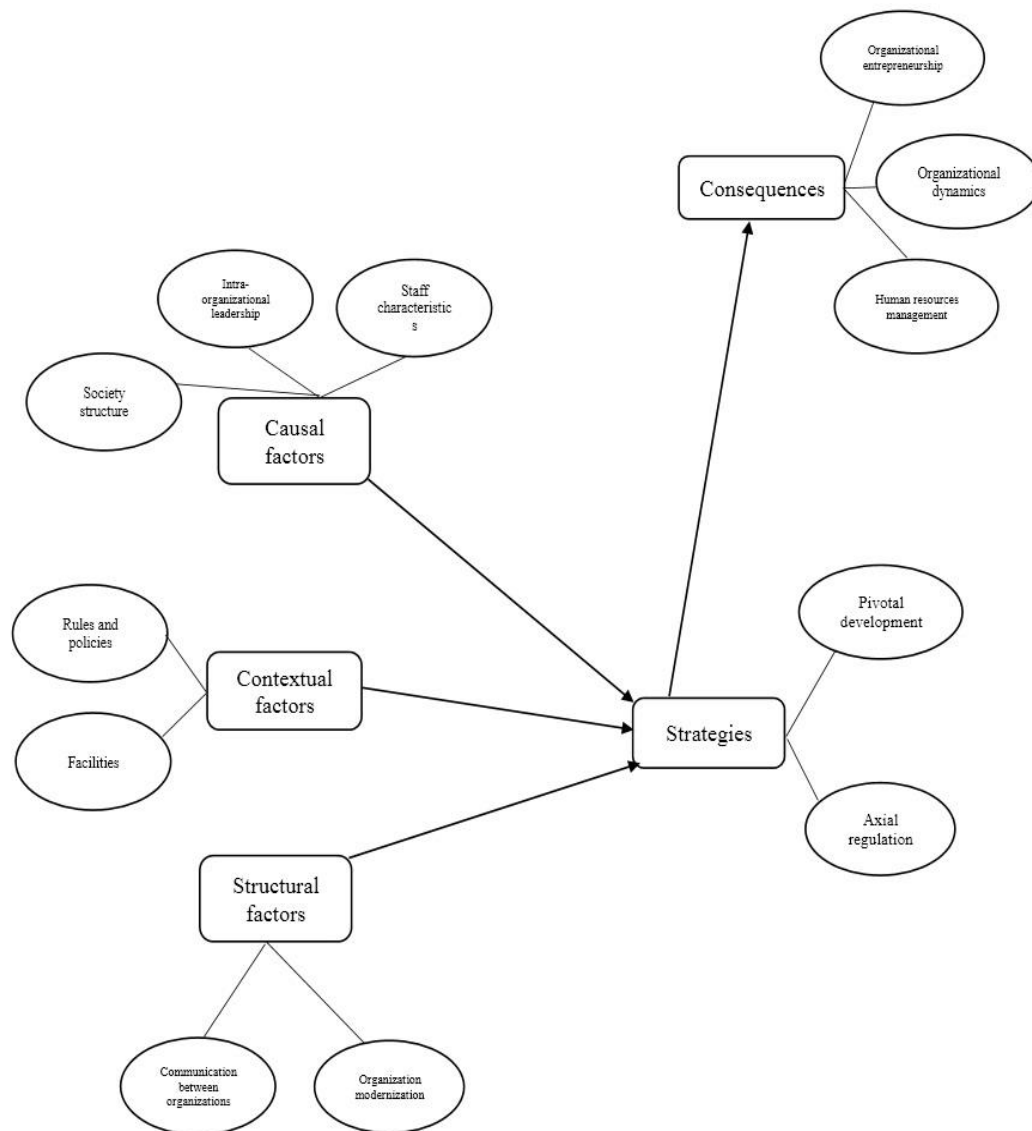


Fig 2. Virtual banking acceptance model in the banking industry of Iran

In Figure 1, the causal factors model including the characteristics of employees, bank leadership and the cultural structure of the society were identified as the basic factors in the development of virtual banking. Considering the economic problems and the epidemic of Corona disease, people have a great desire to use virtual banking and participate in it. Bank leaders have worsened the situation due to lack of necessary knowledge and unprofessional management.

Also, in the background factors of the discussion of the hardware and the ruling laws and policies, since the main duty of the government is supervision, control and guidance, and today governments in different economic and political systems mainly focus on national and regional macro-policy and orientation. and they are trying to put the private sector in line with the implementation of their goals. And due to the fact that the government has made a huge investment in the

development of virtual banking in the country, the performance review shows that the optimal use of the available capital resources of the country has not been made. And in the structural factors of the relationship between the organizations and their development, the improper distribution of equipment and facilities according to the population of each region, as well as the lack and insufficiency of financial resources of the Central Bank for the creation and development of virtual banking, which can be solved with the current credits will not. But in order to solve the problems, pay attention to the organizational strategies that include the formulation of a strategic plan for the participation of private banks and the use of control and evaluation tools to ensure the effectiveness of team and collaborative work in addition to creating a working environment with trust and honesty among public and private banks to improve. It can provide stability. In addition, if the society pays more attention to start-ups and entrepreneurs, the sense of responsibility of the participants towards the assigned tasks will increase and creative work will be done by the banks, and also the flexibility of the participants will increase in facing the issues.

### Conclusions and Suggestions

In this article, the three causal, contextual and structural factors and their impact on the outcomes were discussed with regard to the mediating role of strategies regarding the research topic. Causal factors included human, hardware and legal and legal factors, each of these factors has its own sub-components, as the researchers emphasized the importance of the lack of specialist staff and also the relative improvement of the level of education and technical staff of the banks. They knew the strengths, it seems that the use of educated personnel in the banking system has been proven and attention should be paid to this matter. Also, in terms of strengthening the motivation of people, the lack of written

programs to encourage and persuade people to use virtual banking are among the major challenges, the investment of the public, semi-public and private sectors and the financial support of the local authorities of the city (mayor and governor) are very effective. Past research also confirmed these factors.

Considering that little research has been done on the influencing factors in shaping the presentation of the virtual banking acceptance model in Iran, but so far no research has specifically focused on the design of the model, the results determined that the causal and structural factors in today's banking cause Environmental localization, management operations and service quality should finally increase demand-oriented and continuous new demand for modern banking through the strengthening of individual variables. The most important achievement of this research is that until now bank managers and practitioners have not paid attention to all these factors. In past researches, results have been obtained, for example Al-Hammoudi (2022) showed that virtual banks are a new generation of banks that use the latest achievements of information and communication technology and without the need for a physical branch, services and offer various banking products to the public. Also, Aghanoori Kopaei et al. (2021) concluded that virtual banking has created a new arena in virtual space and the world of e-commerce, which provides a very suitable situation for providing banking services. Belbergui (2021) believed that virtual banks are a new generation of banks that use the latest achievements of information and communication technology and offer various banking products and services to the public without the need of a physical branch. Asadollah et al. (2021), believe that virtual banking is a type of electronic banking, and according to some others, it is an upgraded type of electronic and traditional banking.

However, in this research, it was pointed out the development-oriented and rule-oriented

component to overcome the problems, which means paying attention to the mission in banks by preparing a strategic plan for the participation of university professors and paying attention to social capital through media training in the field of access to participation information. It is the model of successful banks in other countries.

Regarding the consequences of virtual banking in this research, to promote the role and transformation in the functions of the development and academic center with emphasis on the organized connection of centers with public institutions, knowledge-based development and the creation of a decision support system in the adoption of virtual banking in order to minimize weakness and taking advantage of the opportunities is suggested, increasing interaction to open new horizons and perspectives and helping to understand the culture between the people of the world, virtual banking in addition to the economic, social, political and cultural aspects of globalization includes, respectively, increasing Attracting foreign (direct and indirect) investments is the expansion and development of gross production. Virtual banking management of the phenomenon is necessary to increase its positive effects and avoid its negative effects. In this regard, understanding these effects from various aspects can be a suitable basis for effective development and planning in the country. Also, using the point of view of banking management experts is the most important economic effects of this plan.

Emphasizing people's participation and encouraging citizens to participate in the virtual banking process using easy mechanisms is used in many countries. The active participation of the people in the process of designing and popularizing the virtual banking process will make the spatial structure and combination of different economic activities have the necessary diversity. According to this, to meet the needs of

different groups of the society. Therefore, people should feel the effects and consequences of virtual banking in their own lives, and this development will help the development of people's economy. But in order to solve the problems, pay attention to the organizational strategies that include the formulation of a strategic plan for the participation of the private sector and the use of control and evaluation tools to ensure the effectiveness of teamwork and partnership in banking, along with creating a working environment with trust and honesty among customers to improve communication. Personal and interpersonal among the participants can provide a sustainable basis for the adoption of virtual banking.

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