CONSUMER BASED MODELING OF MOBILE SERVICE CONSUMPTION USING EXPLANATORY FACTOR ANALYSIS AND ANALYTIC NETWORK PROCESS

YASER SOBHANIFARD

Iran University of Science and Technology, Tehran, Iran

Tel: +98 21 7724 0540;

Email: **sobhanifard@iust.ac.ir**

MARYAM AKHAVAN KHARAZIAN

Iran University of Science and Technology, Tehran, Iran

MOHSEN AGHA ALIKHANI

Iran University of Science and Technology, Tehran, Iran

Abstract

Purpose: This paper explores a model of the Consumer based mobile service consumption, combining the use of exploratory factor analysis (EFA) and Analytic network process (ANP).

Design/methodology/approach: The research form is divided in to two phases. In the first phase the consumer based factors that mentioned in theoretical framework was presented to samples of customers that use online banking to determine their level of agreement, exploratory factor analysis was used to form a model. In the

second phase ANP method was used for ranking discovered factors to determine priority of this factor to improvement.

Findings: Findings present a model for online banking usage this model has 4 main factors: internal, external, usefulness and demographic factors that effect on online banking usage. There are 10 sub-factors. The priority of factors show the banking industry must focus on the models factors by this priority. This priority is: 1) Internal benefits 2) Government support 3) external benefits 4) attitude, 5) Level of customer education, 6) customer experience, 7) bank activity, 8) trust 9) technology support 10) ease of use.

Practical implications: Banking consumers are not supposed to use an online banking if they found it unfit for their daily tasks and bring no improvement in their execution. Thus banks should focuses on this reality in their marketing mix. They can expand their financial market and profitability by pay attention on this research priority. Banks by focus on high educated potential customers can faster expand their online market. They can segment their online market by level of education and then implement appropriate market positioning strategy.

Originality/value: The main contribution of this study is the light it sheds on how banking consumers think about mobile banking service. It develops a model incorporating motives for mobile banking service consumption and determining the priorities held by consumers of mobile banking services.

Keywords: **Mobile banking service; Consumer; ANP; EFA**

INTRODUCTION

Mobile banking is a banking product or service to conduct financial and non-financial transactions using a mobile device such as a mobile phone or tablet [1]. Perhaps no technology will disrupt our financial transactions in the future more than mobile tech. The introduction of SMS into the public gave banks an avenue for mobile banking, but the explosion of smartphones in the last decade has truly caused mobile banking to go mainstream. Today, mobile banking apps are not an extra benefit in consumers' minds. They are a necessary part of the bank-customer relationship, and their absence could convince customers to switch to another financial institution. Consider the following data from the BI Intelligence survey of millennials: 71% of millennials say it's very important to have a banking app, and 60% say it's very important to have an app to make payments.51% say that they have made a purchase through a mobile website or through an app in the last month. 27% say they have used their phone to make a payment at a checkout in a store in the last month [2]. Moreover, by increasing the number of mobile subscribers worldwide, the potential market of Mobile banking services is more likely to expand and attract more customers, thus serving the aspirations of both customers and banks in this respect

as well [3-6].

Also in this area, More than 1 billion people are expected to use mobile banking service globally by 2017, but that level represents only 15% of the global mobile subscription base a base that accounts for approximately 96% of the world's population. In addition, approximately half of all mobile subscribers remain unbanked, with limited access to traditional financial services [7]. These trends suggest that significant growth opportunities remain, leading to predictions of potentially massive increases in the number of mobile banking service users [8]. In recent years, significant but not enough growth of mobile banking service is not limited to the North American or country and Both Europe and Asian banking industry have also seen rapid growth in internet banking [9]. Statistics shows that even the growth of internet banking has not been completed. Even in the United States 25 percent of consumers still do not use this service [10]. This is while the statistics for developing countries is much higher, at 90 percent. For example only 5 percent of Iranian banking customer use mobile banking services.

Moreover Booz, cost of deliver manual transactions at a branch is typically more than a dollar, ATM and call center transactions is about 25 cents and an internet transaction about a penny. According to Booz, Allen and Hamilton, banks expect to decline this cost with the introduction of more effective information technology.

Given the above advantages and applications for mobile banking service and its progress in many countries, there are many studies about online or mobile banking service usage. Some of these studies present a model and others explore factors affecting mobile banking service usage. However, the adoption rates of the Mobile banking services do not reach the expected level especially in the developing countries and customer express less interest toward such services [3,11-13].

Despite numerous investigations in this field, there is a lack of research about the mobile banking service usage modeling by consumer perspective. The main contribution of this study is explore firstly a consumer approach for Mobile banking service usage and then present a hybrid model using EFA(Exploratory factor analysis) and then determine priorities for performing this model by using ANP (Analytical Network Process) method. The findings can use by Developing countries bank industry and government as same countries for improving the level of mobile banking service to use this technologies benefits. The findings create an awaresss of the various factors explaining why customers are becoming mobile banking users and how can enhance their level of use. Fordermor Iranian and international banks can used this research for expanding their financial market in Iran and other countries.

In this regard Hawkins model for consumer behavior can be considered. In this model Consumer behavior can be influenced internal factors, external and life style factors [14]. In this regard study has searched factors affecting mobile banking service adoption regarding to this consumer behavior model. Study has searched these factors from a consumer perspective.

The paper is structured as follows. The next section provides an overview of famous models for technology and mobile banking service usage. After proposing the research framework, the article describes the methods employed. The next section includes research results, analysis and discussion. The final section contains the conclusions, limitations and recommendations for further research and managerial implications.

LITERATURE REVIEW

Heretofore, many of studies which have developed methods of acceptance technology measurement in these studies, Researchers have applied several theories to predict factors affecting people to use technology. Some of the most famous of these studies include: the technology acceptance model (TAM) [15], the theory of reasoned action (TRA) [16-19], the theory of planned behavior [20], the innovation diffusion theory [21], these studies have aimed significantly to provide guides to respective banks to increase the all banking usage.

As mentioned above, few investigations that target factors that affect mobile bank usage by consumer perspective. In this regard study has searched factors affecting mobile banking service usage regarding to consumer behavior model. All of mentioned factor in below are factors from consumer perspective (Hawkins model for consumer behavior) that effect on their mobile banking service usage.

Internal Factors Affecting Mobile Banking Service Consumption

According to Hawkins model for consumer behavior, internal factors are in the mind of consumers. Previous study about mobile or others technology acceptance, introduced following factors that we can categorize them as internal factors.
First factor is attitude, which defined as "the degree of evaluative affect that an individual associates with using the target system" [22]. It shows what a person perceives about a concept, which may be any entity about which persons can think and attach feeling [23]. Therefore, attitude has an important role in adoption of new technology [15,24,25].

The second factor is Trust that defined as "perceptions about others' attributes and a related willingness to become vulnerable to others" [26]. By this definition, if customers haven't any trust in Internet businesses might not use mobile banking service [27]. With more trust, customers increase their motives, intentions, and prospective actions of others on whom they depend [28], as well as save money and effort, because trust reduces monitoring and legal contract costs [29].

The trust plays an important role in internet banking and thus lack of it creates an important obstacle to the market expansion [30]. Furthermore, many of studies show that trust has an important impact on consumers' tendency to engage in online exchanges of money and sensitive personal information [25,31].

At last, the third internal factor in this area is ease of use. Usage is one of the most important factors affecting to mobile banking service usage. Previous research report that perceived ease-of-use considerably affects the intention to use mobile banking services [32]. Also other studies on mobile banking state that the complexity of online services effect on some consumers adoption [33,34].

Furthermore, previous study has reported a positive relationship between experience with digital technology and digital technology usage [35-37]. Bandura [38] in his self-efficacy theory suggests that performance accomplishments, vicarious experience, verbal persuasion, and physiological state are four Source of information used by people when forming self-efficacy judgments.

Self-efficacy is an important motivational variable, influencing persistence and motivation. It can be concluded that individuals who feel less capable of handling a situation may resist it because of their feelings of inadequacy or inconvenient [19].

External Factors Affecting Mobile Banking Service Consumption

According to Hawkins model for consumer behavior, external factors are out of the mind of consumers. Previous study about every technology acceptance, introduced following factors that we can categorize them as external factors.

First factor is Government support. Government has important role in adoption of new technologies depending on the level of support that they provide. This support plays an intervention and important role in a technology acceptance [39]. When consumers feel greater level of government support they more likely adopt them to Mobile banking service [19].

The second is Technology support. Support the technology support makes the technology easier to use and people can well adapt itself by it [40]. In the case of mobile banking usage technology support refer to availability of technological resources and infrastructure. Therefore, level of Internet infrastructure quality could affect the perceived behavior control of individuals toward adopting Internet banking [41].

Finally the third factors is Banking activities. Mobile banking services meet and exceed processes based on initial setup costs of other electronic banking is relatively short. This is encouraging electronic banking activities in developing countries. Anyway, it is vital to broaden the client base in order to enhance the performance of services which help to the bank [42].

Life style Factors Affecting Mobile Banking Service Consumption

The term lifestyle can denote the interests, opinions, behaviors, and behavioural orientations of an individual, group, or culture [43].

Based on TTF model a mere focus on user perceptions of the technology is not

sufficient to predict its acceptance. This model stress on technology characteristics and task requirements adoptions [44]. It explains that if people consider technology efficient enough to execute their daily tasks, they will accept it [45]. This theories` framework stress on the practical aspect of technology usage. Also Oliveira et al. [46] explain that people are not adopting a technology if they perceive it unusable for their function. They don't accept technology when technology hasn't any positive effect on their execution [47]. Therefore, mobile banking managers aim to use these advantages to improve the mobile banking usage.

In the case of mobile as a types of the internet banking there are two main types of perceived benefits, which can be categorized as direct and indirect advantages [48]. Direct advantages are tangible benefits for mobile banking user. For example, people can enjoy from, less waiting for their services, and high information transparency [48]. Indirect advantages are less tangible benefits for banking users that are difficult to measure. For example, mobile banking gives opportunity for banking consumers to perform banking transactions and services [48].

In this regard, Demographic factors can analyze. Demographic factors can categorized as age, gender, education level, revenue level, internet experience and internet banking experience [49]. However this study noticed to these factors as intermediary variables. IN addition study added marriage state and occupation type to this list.

RESEARCH METHODOLOGY

The research form was divided in to three phases. The first phase requested demographic information. Demographic details included the respondents'(customer) level of income, type of occupation, gender, age, and marriage status, level of education and level of internet experience. This information made it possible to explore the new factors that affect to level of mobile banking usage. Sampling for this phase has been accomplished from persons that have multi-level usage of mobile banking to discover relationship between this factors rate and level of mobile banking usage.

In the second phase the consumer based factors that mentioned theoretical framework has been presented to samples of customers (as mobile banking service consumers) that use mobile banking service to determine their level of agreement. This information has been used to exploratory factor analysis to discover the factors that affect customers that using mobile banking service. In the last phase ANP method has been used for ranking discovered factors to determine priority of this factor to improvement.

In the initial phase, eight Iranian bank (mellat, saderat, melli, sepah, parsian, maskan, sarmaye and eghtesadnovin) consumers, who were mobile banking service user. Specifically Samples for factor analysis have been corresponded to first phase samples. In this process the mentioned consumers has been showed their level of agreement with factor. This phase shows the reasons why respondents said they

were mobile banking service users.

The study employed Likert-type scale questions. Each question could be answered by selecting Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). According to Morgan table, the research needed to 384 samples for infinite population. Of the 500 forms which were distributed, 410 responses were useable for analysis.

The demographic characteristics of the respondents were as follows: 45 percent were aged below 30, 35 percent were between 30 and 49, 20 percent were 50 and above; 45 percent were male and 55 percent female; 57 percent were non-collegiate educated, with 43 percent being collegiate Educated; 82 percent earned less that 1,000 US dollars and 18 percent earned 1,000 US dollars and above. 73 percent had internet experience and 27 percent hadn't internet experience. Also 59 percent of respondents said they used a PC at work, 71 percent of household units owned a PC and 61 percent of respondents rated their PC skills as being good or very good. Just over 12 percent of the respondents indicated that they had conducted online banking transactions in the past. Finally for ranking phase the samples has been selected from banking experts. In these process 16 experts has been selected for answering the analysis network process (ANP) questionnaire.

A measure of study is reliable. Reliability defined as the extent to which a scale produces consistent results if repeated measurements are made. Although reliability contributes to validity, it does not itself constitute validity [50]. In this study reliability of scale; the Cornbrash's alpha was 81.

RESULTS

Exploratory Factor Analysis

In this study, we employed exploratory factor analysis (EFA) using SPSS software. Factor analysis employs maximum likelihood (ML) estimation and geomin oblique rotation. Based on the exploratory factor analysis results, study explored which factors clustered together into latent constructs that would make up the RG-US.

In exploratory factor analysis (EFA), the Kaiser-Meyer-Olkin (KMO) measure was used to determine the sample's adequacy. The KMO measure for this study was 0.712, which is considered an adequate determination of sampling. Bartlett's Test of Sphericity was significant (p<0.001) and supported conducting an EFA (Table 1). In Table 2 Commonalities were examined and revealed that no items had commonalities near 0, indicating all items contributed to the EFA. Kaiser Criterion revealed one factor with an Eigenvalue greater than 1. Therefore, a decision was made to extract three factors in the first EFA. With concerns loading on factors (Table 3) the factor structure was examined and revealed high cross-loading on three factors. These three factors were named by applying a descriptive label.

As shown, in Table 3 Factor 1 included 3 items ("Government support", " Technology

support" and "Banking activity") and Was labeled "External factors". Factor 2 contained 2 items ("Direct benefit" and "Indirect benefit") Was labeled "usefulness". Factor 3 contained 3 items ("Attitude", "Trust" and "Ease of use") was labelled "Internal factors".

In this research, sorting procedure has been used to identify the main themes from the open-ended responses on the survey form. The analysis of first research phase made 8 factors mentioned in theoretical frameworks regarding reasons why consumers are not mobile banking user. In the following correlation analysis was used to determine relationship between demographic factors and level of mobile banking usage (Tables 1-3) [51-56].

Table 1: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.712
Bartlett's Test Sphericity	Approx. Chi-Square	1974.354
	df	28
	Sig.	0

Table 2: Commonalities matrix with loadings for each of 8 items.

	Initial	Extraction
Direct benefit	1.000	.904
Indirect benefit	1.000	.824
Goverment support	1.000	.911
Attitude	1.000	.738
Technology support	1.000	.760
Trust	1.000	.662
Ease of use	1.000	.753
Banking activity	1.000	.920

Table 3: Factor loadings from exploratory factor analysis.

	Component		
	1	2	3
Direct benefit	.356	.693	-.545
Indirect benefit	-.168	.825	.340
Goverment support	.912	-.104	.262
Attitude	-.454	.391	.615
Technology support	.849	.015	.198
Trust	.174	.306	.737
Ease of use	.256	.005	.839
Banking activity	.923	-.065	.252

Table 4: Correlation analysis.

	Level of income	Level of education	Gender	Age	Marriage status	Type of occupation	Level of internet experience
Correlation	0.008	.510	.010	0.083	.003	.014	.88
Sig.(2-tailed)	.000	.021	.067	0.009	.005	.051	.001

Table 4 illustrate correlation test for demographic factors. The results show that there is no relationship between level of mobile banking usage and gender, type of occupation, level of income, marriage status. In contrast there is positive relationship between level of mobile banking and all of remaining demographic factor namely age, level of internet experience and level of education. Correlation row in Table 4 shows that this accepted correlation for age is weak (.083) Thus it has been determined that 2 demographic factors (level of online experience and level of education)can added to other factors that has been extracted by exploratory factor analysis. Then we have 10 factors in customer approach model (CAM).

ANP modelling

Final phase in this research is ANP (Analytical Network Process) modeling for explored model to determine priorities of its factors. The ANP is the generalization of the AHP.

The scores1, 3, 5, 7 and 9 mean indifferent, weakly more, strongly more, very strongly and absolutely more important, respectively. The numbers 2, 4, 6 and 8 are employed to facilitate compromise between slightly different judgments. Certainly, the mutual values of these numbers show the degree of unimportance. We use ANP model in 3 steps. The purpose of this model is to determine the priorities of factors that affect to usage of mobile banking service.

In the first step, there are four clusters in the model are demographic, usefulness, internal and external factors. Figure 1 is a view of the overall ANP model in super decision software. Interdependencies are represented by straight arrows among the clusters and a looped arc within the same cluster in the figure below [57-60].

Figure 1: ANP model for customer approach model.
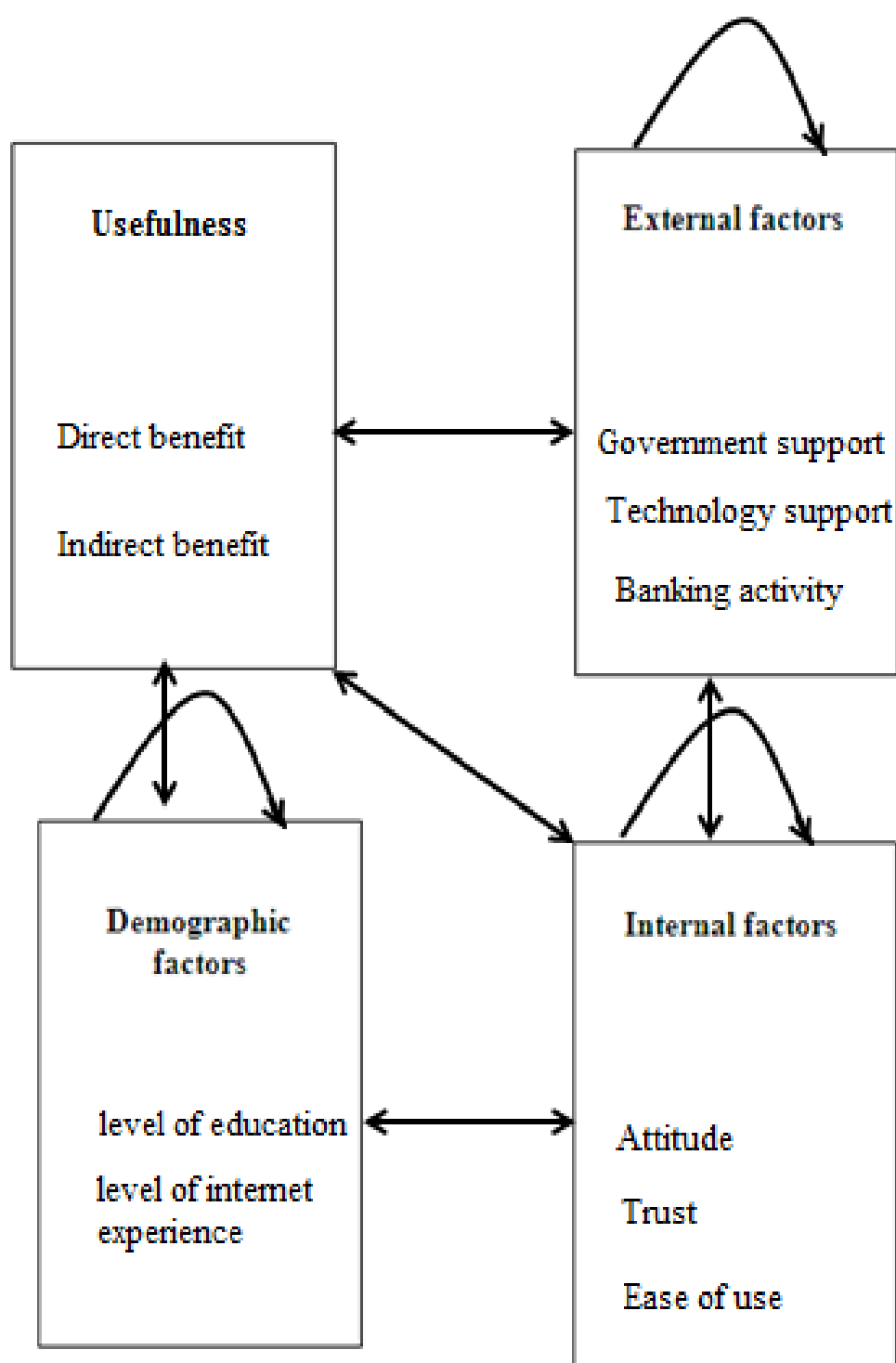
In the next step ANP method formulates performing pair wise comparisons between clusters and criteria. First, study formulated interrelationships among all factors. When formulating these relationships, each criterion is considered as a controlling

factor for a pair wise comparison matrix.

The question asks when formulating these relationships was: with respect to a specific factor, which of pair of factors more influenced? For example with respect to trust, which one more affects trust, government or banking activity, government or technology support? Table 5 illustrates an example pair wise comparison matrix for the mobile banking usage (Tables 6 and 7).

Table 5: Cluster weights matrix.

	Demographic	**usefulness**	**External**	**Internal**
Demographic	0.07013	0.333333	0.25	0.25
usefulness	0.325513	0	0.25	0.25
External	0	0.333333	0.25	0.25
Internal	0.604358	0.333333	0.25	0.25

In the next step study constructs the super matrix. Tables 6-8 illustrate unweight, weighted and limit super matrices of the factors within the network. The weighted super matrix (Table 7) illustrates the weighting of the blocks of the unweight super matrix by the corresponding priority from the corresponding eigenvector of comparisons of the clusters obtained from Table 6 The entries of the weighted super matrix itself give the direct influence of any factor on any other factor.

The weighted super matrix has some zeros indicating no interaction. Table 8 shows the priorities of all the factors. By this priorities of all the factors and alternatives are extracted and normalized. The priorities of all the factors in the limit matrix normalized to one for each cluster.

The final priorities for all factors and the alternatives are given in Table 9. This priority is :1) Internal benefits 2) Government support 3) external benefits 4) attitude 5) Level of customer education 6) customer experience 7) bank activity 8) trust 9) technology support 10) ease of use (Tables 8 and 9) [61-63].

Table 6: Unweight super matrixes.

Cluster	Element	Internal			External			usefulness		Demographic	
		Attitude	Trust	Ease of use	Government	Technology	Bank activity	External	Internal	Education	Experience
Demographic	Experience	0.636204	0.046584	0.148092	0	0	0	0	1	1	0
	Education	0	0	0	0	0	0	0	0	0	0.142857
usefulness	Internal	0	0	0	1	0	0	0	0	1	0
	External	1	0	0	0.652688	0.285049	0.062264	0	0	0	1
External	Bank activity	0	0	0	0.900009	0.099991	0	0	0	0	0
	Technology	0	0	0	0.888889	0	0.111111	0	0	0	0
	Government	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5
Internal	Ease of use	0.333333	0.333333	0	0.706667	0.241677	0.051656	0	0	0	1
	Trust	0	0	0	0.259927	0.412597	0.327476	0	0	0.333333	0.333333
	Attitude	0	0	0.5	0.626459	0.30115	0.072391	0.5	0.5	0.333333	0.333333

Table 7: Weighted super matrix.

| | | Demographic | | usefulness | | External | | | Internal | | |
		Experience	Education	Internal	External	Bank activity	Technology	Government	Ease of use	Trust	Attitude
Demographic	Experience	0	0.07013	0.325513	0	0	0	0	0.0895	0.028153	0.384495
	Education	0.142857	0	0	0	0	0	0	0	0	0
usefulness	Internal	0	0.5	0	0	0	0	0.5	0	0	0
	External	0.333333	0	0	0	0.020755	0.095016	0.217563	0	0	0.333333
External	Bank activity	0	0	0	0	0	0.099991	0.900009	0	0	0
	Technology	0	0	0	0	0.111111	0	0.888889	0	0	0
	Government	0.125	0.125	0.125	0.125	0.125	0.125	0	0	0.083333	0.083333
Internal	Ease of use	0.5	0	0	0	0.025828	0.120839	0.353333	0	0	0
	Trust	0.166667	0.166667	0	0	0.163738	0.206298	0.129963	0	0	0
	Attitude	0.083333	0.083333	0.125	0.125	0.018098	0.075288	0.156615	0.125	0	0

Table 8: Limit matrix.

		Demographic		usefulness		External			Internal		
		Experience	Education	Internal	External	Bank activity	Technology	Government	Ease of use	Thin	Attitude
Demographic	Experience	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
	Education	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
usefulness	Internal	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
	External	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
	Bank activity	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
	Technology	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
External	Government	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
	Ease of use	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
	Trust	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642
Internal	Attitude	0.108744	0.113434	0.101928	0.043995	0.047285	0.058333	0.222743	0.023326	0.024679	0.085642

Table 9: Final priorities of the factors.

Name	Normalized By Cluster	Limiting
Internal	0.69351	0.101928
External	0.60149	0.043995
Education	0.38570	0.113434
Experience	0.31430	0.108744
Trust	0.18372	0.124679
Attitude	0.47649	0.085642
Ease of use	0.12978	0.023326
Government	0.67835	0.222743
Bank activity	0.27764	0.082137
Technology	0.14400	0.093373

DISCUSSION

The necessity of investigating main factors affecting the usage of new technologies is clear based on the numerous studies. In the present study, the factors affecting the usage of mobile banking service had tested in many studies were tested in the consumer context. Results confirm that mobile banking service usage can explain by a consumer based model.

Performed exploratory factor analysis present us a new models in this context, this model shows that mobile banking service usage affected from 3 factor named internal factor, external factor and usefulness factor. These three factors confirm three factors in Hawkins consumer behavior and only the difference is that lifestyle factor named usefulness. It means usefulness in mobile banking service is synonymous with lifestyle and demonstrates it.

In managerial implications, banks should improve this factors to adopt their consumers whit determine executive priorities of these factors. In this regard and by consumer view, consumers' demographic factor has added to this model. Then ANP modeling use to determine this priorities. In the field of correlation analysis some of hypostasis cannot confirmed. The result shows that there aren't any relationships between mobile banking service usage and age, gender, type of occupation, level of income, marriage status. Unlike the results confirm positive relationship between mobile banking usage and level of online experience and level of education. Amounts of sig in Table 4 show that we can confirm result by sampling increase about gender, type of occupation, level of income and marriage status. Furthermore it is seem that except experience and education other demographic variable previously has affected on mobile banking usage and banking industry has used them for primary improvement of mobile banking and so in present their effect has declined.

About ANP, exported model formed and enhance by determination of priorities of models component and showing relationship between 4 models main factors. The research does this enhancement by presenting the model to banking experts. In this

model of mobile banking usage the Research had expected that get help mobile banking consumers for exploring why they use this services but in the case of banking management consumers cannot guide banks. In this research use banking expert opinion about priority of this factor to improvement level of mobile banking usage. The results show that the main factor in mobile banking extension is usefulness because Table 9 shows that the first and second priorities are direct and indirect benefit. This means if a bank seeks online market extension should focuses on these factors. These priorities confirm research expectation about importance of usefulness as firs factor mentioned in theoretical framework.

Practical Implications

Regarding to model priorities, the major managerial implications are summarized and stated as follows. First, customers (as banking consumers) will accept mobile banking if they consider it efficient enough to execute their daily tasks.

Second, Banking customers are not supposed to adopt a mobile banking if they found it unfit for their daily tasks and bring no improvement in their execution. Thus banks should focuses on this reality in their marketing mix. They can expand their financial market and profitability by pay attention on this research priority. Mobile banking managers aim to utilize these advantages to increase the mobile banking usage rate.

Third priority in the model is education. This priority shows that banks by focus on high educated potential customers can faster expand their online market. They can segment their online market by level of education and then implement appropriate market positioning strategy.

LIMITATIONS AND RECOMMENDATIONS FOR FURTHER STUDIES

This study is not free from limitations. One limitation of this research is small sample size. The time available for the completion of this project was limited, more sample size could lead study to batter and more precise results,thus the study proposes integration of similar framework with larger sample size. A second limitation comes from the fact that the present research utilized urban data; a future recommendation can be to perform a comparative analysis of rural and urban behavioral and technological aspects in mobile banking usage. Lastly, we conducted this research in Iran, where mobile banking is growing rapidly but it is still in its early states. This result may be suitable to similar banking market but cannot be generalized to the countries with relatively mature mobile banking.

CONCLUSION

Findings present a hybrid model for mobile banking service usage. This model has 4 main factors: internal, external, usefulness and demographic factors that effect on mobile banking usage. There are 10 sub-factors, the priority of factors show the banking industry must focus on the models factors by this priority. This priority is : 1)

Internal benefits 2) Government support 3) external benefits 4) attitude 5) Level of customer education 6) customer experience 7) bank activity 8) trust 9) technology support 10) ease of use.

REFERENCES

1. Manuel Cristóvão VJ (2016) Enablers and restrictors of mobile banking app use: A fuzzy set qualitative comparative analysis (fsQCA). Journal of Business Research 69: 5456-5460.

2. Meola A (2016) Future of banking: IoT, retail and mobile banking industry trends. Business Insider. http://www.businessinsider.com/internet-of-things-banking-retail-mobile-trends-2016-9.

3. Alalwan AA, Dwivedi Y, Rana NP, Williams MD (2016) Consumer adoption of mobile banking in Jordan: Examining the role of usefulness, ease of use, perceived risk and self-efficacy. Journal of Enterprise Information Management.

4. Lee H, Harindranath G, Oh S, Kim DJ (2015) Provision of mobile bankingservices from an actor-network perspective: Implications for convergence andstandardization. Technological Forecasting and Social Change 90: 551-561.

5. Abdallah AA, Yogesh KD, Rana Nripendra P (2017) Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust, International Journal of Information Management 37: 99-110.

6. Lin C, Nguyen C (2011) Exploring e-payment adoption in Vietnam and Taiwan. The Journal of Computer Information Systems 51: 12-41.

7. Shaikh AA, Karjaluoto H (2015) Mobile banking adoption: a literature review. Telematics Inform 32: 129-142.

8. Mehrad D, Mohammadi S (2016) Word of Mouth impact on the adoption of mobile banking in Iran. Telemat Informat.

9. Eurostat (2008) European Economic Community.

10. Consumers and Mobile Financial (2016) Services Board of Governors of the Federal Reserve System, 2016 Report.

11. Hossain MA, Dwivedi YK (2014) What improves citizens' privacy perceptions toward RFID technology? A cross-country investigation using mixed method approach. International Journal of Information Management 34: 711-719.

12. Purwanegara M, Apriningsih A, Andika F (2014) Snapshot on Indonesia regulations in Mobile Internet banking users' attitudes. Procedia-Social and Behavioral Sciences 115: 147-155.

13. Weerakkody V, El-Haddadeh R, Al-Sobhi F, Shareef MA, Dwivedi YK (2013) Examining the influence of intermediaries in facilitating e-government adoption: An empirical investigation. International Journal of Information Management 33: 716-725.

14. Hawkins D, Mothersbaugh DL, Best RJ (2007) Consumer behavior: Building marketing strategy. McGraw-Hill, New York.

15. Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly 13: 319-340.

16. Fishbein M, Ajzen I (1975) Belief, attitudes, intention and behavior: an introduction to theory and research. Addison-Wesley.

17. Ajzen I, Fishbein M (1980) Understanding attitudes and predicting social behavior, Prentice-Hall, Englewood Cliffs, NJ.

18. Venkatesh V, Ramesh V, Massey AP (2003) Understanding usability in mobile commerce. Communications of the ACM 46: 53-56.

19. Wadie N, Lanouar C (2012) Factors affecting the adoption of Internet banking in Tunisia: An integration theory of acceptance model and theory of planned behaviour. Journal of High Technology Management Research 23: 1-14.

20. Ajzen I (1991) The theory of planned behaviour. Organizational Behavior and Human Decision Processes 50: 179-211.

21. Rogers EM (1995) Diffusion of innovations. The Free Press, New York.

22. Davis F (1993) User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. Int J Man-Mach Stud 38: 475-487.

23. East R (1997) Consumer behaviour: advances and applications in marketing. Prentice Hall.

24. O'Cass A, Fenech T (2003) Web retailing adoption: exploring the nature of internet users Web retailing behaviour. J Retail Const Serv 10: 81-94.

25. Bander A, Charles D (2010) Internet banking acceptance model: Cross-market examination. Journal of Business Research 63: 957-963.

26. Rousseau D, Sitkin S, Burt R (1998) Camerer C Not so different after all: a cross-discipline view of trust. Acad Manage Rev 23: 393-404.

27. Grewal D, Iyer G, Levy M (2004) Internet retailing: enablers, limiters and market consequences. J Bus Res 57: 703-713.

28. Kramer RM (1999) Trust and distrust in organizations: emerging perspectives, enduring questions. Annu Rev Psychol 50: 569-598.

29. Fortin DR, Dholakia RR, Dholakia N (2002) Introduction to special issue, emerging issues in electronic marketing: thinking outside the square. J Bus Res 55: 623-627.

30. Liu C, Jack M, June L, Chun Y (2004) Beyond concern: a privacy-trust-behavioral intention model of electronic commerce. Inf Manag 42: 127-142.

31. Friedman B, Kahn P, Howe D (2000) Trust online. Commun ACM 43: 34-40.

32. Lee YK, Park JH, Chung N, Blakeney A (2012) A unified perspective on the factors influencing usage intention toward mobile financial services. Journal of Business Research 65: 1590-1599.

33. Kuisma T, Laukkanen T, Hiltunen M (2007) Mapping the reasons for resistance to internet banking: A means-end approach. International Journal of Information Management 27: 75-85.

34. Tommi L (2016) Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. Journal of Business Research 69: 2432-2439.

35. Agarwal R, Prasad J (1999) Are individual differences germane to the acceptance of new information technologies? Decision Science 30: 361-391.

36. Harrison AW, Rainer RK (1992) The influence of individual differences on skill in end-user computing. Journal of Management Information Systems 9: 93-111.

37. Levin T, Gordon C (1989) Effect of gender and computer experience on attitudes towards computer. Journal of Educational Computing Research 5: 69-88.

38. Bandura A (1977) Self-efficacy: Toward a unifying theory of behavioral change.

Psychological Review 84: 191-215.

39. Tan M, Teo TSH (2000) Factors influencing the adoption of internet banking. Journal of the Association for Information Systems 1: 1-42.

40. Shih YY, Fang K (2004) The use of decomposed theory of planned behaviour to study internet banking in Taiwan. Internet Research 14: 213-223.

41. Jaruwachirathanakul B, Fink D (2005) Internet banking adoption strategies for development country: the case of Thailand. Internet Research 15: 295-311.

42. Tunay KB, Tunay N, Ilyas A (2015) Interaction between Internet Banking and Bank Performance: The Case of Europe. Procedia-Social and Behavioral Sciences 195: 363-368.

43. Lynn RK, Angeline GC (2011) Consumer behavior knowledge for effective sports and event marketing. Routledge, New York.

44. Goodhue DL (1995) Understanding user evaluations of information systems. Manage Sci 41: 1827-1844.

45. Goodhue DL, Thompson RL (1995) Task-technology fit and individual-performance. MIS Q 19: 213-236.

46. Oliveira T, Faria M, Thomas MA, Popovic A (2014) Extending the understanding of mobile banking adoption: when UTAUT meets TTF and ITM. Int J Inf Manage 34: 689-703.

47. Sahar A, Arshian S (2016) Acceptance of mobile banking framework in Pakistan. Telematics and Informatics 33: 370-387.

48. Lee MC (2008) Predicting behavioral intention to use mobile banking. Proceedings of the 19th international conference on information management, Taiwan.

49. Fink, Jaurwachirathanakul (2005) Internet banking adoption strategies for a developing country, the case of Thailand. Internet Research 15: 295-311.

50. Cooper DR, Schindler PS (2008) Business research methods (10th Ed). NewYork, McGraw-Hill/Irwin.

51. Jayawardhena C, Foley P (2000) Changes in the banking sector the case of Internet banking in the UK. Internet Research 10: p. 19.

52. Fusilier M, Durlabhji S (2005) An exploration of student Internet use in India. Campus-wide INF Syst 22: 233-246.

53. Goh HP (1995) The diffusion of internet in Singapore, academic exercise, faculty of business administration. National University of Singapore.

54. Jane MK, Jeanne MH, Marianne AH (2004) The adoption of electronic banking technologies by US consumers. International Journal of Bank Marketing 22: 238-259.

55. Karahanna E, Straub DW, Chervany NL (1999) Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. MIS Quarterly 23: 183-312.

56. Kuisma T, Laukkanen T, Hiltunen M (2007) Mapping the reasons for resistance to internet banking.

57. Lee M-C (2009) Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. Electronic Commerce Research and Applications 8: 30-141.

58. Mols NP (2000) The internet and services marketing-the case of Danish retail banking," Internet Research: Electronic Networking Applications and Policy 10: p.

718.

59. Bayazit O (2006) Use of analytic network process in vendor selection decisions. An International Journal 13: 566-579.

60. Silverman G (2001) The power of word of mouth. Direct Market 64: 47-52.

61. Sohail MS, Shanmugham (2002) E-banking and customer preferences in Malaysia, An Empirical investigation, school of business and information technology. Monash University Malaysia.

62. Taylor S, Todd P (1995) Understanding information technology usage: a test of competing models. Information Systems Research 6: 144-176.

63. Venkatesh A, Morris MG (2000) Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behaviour. MIS Quarterly 24: 115-139.