

Comparison of the Factors that Affect the Design of Traditional and New Systems Due Improving the Level of Organizations' Performance (A Case Study of Tehran, Iran)

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*Received: January 18 2014
Accepted: February 14 2014*

ABSTRACT

The present study intends to compare the factors that affect using the traditional and new banking channels from the viewpoints the customers of Eghtesed-e-Novein Bank in Tehran, the capital city of Iran. This survey utilizes descriptive and correlational statistics to analyze the collected data. All customers of Eghtesed-e-Novein Bank in Tehran are the population of this study out of which 453 customers were selected as the participants of this study using multi-stage stratified random sampling. The required data were collected using a valid questionnaire. Based on the hypotheses, the collected data were analyzed through the tests of Structural Equation Model and Confirmatory Factor Analysis using LISREL software. This study investigates the effect of technical and personal features on the traditional channels (bank branch channel) and new channels (internet bank). Technical features include 3 variables: channel security, the level of the channel complication, and the efficiency of the channel. Personal features also include 3 variables: the level of the individual's knowledge, the level of the individual's risk-taking and the social features. The results of the statistical analyses revealed that the variables security has significant effect on both channels, the level of complication had significant effect on using the internet bank channel, whereas this variable did not have effect on the bank branch channel, and the variable efficiency had significant effect on the bank branch channel, whereas this variable did not have effect on the internet bank channel. In addition, the results showed that the level of the individuals' knowledge has significant effect on both channels, the variable risk-taking had significant effect on using the internet bank channel, whereas this variable did not have effect on the bank branch channel, and social features had significant effect on the bank branch channel, whereas this variable did not have effect on the internet bank channel. According to the results, both technical features of the channel and the customers' features had significant effect on using both traditional and new channels. The results of comparing the two channels illustrated that there is a significant difference between using the traditional and new channels and the customers prefer to use the new channels (internet bank) for their banking activities.

KEYWORDS: Traditional Banking; channel security; channel complication; the efficiency of the channel.

Acknowledgements: The authors gratefully acknowledge the financial support provided by Center of Built Environment in Malay World, Universiti Teknologi Malaysia (KALAM) and the cooperation and research support from the Department of Landscape Architecture, Faculty of Built Environment, Universiti Teknologi Malaysia.

1. INTRODUCTION

In recent decades, outstanding advancements in information and communication technology (ICT) have made drastic changes in various fields such as world trade. As a result, many other activities in business, economy, banking, customs, etc. have undergone changes [11]. Nowadays, new concepts such as electronic government, electronic trade, electronic banking, electronic management, electronic insurance, and electronic training and education have merged in this respect [10]. Electronic trade is the most prominent achievement of information technology in economy. In this regard, the individuals' easy access to the internet has paved the way for them to handle their economic and trade affairs in the virtual environment [1]. Two areas have been influenced by this technology more than the other areas: trade and commerce. In addition, banking industry has also experienced a significant evolution in this regard [10]. In the past decade, banking industry has undergone important changes resulting from the advantages of information technology. Particularly, the internet has significantly improved the channels of financial services industry. In developed and developing countries, increasing attention of big banks to offering banking services by using electronic channels and developing virtual banks and financial institutes has resulted in competition in banking industry. As a result, the other banks have also started to develop their electronic banking [6]. Increasing application of ICT advanced systems in banking industry and progressing toward electronic

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banking has abolished application traditional banking systems. Therefore, banking converts into data processing industry based on new concepts such as electronic money, ATM, and point of sale [10]. Using the strategy multiple channels, the customers can interact with the bank in various ways. Today, banks replace the traditional methods of service delivery (face-to-face methods) with new methods such as voice-to-voice (through phone call) and online methods of service delivery. One of the most important goals of banks is distributing the sources through application of various channels to satisfy the customers and obtain the maximum profit. Therefore, identifying the factors that can influence the relative evaluation of the customers as well as the factors that can affect the use of alternative channels is an important stage of creating complementary synergism among a wide range of channel choices [10].

1. REVIEW OF RELATED LITERATURE

2.1 Electronic Banking

Information and information technology are essential due to the individuals' vast and complicated domestic and overseas communication which can be made faster, more accurate, and more beneficial using new methods [7]. Banking industry has also been influenced by ICT revolution and has improved and diversified its distribution channels for services. These continuous changes show the prominent role of distribution channels for services. In this way, technological development will be of great importance for banks [11]. Therefore, banks should manage these changes and try to make positive impressions on the customers [12]. Banks should be cautious about the effects of electronic banking on their relationship with the customers. In this regard, the customers can significantly contribute by warmly receiving electronic banking since it reduces or eliminates the interactions between the organization and customer. Partnership of customers and bank can influence the quality of services, satisfaction, and finally retaining the customers. However, many individuals cannot be easily encouraged to use new technologies [22]. Electronic banking provides high volumes of low value transactions through electronic channels such as ATMs, credit cards, telephone, hand phone, internet, television, etc.

2.2 Bank Branch Channel

It is obvious that bank branch channel plays an important role in interactions between bank and customers since the customers consider it an efficient channel due to its clear interaction, security, and the absence of customers' confidence in electronic mediators. With regard to banking history, it is noticed that branch channel has been the primary channel of offering the banking services. In other words, the customers received all their banking services which were provided by the bank at the bank branch. Certainly, the cost index of all services offered at the bank branch is higher than the cost index of the services offered through the other channels due to the high costs of branch. Yang, et.al, [24] investigated the factors that affect the success of electronic channels and contended that bank branch channel is a successful channel in offering banking services to customers. In addition, bank branch channel is the most preferred channel for the many customers since at the bank branch, all interactions and transactions are done face to face [22].

2.3 Internet Bank

Electronic banking includes all banking transactions through the website developed by the bank on the internet. The main factors that moved banking system toward using internet are: high costs, customers' expectations, and competition among non-bank financial institutions. This banking method reduces the transaction costs compared to the transactions handled at the bank branch [8]. This banking method and the advanced softwares provide the opportunity for cryptography on the phone line and internet network. With regard to the existing advanced identity verification systems used to identify the person in contact with the bank network, many banking transactions such as withdrawal and depositing money into a bank account can be done. In this method, banks can exchange domestic currencies into foreign currencies and transfer money to overseas bank accounts by establishing the required facilities. Presently, banks provide banking services through internet in most of the advanced countries and customers can handle their banking transactions through connection to the banks' homepage and keying in their password without any need to in-person attendance in the bank [11].

2. METHODOLOGY

The primary research questions of this area are;

- 1) What are the factors that can affect the customers' choice of the traditional banking channel in Eghtesad-e-novin bank?

- 2) What are the factors that can affect the customers' choice of the new banking channel in Eghtesad-e-novin bank? And
- 3) Is there any significant difference between the customers' choice of the traditional and new banking channels?

Based on the primary questions, this study also intends to find the answer to 6 secondary questions for the following variables of using bank branch channel: channel security, the level of the channel complication, the efficiency of the channel, the level of the customers' knowledge, the level of the individual's risk-taking and the social features. In addition, this survey aims to find the answer to 6 secondary questions for using the internet bank channel. Table 1 shows the number of items of primary and secondary variables of this study.

Table 1 : The Number of Items of Primary and Secondary Variables

| Primary Variables | Number of Items |
|---------------------|-----------------|
| Channel Features | 9 |
| Customers' Features | 9 |
| Secondary Variables | Number of Items |
| Security | 3 |
| Complication | 3 |
| Efficiency | 3 |
| Level of Knowledge | 3 |
| Risk Taking | 3 |
| Social Features | 3 |

According to the research questions, 5 primary and 6 secondary hypotheses were developed for this study. Figure 1 shows the conceptual framework of this study and includes all hypotheses. In addition, the last primary hypothesis of this study investigates if there is any significant difference between the customers' choice of the traditional and new banking channels. Since this survey intends to compare the factors that affect the customers' choices of traditional and new banking channels of Eghtesad-e-Novin Bank in Tehran, it utilizes descriptive and correlational analyses of the collected data. Questionnaire is the instrument used to collect the required data.

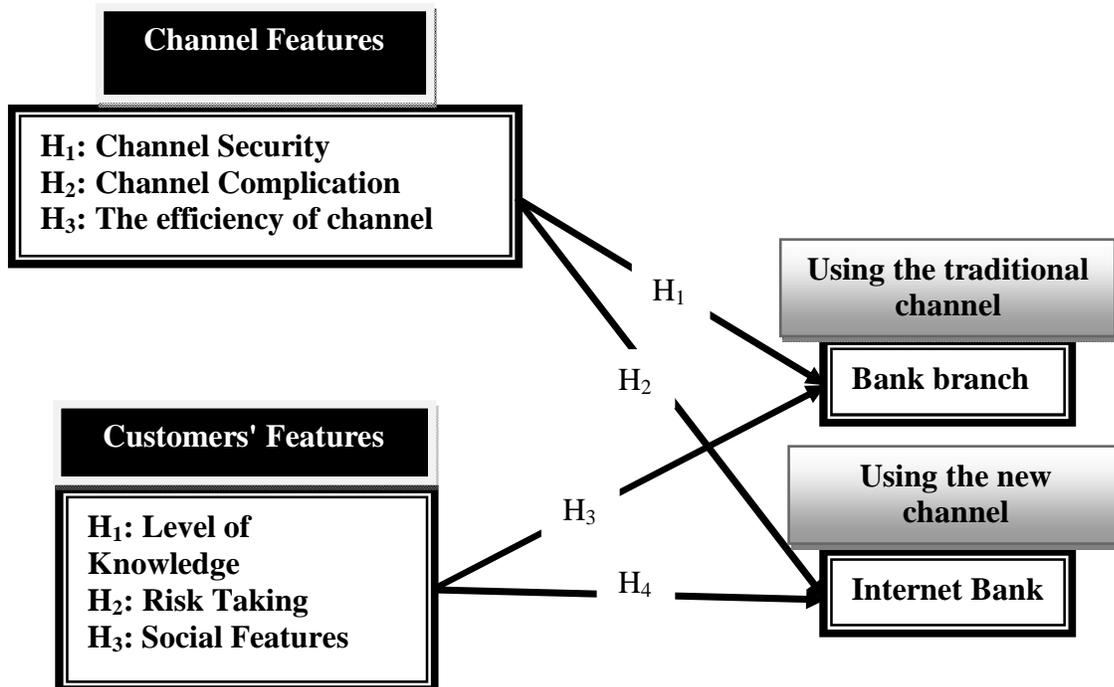


Figure 1. Conceptual Framework

The items of the questionnaire are based on 5-point Likert scale; from strongly disagree to strongly agree. Reliability and Validity of the questionnaire were tested using Alpha Cronbach Coefficient and Confirmatory Factor

Analysis respectively. As shown in Table 2, the results of reliability analysis of each variable show an acceptable reliability of the research instrument.

Table 2 : Results of Reliability Analysis

| Primary variables | questions | Number of Questions | Alpha Cronbach | | Secondary variables | questions | Number of Questions | Alpha Cronbach | |
|------------------------|-----------|---------------------|----------------|---------------|---------------------|-----------|---------------------|----------------|---------------|
| | | | Bank branch | Internet Bank | | | | Bank branch | Internet Bank |
| Technical Features | -3-2-1 | 9 | 0.921 | 0.837 | Security | 15-8-1 | 3 | 0.805 | 0.779 |
| | -9-8 | | | | | | | | |
| | -15-10 | | | | Complication | 16-9-2 | 3 | 0.733 | 0.744 |
| 17-16 | | | | | | | | | |
| Personal Features | -6-5-4 | 9 | 0.841 | 0.669 | Efficiency | 17-10-3 | 3 | 0.820 | 0.775 |
| | -12-11 | | | | Knowledge | 18-11-4 | 3 | 0.585 | 0.695 |
| | -18-13 | | | | Risk Taking | 19-12-5 | 3 | 0.647 | 0.716 |
| | 20-19 | | | | Social Factors | 20-13-6 | 3 | 0.687 | 0.838 |
| Using the Channel | 21-14-7 | 3 | 0.663 | 0.809 | Using the Channel | 21-14-7 | 3 | 0.663 | 0.809 |
| Total Questions | 21-1 | 21 | 0.943 | 0.842 | | 41-1 | 21 | 0.943 | 0.842 |

In order to test the validity of the questions, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted. In addition, construct validity of the questionnaire was confirmed by experts and academicians. All customers of Eghtesad-e-Novin Bank in Tehran comprise the population of this survey. Out of 114 branches and 5 administration districts of Eghtesad-e-Novin Bank in Tehran, 4 branches were selected in each administration district using multi-stage stratified random sampling, and 25 questionnaires were distributed to the customers of each branch. Due to the big population this study dealt with, the following formula was used to obtain the minimum number of participants needed to collect the required data:

$$n = \frac{(Z_{\alpha/2})^2 \times p \times (1 - p)}{\epsilon^2}$$

If we consider the ratio of population achievement (p) 50%, alpha (α) at the significance level of 0.05, and standard error of estimation 5%, then the minimum sample size will be 384 participants. For a higher level of confidence, 453 participants were selected as the sample size of this survey.

$$n = \frac{(z_{\alpha/2})^2 \times p \times (1 - p)}{\epsilon^2} = \frac{(1.96)^2 \times 0.5 \times (1 - 0.5)}{0.05^2} = 384$$

3. DATA ANALYSIS

Following the method suggested by [14], a two-stage approach was applied. At the first stage, the instrument was analyzed and at the second one, the relationships and hypotheses were investigated. For this purpose, first, the extent to which each question could assess the related variable was analyzed using CFA. Table 3 shows standard coefficient (load factor), variance, and t-value for each question. Load factor of each question is significant and greater than 1.96. Therefore, the questionnaire is valid and all questions are appropriate indices to assess the variables.

As shown in Table 3, for the bank branch channel, questions 8 and 15 (security), 2 (complication), 17 (efficiency), 18 (knowledge), 12 (risk taking), 13 (social features), and 14 (using the bank branch channel) are more appropriate questions for assessing the variables they belonged to. For the internet bank channel, questions 8 (security), 16 (complication), 3 (efficiency), 18 (knowledge), 12 and 19 (risk taking), 13 (social features), and 14 (using the internet bank channel) are more appropriate questions for assessing the variables they belonged to.

Table 2 : Validity analysis of questions

| variable | question | Standard coefficient (factor load) | t-value | Standard coefficient (factor load) | t-value |
|-------------------|----------|------------------------------------|---------|------------------------------------|---------|
| | | Bank branch | | Internet Bank | |
| | | | | | |
| Security | Q.1 | 0/76 | 19/53 | 0/72 | 17/88 |
| | Q.8 | 0/87 | 23/91 | 0/86 | 23/16 |
| | Q.15 | 0/87 | 23/84 | 0/85 | 22/69 |
| Complication | Q.2 | 0/91 | 25/94 | 0/79 | 21/28 |
| | Q.9 | 0/90 | 25/52 | 0/90 | 26/43 |
| | Q.16 | 0/86 | 23/67 | 0/94 | 27/81 |
| Efficiency | Q.7 | 0/68 | 15/55 | 0/91 | 26/38 |
| | Q.10 | 0/66 | 14/80 | 0/90 | 26/15 |
| | Q.17 | 0/77 | 17/97 | 0/88 | 24/99 |
| Knowledge | Q.4 | 0/78 | 20/42 | 0/71 | 16/79 |
| | Q.11 | 0/92 | 26/39 | 0/65 | 14/96 |
| | Q.18 | 0/94 | 27/29 | 0/76 | 18/11 |
| Risk Taking | Q.5 | 0/86 | 22/89 | 0/75 | 19/67 |
| | Q.12 | 0/89 | 24/21 | 0/87 | 24/42 |
| | Q.19 | 0/60 | 14/07 | 0/87 | 24/55 |
| Social Factors | Q.6 | 0/70 | 17/26 | 0/87 | 23/23 |
| | Q.13 | 0/86 | 22/70 | 0/89 | 23/93 |
| | Q.20 | 0/85 | 22/41 | 0/58 | 13/78 |
| Using the Channel | Q.7 | 0/82 | 20/80 | 0/83 | 21/60 |
| | Q.14 | 0/83 | 20/86 | 0/84 | 21/73 |
| | Q.21 | 0/57 | 13/02 | 0/59 | 13/70 |

4. THE RESULTS OF TESTING THE SECONDARY HYPOTHESES

In order to analyze the collected data and test the hypotheses, Structural Equation Modeling (SEM) was used. Figures 2, 3, 4, and 5 show the structural equations and significance coefficient model of the secondary hypotheses of the study.

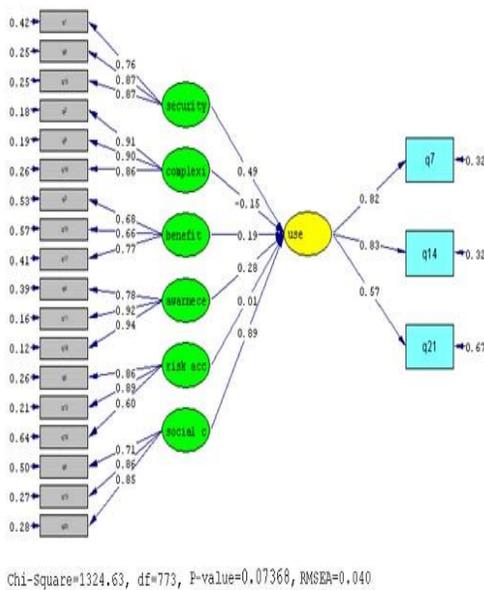


Figure 2. Standard coefficients model of testing the secondary hypotheses- bank branch channel

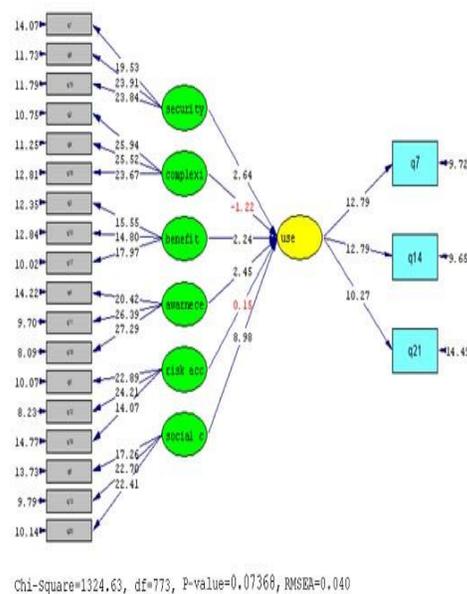


Figure 3. Significance coefficients model of testing the secondary hypotheses- bank branch channel

Figure 2 shows the standard coefficients for the following variables: security (0.49), complication (0.15), efficiency (0.19), the level of knowledge (0.28), risk taking (0.01), and social features (0.89). As shown in figure 3, the two variables risk taking and the level of complication of channel have a significance coefficient of below the absolute value of 1.96 showing that they do not have effect on the selection of bank branch channel. Therefore, their related hypotheses are rejected and the two variables do not have effect on the selection of bank branch channel.

Table 4 : The results of testing the secondary hypotheses- bank branch channel

| Bank Branch Channel | | | |
|---------------------|-------------------|--------------------------|--------|
| Route | Route coefficient | Significance coefficient | Result |
| Security | 0/49 | 2/64 | Accept |
| Sophistication Use | 0/15 | -1/22 | Reject |
| Efficiency Use | 0/19 | 2/24 | Accept |
| Knowledge Use | 0/28 | 2/45 | Accept |
| Risk Taking Use | 0/01 | 0/15 | Reject |
| Social Factors Use | 0/89 | 8/98 | Accept |

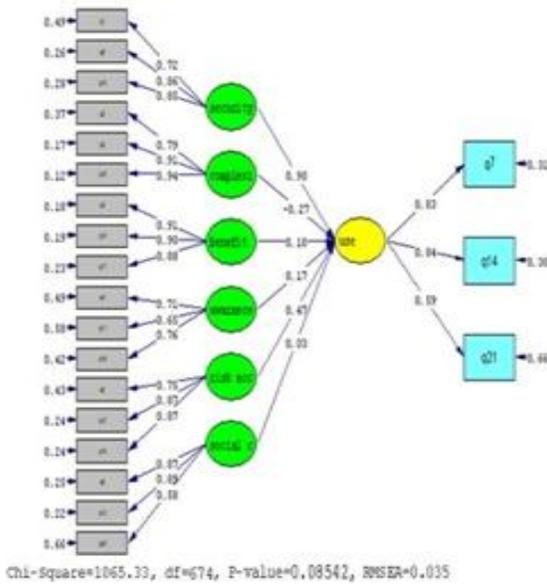


Figure 4. Standard coefficients model of testing the secondary hypotheses- internet bank channel

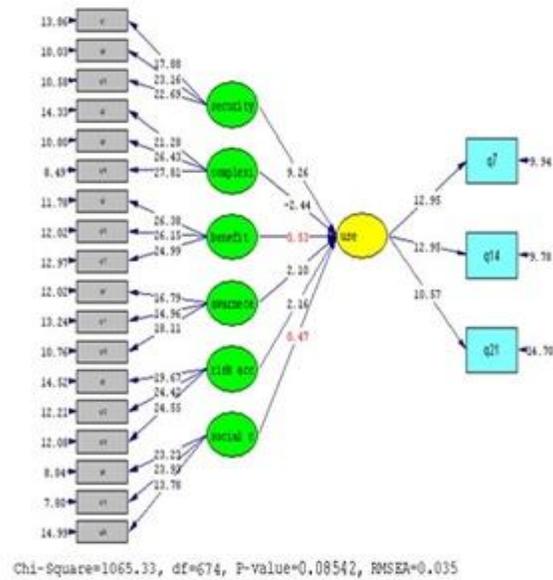


Figure 5. Significance coefficients model of testing the secondary hypotheses- internet bank channel

Figure 4 shows the standard coefficients for the following variables: security (0.90), complication (0.27), efficiency (0.10), the level of knowledge (0.17), risk taking (0.47), and social features (0.03). As shown in figure 5, the two variables social features and the efficiency of channel have a significance coefficient of below the absolute value of 1.96 showing that they do not have effect on the selection of internet bank channel. Therefore, their related hypotheses are rejected and the two variables do not have effect on the selection of internet bank channel.

Table 5 : The results of testing the secondary hypotheses- internet bank channel

| Bank Branch Channel | | | |
|---------------------|-------------------|--------------------------|--------|
| Route | Route coefficient | Significance coefficient | Result |
| Security | 0/90 | 9/26 | Accept |
| Sophistication Use | 0/27 | -2/44 | Accept |
| Efficiency Use | 0/10 | 0/53 | Reject |
| Knowledge Use | 0/17 | 2/10 | Accept |
| Risk Taking Use | 0/47 | 2/16 | Accept |
| Social Factors Use | 0/03 | 0/47 | Reject |

5. THE RESULTS OF TESTING THE PRIMARY HYPOTHESES

Since security and the efficiency of channel had significant effect on using bank branch channel and complication did not have effect on it, the resultant effect of the three variables (channel security, the level of the channel complication, and the efficiency of the channel) shows that channel features have significant effect on using bank branch channel. Furthermore, since security and complication had significant effect on using internet bank channel and efficiency did not have effect on it, the resultant effect of the three variables (channel security, the level of the channel complication, and the efficiency of the channel) shows that channel features have significant effect on using internet bank channel.

In addition, since the level of knowledge and social features had significant effect on using bank branch channel and risk taking did not have effect on it, the resultant effect of the three variables (the level of the individual's knowledge, the level of the individual's risk-taking and the social features) shows that customers' features have significant effect on using bank branch channel. Furthermore, since the level of knowledge and risk taking had significant effect on using internet bank channel and social features did not have effect on it, the resultant effect of the three variables (the level of the individual's knowledge, the level of the individual's risk-taking and the social features) shows that customers' features have significant effect on using internet bank channel.

As shown in Table 6, the results of t-test also show that there is a significant difference between the customers' choice of the traditional bank channel and the new bank channel

Table 6 : The results of Independent Sample t-test

| | | Levene's Test for Equality of Variances | | | | t-test for Equality of Means | | | |
|-------------------|-----------------------------|---|-------|-------|-------|------------------------------|-----------------|--|----------|
| | | F | Sig. | t | df | Sig(2-tailed) | Mean Difference | % 95 Confidence Interval of the Difference | |
| | | | | | | | | Lower | Upper |
| Chanel picking up | Equal variances assumed | 0.026 | 0.872 | 2.073 | 450 | 0.039 | 0.184345 | 0.009480 | 0.359211 |
| | Equal variances not assumed | | | 2.072 | 410.7 | 0.039 | 0.184345 | 0.009286 | 0.359404 |

According to Table 6, the results of Levene's Test for Equality of Variances show that $F = 0.026$, $p = 0.872 > 0.05$. Therefore, there is not a significant difference between the variances of the two populations and the assumption that both populations have equal variances is accepted. As shown in Table 6, the results of Independent Sample t-test show $t = 2.073$, $p = 0.039 < 0.05$. In addition, both the upper and lower limits are positive. Therefore, it can be concluded that there is a significant difference between the customers' choice of the traditional bank channel and the new bank channel. Since upper limit is greater than lower limit, it can be concluded that mean of using the internet bank channel is greater than bank branch channel. Thus, customers are more inclined to use internet bank channel.

6. CONCLUSION

This survey intended to compare the factors that could affect using the traditional and new banking channels from the viewpoints of the customers of Eghtesad-e-Novin Bank in Tehran, capital city of Iran. The results obtained using CFA and SEM revealed that security and the efficiency of channel were the two technical features that had significant effect on the bank branch channel and security and the level of complication of channel were the two technical features that had significant effect on the internet ban channel. Knowledge and social features were the two personal features of the customers that had significant effect on the bank branch channel and knowledge and risk taking were the two personal features that had significant effect on using internet bank channel. In addition, there was a significant difference between the customers' inclination to use the traditional and new banking channels and they mostly showed inclination to use the internet bank channel. Haghhighinasab [5] also affirmed the significant effects of security and reducing risk on using electronic banking services. In addition, Liu et al, [18] emphasized on protecting personal information as the most important factor in using banking channels.

The results of the present survey is also in conformity with the results of the studies conducted by Hoppe et al. [16], Ndubisi and Sinti [20], Shih and Fang [23], Liu et al. [18], and Panander et al. [22] who showed the significant effect of complication of channel on using internet banking. Complication indicates how hard it is to understand, learn, and use an innovation. Innovative technologies which are less complicated and can be used easily can attract more potential users. However, the results of the current survey rejects Hoppe et al. [16], Ndubisi and Sinti [20], and Shih and Fang [23] regarding the effect of efficiency. Using internet bank has some advantages such as eliminating

purchase limitations, reducing the risks of carrying cash, saving time etc. These advantages make the customers inclined to use electronic banking channels such as internet. However, in Iran, some reasons such as low level of the customers' knowledge of internet banking, the offered services by the banks and bank network failures have made the advantages of internet banking less noticeable for the customers resulting in the customers' inclination to in-person attendance at the bank branch. Social features indicate the extent to which individuals place credence on the other individuals' suggestions about evaluating and using innovation. Bahrami [2] contends that innovation seekers consider their inner suggestions about using innovation. In contrast, Alaghehband [12], and Pani [4] maintained that paying attention to the other individuals' opinions can make an individual inclined or reluctant to use electronic banking services. Some problems and limitations in internet banking such as bank network failures, low speed of internet to connect to the bank network, absence of safe protection of personal and secret information, impossibility of lodging and following up complaints in case of any error in banking process etc. make using internet bank channel risky for customers leading to increasing the customers' risk taking.

The results of the present study also showed the significant effect of knowledge on using internet bank channel. In this regard, the results of this survey are in conformity with the results of Liu *et al.* [18] since they affirmed that the higher the level of individuals' knowledge about services and processes of internet bank channel is, the more inclined they will be to use this channel. With this knowledge and familiarity, individuals will conduct their banking transactions with more confidence and are also attracted to use the secondary services of the channel.

Some of the strategies for using internet bank channels are preparing the ground culturally to expand application of new internet bank services and other channels to increase individuals' confidence in these services using appropriate publicity, designing simple bank websites in the way that users can use the services effortlessly and fast, recruiting professional workforce to support websites and the other electronic services and solve website problems quickly in case of any failure, preparing and distributing training packages at the bank branch and providing enough information and knowledge about how to use internet banking channels as well as the other channels, establishing free internet stations at the branches and providing free internet cards for customers to have free access to internet banking services, providing electronic insurance services for unsuccessful transactions etc.

Due to the role of culture in accepting new technologies, it is suggested that further research focus on the comparative study of the individual's culture in two different cities to investigate the role of cultural differences in accepting banking channels. In addition, further research can prioritize various types of bank branch channels, internet bank, mobile bank, telephone bank, ATMs and so on based on AHP index to assess and determine the weight of factors and elements and rank them using Fuzzy Analytic Network Process (FANP) and AHP. In this way, mutual effects of the factors can be investigated and the results can be compared with the present study. Using SWOT, further studies can also endeavor to identify strong and weak points of the tools of banking channels as well as the environmental opportunities and threats of these tools and apply the appropriate strategies to expand these tools.

Acknowledgements: The authors gratefully acknowledge the financial support provided by Center of Built Environment in Malay World, Universiti Teknologi Malaysia (KALAM) and the cooperation and research support from the Department of Landscape Architecture, Faculty of Built Environment, Universiti Teknologi Malaysia.

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