Explaining the Barriers and Approaches of E-Banking Extension (Case Study: Melli Bank in Iran)

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ABSTRACT

The present study aims to identify the barriers of extending electronic banking. Based on the literature review, these obstacles are classified in five categories of technical-technological, cultural and social, managerial, financial and legal and statutory dimensions. This is an applied study classified as a descriptive paper. The statistical population is composed of the directors and top staffs of Melli bank in Yazd province. Using questionnaires, we have collected the required data and then analyzed them by fuzzy analytic hierarchy process (FAHP) and TOPSIS. The findings show that "technical and technological" measure is of the highest priority among the other factors; while "cultural-social" measure is not approximately significant in developing electronic banking. The proxies of "internet speed" and "internet bandwidth" have the most impact. However, the proxies of "hardware and software facilities", "to be afraid of dependence to the other countries in terms of utilizing knowledge and technology of EB", "the stakeholder awareness of the benefits of EB" and "the stakeholders 'resistance of traditional system against EB" are nearly non-significant.

KEYWORDS: Electronic Banking, Technical-Technological Barriers, Organizational Barriers, Barriers of Required Structures of E-Banking, Cultural Barriers, Legal and Statutory.

1. INTRODUCTION

Today, the modern communities have changed from property-based communities into knowledge based ones. In this situation, the extension of information technology and communications gives the enterprises and organizations the possibility to do their businesses by a high speed and flexibility. In the new century, information technology and communication have been extended with a higher speed. In the late 20th century, the development of the technologies has led to the formation of electronic technology and electronic banking with itself.

Banks are among the most important indexes of business trades. Banks exert close relationships with the people and play key roles in business affairs. That's why they are always trying to extend the quality and the amount of their services to enhance their compete ability. Accepting information technology provides a chance to have significant improvements for rendering and extending their services. Using communicative and informational instruments, new methods are introduced to the customers in order to receive services better and faster than the past. Actually, communicative and information technologies contribute the banks to attain the slogan of the customer orientation. The present study provides concepts, definitions, characteristics and requirements of electronic banking. The barriers and approaches of extending e-banking are identified by using FAHP and are prioritized by TOPSIS method.

Theoretical Background

Communication is considered as one of the necessities for the human communities. Today, communication has become a significant subject because of the fast variations and complicated affairs. In past, many communication networks existed to support the transformation of the information and messages at a national and intra national level and provided a chance to prepare the possibility of communication with the individuals. Growth and extension of World Wide Web is today linking nearly all countries around the world. Information technology also influences on life patterns and causes to call the current period as "everything in electronic space".

Merging big organizations and entities for obtaining more markets, extending free business regions and enacting international trade rules show that the global economy has reached to a modern period. However, the economic evolutions of a country in America continent have a severe impact on Asian countries. Therefore, these changes should be carefully studied to select the best solution for applying the country's specifications to the specific situations.

The present period is today introduced as the information evolution age. The significance of this title in the applicable impact of information in all of the daily variations of the globe is so that the whole orientations of the political, economic and cultural aspects are formed with the correct utilization of information (Hasani, Soltani, Zarrabiyeh, 2008).

The changes in the globe which is composed of electronic buying and selling on the computerized networks and is derived from the information technology have a deep impact on the communications and information transfer process.

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This situation provides a scheme for facilitating the trade and business affairs. This leads to increasing the competitiveness between the organizations. Banks, as the institutions performing in financial and monetary environment, are not excluded from these affairs. They are confronting with various limitations and barriers which need competitive advantages for achieving potential opportunities

Technology orientation procedure in banks is referred to as the third wave in banking system. This is an indicator of the attention and new view in economic and business issues and finally banking issues. It must be mentioned that global variations especially in economic affairs are the results of convergence of various issues. Banking is one of the fields influenced by evolutions like information technologies, capital flow and technological and organizational evolutions. Electronic banking has enhanced the speed, quality, accuracy, revenue and diversity of the services. In this system, the information and services are available to the customer without any specific limitation. Therefore, by having a corrective view in providing modern services of e-banking, the corrections of banking system can be biased so that they are initially accompanied by global variations and evolutions. Second, this capacity in scientific, cultural and human resources of the banks ought to be provided for acceptance and application.

There is no doubt that the focus role of banking system in economics is not avoidable. In industrialized countries in the last decades, the role played by the banks has observed a fast variation and the banks have converted into new instruments along with modern technologies for banking services. Providing different services in electronic market and preparing facilities of achieving the required information are the main infrastructures of e-banking. Perceiving these infrastructures and their influences and challenges at the time of providing electronic banking services are useful guides for the banks to gain success (Fergison, 2000).

The findings reveal that by increasing the number of the loyal customers and enhancing the top customers' satisfaction, the banks could significantly increase their profitability (Kolodinsky, 2004).

Most of the banks are today confronting dynamic environments and all banks have overemphasized the attraction and maintenance of the business customers. On the other hand, the customers have more opportunities for comparing the services. The customer's judgment about the banks is according to the banks' ability in solving the problems and developing the trades. Security, transaction speed, user friendly specification, easy application, confidence and private limits are the most important factors in selecting the bank by the customer (SekranAkinsi et al. 2004).

Therefore, acceptance of e-banking in most of the countries is increasing so that the rate of the e-banking communications in pioneer companies has been more than 50 percent (Tropic Karainent et al, 2004).

Nowadays, quick conduction of the affairs and saving time are considered as the most important elements of success for the banks. The customers are also the major determinants of the competition who place a great value on the technology and speed followed by the technical expert of the banks. In the modern banking, description of the banks' services and especially e-banking services are required. Through the public Medias, the customers have the right to perceive the banks. Therefore, the banks need to gain sufficient information about the customer, perceive their interests and expand the requirements and relations.

E-banking services can be classified into different categories of network banking, mobile banking, ATMs, credit cards, electronic payment services and electronic transfer. These services are the results of developing infrastructures and information technology in banking structure. In order to keep up with corrective actions based on technology views, there should be two evolutions in fields of qualitative and quantitative banking system (Hasani, Soltani and Zarabiyeh, 2008).

Branganza (2000) explored the significant factors of successful implementation of e-banking. The organizing factors which played vital and important roles in e-banking were the different samples of reports as the keys to success. These factors were based on subjective data and used a structure and component of the existing documents as the fundamentals of the evaluation questions. The collected data were based on the financial sectors of England organizations which provided financial services through electronic channels using questionnaires. The most important factors in successful implementation of e-banking are introduced to involve: services and outputs with a fast response, quick flexible organizing, extended services, and integrated systems and advanced customer services. The most important section of this study is that the organizations need innovation in banking scheme. These innovations should be considered as the basic techniques even more than the banking technique. They should also regard the internal integration which is composed of integrating channels, technologies and business procedures and there must be a correction and improvement in all of the services provided for the customers.

Ila, Pallister and Jordan.R (2003) analyzed the proposed model for the security of e-banking and the significance level of e-banking and its role in banking. They emphasized on the point that confidence has a more essential role in an electronic transaction of a virtual environment. This might be the reason of the individual's concern about the financial misuse. This study has initially provided different definitions of confidence in electronic commerce and then the different risks of e-banking including financial, personal and secured personal risks were described. Finally, the findings showed that the confidence leads to mitigating the risk and these two ones are in an inverse relationship. More trust in e-banking might help mitigating the risk of electronic transactions. Those individuals dealing with confidence in e-banking are less concerned about involving in unsafe behaviors. The electronic security model in e-banking is provided and shows that there is a strong relationship between perceived security and the level of hiding personal information. These two aspects are referred to as the two major bases of confidence.

MilliaEslami (2008) declared that internet banking in India has attracted the attention of banks, securities, business firms, dealers, insurance companies and regulators of developing countries from the last 1990s. The impact of internet banking on saving costs, growing the revenue and increasing the customers' satisfaction is at an extra level. The data of this study is composed of that information captured from the consumers of internet banking and service providers of the banks. As the first step, internet banking in India has been overcome by the foreign and privatized banks and their services could be exclusively provided by them. They document that the banks might have more concentration on the consumers to maximize their revenue through internet banking. They should also change their business model according to the situations and structures of India.

Ajimon and Kumar (2011) tried to find the barriers and effective factors of customer's resistance against using internet banking in India. They mentioned that India is at the premier steps of the growth and development of internet banking. They also classified the barriers and factors into two operating and psychological groups. The operating factors include the application, credit and risk obstacles. The second barrier is classified into traditional and mental image obstacles. This study points that there should be a correct perceive from these factors and barriers for the managers of the banks. However, political functions can remove these obstacles.

Cheng and Abdulhamid (2010) investigated the selection of internet banking among Taiwanese customers. They have examined the technology acceptance model (TAM) and personal involvement issues (PII measures). They found that these involvements have been considerably influenced by the individual's characteristics, incentives and positions. Additionally, the impact of two factors has been considered in determining the behavioral objectives. These two factors include believe in usefulness and perceiving profitability in application position. The results of this study showed that perceive and observation of the profitability and usefulness are highly influenced by the involvement and occupation.

Sahot and Zoznakiaserva (2011) considered the discipline requirement and quality function deployment (QFD) for internet banking services and studied the on-line banking form the customer's perspective. GFD is a technique for designing an inventory or service which operates according to working through the customers' requirements. In this study, the relationship between qualitative and quantitative managerial instruments and internet banking has been discussed. The complications of the qualitative management system in relation to internet banking have been also studied. Successful identification of GFD requires a precise planning and preparing processes. In order to gain all of the advantages, it is required to take a training period into consideration. Actually, on-line banking mainly depends on exchanging useful and effective information among the banks and its agents, information quality has then become an important part of qualitative management of the online banking. All these qualitative aspects and cases have created complicated managerial challenges for the managers of internet banking which requires having sufficient skills for managing and controlling.

Abdullatif and MajdiSaleh (2008) used FAHP and VBA to measure the vital factors in successful implementation of e-banking. Extension of e-commerce in line with e-banking has been highly mentioned in this study. They provided an evaluation model to help the managers to determine the problems and opportunities. They have also pointed out that there are many factors considered in final evaluation from which the trust and content quality in consolidated evaluation have got the best grades.

Jimmy poker, assistant professor of the business University of Hong Kong (2004) declared that the operations of multinational firms in the country have extended the international commerce of China. Consequently, a manager for the efficient provision of the affairs is one of the e-commerce solutions. However, one of the vital aspects associates with the legal environment of e-commerce in China which is highly overlooked. Most of the obstacles of e-commerce in China concerns with the methods and characteristics of the legal system in China. It can be reasoned that considering legal issues and a policy for revising the provision manger is very essential.

Megha (2012) explored the role of information technology in banking sector of India. He asserted that opening up new markets, new products and new distribution channels is efficient for the banking industry. Technology, productivity and efficiency have played essential roles in developing the economy of India. Effective application of the technologies also has a great impact on the growth and development. He refers that using technology in developing the banking sector of India has not only been an important point for the commercial banks, but also for the regulators. Banks of India utilize the information technology to improve their internal processes. Banking industry of India is largely exploited from the information technology evolution around the world.

METHODOLOGY

The main subject of this paper is identifying and ranking the barriers of e-banking extension. It covers the central branch of Melli bank located in Yazd province of Iran and includes the performances of this branch from October 2011 to March 2012.

The present paper is an applied study with a descriptive and heuristic nature. This classification is because it tries to identify and rank the barriers of extending e-banking.

Conceptual Model of the Study

Studying the literature review along with investigating the opinions of the commentators, 28 effective obstacles of extending e-banking were identified and provided in a form of the main model of T&S (Figure1).
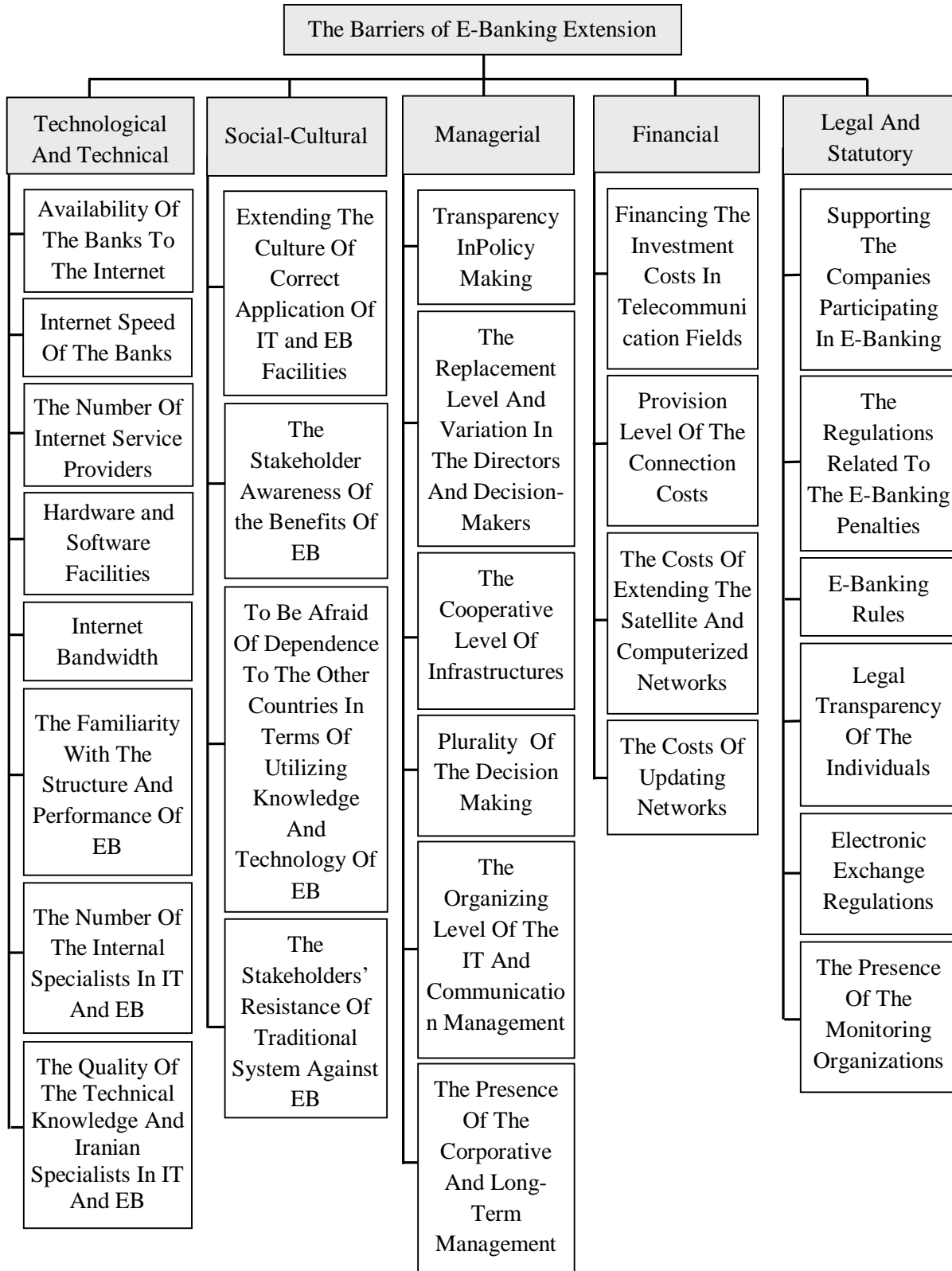
The Barriers of E-Banking Extension

Technological And Technical	Social-Cultural	Managerial	Financial	Legal And Statutory
Availability Of The Banks To The Internet	Extending The Culture Of Correct Application Of IT and EB Facilities	Transparency InPolicy Making	Financing The Investment Costs In Telecommunication Fields	Supporting The Companies Participating In E-Banking
Internet Speed Of The Banks	The Stakeholder Awareness Of the Benefits Of EB	The Replacement Level And Variation In The Directors And Decision-Makers	Provision Level Of The Connection Costs	The Regulations Related To The E-Banking Penalties
The Number Of Internet Service Providers	To Be Afraid Of Dependence To The Other Countries In Terms Of Utilizing Knowledge And Technology Of EB	The Cooperative Level Of Infrastructures	The Costs Of Extending The Satellite And Computerized Networks	E-Banking Rules
Hardware and Software Facilities		Plurality Of The Decision Making	The Costs Of Updating Networks	Legal Transparency Of The Individuals
Internet Bandwidth	The Stakeholders' Resistance Of Traditional System Against EB	The Organizing Level Of The IT And Communication Management		Electronic Exchange Regulations
The Familiarity With The Structure And Performance Of EB		The Presence Of The Corporative And Long-Term Management		The Presence Of The Monitoring Organizations
The Number Of The Internal Specialists In IT And EB				
The Quality Of The Technical Knowledge And Iranian Specialists In IT And EB				

Figure 1: Conceptual Model of the Study

Implementing the methodology

We have initially selected the statistical population of the study to determine the significance level of the obstacles in e-banking extension. These individuals should were at least of one of the following characteristics:

- Top managers of the information technology
- Having M.A degree
- Having at least 10 years of job history

This population is composed of 15 individuals who 13 of them have completed the questionnaire. These responses were used to assign a weight to the barriers. The second population was at least of one of the following characteristics:

- An educational degree higher than bachelor
- More than 10 years of experience

37 questionnaires were completed from the 40 individuals of the population and were finally used for ranking the obstacles of implementing the e-banking.
The AHP technique used in this study aims to determine the significance of the barriers of extending e-banking services. TOPSIS is another technique applied to rank these obstacles.
Fuzzy Analytic Hierarchy Process (FAHP)
AHP was first introduced by Saaty to allocate the scarce resources and meet the requirements of planning for the army. This technique has been always considered as one of the most popular methods for multiple criteria decision making Methods (MCDM) and is utilized to solve the non-structured issues in different fields of interest and human needs like politics, economics, social sciences and management. AHP approach involves six main steps:
1. Defining the problem and clarifying the objectives and consequences
2. Converting the complicated problem into a hierarchy process by using measures and choices
3. Conducting a pairwise comparison between the decision elements by comparison scales
4. Estimating the relative weights of the decision making elements by using the specific value of comparison matrixes
5. The consistency measure of the scales are checked to make sure that the judgments of the decision makers are integrated
6. The relative weights of the decision elements are summed to achieve the final weight of the choices.

Weighting the Indexes of the Model by FAHP
In this step, FAHP is used to calculate the examined indexes. In doing so, six steps should be conducted as follows:
1. Construct the hierarchy structure of the decision factors. The decision makers are asked to determine the relative importance of each pair by a nine points scale. The pairwise comparisons scores are summed and the pairwise comparisons for each k decision maker are formed.
2. *Stability Analysis:* the priority of the factors can be determined by computing specified values and vectors.

$$A.w = \lambda_{max}.w$$

Where, W is the weighted vector related to matrix A. The consistency index of the matrix is then checked to ensure that the judgments in a pairwise comparison are exerted. Consistency ratio (CI) and consistency index (CI) are defined as follows:

$$CI = \frac{\lambda_{max} - n}{N - 1}$$

$$CR = \frac{CI}{RI}$$

Where in it;
n= the number of the compared items in a matrix, and
RI= random index.
Saaty suggested that the high ceiling of the CR values for a 3×3 matrix is 0.05 and for a 4×4 matrix, is 0.08. This is 0.1 for larger matrixes. If the consistency test is rejected, the decision maker must correct the primary values in a comparison matrix.
3. Generate positive fuzzy matrixes. The scores of pairwise comparisons are converted into linguistic variables shown by the triangular fuzzy numbers.

Table1. Triangular Fuzzy Numbers

Linguistic Variables	Positive Triangular Fuzzy Numbers	Inverse Positive Triangular Fuzzy Numbers
Severely Strong	(9,9,9)	(1/9,1/9,1/9)
Average	(7,8,9)	(1/9,1/8,1/7)
Very Strong	(6,7,8)	(1/8,1/7,1/6)
Average	(5,6,7)	(1/7,1/6,1/5)
Strong	(4,5,6)	(1/6,1/5/14)
Average	(3,4,5)	(1/5,1/4,1/3)
Relatively Strong	(2,3,4)	(1/4,1/3,1/2)
Average	(1,2,3)	(1/3,1/2,1)
Equally Strong	(1,1,1)	(1,1,1)

The positive fuzzy two fold matrix can be defined as follows:

$$\tilde{R}^K = \left[\tilde{r}_{ij}\right]^k$$

$\tilde{R}^K$ is the matrix belonging to the decision maker k.

$\tilde{r}_{ij}$ is the relative importance between elements of i and j

$$\forall i = j \ , \quad \tilde{r}_{ij} = \frac{1}{\tilde{r}_{ij}} \ , \qquad \forall_{i,j} = 1,2,....,n$$

4. According to the method of Lambda-max, compute the final weights of decision elements.

Use slice α. In order to achieve $\tilde{R}_b^k = (\tilde{r}_{ij})_b^k$, select the positive matrix of the decision maker $\alpha = 1, k$. To compute $\tilde{R}_c^K = (\tilde{r}_{ij})_c^k$ and $\tilde{R}_a^K = (\tilde{r}_{ij})_a^k$, select the positive matrixes of upper and lower limits of the decision maker $\alpha = 0$. Calculate the weight according to the matrix and finally compute the AHP of the weight matrix.

$$W_c^k = \left(w_i\right)_c^k \qquad , \ I = 1,2,3,....,n$$

$$W_b^k = \left(w_i\right)_b^k \qquad , \qquad W_a^k = \left(w_i\right)_a^k$$

Two constant values of M_a^k and M_c^k are selected to minimize the fuzziness (uncertainty) of the weights.

$$M_a^k = \min\left\{\frac{W_{ib}^k}{W_{ia}^k}\middle| 1 \le i \le n\right\}$$

$$M_c^k = \min\left\{\frac{W_{ib}^k}{W_{ic}^k}\middle| 1 \le i \le n\right\}$$

The upper and lower limits are defined as follows:

$$w_{ia}^{*k} = M_a^k . w_{ia}^k$$
$$w_{ic}^{*k} = M_a^k . w_{ic}^k$$

Then, the matrixes of upper and lower limits are as follows:

$$w_a^{*k} = (W_i^*)_a^k \qquad i = 1,2,....,n$$
$$w_c^{*k} = (W_i^*)_c^k \qquad i = 1,2,....,n$$

By compounding w_b^k, w_a^{*k} and w_c^{*k}, the weighted fuzzy matrix can be computed for k decision maker which is $w_i^k = (w_{ia}^{*k}, w_{ib}^{*k}, w_{ic}^{*k})$ and $i = 1,2,....,n$.

5. The opinions of the decision makers are consolidated. Geometric mean is used to compound the fuzzy weights:

$$\overline{\overline{W}}_i = \left(\prod_{k=1}^{k}\right)^{\frac{1}{k}} \ , \quad \forall k = 1,2,...,k$$

$\overline{\overline{W}}_i$ is the fuzzy weight of the decision maker k

$\overline{\overline{W}}_i^k$ is the fuzzy weight of decision making factor for the decision maker of k.

6. Exert the final classification. According to the equation proposed by Wang et al (2006), a coefficient is defined for classifying the decision factor:

$$CC_1 = \frac{d - (\overline{\overline{W}}_i, 0)}{d^*(\overline{\overline{W}}_i, 1) + d^-(\overline{\overline{W}}_i, 0)} \quad 0 \le CC_i \le 1 \quad i = 1,2,....,n$$

Where CCi is the weight of decision factor i and $d^-(\overline{\overline{\widetilde{W}}}_i,0)$ and $d^*(\overline{\overline{\widetilde{W}}}_i,0)$ are the scale between two fuzzy numbers.

$$d^-(\overline{\overline{\widetilde{W}}}_i,0) = \sqrt{\frac{1}{3}\left[(\overline{W}_{ia}-0)^2 + (\overline{W}_{ib}-0)^2 + (\overline{W}_{ic}-0)^2 \right]}$$

$$d^*(\overline{\overline{\widetilde{W}}}_i,0) = \sqrt{\frac{1}{3}\left[(\overline{W}_{ic}-0)^2 + (\overline{W}_{ib}-0)^2 + (\overline{W}_{ic}-0)^2 \right]}$$

The weights related to the indexes and sub-indexes of balanced score card are calculated by using the relations of AHP process. A proper decision making model should be able to tolerate the ambiguity and vagueness. This is because fuzziness and vagueness are the general characteristics of many decision making problems. Decision makers most often provide unsure responses instead of accurate and precise responses. Therefore, converting qualitative preferences to the direct estimates doesn't seem to be reasonable. However, AHP can't be appropriate for this purpose and the ambiguity should be considered in some or all of the pairwise comparisons. Fuzzy linguistic approach captures optimistic and pessimistic tendencies of the decision makers. It is suggested to use fuzzy linguistic data instead of using classic and certain data to measure the utility. As a consequence, FAHP is more efficient than the traditional AHP in a pair-wise comparison environment.

TOPSIS

TOPSIS is a compensating model allowed for the exchanges between indexes and a variation in one index can be compensated by an opposite variation in another index. This method has been introduced by Hwang and Yoon in 1982. According to TOPSIS method, any problem of MCDM type which is evaluated by m alternatives and n criteria can be considered as a geometric system including m points in n dimension space. It also considers the distance of the alternative from the positive and negative ideal solutions. In doing so, TOPSIS is based on the concept that the chosen alternative should have the shortest geometric distance from the positive ideal solution and the longest geometric distance from the negative ideal solution. Therefore, according to the strength points mentioned above, we have selected this model to rank the elements.

TOPSIS Model

TOPSIS technique is based on the concept that the selected alternative should have the shortest distance from the positive ideal solution (A+) and the longest distance from the negative ideal solution (A-). It is assumed that the utility of each criterion is increasing or decreasing consistently. Solving the problems by this method requires six steps as follows:

1. Quantifying and normalizing the decision matrix (N): we have used the Euclid Norm to normalize the matrix
2. Calculate the weighted normalized decision matrix (V): this is obtained by multiplying N by the diagonal matrix of the weights. That is, $V = N \times W_{n \times n1}$
3. Determining the positive and negative ideal solution: these solutions are defined as follows:

(positive ideal solution V_j^+) = [V the vector of the best alternative of each matrix]
V_j^- negative ideal solution) = [the vector of the best alternative of each matrix V]

"The best alternative" for the positive criteria are the largest values and for the negative criteria, they are the least values. "The worst values" for positive criteria are the least values and for the negative criteria, these are the largest values.

4. Calculate the distance between the target alternative and the positive and negative ideal alternative: the Euclid distance of each alternative from the positive ideal (d_j^+) and the distance of each alternative from the negative ideal (d_j^-) are calculated from the following formulas:

$$d_i^+ = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^+)^2} \qquad i = 1,2,\dots,m$$

$$d_i^- = \sqrt{\sum_{j=1}^n (V_{ij} - V_j^-)^2} \qquad i = 1,2,\dots,m$$

5. Determining the CL* of an alternative to the ideal solution:

$$CL_i^* = \frac{d_i^-}{d_i^- + d_i^+}$$

6. Ranking the alternatives: any choice with a larger CL* is more appropriate (Momeni, 2006).

Data Analysis

Questionnaire and weighting in a FAHP process

The questionnaire related to the opinions of top staffs of Melli bank is based on the obstacles of extending e-banking according to pairwise comparisons which collect the respondents' opinions about the priorities of basic measures and sub measures.

This questionnaire was sent to 13 of top employees of Melli bank. In this questionnaire, the cells of the pairwise matrixes are described for the respondents and they provide their responses. Finally, 13 questionnaires were completed and returned. The weighting technique in AHP process is based on group decision making. Therefore, the pairwise comparison matrixes of each respondent should be mixed for each case. Consequently, we have first collected all of the pairwise comparison matrixes and converted the number into their fuzzy equivalents. Using EXCEL software, we have then controlled the consistency ratio of the matrixes. This resulted in the consistency of 0.07 for all matrixes of the whole levels of fuzzy hierarchy tree.

According to the findings, the technical and technologic measure possesses the highest importance from the perspective of the top staffs working in Melli bank of Yazd.

Among the technologic measures, the highest weight belongs to the internet speed of banks; while this belongs to the level of the culture of correct application of IT and EB facilities among the cultural-social measures. The expenses of extending satellite and computerized networks have the most priority among the financial barriers. Finally, supporting those firms working in e-banking fields has been identified as the most important sub measure in terms of legal and regulatory barriers.

The second questionnaire was distributed after weighting the measures and sub measures. This questionnaire was composed of two major parts. The first part was related to the general information of the respondents; while the second part was related to measuring the impact level of each obstacle on extending e-banking services. This questionnaire was distributed among 50 individuals working in the central branch of Melli bank in Yazd province of Iran. Finally, 37 of them returned the questionnaire. The data collected from both questionnaires is analyzed by TOPSIS software and the findings are summarized in the table below:

Table 2.Computing the Final Weights of Each Sub Measure

Sub measure	weight	FAHPweight	TOPSIS Output	Final Weight
Availability of the banks to the internet	0.657	0.029	0.518	0.015
Internet Speed of the banks		0.302	0.415	0.125
The number of Internet Service Providers		0.044	0.4	0.018
Hardware and Software Facilities		0	0.599	0
Internet Bandwidth		0.191	0.493	0.094
The familiarity with the structure and performance of EB		0.03	0.594	0.018
The number of the internal specialists in IT and EB		0.019	0.594	0.011
The quality of the technical knowledge and Iranian specialists in IT and EB		0.042	0.538	0.022
Extending the culture of correct application of IT and EB facilities	0.003	0.002	0.505	0.001
The stakeholder awareness of the benefits of EB		0.001	0.558	0
To be afraid of dependence to the other countries in terms of utilizing knowledge and technology of EB		0	0.566	0
The stakeholders' resistance of traditional system against EB		0	0.528	0
Transparency in policy making	0.152	0.037	0.581	0.022
The replacement level and variation in the directors and decision-makers		0.039	0.542	0.021
The cooperative level of infrastructures		0.058	0.584	0.034
Plurality of the decision making		0.011	0.43	0.005
The organizing level of the IT and communication management		0.002	0.462	0.001
The presence of the corporative and long-term management		0.004	0.504	0.002
Financing the investment costs in telecommunication fields	0.099	0.011	0.547	0.006
Provision level of the connection costs		0.032	0.564	0.018
The costs of extending the satellite and computerized networks		0.053	0.301	0.016
The costs of updating networks		0.002	0.514	0.001
Supporting the companies participating in e-banking	0.089	0.048	0.64	0.031
The regulations related to the e-banking penalties		0.007	0.432	0.003
Legal transparency of the individuals		0.003	0.554	0.002
E-banking rules		0.01	0.457	0.004
Electronic exchange regulations		0.007	0.514	0.004
The presence of the monitoring organizations		0.014	0.516	0.007

Finally, the sub measures are prioritized according to the weights computed from the table above. The results are shown in table 3.

Table 3.Genral Prioritization of the Measures

No.	Measure	Weight
1	Internet speed in banks	0.126
2	Internet bandwidth	0.094
3	The cooperative level of infrastructures	0.034
4	Supporting the companies participating in e-banking	0.031
5	The quality of the technical knowledge and Iranian specialists in IT and EB	0.022
6	Transparency in policy making	0.022
7	The replacement level and variation in the directors and decision-makers	0.021
8	Provision level of the connection costs	0.018
9	The familiarity with the structure and performance of EB	0.018
10	The number of Internet Service Providers	0.018
11	The costs of extending the satellite and computerized networks	0.016
12	Availability of the banks to the internet	0.015
13	The number of the internal specialists in IT and EB	0.011
14	The presence of the monitoring organizations	0.007
15	Financing the investment costs in telecommunication fields	0.006
16	Plurality of the decision making	0.005
17	e-banking rules	0.005
18	Electronic exchange regulations	0.004
19	The regulations related to the e-banking penalties	0.003
20	The presence of the corporative and long-term management	0.002
21	Legal transparency of the individuals	0.002
22	The costs of updating networks	0.001
23	The organizing level of the IT and communication management	0.001
24	Extending the culture of correct application of IT and EB facilities	0.001
25	The stakeholder awareness of the benefits of EB	0
26	to be afraid of dependence to the other countries in terms of utilizing knowledge and technology of EB	0
27	Hardware and Software Facilities	0
28	the stakeholders' resistance of traditional system against EB	0

Conclusion

The following findings are considered according to the points mentioned before about the analyses:

1. The measure of "technical-technological" with the weight of 66% has the greatest impact; while "cultural-social" measure is approximately non-significant.

2. The proxies of "internet speed" and "internet bandwidth" have the greatest impact. However, the proxies of "hardware and software facilities", "to be afraid of dependence to the other countries in terms of utilizing knowledge and technology of EB", "the stakeholder awareness of the benefits of EB" and "the resistance from the stakeholders of traditional regime against EB" are nearly non-significant.

3. In terms of technical and technological measure, "internet speed" has the greatest priority and "software and hardware facilities" measure has the least effect.

4. "Cultural-social "measure is not a significant barrier in developing e-banking.

5. In managerial measure, the index of "the cooperation level of efficiency" has the greatest impact; while "the organizing level of information and communication technology" conveys the least influence.

6. In terms of financial measures, "Provision level of the connection costs" has the greatest influence while the least impact belongs to "The costs of updating networks".

7. "Supporting the companies participating in e-banking services" is the measure with the greatest impact in legal and regulatory measure. In terms of this measure, "legal transparency of the individuals" is of the least significance.

Findings-based Suggestions and Further Studies

Considering the data analyses, more than 70% of the problems in e-banking relates to the first seven indexes. Among these proxies, three of them are technical and technological barriers, three of them are managerial barriers and one of them is the legal and statutory barrier. It must be mentioned that these problems are not limited to Iran and other countries also involve in these difficulties. Additionally, there is a chance to solve the barriers and compensate the shortages by using the experiences of the other countries in some schemes like technical and technological infrastructures, legal and statutory issues and cultural problems. The following suggestions are then provided according to the above discussions:

1. Extending and Updating the Infrastructures

The internet speed and bandwidth are the factors with a quick and direct impact on attracting the customer's satisfaction. This is because there is a short time assigned to each task. This time is called timeout. Therefore, when an individual is not able to do the banking operation in a short time, the banking software will automatically disconnect to avoid financial misuses and security problems. Bandwidth speed influences on the online purchase so that when the internet speed is high, then there is a chance to get a clear and qualified image of the goods.

2. Increasing the cooperative level of infrastructures

The major part of the current operations in e-banking returns back to the online purchase, paying bills and receiving or transferring money. Therefore, increasing the cooperation among the directors who impact this field might comfort the operations and make the customers trusted.

3. Supporting the companies participating in e-banking services

Electronically extension of the financial and monetary transactions provides a chance for misusing these facilities. Therefore, some legal and regulations ought to be enacted to make the services easier, increase the riskiness of the banks and enhance the security of the banking systems.

4. Enhancing the knowledge level of the specialists working in e-banking services

High level skills and the knowledge of the specialists in e-banking assure of maintaining and updating of the infrastructures. It also makes sure that the technological aspect is secured.

5. Clarification in policy making of e-banking

Central bank is the main responsible for policy making of the banking system of any country. The directors of this bank ought to completely believe in a variation from the traditional banking system into an internet banking one. They should also plan to exert the proper plans.

6. Mitigating the replacement level and changing the variables and decision makers

Managerial stability and determination of the logical time spans to improve the operations in e-banking field can be highly considered by the responsible agents.

The researchers are offered to investigate the diverse aspects of e-banking. This is because of the high importance of the subject. The different dimensions are as follows:

- Examining the role of government in reducing the barriers of e-banking
- Examining the impact of e-banking on declining the metropolitan problems like traffic, transportation costs, wasting time and so on.
- Analyzing the effect of e-banking on the internet business
- Identifying and ranking the successful countries in terms of e-banking services with similar technical-technological, rules and regulations and cultural-social situations to develop an appropriate pattern.

REFERENCES

1. Amir Yeganeh, P. "Examining the Required Infrastructures of Business and E-banking in Iran", M.A Thesis, Alzahra University, 2004.
2. Amini, A., "Investigating the Challenges and Barriers of Extending the E-banking Services in Parsian Bank of Iran", M.A Thesis, ShahidBeheshti University, 2006.
3. Hasani, F., Soltani, S. and Zarabiyeh, F., "E-banking Management", Sabzan Publication, 2008.
4. Sarkezi, Koosheh, Z., "Analyzing the Barriers of Locating and Extending E-banking Extension in Sistan-Baluchestan Province", M.A Thesis, 2007.
5. Sanayei, A. and SalehNiya, M., "Identifying and Ranking the Barriers of Accepting and Extending E-banking Services", The Second Global Conference on Electronic Banking, 2008.
6. Feyzi, K. and Sadeghi, T. "The Factors and Barriers of Developing and Extending E-banking in Iran", Management Quarterly, No.8, 2005.
7. Moghaddasi, A. "The Barriers and Approaches of Forming Electronic Government", M.A Thesis, Accounting and Management Faculty of AlamehTabatabyi University, Tehran,2003.
8. AjimonGeorgeand G. S. Aneesh Kumar1 , "Internet Banking And Customer Resistance" . Department of Commerce, Marian College, Kuttikkanam, Idukki (Dt), Kerala, PIN-686512. E Mail:georgeajimon@rediffmail.com , 2011.
9. AkinciSerkan ,SafakAksoy , EdaAtilgan. "Adoption Of Internet Banking among Sophisticated Cosumer Segments In an Advanced Developing Country" , International Journal Of Bank Marketing , Vol.22, No. 3,PP. 212-232 , 2004.
10. Branganza, S. Khan,Ashle." A Survey of Critical Success Factors in e- Banking , 2000.
11. Jean-Michel Sahut." Quality Management of Internet Banking Services"Professor, Geneva School of Business Administration (Ch& (CEREGE EA 1722 - University of Poitiers (Fr) , 2011.
12. Jimmy Ng. "Barriers to E-commerce Logistics in China [Legal Aspects]" Assistant Professor Department of Logistics Faculty of Business HongKong Polytechnic University , Email: lgtjng@inet.polyu.edu.hk , 2004.

13. HsinHsinChang ,Mohamad Rizal Bin Abdul Hamid . " An Empirical Investigation of InternetBanking in Taiwan " , national cheng kung university , global journal of business research , volume 4 , number 2 , 2010.

14. Dr. Mahmoud M. AbdEllatif. Measuring Critical Dr. magdy M. saleh."Success Factors of E- Bank PortalsUsing Fuzzy AHP & VBA "Faculty of computers &informationMansoura Univ. – Egypt, 2008.

15. MeghaJainProf.(Dr.)G.S. Popli."Role of Information Technology in the development of Banking Sector inIndia ", 2012.

16. Fergguson, roger ."Information technology in Banking and Supervision .", 2000.

17. Gan. Christopher, Clemes, Milke." A logic analysis of electronic banking in new Zealand ", International journal of Bank Marketing . vol. 24. No6 , 2006.

18. P.K. Gupta, JamiaMilliaIslamia. "Internet Banking in India – Consumer Concerns and Bank Strategies" , global journal of business research , volume 2 , number 1 , 2008.

19. Kolodinsky, Jane M, Jeanne M . Hogarth, Marianne A. Hilgert. "The Adoption of Electronic Banking Technologies by us Consumers" , International Journal of Bank Marketing , Vol.22, No.4, PP.238-25 , 2004.

20. ShumailaYousafzai, Foxall, G. and Pallister , J. " A Proposed Model of e- Trust for Electronic Banking " , Tecnovation. Vol. 23, Issue 11,pp. 847- 860. November,2003.

21. Teropikkarainen , Kari Pikkarinen , HeikkiKarjaluoto , SeppoPahnila. "consumer Acceptance of online Banking : An Extension of The Technology Acceptance Model" , Internet Research, vol. 14, No. 3, PP.224-235, 2004.