

# A Survey of Critical Success Factors of Private Banks in Electronic Banking Services

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## Abstract

One of the key problems in development of electronic banking services, is the lack of a comprehensive framework to recognize and evaluate the crucial factors of banking success in offering electronic services, which in this study it has been addressed directly. By exploratory factor analysis, the main variables of model are determined and a comprehensive model to identify the key elements of private banks successes in offering electronic services, have been discovered and delineated. This comprehensive model, falls the key elements in six main groups of technical- structural factors, financial factors, cultural- cognitive factors, managerial factors (macro and micro), legal - lawful Factors and qualitative - Security Factors of the System. On the other hand, in each group, the most important items in terms of correlation with the success of electronic banking services are determined. And at last, a comprehensive framework and constructive suggestions in order to solve the issue in electronic banking industry is presented. The model can be an appropriate and valid basis for conducting future researches in the mentioned field.

**Keywords:** key success factors, services, e-banking, exploratory factor analysis

## 1. Introduction

In today's world, with daily growth of technological information; internet-based electronic systems and their connection to the main body of banking business is more evident than ever before, and nowadays e-banking and its unique services are non-removable in society. Concerning the importance of the last line and growing trend of new services in e-banking, the role of scientific and practical researches within this field are more essential than ever, because e-banking is considered as one of the key instruments in implementation, development and facilitating electronic business in all of the countries. So far in this field, authoritative studies have been conducted, such as research by Nikghadam (2013), Basias and Themistocleous, (2013), Sohrabi et al. (2013) and Cabanillas et al. (2013) which represents the growing importance of resolving the obstacles in electronic banking. The main question of this study is to identify and survey the key elements of Iranian private banking successes in offering e-banking services which in this study with an exploratory factor approach to this question, are truly identified and valued which results in a comprehensive outlook to key elements of the banks successes within this field. The main purposes of this study are to recognize and survey the key factors of the banks successes in the country within offering e-banking services and to estimate each effect of these factors on private banks of the country and also to evaluate integration and significant relation among these known factors. Electronic banking can be classified as a subcategory of e-commerce. Previous studies by Donohoe & Needham (2008), Riasi and Amiri Aghdaie (2013), Gurau, (2008), Riasi and Pourmiri (2015), Lai and Shafer (2005) revealed that implementing e-commerce strategies leads to improved business performance in banks and other firms. The use of electronic banking and providing diversity in the services provided to the customers enables the banks to generate more profit and to become more competitive in the business environment by improving their demand conditions (Amiri Aghdaie et al., 2013; Riasi, 2015).

## 2. Method

### 2.1 Theoretical Literature and Research Background

#### 2.1.1 The History of Electronic Banking

Inconceivable development of information and communication and its propagation to world's monetary and banking market, not only has facilitated affairs for customers of the banks, but also it has transformed the usual banking methods. Attached technology of banks and their exchanges with customers, has been transformed with the advance of information and communication technology (ICT). Amadeh and Jafarpour according to the Ministry of Commerce (2005) divided these developments into four periods. In every period, new technology and electronic banking provides the possibility of increasing speed, quality, accuracy, cost, and the diversity of services.

Table 1. Periods of Development and Evolution of Electronic Banking

Period	Periods of development and evolution of electronic banking	Period characteristics
First	Front counter automation	Prevalent in the 1960s, removing the card from the branch offices, sending daily circulation of accounts at the end of each day to central computer, the starting point for computer applications in banking, Usage: recording documents and converting paper documents into computer files.
Second	Automation of front the counter	Starting in the 1970s, branch employees access to current accounts, continuous information transferring through the use of telecommunication lines and mainframe computers, Banks' usage of telecommunication networks in the public company's existing.
Third	Customers connecting to the Accounts	Starting in the middle of 1980s, customer access to personal accounts, by phone, (ATM), a smart card or personal computer, electronic funds transfers, development of customer communication system with their accounts
Fourth	System integration and linking customers to all banking operations	Real savings in manpower, creating a fully electronic and intangible money, all banking services are with electronic

(Source: Amadeh and Jafarpour, 2009)

We continue by referring to some conducted researches within e-banking:

Table 2. Some Recent Studies about the Electronic Banking

Row	Field of study	Reference
1	E-banking culture	Fonseca (2014)
2	E-banking acceptance	Santouridis and kyritsi (2014)
3	E-banking acceptance: a unified theory of acceptance and use of technology and perceived risk application	Martins et al. (2014)
4	A systematic review of internet banking adoption	Hanafizadeh et al. (2014)
5	Online banking and customer service delivery in Malaysia	Abubakar et al. (2014)
6	The impacts of service quality and customer satisfaction on customer loyalty in internet banking	Ariff et al. (2013)
7	Development of a quantitative model of the impact of customers' personality and perceptions on internet banking use	Shik yoon et al. (2013)
8	Personalized security approaches in e-banking employing flask architecture over cloud environment	Hamidi et al. (2013)
9	The investigating of barriers of development of e-banking in Iran	Alinezhad sarokolaei, m., and et al. (2012)
12	Adoption and utilization of electronic banking	Hoehle et al. (2012)
14	The impact of 3d e-readiness on e-banking development in Iran	Haghighi et al. (2010)

## 2.2 Identify the Key Success Factors in Electronic Banking Services

In order to determine the key success factors of banks in the provision of electronic services to society, all available studies and related research were gathered and reviewed and re-evaluated, and with identifying multiple factors from previous studies, exploratory variables related to the objective research are extracted and presented in Table 3.

Table 3. Effective Variables on Success and Development of Electronic Banking

Row	Effective variables on the success and development of electronic banking	References
1	Quality and attractiveness of the system and designed website	Kaboutari(2012), Nikghadam(2013), Mentzas et al.(2012), Barne and Vidgen(2002), Zeng and Yang(2009), Ding et al.(2011)
2	Development and diversification of banking services	Karjaluo(2002), Kaboutari(2012), Nikghadam(2013), Mentzas et al.(2012), Kim et al.(2006), Zeng and Yang(2009)
3	Ease of use of the designed service system (user-friendly system)	Basias and Themistocleous(2013), Kaboutari(2012), Nikghadam(2013), Mentzas et al.(2012), Ding et al.(2011)
4	Quality, correctness and accuracy of information	(Karjaluo(2002), Kaboutari(2012), Nikghadam(2013), Mentzas et al.(2012), Markos et al.(2009), Barne and Vidgen(2002)
5	Support and responsibility systems	Karjaluo (2002), Kaboutari (2012), Nikghadam(2013), Mentzas et al.(2012), Barne and Vidgen(2002), Ding et al.(2011)
6	Quality and attractiveness of existing equipment	Markos et al.(2009), Kaboutari(2012), Mentzas et al.(2012), Barne and Vidgen(2002), Zeng and Yang(2009), Ding et al.(2011)
7	Procedural stability in providing services	Markos et al.(2009), Ding et al.(2011), Hadwich et al.(2010)
8	Transparency and unequivocally of service	Zeng and Yang(2009), Ding et al.(2011), Hadwich et al.(2010)
9	Pleasant behavior of bank's personnel with stakeholders	Markos et al.(2009), Kaboutari(2012), Mentzas et al.(2012), Barne and Vidgen(2002), Ding et al.(2011), Hadwich et al.(2010), Basias and Themistocleous(2013)
10	Strengthening the reliability and stand-by systems in electronic banking services	Hadwich et al.(2010), Kaboutari(2012), Nikghadam.(2013), Mentzas et al.(2012),Basias and Themistocleous(2013), Zeng and Yang(2009), Ding et al.(2011), Markos et al.(2009)
11	Responsibility and empathy of staffs in provision of the electronic services	Kaboutari(2012), Karjaluo(2002), Mentzas et al.(2012)
12	The existence of appropriate, adequate, transparent and specialized rules in electronic banking and its crime and correction	Karjaluo(2002), Nikghadam(2013)
13	The existence of supervisory centers and adequate supervision by the relevant agencies	Nikghadam(2013), Karjaluo(2002)
14	Security in system and electronic receive services	Markos et al.(2009), Karjaluo(2002), Mentzas et al.(2012)
15	Privacy preservation of natural and legal persons	Basias and Themistocleous(2013), Kaboutari(2012), Nikghadam(2013), Mentzas et al.(2012)
16	The existence of credibility and trust in the system and its development	Karjaluo(2002), Kaboutari(2012), Mentzas et al.(2012)
17	Hardware and software infrastructure, ICT, telecommunications infrastructure and network and other electronic banking infrastructure.	Nikghadam(2013), Pikkarainen et al.(2004)
18	Internet and available broadband internet	Nikghadam(2013), Pikkarainen et al.(2004)
19	Integrated information systems	Basias and Themistocleous(2013), Nikghadam(2013), H.Shah et al.(2006)
20	Development of knowledge and expertise about electronic banking and increase the number of experts in this field	Nikghadam(2013), Pikkarainen et al.(2004)
21	Expansion and strengthening payment systems and electronics sales in the society	Kaboutari(2012), H.Shah et al.(2006)
22	Equipment development and banking network in the country	Nikghadam(2013), H.Shah et al.(2006)

23	Culture promotion and informing the stakeholders	H.Shah et al. (2006)
24	The development of using the information and communication technologies	H.Shah et al. (2006)
25	Systems and technologies adaptation with the needs of stakeholders	Nikghadam(2013), H.Shah et al. (2006)
26	Providing the investment costs for network equipment and connecting to the web	Nikghadam(2013)
27	Providing the investment costs in order to provide software and hardware infrastructure and ...	Nikghadam(2013)
28	Bank customer training	H.Shah et al. (2006)
29	Bank staff training	H.Shah et al. (2006)
30	Training managers and assistants and supervisors	Klaus et al.(2007), H.Shah et al.(2006)
31	The existence of strategic thinking at the bank highest levels	Klaus et al.(2007), (H.Shah et al.(2006)
32	Support of public managers and senior executives in macro level	H.Shah et al. (2006)
33	Planning to enhance the image and reputation of the bank in the society	H.Shah et al. (2006)
34	Capable supporting from capable managers and its stability in their place	Klaus et al.(2007), H.Shah et al.(2006)
35	Cross-sectional Management improvements (improvements in planning, organizing and coordinating between the bank and other organs)	Klaus et al.(2007), Nikghadam(2013)
36	The government's focus on development and providing infrastructure requirements of electronic banking	Klaus et al.( 2007), H.Shah et al.( 2006)
37	Development of competition between banks in the provision of electronic services	Klaus et al.(2007), Nikghadam(2013)
38	Increase transparency of decisions and objectives at the bank highest levels	Nikghadam(2013), Karjaluoto et al.(2002)
39	Development of using e-banking services among all organizations	Nikghadam(2013)

### 3. Conceptual Model and Research Methodology

By using the standpoints of experts related to e-banking and also according to re-studying the research background, six group of the main factors namely as: technical- structural factors, financial factors, cultural-cognitive factors, managerial factors (macro and micro), legal - lawful Factors and qualitative - Security Factors of the System, thus a conceptual model took form which is observable in table 2.

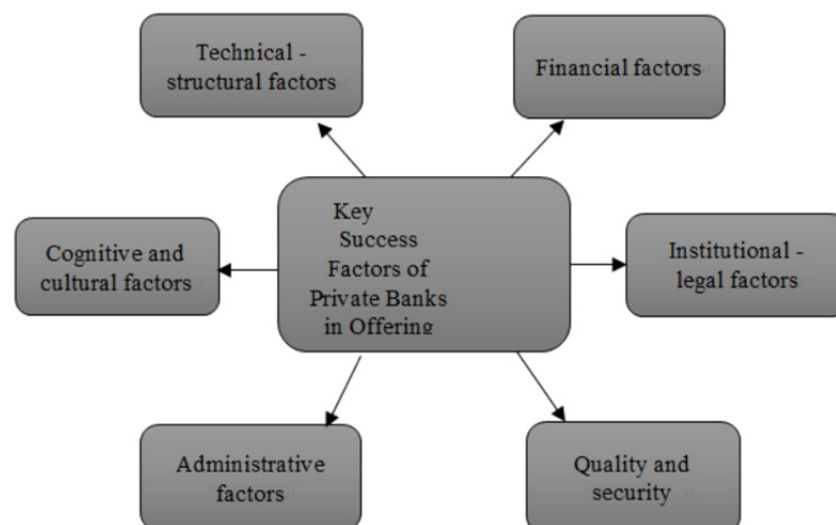


Figure 1. Conceptual model

This research, in terms of objective applies research and cross-sectional and in terms of performance, its approach is descriptive and exploratory. A questionnaire has been drawn up in the field of the key success factors in provision of electronic services and is designed in Likert 5 point scale survey The reliability of the questionnaire was determined 0.975 by using Cronbach's alpha, which is an appropriate amount and Content validity was also confirmed by supervisor and advisor and some experts in banking field. After collecting the questionnaires, a conceptual model was provided by using the exploratory factor analysis and with considering the research objectives. The current statistic communities are consisted of 150 individuals in whom there are every manager and deputy of Ghavamin bank across the country. In order to measure the sample volume, Morgan table is used which concerning to the number of statistic community members, 108 individuals were selected by employment of “available non-probability sampling” method as sample members.

**4. Research Findings**

Cite the work of those individuals whose ideas, theories, or research have directly influenced your work. They may provide key background information, support or dispute your thesis, or offer critical definitions and data. Citation of an article implies that you have personally read the cited work. In addition to crediting the ideas of others that you used to build your thesis, provide documentation for all facts and figures that are not considered common knowledge.

In this section, all the factors are analyzed by using factor analysis. First, Table adequacy model is given which consists of KMO index, Bartlett index value and the probability value of this index.



Diagram 1. Eigenvalues of critical success factors

Table 4. KMO and Bartlett test results of the correlation matrix

Item	Value
KMO index	.898
Bartlett's Test	7049.909
Sig.	.000

Based on the results of KMO test, which is equal to 0.898, research data are reducible to number of infrastructure factors. Also, result of Bartlett test is equal to 7049.909 which is significant in error which is smaller than 0.01, it shows that the correlation matrix between the items is not the unit and the identity matrix. This means that, on one hand there is a high correlation between items within each factor and the other hand there is no correlation between the items of one factor and items of other factors. As it can be seen in the graph factor analysis, six factors have eigenvalues greater than one. It means that total of 69 items related to the essential success factors of private banks in provision of electronic services are reducible to six factors. Furthermore, the rotated matrix of factors determines which item is related to the determined factors.

Table 5. Rotated matrix of all the essential success factors of private banks in providing electronic services

Items	Factors					
	1	2	3	4	5	6
Software and hardware facilities at the disposal of the Bank	.682	.206	.230	.170	.250	.234
Software and hardware facilities available in the Society	.622	.080	.173	.120	.174	-.092
Available Internet bandwidth in the society and available for the citizens	.786	.273	.116	-.009	.155	.610
Internet bandwidth and the quality of the bank's existing network	.748	.229	.078	.193	.122	.130
IT infrastructure	.725	.140	.284	.322	.178	.223
ICT infrastructure	.752	.171	.196	.367	.032	.186
Integrated information systems	.571	.042	.379	.195	.214	.249
The number of domestic and Organizational Internet service	.451	.014	.095	.430	.024	.059

providers						
The bank's access to the web	.517	.164	.301	.358	-.052	.184
Expanding range of electronic payment systems (money, E-cards...)	.599	.271	.130	.317	.144	.268
Existence of Modern electronic communication systems with client	.516	.015	.091	.124	.016	.123
Development and diffusion lines and high speed internet in most areas	.413	.307	.389	.409	.018	.021
Development the use of computer hardware and Modern software in the citizen	.370	.231	.264	.356	.017	.149
Equipped the banks' 24-hour virtual branches	.489	.328	.322	.247	.124	.223
Development and integration of the internal banking network in the country	.512	.281	.402	.282	.076	.128
market development and strategies of Electronic sales in market	.488	.243	.194	.155	.338	.264
The number of internal experts in the field of IT and electronic banking	.390	.273	.302	.300	.303	.062
Development the Knowledge of local expertise in IT and Electronic Banking	.519	.150	.267	.084	.317	-.009
Developing awareness of Citizens and stakeholders of the benefits of e-banking	.216	.513	.505	.309	.147	-.052
Developing and promoting the culture of use of IT and ICT at various levels of society.	.238	.516	.299	.309	.147	.121
Compatibility between existing technology and customer requirements	.315	.503	.420	.327	.115	.091
Culturing and effective informing	.328	.536	.317	.364	.029	-.120

## 5. Discussions and Conclusions

This research aims to survey the key success factors of the country's private banks in providing the electronic banking services. It is obvious that degree of importance and effectiveness of efficient factors are different in success of private banks for providing electronic services. So, by using exploratory factor analysis, factor loadings (correlations between items and categories) of all items were also identified. Thus, in this section, the results of research for six factors are separately analyzed. The outcome of importance meter of technical - structure factors by exploratory factor analysis suggests that, from standpoint of experts, the current Internet bandwidth factor in citizen's disposal with a factor loading of 0.786 has the maximum factor loading in the entire technical - structure factors, and also, Information and communication technologies infrastructure factor is in second place with a factor loading of 0.752 and the Internet bandwidth and network quality in the bank in third place with a factor loading of 0.748. The importance meter results of cognitive and cultural factors by exploratory factor analysis suggest that from standpoint of experts, the effective knowledge with a factor loading of 0.786 has the maximum factor loading. After that, developing and promoting the use of IT and ICT at different levels of society (with a factor loading: 0.516), awareness development of citizens and stakeholders on benefits of electronic banking (with a factor loading: 0.513) and adaptation of existing technologies to meet customer needs (with a factor loading: 0.503) are placed in the following ranks. In factor of providing the costs of investment in infrastructure and telecommunications platforms with a factor loading of 0.552 has the maximum factor loading in the eyes of experts, and also desired credit for the costs of connecting to the web with a factor loading of 0.513, Allocation of costs for upgrading and development of satellite and computer in bank with a factor loading of 0.511 and appropriate and desired cost of provision of electronic banking services to customers with a factor loading of .467 are ranked second, third and fourth. Among financial factors, the factor of controlling the perceived risk in the electronic banking system with a factor loading of 0.747 has the maximum factor loading and then tendency and support of the bank's senior managers to development of e-banking is in the second place with a factor loading of 0.695 and supporting of active organizations in the field of electronic banking services is in the third place with a factor of 0.659 loading. The analysis of juridical-legal elements illustrates that, from the viewpoint of experts, the existence of regulatory organizations with a factor loading of 0.570 has the maximum factor loading which is in the first place, and then, the regulatory reform and development of electronic banking is in the second place with a factor loading of 0.528 and transparency of citizen's rights and consumers is in the third place with a factor loading of 0.487. The importance meter results

of administrative factors in both micro and macro, by exploratory factor analysis suggest that, from the viewpoint of experts, the factor of controlling the perceived risk in the electronic banking system with a factor loading of 0.747 has the maximum factor loading and then tendency and support of the bank's senior managers to development of e-banking is in the second place with a factor loading of 0.695, and supporting of active organizations in the field of electronic banking services is in the third place with a factor of 0.659 loading. . The importance meter results of quality and security of the system factors by exploratory factor analysis suggest that, from the viewpoint of experts, the factor of user-friendly systems and tools to provide electronic services with a factor loading of 0.747 has the maximum factor loading among all quality-security factors, which is in the first place, and then diversity and development range of electronic banking services is in the second place with a factor loading of 0.729, procedural stability of electronic banking services is in the third place with a factor loading of 0.711. Given these values are positive, it can be concluded that strengthening of every 6 factor can lead to the success of private banks in the provision of electronic services to customers. In this context and according to the results, evaluation and overall fitting of the proposed model by using structural equation techniques and AMOS software, assessing the current situation of Ghavamin Bank and other private banks with the aid of this model and identifying the present status are among the subjects that would be offered to the future researchers.

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