

A Study of Factors Influencing Customers' Adoption of Mobile Banking in Oman

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ABSTRACT

The commercial banking sector in Oman is a dynamic sector with a large number of banking service users. However, the customers' adoption of technology in terms of online banking and mobile banking remains less due to the various socio-demographic factors. Given the cost and operational benefits of mobile banking, there is a need to understand how commercial banks can motivate non-mobile banking users to adopt mobile banking in this context. Thus, the current study is conducted with a view to understand customers' adoption of mobile banking using the Perceived Characteristics of Innovation model. The data is collected from the commercial bank account holders who are non-users of mobile banking (n=80). The key findings are that perceived ease of use ($\beta=.487$, $P<.05$); and observability ($\beta=.530$, $P<.05$) positively and significantly influence customers intention to use mobile banking; whereas, relative advantage ($\beta=-.068$, $P>.05$); compatibility ($\beta=-.413$, $P>.05$); and trialability ($\beta=.371$, $P>.05$) exert insignificant influence on customers intention to use mobile banking. Based on these findings, it can be concluded that perceived ease of use and observability are key factors which commercial banks need to focus to encourage customers to adopt mobile banking.

Keywords: Mobile Banking, Customers, Adoption, Online Banking, Ease of Use, Observability, Intention, Oman.

INTRODUCTION

The advent of smart mobile phones has brought revolutionary changes in our life. The use of smartphones is diverse from basic communication to the use of social media, conducting online business, and availing of different services (Deloitte, 2012; Shaikh & Karjaluoto, 2015). One such avenue which is changed significantly because of the smart mobile phone is the use of banking services. The modern banking sector has invested heavily in mobile phone related-technologies to provide a variety of services to customers. The idea of mobile banking is that an individual can access wide-ranging banking services using his/her smart mobile phone and a bank application. Examples of such services include but are not limited to balance checking, statement downloads, payment of utility bills, funds transfers, and so on. Mobile banking accompanied by online banking offers greater flexibility for customers and cost reduction for banks in terms of reduced staff requirements and physical infrastructure (Glavee-Geo, Shaikh,

& Karjaluoto, 2017); therefore, the banking sector is persuading more customers to utilize mobile-based banking. However, the adoption of mobile banking remains moderate in various countries due to certain factors such as concern for privacy, security, and perceived risk (Munoz-Leiva, Climent-Climent, & Liébana-Cabanillas, 2017). That's why there is increased interest in research about how banks can encourage customers to adopt mobile banking. In the present study, this issue is investigated in the context of banking customers in Oman since there is a scarcity of such studies in this context. Moreover, the country represents a setting where almost all banks offer mobile banking facility and most proportion of the population has access to mobile phone and internet services. Furthermore, a big proportion of citizens in Oman also utilize various banking services either through a traditional bank or alternative channel. Keeping in view this background and the literature gap, the objective of the study is to investigate the factors influencing customers' adoption of mobile banking in the Omani context. Our specific objectives are as follows;

- To measure the effects of relative advantage on the customer's adoption of mobile banking
- To measure the effects of compatibility on the customer's adoption of mobile banking
- To measure the effects of the ease of use on the customer's adoption of mobile banking
- To measure the effects of trialability on the customer's adoption of mobile banking
- To measure the effects of observability on the customer's adoption of mobile banking

Significance of the Study

The significance of the study is that it fills the literature gap by investigating the adoption of mobile banking in a new context i.e. Oman context. Second, it focuses on mobile banking which is different from online banking which is mostly investigated in previous studies. Third, it uses the perceived characteristics of the innovation model (Moore & Benbasat, 1991) which is neglected in previous studies as most relevant studies used the TAM (Davis, 1989); or theory of planned behavior (Ajzen, 1991) model. However, the limitation of such models is that it rather focuses on behavioral aspect or technology aspects while the advantage of the perceived characteristics innovation model is that it combines both types of factors thus having greater flexibility and validity. The findings can be utilized by the banking sector to adjust its mobile banking offering to attract more customers to adopt online banking. The findings can also be utilized by future researchers, academic staff, and students.

LITERATURE REVIEW

Mobile Banking- an Introduction

Mobile banking refers to a channel whereby the customers interact with a bank via a mobile device such as a smartphone or a personal digital assistant (Barnes & Corbitt, 2003). In other words, mobile banking is about accessing banking services using a smart mobile phone or similar device. Generally, mobile banking is considered an extension of online banking. A customer can download mobile phone applications from a platform such as Google Playstore or Apple Store and need some basic setup after which he/she can access banking services. The benefit of mobile banking is flexibility as customers can access it at any time from anywhere without the need to visit the bank branch. A customer only needs a smart mobile phone and internet connection to access mobile banking services. However, due to the negative perception and concern for security, many customers hesitate to adopt mobile banking (Lin, 2011).

Theoretical Aspects related to the Adoption of Mobile Banking

Various theories can be used to understand customers adoption of mobile banking such as the theory of reasoned action (Ajzen & Fishbein, 1980); Diffusion of innovation model (Rogers, 2003); theory of planned behavior (Ajzen, 1991); technology acceptance model (Davis, 1989); and perceived characteristics of innovation model (Moore & Benbasat, 1991). More specifically, the TAM or technology acceptance model (Davis, 1989) focuses on two factors namely perceived usefulness and perceived ease of use which together influence customers' adoption of a technology or innovation. However, the model is criticized for its oversimplification and ignorance of important factors such as the relevance of cost (Nysveen, Pedersen, & Thorbjornsen, 2005). Another significant model which can be used for the adoption of mobile banking is IDT which focuses on factors including relative advantage, observability, trialability, compatibility, and complexity (Rogers, 2003). Since all models have their strengths and limitations, therefore, no model adequately explains customers' adoption of mobile banking. In the present study, we utilize the perceived characteristic of the innovation model which is an extension of the diffusion of innovation model. It is based on five factors including relative advantage, compatibility, ease of use, image, voluntariness, trialability, and observability. Details are as follows;

Relative Advantage

Relative advantage refers to the convenience and saving of time and efforts for using a particular technology (Moore & Benbasat, 1991). It is also about the perception that technology or innovation is superior compare to the previous product or service from which it evolves (Karjaluoto, Laukkanen, & Kiviniemi, 2010). In the mobile banking context, relative advantage means customer ability to access their account details, ability to use a variety of services, and easier execution of various tasks. Mobile banking can give a higher relative advantage to the customers as customers can balance their work, family, and leisure time without the need to visit a bank branch (Yu & Lo, 2007). Empirical work such as Payne, Peltier, and Barger (2018); and Owusu, Bekoe, Addo-Yobo, and Otioku (2021) shows that relative advantage can exert a significant influence on customers' adoption of mobile banking.

Compatibility

Compatibility is about a match between a person's experience, way of doing, and technology (Moore & Benbasat, 1991). If there is high compatibility between a person and a specific technology, it will likely lead to the adoption of that technology by such individual; while, low compatibility can be a barrier (Rogers, 2003). Compatibility is also found to be a significant factor influencing customers' adoption of online banking in various contexts. For example, a study by Lin (2011) reported that compatibility exerts a significant influence on customers' adoption of mobile banking. Similarly, a study by Koenig-Lewis, Palmer, and Moll (2010) also reported a significant influence of compatibility on customers' adoption of mobile banking. Other studies also reported similar results (e.g. Sitorus, Govindaraju, Wiratmadja, & Sudirman, 2019; Mäenpää, Kale, Kuusela and Mesiranta, 2008)

Perceived Ease of Use

Ease of use refers to the degree to which a technology is perceived as easier or difficult to use (Rogers, 2003). The perceived ease of use in the mobile banking context refers to the perceived ease or difficulty regarding use of the online or mobile banking (Tan & Teo, 2000). If an individual considers online banking easier, he/she will more likely to adopt compared to someone who considers its usage as a difficult task. In this regard, a truly user-friendly website

or mobile phone application is also important as it can shape the perception of ease or difficulty of using mobile banking (Cyr, Head & Ivanoy, 2009). Previous studies such as Hanafizadeh, Behboudi, Koshksaray, & Tabar (2014); and Sitorus et al. (2019) have shown that perceived ease of use is an important factor in customers' adoption of mobile banking.

Trialability

Trialability refers to the opportunity available to the users to test or trial a particular technology before adopting it at full scale (Rogers, 2003). If users are given chance to test a particular technology before adopting it at full scale, it increases the chances for its adoption as it increases users' comfort with technology (Tan & Teo, 2000). In the mobile banking context, it means a bank staff may provide a suitable demo to the prospect customers before customers finally signup for mobile banking. Previous studies such as Changchun, Haider, & Akram (2017) show that trialability exert a significant influence on customers' adoption of mobile banking. Other studies also reported similar results (e.g. Elsaleh, 2020; Carmi & Drezner, 2019; Makanyeza, 2017)

Observability

Observability refers to the chance to see the results or outcomes of using or adopting certain technology (Rogers, 2003). Moore and Benbasat (1991) suggest that there are two sub-dimensions of observability including visibility and result demonstrability. Accordingly, visibility is about the demonstration of the benefits of online banking using some sort of advertisement or similar. Furthermore, result demonstrability is about results or outcomes of using online banking which can be shown to customers with logical necessity. Previous studies such as by Al-Jabri and Sohail (2012) reported a significant influence of observability on customers' adoption of mobile banking. Other studies also reported similar results including Iskandar, Hartoyo, and Hermadi, (2020); Odumeru (2013); and Iskandar et al., (2020)

Previous Studies on Adoption of Online Banking

Various studies used various models to understand the customer's adoption of online as well as mobile banking in various contexts. For example, a study by Wu, Lin, Li, and Lin (2010) was conducted a study about investigating factors influencing the adoption of online banking among customers. The study reported that relative advantage, trust, and perceived ease of use exert a significant influence on customers' adoption of online banking. In developing countries' contexts, a study by Owusu et al., (2021) reported that perceived ease of use, perceived usefulness, relative advantage, and complexity exert a significant influence on customers' adoption of mobile banking. In the Middle Eastern context, a study by Al-Jabri and Sohail (2012) investigated the adoption of mobile banking in the Saudi Arabian context. The study is based on the diffusion of innovation theory to understand customers' adoption of online banking. Key findings of the study are that relative advantage, compatibility, and observability exert a significant positive influence on customers' adoption of mobile banking. Another study conducted by Elsaleh (2020) in Lebanon shows that customers' adoption of mobile banking is influenced by the ease of use, compatibility, and perceived usefulness. In the Oman context, a study by Sulthana (2018) investigated the factors influencing customers' adoption of mobile banking using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The findings of the study are that factors such as social influence, facilitating conditions, personal innovation, and effort expectancy influence customers' adoption of mobile banking. Another study by Sharma, Govindaluri, Al-Muharrami, and Tarhini (2017) showed that trust, social

influence, compatibility, and perceived usefulness influence customers' adoption of mobile banking in Oman. Another study by Imtiyaz and Molla (2004) mostly focused on online banking shows that compatibility, usefulness, and ease of use are important factors for customers to adopt online banking. Overall, there is a shortage of mobile banking and online banking adoption-related studies in Oman, therefore, we investigate this issue. Based on the previous studies and utilizing the perceived characteristic of the innovation model (Moore & Benbasat, 1991) we propose the following theoretical model and the relevant hypotheses.

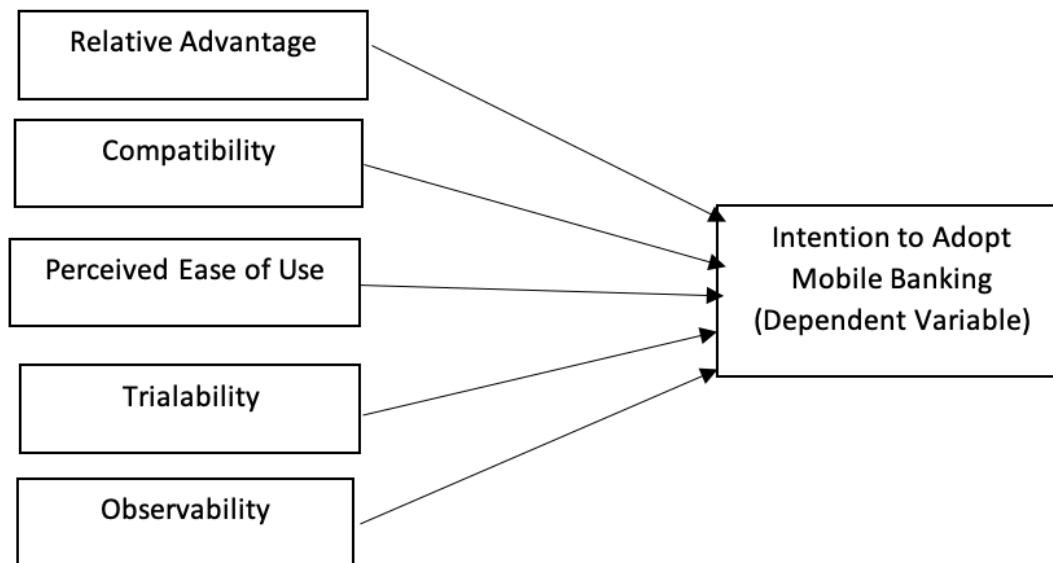


Figure 1: Theoretical Framework of the Study

Hypotheses

H1: There is a significant effect of perceived relative advantage on customers' adoption of mobile banking.

H2: There is a significant effect of perceived compatibility on customers' adoption of mobile banking.

H3: There is a significant effect of perceived ease of use on customers' adoption of mobile banking.

H4: There is a significant effect of perceived trialability on customers' adoption of mobile banking.

H5: There is a significant effect of perceived observability on customers' adoption of mobile banking.

RESEARCH METHODOLOGY

Research Design

The study is quantitative in nature and the design of the current study is cross-sectional and explanatory. By cross-sectional means single-time data collection from the participants. By explanatory design means we are explaining the relationship between independent and dependent variables.

Population and Sampling

The population of the study is all banking customers who are not using mobile banking. Since the population is large and unknown, so we use the random sampling approach to collect data. The sample size is determined by using the sample size calculator developed by Bartlett, Kotrlik, and Higgins (2001). Based on a 95% confidence interval, and a .03 margin of error, our required sample size is 119.

Data Collection

For data collection, we use the Google form. Accordingly, a link is forwarded to the participants who wish to participate in the survey. The survey is based on the adapted measure. The questionnaire for the independent variable is adapted from Moore and Benbasat (2001) consists of 18 statements. In this measure, the relative advantage is measured by 4 items; compatibility is measured by 3 items; ease of use is measured by 4 items; trialability is measured by 3 items, and observability is measured by 4 items. The intention to adopt online banking is adapted from Wang, Wang, Lin, and Tang (2003) and consists of 3 items.

Reliability and Validity

Reliability refers to the degree to which measures are free from error and therefore yield consistent results (Sekaran & Bougie, 2016). We established reliability by using the Cronbach alpha for which the cutoff value for acceptable reliability is 0.60 or above. For establishing validity, we used the adapted measures which already establish its validity. Furthermore, we did the pre-testing of the questionnaire by using a pilot study.

Ethical Issues

All ethical issues such as privacy of the participants and use of no force for data collection are handled appropriately. No personal information is obtained from the participants and collected data is only used for its stated purpose. No participant is forced or given any incentive to take part in the survey and thus all participation is voluntary.

RESULTS

Demographic Information

Table 1: Demographic Information

	Frequency	Percentage
Gender		
Male	40	50%
Female	40	50%
Age Group		
18 to 25 Years	24	30.0%
25 to 35 Years	16	20.0%
35 to 45 Years	32	40.0%
Above 45 Years	8	10.0%
Residency Status		
Omani National	44	55.0%
Expatriate	36	45.0%
Occupation		
Student	12	15.0%
Public Sector Employee	32	40.0%
Private Sector Employee	16	20.0%
Business/Self-Employed	20	25.0%

A total of 80 respondents participated in the survey 80 participants (50%) are male and remaining 40 participants (50%) are female. In terms of age, 24 participants (30%) belonged to the age category of 18 to 25 years; 16 participants (20%) belonged to the 25 to 35 years age group; 32 participants (40%) belonged to the 35 to 45 years; and remaining 8 participants (10%) belonged to the above 45 years age category. In terms of residency status, 44 participants (55%) are Omani national; and 36 participants (45%) belonged to the foreign expatriate category. In terms of occupation, 12 participants (15%) were student; 32 participants (40%) belonged to the public sector; 16 participants (20%) belonged to the private sector; and 20 participants were self-employee (25%).

Descriptive Statistics

Table 2: Descriptive Statistics and Reliability

	No. of Items	Cronbach Alpha	Minimum	Maximum	Mean	Std. Deviation
Relative Advantage	04	.935	1.50	4.75	3.8875	1.06661
Compatibility	03	.955	1.00	5.00	3.9333	1.11759
Perceived Ease of Use	05	.768	1.20	4.60	3.6600	.95885
Triability	03	.712	1.67	5.00	3.8333	.92141
Observability	04	.692	1.25	5.00	3.7750	.76334
Intention to Use Mobile Banking	03	.614	1.33	5.00	3.6667	.90896

The above table provide descriptive statistics as well as the Cronbach alpha for all variables involved. The Cronbach alpha of all variables is above 0.60 so it is an indication that our measures are reliable. Furthermore, the descriptive statistics indicate that among our survey participants, the degree of relative advantage (M=3.88, SD=1.06); compatibility (M=3.93, SD=1.11); perceived ease of use (M=3.66, SD=.95); trialability (M=3.83, SD=.92); observability (M=3.77, SD=.76); and intention to use mobile banking (M=3.66, SD=.90) is close to higher level.

Table 3: Correlation

		1	2	3	4	5	6
Relative Advantage	Pearson Correlation	1	.901**	.804**	.841**	.523**	.425**
	Sig. (2-tailed)		.000	.000	.000	.001	.006
	N	80	80	80	80	80	80
Compatibility	Pearson Correlation	.901**	1	.750**	.869**	.616**	.407**
	Sig. (2-tailed)	.000		.000	.000	.000	.009
	N	80	80	80	80	80	80
Perceived Ease of Use	Pearson Correlation	.804**	.750**	1	.828**	.627**	.659**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	80	80	80	80	80	80
Trialability	Pearson Correlation	.841**	.869**	.828**	1	.541**	.534**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	80	80	80	80	80	80
Observability	Pearson Correlation	.523**	.616**	.627**	.541**	1	.616**
	Sig. (2-tailed)	.001	.000	.000	.000		.000
	N	80	80	80	80	80	80
Intention to Use Mobile Banking	Pearson Correlation	.425**	.407**	.659**	.534**	.616**	1
	Sig. (2-tailed)	.006	.009	.000	.000	.000	
	N	80	80	80	80	80	80

**, Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis indicate that for the dependent variable of intention to use mobile banking, all independent variables are positively and significantly correlated including relative advantage ($r=.425$, $P<.05$); compatibility ($r=.407$, $P<.05$); perceived ease of use ($r=.659$, $P<.05$); trialability ($r=.534$, $P<.05$); and observability ($r=.616$, $P<.05$).

Table 4: Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.350	.581		.604	.550		
Relative Advantage	-.068	.255	-.080	-.267	.791	.140	2.145
Compatibility	-.413	.265	-.508	-1.556	.129	.118	2.481
Perceived Ease of Use	.487	.228	.514	2.138	.040	.217	3.599
Trialability	.371	.270	.376	1.375	.178	.168	1.964
Observability	.530	.189	.445	2.802	.008	.498	1.006
R=.757							
R square= .573							
F stat= 9.128 (.000)							
DW Stat= 2.25							

The regression analysis indicate that our model is not suffering from any mutli-collinearity issue as all VIF are less than the critical value of 10. Furthermore, there is no problem of no autocorrelation as DW statistics is close to the value of 2. The beta coefficient indicate that perceived ease of use ($\beta=.487$, $P<.05$); and observability ($\beta=.530$, $P<.05$) exert a positive and significant effects on customers intention to use mobile banking. Furthermore, the results for relative advantage ($\beta=-.068$, $P>.05$); compatibility ($\beta=-.413$, $P>.05$); and trialabilty ($\beta=.371$, $P>.05$) turned out to be insignificant. The result further indicate that the independent variables explain 57% variation in the dependent variable as shown by the R square value. The F statistics is greater than 4 so it indicates that our model is fit and highly significant.

DISCUSSION

The objectives of the study were to test the effects of variables as identified in the perceived characteristics of the innovation on customer's adoption of the mobile banking in the context of Oman. The study utilized the survey based method for data collection and collected data from sample respondents. The key findings of the study are that there is strong correlation between the component of the perceived characteristics of innovation model and the customers intention to the adopt the mobile banking. Furthermore, the regression analysis findings indicate that the perceived ease of use and observability turned out to be highly significant. The findings of the study are similar to the other studies findings which also found similar results including Imtiyaz and Molla (2004) and Sharma, et al., (2017). In Middle East context, the findings are similar to the findings of Al-Jabri and Sohail (2012) who also found similar factors predicting mobile banking adoption in the Saudi Arabian context. The findings also shows that perceived characteristics of innovation model can be a suitable model to study adoption of mobile banking in this context thus further strengthening the model (Moore & Benbasat, 1991).

CONCLUSION

The study utilized the perceived characteristics of innovation model to understand customer's adoption of mobile banking in the Oman context. The findings of the study show that the model is a valid theoretical lens to understand customers' adoption of mobile banking in this context. The findings further lead to this conclusion that in this context, the perceived ease of use and observability are important influencing factors for customer's adoption of mobile banking. The findings contribute to the perceived characteristics of innovation model as well as adoption of mobile banking. The findings add to the understanding of how banking sector firms can motivate non-mobile banking users to shift to the mobile banking which has further favorable consequences for the banking sector firms.

RECOMMENDATIONS

- The commercial banks in Oman need to demonstrate to the customers the way of handling mobile banking so potential customers can view it as an easier process and can adopt the mobile banking. In this regard, commercial banks can use suitable videos in the local language to demonstrate ease of use to the potential customers. Other methods of communication can also be used to encourage non-mobile banking users to shift to the mobile banking.
- The commercial banks in Oman need to show to customers that how mobile banking works, its benefits, and how it can create value for the customers. In this regard, commercial banks can use suitable video tutorials for educating the customers. Furthermore, staff at commercial bank branches can also be trained to demonstrate the benefit and uses of mobile banking to the non-mobile banking users.

LIMITATIONS

The study limitations include small sample size, limited geographical coverage, and non-random sampling. The use of cross-sectional data and single method of data analysis also remains a limitation. A future researcher can overcome such limitations by implying more diverse methods of data collection and analysis.

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