Factors influencing the adoption of Mobile banking services in Jordan from the perspective of customers: Overview and Pilot study

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Abstract-Mobile banking is part or result of the mobile technological boom in recent years. Even though automated teller machines (ATM), telephone, and Internet banking offer effective delivery channels for traditional banking products, mobile banking is likely to have significant effects on markets. The main objective of this pilot study is to design and test a questionnaire to measure the adoption of mobile banking services by Jordanian customers. The findings of online survey with 60 respondents describe Jordanians" adoption of mobile banking in Jordan by identifying factors that explain their intention to use Mobile banking services in Jordan. This online Pilot survey shared over the email and other social media channels. Results indicate that the factors significantly influencing the Behavioral Intention to adopt online banking include Performance Expectancy, Effort Expectancy and Social Influence.

Index Terms-Mobile banking, online banking, Jordan, Behavioral intention.

INTRODUCTION

Mobile banking services were first introduced to customers in Finland in 1992. Finnish banks enabled their customers to perform financial transactions and pay bills using their mobile phones. Since that time, M-banking services have been structured to follow specific standards of wireless services and have created a new global trend for using banking services through mobile devices [1].

New technological solutions have changed how customers interact with their shopping, payments and banking. For example, customers have several alternatives to pay for their purchase such as paying by traditional (contact/contactless) credit card, online payment, or mobile devices, all of which are a result of the rapid development in innovations of banking and payment methods [2]. These days, smartphones are a key technological device and many activities have been penetrated in many countries by the use of smartphones and their applications [3].

Mobile banking is part of the mobile technological boom. Even though automated teller machines (ATM), telephone, and Internet banking offer effective delivery channels for traditional banking products, m-banking is likely to have significant effects on markets[4].This technology allows people to perform bank transactions anytime and anywhere [5]. In particular, the rapid growth in the use of smart phones has increased the need for m-banking services, and requires service providers to include this innovative service with new sets of products, services and applications designed to expand their clients' access, improve customer loyalty, enhance operational efficiency, increase market share, and provide new jobs[6].

However, the lack of mobility in the use of internet banking became a main concern for users as they had to use only local area network (LAN) or WI-FI connections to access internet banking, in addition to which they needed to be on a personal computer PC like desktop or laptop to do their transactions, so the banks found there was still a need to enhance customer satisfaction by providing flexible services to customers whenever and wherever they want them [7].

Mobile banking attempted to solve these issues by enabling customers to be on the move and utilize their devices to perform the financial activities they need without the previous limits associated with traditional banking or internet banking [8]. M-banking allows bank customers to perform banking services via their portable devices or smart phones, such as: general inquiries, account management, paying of their bills, find ATM locations, transferring money and other traditional banking services, as shown in table 2.1 [9].

Table 1: Main M-banking services.

Transactional services	Non-transactional services
Bill payments	Balance enquiry
Peer-to-peer payments	Mini-bank statement
Fund transfers	PIN change
Remittance	Check book request
Shopping and donations	Due alerts for payments
Mobile balance top-up	Locate ATMs

Source: Shaikh and Karjaluoto (2015)

Statement of the problem

Importantly, limited number of previous academic studies has examined the adoption of mobile banking from the customers' perspective. Also the majority of studies that used UTAUT model with a 'non-western' contexts rather than in Jordan and this research will investigate that may be affected by cultural differences.

Such investigation uncovers the research gap that was found due to the limited research available in the topic when talking about mobile-context technology acceptance factors from the perspective of customers which were combined together to model user's acceptance of mobile banking technologies.

The primary objective of thethis paper is to investigate and understand the critical factors influences adoption of these mobile banking Services.

Related Literature

Banks in different countries are offering mobile banking technology to their customers, but despite the widespread adoption of mobile devices, such as smartphones and tablets, the adoption rate of M-Banking is still low [10][11][12]

In 2002 E-Banking services commenced, since when Jordanian banks have been active in establishing E-Banking, and M-Banking services. A limited number of previous academic studies have examined the adoption of M-banking from the customers' perspective.

Also, the majority of studies that have tested the UTAUT model were conducted in western contexts rather than in less economically developed countries such as Jordan [13]. The study will investigate the main factors that influence the adoption of mobile banking solutions, which will be reflected in the questionnaire aimed at the Jordanian context to assess the level of awareness of mobile banking in the country and barriers to adoption of mobile banking. Based on a review of the literature it is expected that perceptions of risk, transactional risk, performance Expectancy, effort Expectancy, Social Influenceand security of personal data will all play a significant part on influencing the intention to adopt mobile banking in Jordan.

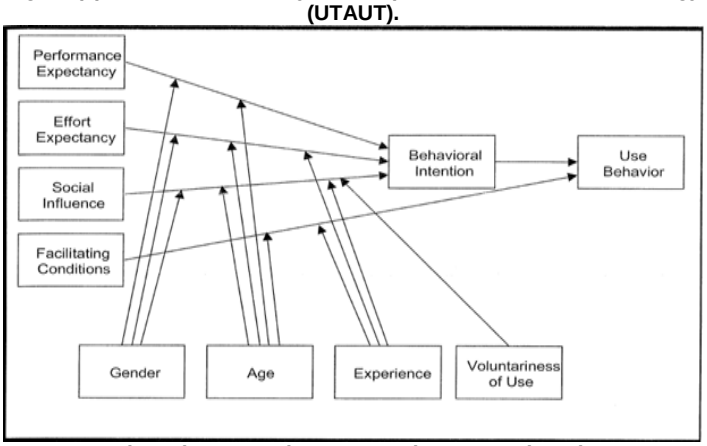
Technology adoption means the acceptance of new innovations, techniques and tools in executing specific tasks. Behavioral intention is an indication of an individual's readiness to perform a given behavior. It is assumed to be an immediate antecedent of adoptive behavior. Intention is based on attitude toward the behavior, subjective norms, and perceived behavioral control [14].

There are several dominant models of technology acceptance. The UTAUT is a unified model that is formed from the integration of eight dominant models in the field: the theory of reasoned action [15], technology acceptance model[16], motivational model [17], the theory of planned behavior, a combined theory of planned behavior and technology acceptance model [18], model of personal computer use [19], diffusion of innovations theory [20](Rogers, 2003), and social cognitive theory[21].

The unified view is derived from the Technology Acceptance Model (TAM), [16]. TAM is a model derived from the Theory of Reasoned Action [15] TAM has evolved, and various researchers have tested the model by adding new variables in order to increase its explanatory power.

Venkatesh, Morris and Davis (2003) used TAM, along with seven other models, in the field of technology acceptance, and formulated the aggregated (UTAUT) model in an effort to find a unified model that integrates different perspectives in the field of technology acceptance[22]. The UTAUT model addresses four constructs as the main determinants of behavioral intention (or usage), present in one or more of the other models: performance expectancy, effort expectancy, social influences, and facilitating conditions as shown in Figure 1.

Figure (1): The Unified Theory of Acceptance and Use of Technology (UTAUT).



Source: Venkatesh, V., Morris, M.G., Davis, F.D., and Davis, G.B. "User Acceptance of Information Technology: Toward a Unified View," MIS Quarterly, 27, 2003, 425-478.

Other moderating variables that have been indicated in previous research to influence usage are experience, voluntariness, age, and gender. This study will investigate the constructs and moderators (Age, gender, experience) that influence the Intention (and therefore acceptance) of M-banking from the perspective of bank customers in Jordan.

Critics posit that the UTAUT model is a reincarnation of the Theory of Reasoned Action and Theory of Planned Behaviour models[23]. Others state the UTAUT model, even with forty-one independent variables for predicting intentions and at least eight independent variables for predicting behaviour, omits important independent variables [24]. These researchers suggest the need for a model that better conceptualizes system usage, looks at a broader user perspective, integrates longitudinal studies, and identifies the causes of the beliefs inherent to adoption. Another related limitation to UTAUT is that the prediction of behavioural intention to use a technology is primarily based on organizational contexts [23].

Regarding to the literature review the adoption of banking services by customers usually is different than other applications or software, as it is affected by the factor of the transactional risk which means the risk that the transaction executed by the bank customer does not take place as expected by the client [25]. And also it represents the important concern of customers who usually have a concern related to the type of the transaction they perform and if it is transactional or non-transactional and also related to the amount of money they are going to send by the m-banking applications.

Based on the UTAUT model and the previous studies this paper tries to propose a new model by adding new construct (M-banking transactional risk) about the transactional risk

Methodology:

While this paper is pilot study to investigate and understand the main factors and to describe the adoption of mobile banking by Jordanian customers. Method using self-report and anonymous online questionnaire using (Bristol online survey, https://www.onlinesurveys.ac.uk). The survey's URL has been distributed over the email and some Jordanian social media websites.The questionnaire consisted of five sections including: Demographics, Actual use of mobile Banking, Knowledge and views about mobile banking (6 items) were

assessed on a 5- point Likert scale. There were also the following open-ended questions providing participants with the opportunity to comment and add views on the same page of the online survey:

- What are the main obstacles you find during the use of M-banking?

-Do you think the use of M-banking depends on the nature of the task you intend to do (transactional-non-transactional)? Why?

-Do you recommend or not using mobile banking to your friends? Why?

What would encourage you to use M-banking?

The respondents' comments assured the researcher that the language used was simple and clear; in addition, the questionnaire length was suitable and did not consume much of the respondents' time.

Tabel1: prosed Mosel's constructs and related questions.

constructs	Questions
Performance expectancy(PE)	-I think using M-banking app saves me time. - I think M-banking app is useful.
Effort Expectancy (EE)	-I think learning to use M-banking app is easy. -I think interaction with M-banking app does not require a lot of mental effort.
Social influence (SI)	People who have influence on my behaviour think that I should use the M-banking app. 2- I would use M-banking app if people who are important to me already used it.
M-banking app_ transactional risk (ATR)	I am unsure that transactions on M-banking app will take place as I expect. 2- I fear that apps of M-banking technology is not reliable.
Behavioural intention / M-banking acceptance	- I plan to keep using M-banking app in the future I will try to do my routine -banking transactions by M-banking app

Pilot findings:

There were 57 respondents after two weeks of publish the survey link on social media and e-mail. Moreover, in order to make sure that all measurement items have an acceptable level of internal consistency reliability, an examination of Cronbach's alpha values was carried out and distributed using SPSS [26].Cronbach's alpha value exceeding 0.70, as shown in table 2, and it is highly recommended by [27]., was considered to be the threshold level to approve the measures' reliability.

Table2:

Cronbach's Alpha Results of the Pilot Study

Constructs	Cronbach's alpha (α)
PE	0.90
EE	0.78
SI	0.95
ATR	0.92
BI	0.87

This, in turn, demonstrated that the measures adopted were able to have an acceptable level of internal consistency and adequately satisfied the reliability criteria in purpose to design the main extended survey which will be shown in another article.

Descriptive finding:

Table***3: Gender***

Rank value	Option	Count
1	Male	35
2	Female	14

Table**4: Age**

Rank value	Option	Count
1	18-24	3
2	25-34	23

3	35-44	15
4	45-54	6
5	55-64	2
6	65 or older	0

Table5: Marital status:

Rank value	Option	Count
1	Single	19
2	Married	25
3	In relationship	4
4	divorced	1

Table6: Education level:

Rank value	Option	Count
1	No schooling completed	0
2	Primary school	0
3	Secondary school	1
4	Undergraduate	9
5	Postgraduate	20
6	Doctorate	19

Table7: How long have you been using the mobile banking services?

Rank value	Option	Count
1	Less than one year	9
2	1-2 years	6
3	3-4 years	14
4	More than 4 years	11

Table8: The people who prefer to use M-banking for non-transactional tasks (ie. Viewing balance, transactions?

Rank value	Option	Count
1	Strongly disagree	4
2	Disagree	6
3	Neutral	12
4	Agree	16
5	Strongly agree	8

Transactional risk found to be, 34.8% of the respondents agree to prefer to use M-banking for non-transactional tasks (Viewing balance, transactions,etc.) while only (8.7%) strongly disagree.

Other qualitative data help in deeper understanding of the factors that influence the adoption of mobile banking in Jordan, some of the new ideas and constructs are suggested by the respondents such as:

Main obstacles fond during the use of M-banking from the perspective of customers:

In addition to the common and main factors that mentioned before, the qualitative data provided to the researcher with some of suggested factors and ideas that influence the adoption of m-banking services in Jordan which will help in this research and the future research and need to be discussed and addressed in more details. The customers suggested that factors of: Trust, Mobile network, Small screen size, Internet speed, Identity authentication, Security and accuracy, phone's battery life and clear screen.

Descriptive analysis:

Table 3 presents that 71 per cent of the respondents were male compared to 29 per cent of the total respondents who were female.

Relating to respondents age, it was noticed that the age group of 25-34 captured the largest part of the total valid sample (35 per cent). The second largest segment of the valid sample (30 per cent) was found within the age category of 35-44 followed by the age category of 45-54 (16.3 per cent). The age group of 18-24was able to comprise of 15 per cent of the total valid responses. Very few of the respondents (2.6 per cent) were observed within the age range between 55 and 64, yet those respondents who are older than 60 years with zero response.

With regard to education level, the descriptive statistics show that the most prominent educational level of respondents (40 per cent) was the postgraduate Degree as summarised in Table 6the respondents who had obtained a PhD Degree accounted for 37

per cent of the total valid responses. This was followed by respondents who held a Diploma Degree (10.8 per cent). About 0 per cent of the total respondents had a high school qualification. Only 23 per cent of respondents mentioned that they had BA while the lowest ratio of respondents (0.6 per cent) was recognised as those who had other certificates (see Table 6).

Conclusion

In this paper, after distributing a brief pilot survey to a limited number of mobile banking users through the social media and other electronic channels, which creates clearer understanding of the current status of the adoption and usage of mobile banking by Jordanians. I have discussed some issues and factors that related to mobile banking adoption in the Jordanian context, examine issues on the architecture as well as some security measures to deal with the related current challenges.

I found that mobile banking services need to have a foundation to enhance the performance of the apps and the trust of customers, security and support future technologies. This ensures that mobile apps and their security framework remains future-proof and requires fewer resources to manage long-term.

References:

[1] Barnes, S. &Corbitt, B. (2003). Mobile banking: concept and potential. International Journal Of Mobile Communications, 1(3), 273. http://dx.doi.org/10.1504/ijmc.2003.003494

[2]Capgemini , EMA Empowers Employees with Anytime Anywhere Access to its Unique Portal | Resource. (2015). Capgemini Capgemini Worldwide. Retrieved 15 February 2016, from https://www.capgemini.com/resources/

[3]Data and Research on Digital for Business Professionals | eMarketer. (2014). Emarketer.com. Retrieved 15 August 2015, from http://www.eMarketer.com

[4]Laforet, S., & Li, X. (2005). Consumers' attitudes towards online and mobile banking in China. *International Journal of Bank Marketing*.doi:10.1108/02652320510629250

[5] Zhou, T. (2012). Understanding users' initial trust in mobile banking: An elaboration likelihood perspective. *Computers In Human Behavior*, *28*(4), 1518-1525. http://dx.doi.org/10.1016/j.chb.2012.03.021

[6]Riquelme, H. E., & Rios, R. E. (2010). The moderating effect of gender in the adoption of mobile banking. *International Journal of Bank Marketing*.doi:10.1108/02652321011064872

[7] Rahmani, F. (2008). A Call for Innovation.IEEE Pervasive Computing, 7(1). http://dx.doi.org/10.1109/MPRV.2008.2.

[8] Al-Qirim, N. (2007). The Adoption and Diffusion of E-Commerce in Developing Countries: The Case of an NGO in Jordan. *Information Technology for Development*, *13*(2), 107-131. doi:10.1002/itdj.20053 Retrieved from http://www.interscience.wiley.com

[9] Luarn, P. & Lin, H. (2005). Toward an understanding of the behavioral intention to use mobile banking. Computers In Human Behavior, 21(6), 873-891. http://dx.doi.org/10.1016/j.chb.2004.03.003

[10]Akturan, U., &Tezcan, N. (2012). Mobile banking adoption of the youth market. *Marketing Intelligence & Planning*, *30*(4), 444-459. http://dx.doi.org/10.1108/02634501211231928

[11]Cavus, N., & Christina, D. (2016). Information technology in the banking sector: Review of mobile banking. *Global Journal Of Information Technology*, *5*(2), 62. http://dx.doi.org/10.18844/gjit.v5i2.196

[12] Gu, J., Lee, S., & Suh, Y. (2009). Determinants of behavioral intention to mobile banking.*Expert Systems With Applications*, *36*(9), 11605-11616. http://dx.doi.org/10.1016/j.eswa.2009.03.024

[13] MHA, K. (2015). A Mobile Banking Adoption Model in the Jordanian Market: An Integration of TAM with Perceived Risks and Perceived Benefits. *J Internet Bank Commer*, *20*(3). http://dx.doi.org/10.4172/1204-5357.1000128

[14] Ajzen, I. (1991). The theory of planned behavior.*Organizational Behavior and Human Decision Processes*, *50*(2), 179-219.

[15] Ajzen, I., &Fishbein,, M. (1980). *Understanding attitudes and predicting social behavior*. (1st ed.). Englewood Cliffs, USA: Prentice Hall.

[16] Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319. http://dx.doi.org/10.2307/249008

[17] Miller, K., Deci, E., & Ryan, R. (1988). Intrinsic Motivation and Self-Determination in Human Behavior.Contemporary Sociology, 17(2), 253. http://dx.doi.org/10.2307/2070638

[18] Taylor, S. & Todd, P. (1995). Understanding Information Technology Usage: A Test of Competing Models. Information Systems Research, 6(2), 144-176. http://dx.doi.org/10.1287/isre.6.2.144

[19] Triandis, H. (1979). Values, Attitudes, and Interpersonal Behaviour.*Nebraska Symposium on Motivation*, 27, 195–259.

[20]]Rogers, E. M. (2003). *Diffusion of innovations* . (5th ed.). New york, USA: Free press.

[21]Blackwell, G. (1942). Social Learning and Imitation.By Neal E. Miller and John Dollard. New Haven: Yale University Press, 1941. 341pp. Social Forces, 21(2), 256-256. http://dx.doi.org/10.2307/2570586

[22]Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *Management Information Systems Quarterly*.

[23] Bryman, A., & Bell, E. (2011). *Business research methods* . (3rd ed.). New York, USA: OxfordUniversity press Inc.

[24] Bhaskar, R. A. (1989). A Critical Introduction to Contemporary Philosophy.In *Reclaiming Reality*. London, UK: Verso

[25] Yin, R. (2009). Case study research. Los Angeles, Calif.: Sage Publications.

[26] Bhattacherjee, A. (2012). *Social science research: Principles, methods, and practices*. (2nd Ed.). Florida, USA: AnolBhattacherjee.

[27] Nunnally, J. C. (1978). *Psychometric theory*. New York, NY: McGraw-Hill.