Study of Factors Influencing Customer's use of Electronic Banking Services by Using Pikkarainens Model (Case study: Eghtesad Novin Bank of Kermanshah, Iran)

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Abstract

Since Iran has become a member of world trade organization (WTO) and due to arrival of foreign rivals to national financial markets, Iranian banks need to develop their services in the line with technological changes and to turn to E-banking. One of major obstacles to the way of E-banking development is the lack of adoption by customers of this technology as well as some bias toward traditional banking practices. Using Pikkarainen model, present research studies factors influencing customers use of E-banking services among Eghtesad Novin banks customers to this end, this research has used a questionnaire simply randomly distributed to 228 customers of Eghtesad Novin bank. Validity of the questionnaire was confirmed by a number of university professors. Their method of this study is descriptive-survey research. Study period is the first half of 2012. T-test and Friedman test were employed to test hypotheses and to rate factors influencing adoption of E-banking in customers viewpoints. Results support hypotheses (1-6) relating the level of six factors effects (including usefulness, easy to use, enjoyment, providing information, security and confidentiality, and quality of internet communication) on customer's use of E-banking services provided by Eghtesad Novin Bank. In hypotheses (7) the most important factor for adopting E-banking services is providing information in viewpoints of customers this research concludes with some recommendation to Kermanshah Eghtesad Novin Bank in terms of adoption of this technology (E-banking).

Keywords: sextuple factors (Pikkarainen model); customer satisfaction; E-banking

Introduction

Although it is true that we are living in an era more changing than any other time, prevailing social structures often prevent technologies from being spread. It is essential to reduce the distance of what is being used practically effectively. In order to reduce this distance, it is necessary to know how new ideas spread to prone receivers from the source and what factors are effective in adopting such innovations. ¹E – Commerce is one of innovations experiencing a considerable growth due to information and communication technology advancements. According to the research by forester co... E-Commerce experienced an annual average growth of more than 58% during 2002-2006 increasing to more than $ 12,387 billion in 2006 from $ 2,293 billion in 2002 (Sheykhani, 2008). Thus banking industry is changing very quickly today. Banks have been influenced by international economy development and by market competition in this environment; technology is the main force breaking legal, geographical, and industrial obstacles and creating new products and services. E-banking includes all electronic channels being used by customers in order to have access to their bank accounts, to transfer money between bank accounts, and /or to pay their bills. Such

1) Electronic – Commerce
channels are internet, mobile phones, telephones, digital TV, and ATM. Eventually, with increase singly expanding globalization and competition element, enormous transformations have occurred in the areas of commerce, management, banking, and even of governance, as a result of which traditional practices have changed into modern ones. Under such conditions, undoubtedly, leading and innovative organizations must equip themselves with state-of-the-art IT. And implementation techniques in order for them to be able to respond to future changes in technology and infra-structure. Not being an exception of this rule, bank systems have experienced wonderful transformations in the way of providing services to worldwide customers with advent of E-banking phenomenon. But lack of adoption by customers of this technology and bias toward traditional banking practices are among major obstacles to the way of E-banking development. Present research places emphasis on E-banking via internet. Increasing attention being paid to providing bank services via E-channels as well as to developing virtual banks and financial institutions by big banks in developed and developing countries has increased competition in banking industry so that other banks have decided to develop different E-banking approaches. On the other hand, since Iran has become a member of WTO and due to arrival of foreign rivals to national financial markets, Iranian banks also need to develop their services in the line with technological changes. Before providing any new services, some research must be done in the areas of cost-effectiveness of said services, conformity of new services to society needs, and the fact that what system can provide such services to customers well. Having examined services provided by developed countries bank systems, developing countries ones begin to provide their own services by mimicking theirs, but the formers services are provided imperfectly because of doing no comprehensive required research. Obviously, such provision of service will fail if customers do not welcome E-banking systems (Aladwani, 2007). There fore, this research studies application of Pikkarainen model in the field of customer satisfaction with E-banking in order to identify factors influencing customers use of internet bank services considering this fact that no research and study has been done in this area. Based on the model mentioned above, factors influencing adoption of E-banking include usefulness, easy to use, enjoyment, providing information about E-banking, security and confidentiality, and quality of internet communication, which have been presented in the form of research hypotheses. Finally, present research seeks to answer this question: what factors influence customer's use of E-banking services provided by Kermanshah Eghtesad Novin bank.

**Research literature**

Zaribaf and et al (2011) studied behavioral preferences of users of Electronic and traditional banking of mellat banks across semnan province. Results of their work showed that the faster the access to new banking is, and the more familiar the customers are with E-banking, and the more dependent the new E-banking is on E-networks, and the better images the customers have about advantages of using E-banking, the higher the tendency customers show to use E-banking.

Samadi and Eskandari (2011) examined effects of service quality on customer satisfaction with Melli bank of Toiserkan city on the basis of SERVQUAL model. Results indicated that customer's expectations of tangible factors, reliability, assurance, and unanimity are at a level higher than that of their perceptions, and extant service gaps reflect customer's dissatisfaction with quality of services provided by mentioned bank. These customers placed the first priority on dimension of assurance.

Mahmoudi Meimand and et al (2009) studied adoption pattern of internet banking of Tehran Melli bank. Results showed that perceptions of usefulness, of easy use, and of security have the most effect on E-banking adoption by customers.

Gilaninia and Mousavian (2009) identified factors influencing customers tendency to use E-banking services in this industry an the basis of Davis model. Results showed that different factors influence customer's tendencies (perceived ease, perceived usefulness, and perceived security) to use E-banking services differently.

Teo and Lin (2009) investigated adoption / non-adopt ion of E-shopping using a 141-subject sample of Singapore companies. Results showed that there is a significantly positive relationship among E-shopping adoption and company size, top management support, perceived indirect interests, and business effects of commercial partners, but no relationship exists between the type of industry and E-shopping adoption.

Krauter and Faullant (2008) examined factors influencing E-banking adoption by Australian customers. Result indicated that confidence with internet has some effects on perceived risks and attitude toward using internet banking.

Clik (2008) studied factors effective in adopting E-banking by Turkish customers. Results indicated that perceptions of easy use and of usefulness determine customer's attitudes toward using internet banking.

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2) Automated teller machines  
3) Information Technology  
4) World Trade Organization
Moughli (2008) addressed adoption of E-banking among customers of Shiraz city bank. Results indicated that easy use, usefulness, and customer trust are effective in adopting E-banking. Also, he noted that education level of customers has an important effect on E-banking adoption, but no relationship was found between demographic characteristics and E-banking adoption.

Hernandez and Mazzon (2007) examined factors effective in adopting E-banking by Brazilian customers. Results showed that intention to use internet banking is merely influenced by public opinions while real adoption is influenced by individual personality.

Laukkanen (2007) compared customer's perceived value of internet and mobile banking with respect to payment services. Results demonstrated that increased knowledge of business managers about differently perceived values of E-banking channels is necessary to increase steps taken in order to make customers adopt such banking channels.

Seyyed Javadin et al. (2006) studied factors influencing customer's intentions to use internet bank services provided by saman bank on the basis of Davis model. Results demonstrated that there is a direct relationship among individual's perceptions of easy use of internet bank services, usefulness of services, and individual's self-efficacy in using computer miming at using such services.

Lu.J. et al (2003). During a research done using technology adoption model for wireless internet, concluded that increased competition, changed business environment, and globalization are major alterations occurred in banking & financial services industry. Demand for financial services is changing quickly and customer behavior is now different form that of a decade ago. With customer transition to E-banking form traditional one, it is essential to develop strategies in order to attract new customers and to retain current ones.

Given abovementioned cases, objectives of present research researcher’s purse are summarized as follows
1. To know customers, opinions about E-banking adoption among them and to convey such information to management of Eghtesad Novin bank of Kermanshah province.
2. To study importance levels of and to determine priorities of each of factors effective in adopting E-banking in viewpoints of customers of Eghtesad Novin bank of Kermanshah province.
3. To provide E-banking customer-based and customer –centered strategies, Eghtesad Novin bank of Kermanshah province.

Research hypotheses
2. Easy use positively influences E-banking adoption among customers of Kermanshah Eghtesad Novin bank.
7. Are there significant differences among use rate of each of the sextuple factors?

Research conceptual model (source: Pikkarainen)
Materials and Methods

The present study is descriptive- surveys research which is one of applied research. Required information of research literature sector has been gathered from books, specialized journals on Persian and Latin and articles derived from internet (library methods). For data collection has been used the questionnaire designed with likerts spectrum was researchers made which includes 28 questions. Validity of the questionnaire was confirmed by a group of university professors. And for determined reliability of the questionnaire was used Cronbach's alpha (0.810). Finally, the collect information to calculate variables research was stored in a database such as Excel (field method). T–test was used to analyze data for testing research hypotheses. And Friedman's ranking test was used to rank the most important factors influencing E-banking adoption in viewpoints of respondents. In the 95% confidence level, and P-value<5%, Hypothesis is confirmed (H₁) and otherwise (H₂) is rejected. In addition to set the statistical tables, statistical data analysis, was used spss software. The statistical population is 228 Customers of Eghtesad Novin Bank of Kermanshah; for a period of 6 months of first half of 2012.

Results of testing hypothesize

Table 1. T-Test

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>One-Sample Statistics</th>
<th>Test Value = 3</th>
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<tr>
<td></td>
<td>N</td>
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<tr>
<td>1</td>
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<td>2</td>
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<td>12.76</td>
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<tr>
<td>6</td>
<td>228</td>
<td>27.36</td>
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Table (2): Friedman -Test

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<tr>
<td>Sig</td>
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<td>3.50</td>
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<td>5.38</td>
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</table>

Hypothesis1

Usefulness positively influences E-banking adoption among customers of Kermanshah Eghtesad Novin bank. Given that sig level is smaller than 5% error one it can be said that H₁ is accepted. Therefore, with 95% confidence, factor of usefulness has a positive effect on E-banking adoption among customers of Kermanshah E.N. bank. Also, results show that, with 95% confidence interval, mean of the effect of importance of usefulness to E-banking adoption among customers of Kermanshah E.N. bank Lies between 15.34 and 16.00.

Hypothesis2

Easy use positively influences E-banking adoption among customers of Kermanshah Eghtesad Novin bank. Given that sig level is smaller than 5% error one it can be said that H₂ is accepted. Therefore, with 95% confidence, factor of easy use has a positive effect on E-banking adoption among customers of Kermanshah E.N. bank. Also results indicate that with 95 % confidence mean of importance effect of factor
of easy use on E-banking adoption among customers of Kermanshah E.N. bank Lies between 24.49 and 25.80

Hypothesis 3
Enjoyment positively influences E-banking adoption among customers of Kermanshah Eghtesad Novin bank. Given that sig level is smaller than 5% error one it can be said that $H_1$ is accepted. Therefore, with 95% confidence, factor of enjoyment has a positive effect on E-banking adoption among customers of Kermanshah E.N. bank. Also, result show that, with 95% confidence mean of importance effect of factor of enjoyment on E-banking adoption among customers of Kermanshah E.N. bank lies between 15.69 and 16.49.

Hypothesis 4
Providing information positively influences E-banking adoption among customers of Kermanshah Eghtesad Novin bank. Given that sig level is smaller than 5% error one it can be said that $H_1$ is accepted. Therefore, with 95% confidence, factor of enjoyment has a positive effect on E-banking adoption among customers of Kermanshah E.N. bank. Also, result indicate that, with 95% confidence mean of importance effect of factor of providing information on E-banking adoption among customers of Kermanshah E.N. bank lies between 9.28 and 9.83.

Hypothesis 5
Security and confidentiality positively influence E-banking adoption among customers of Kermanshah Eghtesad Novin bank. Given that sig level is smaller than 5% error one it can be said that $H_1$ is accepted. Therefore, with 95% confidence, factor of security and confidentiality have a positive effect on E-banking adoption among customers of Kermanshah E.N. bank. Also, result indicate that, with 95% confidence mean of importance effect of factor of security and confidentiality on E-banking adoption among customers of Kermanshah E.N. bank lies between 9.39 and 10.14.

Hypothesis 6
Quality of internet communication positively influences E-banking adoption among customers of Kermanshah Eghtesad Novin bank. Given that sig level is smaller than 5% error one it can be said that $H_1$ is accepted. Therefore, with 95% confidence, factor of quality of internet communication has a positive effect on E-banking adoption among customers of Kermanshah E.N. bank. Also, result indicate that, with 95% confidence mean of importance effect of factor of quality of internet communication on E-banking adoption among customers of Kermanshah E.N. bank lies between 23.73 and 24.98.

(Question)Hypothesis 7
Are there significant differences among use rate of each of the sextuple factors?
Ranks of adoption rate of each sextuple factor are equal.

$H_0: P_1 = P_2 = \ldots = P_6$

There is a significant difference between at least 2 of ranks of adoption rate of E-banking factors.

$H_1: P_1 \neq P_2 \neq \ldots \neq P_6$

Given that sig level is smaller than 5% error one it can be said that sample data provides no strong reason to accept $H_0$, therefore, $H_1$ is accepted. As a result, it can be said that, with probable 95% confidence, there is a significant difference between at least 2 of ranks of adoption level of E-banking 6-fold factors. Factor of enjoyment is the least important one in terms of adopting E-banking.

Results and Discussion
It is not an easy task to draw conclusions on a subject as expansive as measurement of opinions of bank customers performed within one realm. Although present research has tried to observe all scientific rules of doing a research in order to reach reliable findings, secure conclusion on such a subject requires a nation-wide and/or a lot regional research. However, results obtained from this research are very interesting and can be used as a guide by subsequent research.

Hypotheses (1-6) state that factors of usefulness easy use, enjoyment, providing information, security and confidentiality, and quality of internet communication have each a positive effect on E-banking adoption among customers of Kermanshah Eghtesad Novin bank, which was supported by research results. In other words, respondents believed that these 6-fold factors are among those influencing E-banking adoption among customers of Eghtesade Novin bank.

Hypothesis (7) states that there are significant differences among use rate of each of the sextuple factors? According to the research test, it is concluded that the levels of the factors effect are different significantly, namely, factor of providing information is the most important and factor of enjoyment is the least
important one in terms of E-banking adoption. Also, it was found that there is a significant relationship between customer's view of factors influencing E-banking adoption and their educational level. So it can be argued that higher educated respondents accept more readily factors effective in adopting E-banking than lower-educated ones do.

Given this research findings, it is concluded that all 6 factors (Pikkarainens model) (usefulness, easy use, Enjoyment, Providing information, security and confidentiality, and quality of internet communication) influence customers intention to use E-banking services among customers of Eghtesad Novin bank. And given components tested for each factor, all 6 studied factors can be considered as having some effects on adoption of E-banking services among customers of Eghtesad Novin bank, stating the factor of providing information has the most effect. Results from present researches are in the line with findings of prior ones. Mahmoudi Meimand et al. (2009), Gilaninia & Mousavian (2009), Moughli (2007) Seyyed Javadin (2005), Clik (2008), and Laukkanen (2007) considered factors of usefulness and easy use as ones influencing E-banking adoption. Also, Mahmoudi Meimand et al. (2009), Gilaninia & Mousavian (2009), and Laukkanen (2007) identified factor of security as one being effective in adopting E-banking.

Recommendations Research

Recommendations are presented in 2 parts: first, research applied ones related to improvement of providing E-banking services to customers of Eghtesad Novin bank, and second, recommendations for future research.

H1 applied recommendations
1. To make use of advertising and mass media to publicize potentials of E-banking.
2. To provide customers with perfect, precise, and specialized information about all electronic services.
3. Education suited for services (in this regard, new customers have priority, especially upon new services entering e-markets).
4. To place emphasis on advantages, like saving time, money, ETC, E-banking gives to any of customers and on public interests caused by using E-banking services such as reduction of consumption, of traffic jam, of environmental pollution, of costs of issuing bank notes, and of bank advertisements.

H2 applied recommendations
1. Providing round-the-clock services to customers via 24-hour phone booths and e-mail.
2. Providing free access to internet at specified hours in order for customers to be able to check their bank account status.
4. Possibility of filling in the forms of different bank loans and mortgages online.
5. Charge-free payment of utilities bills impersonally.
6. Sorting out customers financial exchanges and providing and sending daily, monthly, and yearly records to their e-mail.

H3 applied recommendations
1. Making customers access to other entertainment sites possible.
2. Allowing customers to download special programs or software freely.
3. Offering online books to customers and broadcasting short advertising films.

H4 applied recommendations
1. Preparing and distributing appropriate training packages across branches and providing sufficient information and knowledge on how to use E-banking services.

H5 applied recommendations
1. Making use of mass media to inform customers of services and security tactics of E-banking in order to induce a sense of security and confidentiality of information exchange through E-banking.
2. Attracting, retaining, and maintaining high-quality and professional IT experts to support and match E-banking services based on customers preferences and needs.
3. Setting up a cultural bed for expanding applications of new banking services and for creating confidence with such services by advertising appropriately.
4. Taking advantage of on operating system with high security index to protect customer's data and information.
H$_0$ applied recommendations
1. Quality of website design is highly effective in attracting customers as much as possible. Basically, high-quality attractive sites make customers expecting and willing to visit and examine sites.
2. Using specialized and competent human force within division of site support as well as other divisions of electronic services in order to avoid problematic e-services provision.
3. Designing bank website in such a manner that required services can be selected quickly with no extra efforts.
4. Making access to different investment and stock databases easy and expansive on the bank site.
5. Designing websites which possess features of easy use and operational power.

Recommendations for future research
1. To study Pikkarainens model in comparison with other models close to it.
2. To examine adoption model of electronic banking at a national scale.
3. To investigate the effects of such factors as sex and age on E-banking adoption.
4. To do research in other cities and regions, and to compare their results with those of present one.

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