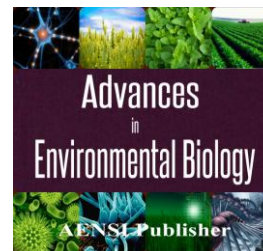




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Proposing a Model for Cost-Benefit Analysis and Launching Electronic (Online) Banking Services in Iran (Case Study :(Maskan) Bank)

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ABSTRACT

The objective of the present research is to study the role of different factors in development of electronic banking services. This research is an applied one that has been conducted through descriptive-survey method. Its statistic population includes university professors and authorities, experts, staff and the clients of Housing Bank. Among this population, some university professors randomly and by method of accessibility and also central administrations related to the subject at Housing Bank such as Research Administration, Statistics and Informatics Department, Department of Modern Services, Information Technology Bureau and Department of System Protection and Computer Data, Management of Kurdistan province's branches of Housing Bank, Tehran independent central Branch, three branches in Sanandaj, three branches in Saghez and the branch of Baneh city were selected as the places of distribution of questionnaires. For sampling, the method of random sampling with 250 individuals as the sample size was used that 211 questionnaire were correctly collected. The validity of the questionnaire was confirmed by two experts working at general libraries and by doing their intended corrections; then after pilot distribution of 25 questionnaires, Cronbach's α coefficient was calculated that indicated the conformity of the research validity. At next step, the collected data were analyzed using regression method and the results were presented.

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INTRODUCTION

Interior banks have had new banking services during their lifetime, and in fact, the electronic banking services are the special electronic websites to identify the providers of services and establishment of connection with other financial institutions. Housing Bank as an interior bank with electronic banking services in Iran is one of the professional banks in the field of housing and construction that had started its activities in the field of construction of houses, help to urbanization and other activities related to housing and by its enormous network across the country, in addition to productions in the field of housing, has played an important role in giving loans, surety-bonds and several types of electronic services. The present research has been done on Housing Bank as a case study based on analysis and interpretation of electronic business, banking services and development of the culture of using electronic services.

Electronic banking is one of the consequences and penetration of internet and general accessibility to it that has created the ground for one-to-one and one-to-some communications. But it is considerable that development of banking and electronic services entails enjoying some economic and social policies including communication and telecommunication networks, security of information transfer, cultural preparation of society for acceptance and correct use of electronic banking services, etc.

In Iran, electronic banking has been organized with banking mechanized systems accompanied with in-systemic interactions; the present research was conducted to calculate the expanses, the benefits of banking electronic services and providing new strategies for enculturation and development of these services. The aim of the present research is to present concepts, features and strategies of services accompanied with popular enculturation and calculation of the needed expanses for doing this action; in fact, in this study we are seeking to answer this question that whether going onward banking electronic services in Iran in the current situation is

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necessary and rational or not, and if it is necessary, how and when this action must be done and what are its prerequisites and infrastructures?

The concept of electronic banking:

Electronic banking is the application of electronic tools including internet, wireless communications network, self-pay systems, telephone and mobile in presenting banking services and productions that are parts of financial provisions in the country's monetary and financial system. Muller defines the electronic banking as the use of internet to present banking services to the customers by the banks and use of internet to organize, control and do transfers on their banking accounts by the costumers. However, some experts have presented a more comprehensive definition and have included the use of other electronic tools and channels such as telephone, mobile, digital television for informing, creating and doing banking transfers in electronic banking. Lee has considered electronic banking from three aspects and believes that the costumers of banks are able to receive banking services at three levels. These levels are:

1. Informatory: this level is the most primary level of electronic banking. At this level, bank introduces the information related to its services and banking operations through private or public networks.
2. Communications: this level of electronic banking provides the possibility of doing interactions between banking system and the costumer. The risk of this level in electronic banking services is more than traditional method and needs appropriate tools to control the accessibility of uses to bank's network.
3. Transfer: at this level, the costumer is able to do activities such as issuance of cheque, transfer of money and making an account using a controlled security system. This level of electronic banking services has the highest level of risk.

Types of electronic banking services:

Telephone bank: The general telephone has been used by banks long time ago, so that telephone can be considered as the first communication tool in electronic banking services. Generally, telephone has been the communication tool between the branches of banks in various regions and some activities such as inter-bank contacts, doing in-city and inter-cities orders, taking the confirmatory of documents, inter-banking and inter-branches recovery have been done through telephone, post and telegraph. By developing information and Communication Technology (ICT), not only the importance of this tool did not decreased, but also the applications of this tool were notably increased. However, recently some researches have been done by some countries about transfer of data through the electric lines and also the possibility of connection to the internet; but at present, the most internet connections are done through telephone. At present, the banks have provided the possibility of automatic responding to their clients through installing the electronic boards of telephone bank on central computers of interior and concentrated networks. The users by access to telephones equipped to tune system and connecting with telephone bank have the possibility to receive account statements and cash on hand [1].

Internet banking:

Internet banking is a method of offering banking services and productions electronically in which, internet has the axial and key role in offering banking services and productions. This method was considered since 1970 when internet was applied by specialists in business and commerce. In 1933, the popularity of internet in the field of services was proved for the public and especially merchants that hoped the costs of transactions are reduced and looked at it as a tool that could be used in offering services and goods. These conditions were also established for banks and they searched to find a way in order to use internet in offering their services and productions. Passage of time made completely clear the role of internet in banking and ultimately today the most of the banks in the world do not need to inaugurate a branch and only by registration and taking the license of activity, they offer their services to thousands of users around the world.

Home banking:

One of the other methods in offering banking services is home banking or office banking. What has generally accepted from home banking and is considered as a description of this kind of banking is that the clients of bank have no need to refer to certain places or sites to receive services but by installing the software of home banking that is installed on private computers by banks, they can control their accounts and receive and send money at home. In this banking method, certainly a bank is successful that uses the appropriate software with vast domain for their clients. Of course it should be noted that the number of services offered in this method is limited than internet banking, so that the most important services by this method are limited to transfers of accounts, observing the last account statements and inventories [2].

Mobile bank:

In this method of banking, donation of a variety of banking services is possible through mobile. The difference of this method with telephone bank is in the used tool and local and operational limitations. In fact, mobile bank enjoys higher speed, precision and security in offering banking services. As it was mentioned, today one of the new ways that has been considered in the field of banking services is the offering of banking and financial services through mobile; and although it is not more than three or four years that mobile is used for doing banking operations, but at this short time, important developments have been done and it is promising new developments in the electronic banking in the future so that the most countries across the world have made huge investments in the field of electronic banking.

Advantages of electronic banking:

Advantages of electronic banking in the view of the bank:

The first advantage of banks that offer internet services is to be identified in the market and creation of relation with customer. The banks that offer such services can find their reputation before the public as the leaders of using new technologies and use this advantage. Another advantage is related to monetary services in this field. It is clear that the main goal of each corporation is to benefit its owners as much as possible and banks are not exception. The automatic electronic banking services provide such conditions for banks. According to Booz, Allan and Hamilton, the cost of establishment of a bank branch for offering services is about \$1.07 per each transaction. It is while that this cost is 54 cents for telephone bank, 27 cents for self-pay system and 1.5 cent for internet bank. Also at Nordea bank in Finland, the cost of each internet transaction is 11 cents in average, while this cost is one American dollar in one of the branches of banks.

Advantages of electronic banking in the view of the costumers:

The most principal and most important advantage of electronic banking in the view of customer is to save time due to automated services of banks and administer the client's money. According to Guran, using electronic banking for legal persons is as follows:

1. Reduction of costs using electronic banking services;
2. The ease of access to bank and saving the time and possibility of doing all banking operations at all hours of day and night without physical presence at bank;
3. Quick and permanent access to information of accounts; corporations can easily access to their several accounts by pressing a key.
4. Better cash management; corporations can easily observe the cycle of their activities and cash.

The barriers of development of electronic banking:

Kolodinsky *et al* believe that using electronic banking can present customers the related information according to their needs and cause increasing the loyalty of clients and reducing the costs of bank and costumers and create new opportunities to offer appropriate goods and services to customers.

Brian believes that electronic banking can be studied in terms of time as short term, middle term and long term. In short term, identical competition, maintenance and absorption of customer and in middle term (less than 18 months), integration of different channels, and management of information, expansion of the costumers, leading costumers toward appropriate channels with optimal properties and reducing costs can be accounted as the advantages of electronic banking. According to Chanaka we can expect, in long term, offering the services to customers of target market and creating income from electronic banking. Despite of the advantages of electronic banking, there are barriers for its development that are as following:

Lack of appropriate human resources for electronic transfers of money in Iran: Today human resource is considered as one of the most important or perhaps the rarest resource in the complex world of new information and communication technologies. In the subjects of development of information and communication technology, human resources are considered as much as technology and financial resources. A country that has the skillful, initiative, creative and specialist human resources in this field, certainly it has the high competition and bargaining power to acquire this technology and even will be a pioneer in this field. What today has limited the countries of the third world including Iran is the lack of specialist and skillful human resource in the field of information technology. Going out of country the human resources that is called escaping of minds has worsened the situation and has intensified the problem [3].

Cultural and social barriers in development of electronic banking: by identifying cultural elements and preparing appropriate program, we can create the necessary ground for these changes. Electronic transaction is a new technology and for its development it is necessary that its cultural ground has been created. One of the cultural problems is to work secretly and do unclear economic activities. Some of commercial institutions or corporate and categoric persons try to make secret or unclear some of their economic activities for non-payment of tax or reducing its rate. Since using the technology of electronic transactions and electronic banking, all economic activities are recorded and we can classify and report them, therefore some prefer not to use electronic systems. Because by using electronic systems, there is no place for secret working, not-payment of tax, cheating

and manipulating the accounts. The existence of such culture encounters the development of electronic banking and electronic transfer of money with problem in the country. Another cultural problem is the used language in internet and consequently systems of transfer of money. Since, our commercial language is Persian the use of English language is difficult for the most of our people, even the businessmen [3].

Political barriers: generally political barriers can be considered as the common problems of the third world countries. Usually new information and communication technologies will block the ways of many abuses. Electronic money transfer system is one of the new systems which use information and communication technology in which the information is more complete and accessible than traditional method. Since the limits of individuals' performance through internet at electronic commercial system are completely obvious and clear, access to all economic activities of individuals and groups will easily be possible. As a result, the abuses done by individuals, groups and managers for receiving and giving loans, facilities and other monetary and financial affairs will be limited. It is normal that the interests of some individuals and groups are endangered; therefore, they interrupt the trend of development of electronic banking [3].

Resistance to change: Environmental changes in aspects of technology including economic, political, cultural, social aspects and the like are done rapidly, in other words, the environment of organizations is a dynamic one. Every organization changes along with changes of environment to be survival. Creating change in organizations is not an easy task and often faces with a big barrier which is called 'resistance to change'. One of the reasons for resistance to change is "the habit of individuals". Individuals have accustomed to do a task in a special way. They usually act similarly in doing different issues and tend to respond the problems in a way they have accustomed. Change causes they are not able to act based on habit, so they resist against it [3].

The problem of organizational structure and managerial system governing banks in Iran: The organizational structure and managerial system governing the organizations are effective factors in acquiring their success or failure; because, organizational structure has a principal role in creating order and integration inside organization, and conforming the organization to conditions outside the organization.

The organizational structure of banks in Iran is a bureaucratic and hierarchical structure and has a concentrated system with high formality and work division. The bureaucratic structures of Iranian banks do not encourage the staff to have enough motivation to offer qualified services, be loyalty to organization, and do customer-oriented duties, attempt to reduce costs and increase the incomes [3].

Being traditional the information and communication systems of organizations and private and public institutions in Iran: one of the factors of non-development of banking information and communication technology in developing countries is application of traditional methods and systems by institutions and organizations in those countries. Although, we are living in the era of information technology, but still the need for development and changing the style in organizations and institutions is felt in these countries. Therefore, the principal changes in the business and economy as a whole depend to this fact that all organizations and commercial, banking and industrial centers including small and big centers are changed based on a main framework, otherwise, the sustainable development can not be achieved [3].

Analysis of cost-benefit:

Tresor (1985) defines the analysis of cost-benefit as follows: "the analysis of cost-benefit is an evaluating method for relative advantages of public investment plans to select an efficient allocation of resources". This method is a way to identify, describe and evaluate factors that should be investigated in a rational economic decision. This is not a new technique and at principle it entails a lot of modification in the rules of the current benefit and loss accounts that reflect the social objectives, criteria and limitations instead of personal ones in evaluating investment projects. As it is obvious from before mentioned statements, analysis of cost-benefit is usually a social analysis versus a financial analysis. Layard and Glaister consider two main differences for social evaluation to financial evaluation as follows:

1. Social evaluation includes expenses and interests of all members of society, not just the amounts received and monetary expenses of private sector;
2. The rate of social decline may be less than that of private sector.

But in spite of differences, these analyses have close relationship with each other so that the numbers and monetary values that are used in financial analyses are usually used as the basic numbers and values of social analyses. However, accompanied with application of new technologies and following it in the field of business and enterprise across the country and world, banks in Iran started to offer services based on new communication technologies and computer automation, but by passing about two decades from starting these services in the country, we almost cannot find a research that studied the possibility and necessity of offering these services and the way of their localization and conformity with certain cultural, economic and political conditions and infrastructure of needed technology, but most researches have dealt with analysis of existing services and their adaptation of them as an obvious and correct fact. In the present research, we try, in addition to criticize and study the offering of these services in the country, to study how to substitute the traditional services with new

ones and the rate of their substitution and respond to their priorities for banks and costumers. For this purpose, the following factors have been mentioned by scholars:

Table 1: The study of various barriers in development of electronic banking Variable Researcher(s)/the title of research.

Variable	Researcher(s)/the title of research
Cost	Rashid and Karim (2001); the effective factors in using electronic business in small and intermediate corporations. Jora Chira Thanakol and Fink (2005); factors related to demands of costumers in the book 'A review on electronic banking'. Wang Vestaei (2002); factors influencing on using electronic business.
Size of market	McKey <i>et al</i> (2004); the effective factors in using electronic business in charity organizations. Shen and Dikerson (2004); factors influencing on developing electronic business.
Structure of market	McKey <i>et al</i> (2004); the effective factors in using electronic business in charity organizations. Malhorta and Sintagh (2007); the analysis of determinant factors of accepting electronic banking.
Innovation in producing and offering the production/service	McKey <i>et al</i> (2004); the effective factors in using electronic business in charity organizations. Shen and Dikerson (2004); factors influencing on developing electronic business.
Profitability	Malhorta and Sintagh (2007); the analysis of determinant factors of accepting electronic banking. Naceur and Goaid (2001);
Technical and communication infrastructure	Al-Navai and Ismail (1999); the study of effective factors in accepting electronic business in Egyptian intermediate corporations. Al-Amri and Al-Amri (2006); preparing a framework for electronic government.
Cultural infrastructure	The model of electronic preparation of economist intelligence unit. Pearson and Robinson (2004); measurement of electronic preparation of environmental factors.
Organizational infrastructure	Safo <i>et al</i> (2007); the study of effective factors in accepting electronic business to determine the relationship between comprehended strategic value of electronic business and acceptance of technology in small and intermediate enterprises in Ghana. Gordon and Pearson (2004); the study of factors influencing the acceptance of technology in small and intermediate enterprises.
laws and regulations	Sanei and Salehinia (2008); Identification and ranking the barriers of accepting development of electronic banking. Loin and Kim (2004); the influence of institutional factors on conformity of the corporation. Tampson and Strickland (2001); measurement of electronic preparation of environmental factors.

Based on these principles, the four factors of communication infrastructure, electronic preparation, legal preparation and organizational preparation have been emphasized more than other cases. Therefore, the hypotheses of the research are:

Hypothesis 1: Communication infrastructure has a positive significant effect on decision-making for electronic banking.

Hypothesis 2: Electronic preparation of the society has a positive significant effect on decision-making for electronic banking.

Hypothesis 3: Legal preparation has a positive significant effect on decision-making for electronic banking.

Hypothesis 4: Organizational preparation has a positive significant effect on decision-making for electronic banking.

Methodology:

The present research is an applied one because it addresses a certain objective in a special field. Also in terms of collecting data to determine variables, library method has been used as searching in the related literature and background and for conformity of variables and the ultimate model of research, the field study using questionnaire and interview has been applied. The statistical population includes university professors and authorities, experts, staff and the clients of Housing Bank. Among this population, some university professors randomly and by method of accessibility and also central administrations related to the subject at Housing Bank such as Research Administration, Statistics and Informatics Department, Department of Modern Services, Information Technology Bureau and Department of System Protection and Computer Data, Management of Kurdistan province's branches of Housing Bank, Tehran independent central Branch, three branches in Sanandaj, three branches in Saghez and the branch of Baneh city were selected as the places of distribution of questionnaires. For sampling, the method of random sampling with 250 individuals as the sample size was used that 211 questionnaire were correctly collected. The validity of the questionnaire was confirmed by two experts working at general libraries and by doing their intended corrections; then after pilot distribution of 25 questionnaires, Cronbach's α coefficient was calculated that indicated that the description of it for different variables has been presented in the following table.

Results:

The result of regression test shows that since the value of significance in hypothesis 1 is 0.001 and less than 0.05; therefore the existence of a significance relationship between the two variables of technical and

communication infrastructures with decision-making for electronic banking is confirmed. According to the standardized coefficient of this relation (that indicates the rate of change in dependant variable per rate of a change as one standard deviation in independent variable), its rate equals 0.207 and is positive; therefore, the hypothesis 1 is confirmed.

Table 2: the validity coefficients of used scales.

Row	Domain	Number of items	Standardized α coefficient
1	The country's communicational and technical infrastructures	6	0.769
2	Cultural and educational infrastructures of society	5	0.727
3	Readiness of the country's laws and regulations	3	0.851
4	Organizational preparation and the support of senior management	11	0.789
5	Decision for offering and developing electronic banking services	7	0.830
6	Saving the costs	6	0.887
7	Size of market	4	0.832
8	Structure of market	4	0.832
9	Innovation rate and how to offer services	6	0.874
10	Profitability	3	0.812
11	The whole questionnaire	55	0.786

Since the value of significance in hypothesis 2 is 0.000 and less than 0.05; therefore the existence of a significance relationship between the two variables of electronic preparation of the society and infrastructure with decision-making for electronic banking is confirmed. According to the standardized coefficient of this relation (that indicates the rate of change in dependant variable per rate of a change as one standard deviation in independent variable), its rate equals 0.199 and is positive; therefore, the hypothesis 2 is confirmed.

Since the value of significance in hypothesis 3 is 0.003 and less than 0.05; therefore the existence of a significance relationship between the two variables of legal preparation infrastructure with decision-making for electronic banking is confirmed. According to the standardized coefficient of this relation (that indicates the rate of change in dependant variable per rate of a change as one standard deviation in independent variable), its rate equals 0.185 and is positive; therefore, the hypothesis 3 is confirmed.

Since the value of significance in hypothesis 4 is 0.000 and less than 0.05; therefore the existence of a significance relationship between the two variables of organizational preparation infrastructure with decision-making for electronic banking is confirmed. According to the standardized coefficient of this relation (that indicates the rate of change in dependant variable per rate of a change as one standard deviation in independent variable), its rate equals 0.367 and is positive; therefore, the hypothesis 4 is confirmed.

Results:

The general framework of the model is based on this principle that for analysis of cost-benefit and determination of priority of services, first we should study the preparation and electronic situation and provide infrastructures such as technical and communication infrastructure, the educating and cultural situation of society to use electronic services, the situation of the existence of necessary regulations in the field of electronic banking and computer networks to apply electronic services accurately and organizational preparation of banks to offer electronic banking; then, decisions are made about how to offer and determine optimal services according to situation of society, and finally the results and consequences arising from offering electronic services on indices such as the cost of services, the size of the bank market, structure of market, how to offer services and ultimately profitability of bank are studied. Using this model, we can easily act about determination of priority of installing intended services. For this purpose, by specifying the possible (intended) services, each service can be studied separately according to the existence of given infrastructures and results and consequences arising from its presentation and the results can be quantified. Then, using one of the methods of multi-criterion decision-making (MCDM) such as the lowest maximums, the highest minimums or a method such as Topsis, scoring is done and the priority of installation of services is determined. According to collected data through users and costumers of banks, we have tried to test the hypotheses of the research. The findings of this research show that the technical and communication infrastructure, organizational infrastructure and educational and cultural infrastructure affect the decision about offering electronic banking. This result has been obtained from previous researches including Levin and Kim, Saria Khan, Yasin and Yavas, Keshteri, Kalbasi and Kelid, Hicks, Brown, Safo *et al*, Al-Amri and Al-Amri, Rashid and Karim, Smith *et al*, Jon and Kai, Mola, Poursel and Toland, Lortongestein *et al*. Findings of this research on the effect of electronic banking in reducing costs, increasing the size of market and innovation in rate and way of offering services are in agreement with the results done by following scholars entitled the factors affecting the acceptance of electronic banking and its consequences: Lio and Cheong, Satyeh, wang and vetsaei, Yan and Paladi, Nath *et al*, Dewein *et al*, Flin and Pourchiz and Daniel.

But from disagreements with previous researches, we can refer to rejection of direct and significant effect of legal infrastructures on electronic banking, while in previous researches this had been considered as

significant factor. Some reasons for this fact may be that in the present research merely and obviously the direct and significant effect of laws and regulations on electronic banking has been studied, while in the previous researches the indirect effects of it may have been considered. Some other reasons may include differences in statistical population, difference in terms of time, differences in economical, social and legal conditions of various societies and countries.

Also in the present research, the effect of electronic banking on market structure and increasing of profitability has been rejected, while this effect had been confirmed in some previous researches that some of reasons for disagreement may include differences in goals, entity, methodology, statistical population and different conditions of researches. In this study, the examination of indirect effect and correlation of factors has been avoided, while it is possible that this issue may be studied in previous studies or the discrimination between direct and indirect effects had not been done.

Applied suggestions and recommendations:

- According to the most of respondents based on non-existence of technical and communicational infrastructure for offering electronic banking (that may be the result of lack of their awareness from the last changes in the country in this field), it is suggested the related institutions such as Ministry of Information and Technology, banks and telecommunication corporations more introduce it and enculturation to teach and use of these facilities is done.
- According to the most of respondents based on non-existence of appropriate laws or non-awareness of the about the existing laws and regulations, it is suggested the related institutions such as Judicial Power and public educational centers such as schools and universities attempt more in propagating and enhancing general awareness toward the country's rules and regulations and take a new procedure.
- Also some revising and reviews must be done rapidly in laws and regulations related to social and economical phenomena such as new technologies and these regulations should be propagated and thought in the related organizations.
- The quality and way of connecting services such as internet and mobile must be revised.
- According to the role and effect of organizational preparation for electronic banking, it is suggested that the senior management of bank emphasizes and supports more to teach, institutionalize and propagate electronic banking.
- Since the country's rules and regulations must be the principle for the organizations performance including banks, it is suggested the staff obtain more awareness toward these regulations and the related affairs in their work through applied teaching.
- According to the expanded role and significant effect of educational and cultural situation of society on electronic banking, it is suggested the banks give more importance and share to propagate and introduce the advantages of electronic banking in their propagation programs.
- Since electronic banking is one of the consequences of new communicational technologies that have caused quick changes, so one of the most strategies of development and institutionalization of electronic banking is to support creativity, innovation and more preparation to accept changes, therefore, the senior managers of banks should support the creativity of their staff as well in this field.

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