Determinants of Mobile Banking Adoption in Kathmandu Valley

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Abstract

This study examines the determinants of mobile banking adoption in Kathmandu Valley. Adoption of mobile banking is the dependent variable. The selected independent variables are perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence. The primary sources of data is used to assess the opinions of respondents regarding perceived usefulness, perceived ease of use, trustworthiness, accessibility, social influence and adoption of mobile banking. The study is based on the primary data of 126 respondents. To achieve the purpose of the study, structured questionnaire is prepared. The correlation and multiple regression models are estimated to test the significance and determinants of mobile banking adoption in Kathmandu Valley.

The study showed a positive impact of perceived usefulness on adoption of mobile banking. It indicates that perceived usefulness leads to increase the adoption of mobile banking. Likewise, the study showed a positive impact of perceived ease of use on adoption of mobile banking. It indicates that perceived ease of use leads to increase the adoption of mobile banking. Similarly, the study showed a positive impact of trustworthiness on adoption of mobile banking. It indicates that secure online transactions through mobile banking leads to increase the adoption of mobile banking. Further, the study showed a positive impact of accessibility on adoption of mobile banking. It indicates that more access of the app leads to increase the adoption of mobile banking. Moreover, the study showed a positive impact of social influence on adoption of mobile banking. It indicates that social awareness regarding digital banking leads to increase the adoption of mobile banking.

Keywords: perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence, adoption of mobile banking

1. Introduction

Digital payment can be defined as platform which is used for making monetary transaction for various goods or services purchased over the internet (Roy and Sinha, 2014). Furthermore, Premchand and Choudhry (2015) stated that digital payment system engages many digital or e- payment system which many financial institutions are able to provide easy services to their customers such as debit cards, credit cards, net banking, etc. Digital or E-Payments are very important mode of payments used by the population which is a very secured, fast and convenient mode of making any payment using the internet and it is also an opening for an economy to grow and excel its technological advancement in the world economy (Slozko and Pelo, 2015). Similarly, Briggs and Brooks (2011) stated that digital payment is a form of payment which is supported by banks and inter connected between individuals and banks for making monetary transaction digitally. Furthermore, Ogedebe and Jacob (2012) stated that digital payment is a mode of payment, transaction or transfer of money with the help of internet. Similarly, Adeoti and Osotimehin (2012) referred to digital

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payment as a way of making payment online or in any particular place using the digital mean. Kaur and Pathak (2015) stated that digital payments are payments which are done for e-commerce purpose where money is exchanged through digital mode. Likewise, Becirovic (2014) stated that due to technological advancement digital forms of payment have become more and more in common. Especially, due to the rapid growth of electronic commerce (e-commerce), new needs for comfortable and secure methods of payment have to be had to be developed. Similarly, Sardana and Singhania (2018) stated that adopting digitalization in bank is known as digital banking. Digital banking not only includes using internet to access the banking service, but also comprise whole array of banking service delivered or consumed using technology. Furthermore, Smith (2006) argued that the development of new technologies has profoundly changed the way in which customers interact with service providers. Traditionally, the distribution of services in the retail banking industry largely meant customers having to visit a physical branch to access any financial services. Mobile payment is defined as the exchange of financial value between two parties using a mobile device. Likewise, Sumanjeet (2009) stated that payment represents both cash and non-cash financial transactions, which take place between two or more parties but in a strict sense of the word payment represents only non-financial transactions. It is more common for two parties exchanging value to hold accounts with alternative banks, in which both banks become the parties of payment.

Shetty (2019) stated that digital payment means when any goods or services are purchased through the use of various electronic modes of payments which means there is no use of physical cash or cheques in digital payment and as electronic device or online service allows an individual to make electronic transactions and it is called a digital wallet. Further, Scholnick *et al.* (2008) revealed that the digital payment infrastructure consists of an interconnected network of related entities, which are designed to accelerate the speed of data exchange between the concerned systems, and to initiate, sanction, and expedite cash transfer between different parties. Likewise, Dey *et al.* (2020) revealed that the increasing evidence of digital consumer culture indicates that user empowerment and use rend alteration and appropriation are integral parts of consumers' use of information systems and digital technology. In addition, Westerman and Bonnet (2015) stated that the process of digital transformation, or the increased incorporation of innovative technologies to replace or enhance traditional operational processes, had been gaining momentum for quite some time. concerned branches in regular operating hours.

Mallat (2004) examined the consumer adoption of mobile payments in Finland. The study found that mobile payment is dynamic and its adoption depends on lack of other payments methods and certain situational factors. Similarly, Rathore (2016) found that major factor in adoption of digital wallet is convenience in buying products online without physically going from one location to another location. Likewise, Roy and Sinha (2014) found that innovation, incentive, customer convenience and legal framework are the four factors which contribute to strengthening the E- payment system. Further, Sardar (2016) found that mobile as wallets usage crosses the boundaries of big cities and as it gains popularity the electronic payment system will generate huge volumes of data on the spending behavior of persons in these areas. M-Payment refers to making payments using mobile devices including wireless handsets, personal digital assistants (PDA), radio frequency (RF) devices, and near field communication (NFC) based devices (Dewan and Chen, 2005). Furthermore, Sadeghi and

Schneider (2003) revealed that with the dispersal of digitalization and the availability of communication networks, a large number of electronic payment systems have been proposed and developed which provide new means for the representation of values. A digital wallet is a software component that allows a user to make an electronic payment in cash (such as a credit card or a digital coin) and hides the low-level details of executing the payment protocol that is used to make the payment.

Prasanth *et al.* (2019) found that although plastic money is used a lot due to its convenience, safety and trust are the main deterrents in using them. The study also found that financial knowledge, non-acceptance, infrastructure problems and economy problems are found to be most important challenges of adoption of digital payment in rural sector. Similarly, Madhoushi and Mohebi (2004) concluded that user acceptance of electronic payment systems on mass scale depends greatly on users' attitudes; feasible technological solutions are not the only important issues, but electronic payment systems will be perceived in a complex of facets. Furthermore, Beck *et al.* (2018) analyzed the effects of payment technology innovation on entrepreneurship and economic development. The study concluded that broader approaches to improving access to financial services, including payment services, are important for alleviating financial constraints and stimulating business performance. Likewise, Teoh *et al.* (2013) found that the most favorable factors affecting e-payments are ease of use and self-efficacy. Furthermore, Kumar and Chaubey (2017) found that process of digitization is happening very slowly and people are adopting it, as there is no other choice. Similarly, Nath (2008) found that higher transaction speed, transaction convenience, and compatibility perceptions would lead to high propensity to adopt m-Payment while grater security and privacy concerns would lead to lower propensity to adopt m-Payment. The study also found that among all the constructs, compatibility has the highest correlation with intention to adopt.

In the context of Nepal, According to Regmi (2015), mobile banking can be kept under the subset of E banking itself. Soon after People's Movement II, the campaign was launched Haat Haat ma Mobile, Ghar Ghar ma Internet (Mobile in every hand, internet in every house). Internet in every house is yet not answerable, however we can say the first part met its objective in the run anyway. Similarly, According to Niraula and Adhikari (2019), e-banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the internet or mobile phone. However, with the life-threatening infection looming over their heads, the government and various organizations started rampantly promoting digital payment.

The above discussion shows that the studies dealing with the determinants of mobile banking adoption. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The major objective of the study is to examine the determinants of mobile banking adoption in Kathmandu Valley. Specifically, it examines the relationship of perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence with determinants of mobile banking adoption.

The remainder of this study is organized as follows: section two describes the

sample, data, and methodology. Section three presents the empirical results and final section draws the conclusion.

2. Methodological aspects

The study is based on the primary data. The data were gathered from 126 respondents through questionnaire. The study employed convenience sampling method. The respondents' views were collected on perceived usefulness, perceived ease of use, trustworthiness, accessibility social influence and adoption of mobile banking. This study is based on descriptive as well as causal comparative research designs.

The model

The model used in this study assumes that adoption of mobile banking depends upon determinants of mobile banking. The dependent variable selected for the study is adoption of mobile banking. Similarly, the selected independent variables are perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence. Therefore, the model takes the following form:

Adoption of mobile banking = *f* (perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence).

More specifically,

$$AOMB = \beta_0 + \beta_1 PU + \beta_2 PEOU + \beta_3 T + \beta_4 A + \beta_5 SI + e$$

Where;

AOMB = Adoption of mobile banking

PU = Perceived usefulness

PEOU = Perceived ease of use

T = Trustworthiness

A = Accessibility

SI = Social influence

Perceived usefulness was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "M-banking enables me to conduct transactions 24 hours 7 days a week", "M-banking saves more time" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.764$).

Perceived ease of use was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "My interaction with M-banking is clear and understandable.", "Interaction with M-banking does not require a lot of mental effort" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.750$).

Trustworthiness was measured using a 5-point Likert scale where the respondents

were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "M-banking apps are trustworthy", "The information offered by M-banking apps are valid." and so on. The reliability of the items was measured by computing the Cronbach's alpha (α = 0.753).

Accessibility was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Mobile banking apps are easily accessible in apple and android phones", "The font size and contrast level in the app are suitable for comfortable usage" and so on. The reliability of the items was measured by computing the Cronbach's alpha (α = 0.716).

Social Influence was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Friends or family using M-banking influenced my decision to use it", "Observing others using M-banking influenced my decision to try it" and so on. The reliability of the items was measured by computing the Cronbach's alpha (α = 0.760).

Adoption of mobile banking was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "I use M-banking services regularly for various transactions", "I trust security features provided by M-banking apps" and so on. The reliability of the items was measured by computing the Cronbach's alpha (α = 0.777).

The following section describes the independent variables used in this study along with the hypothesis formulation.

Accessibility

Gumussoy *et al.* (2018) investigated the determinants of mobile banking use. The found that accessibility have significant influence on the adoption of mobile banking decision. Similarly, Aliyu *et al*. (2012) examined the adoption of electronic banking. The study found that accessibility positively influence the adoption of mobile banking. Likewise, Tarhini *et al*. (2015) investigated user adoption of online banking in Nigeria. The study revealed that accessibility have significance impact on mobile banking adoption. Furthermore, Borowska *et al.* (2023) investigated the mobile banking apps in Poland and their accessibility for consumers with disabilities. The study revealed that the accessibility strongly influenced the mobile banking adoption. In addition, Naeem *et al*. (2022) investigated the meanings, materials, and competencies in adoption of mobile banking. The study revealed that digital transaction help to reduce the spread of COVID 19 infections and the adoption rate of digital banking significantly increased. Based on it, this study develops the following hypothesis:

H_1: There is a positive relationship between accessibility and adoption of mobile banking.

Perceived usefulness

Koenig-Lewis *et al*. (2010) investigated the effect of perceived risk on the intention to use M-banking. The study found a positive relationship between perceived usefulness and the use of mobile banking. Likewise, Lin (2011) investigated an empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust.

The study found that there is a significant relationship between perceived usefulness and the attitude towards mobile banking. Similarly, Mutahar *et al.* (2018) investigated the mediating of perceived usefulness and perceived ease of use: the case of mobile banking in Yemen. The study found perceived usefulness has a strong positive impact on mobile banking adoption. Furthermore, Rehman *et al.* (2019) investigated mobile banking adoption and its determinants in Malaysia. The study found perceived usefulness of mobile banking has a significant influence on the consumer's attitude towards the adoption of mobile banking in Malaysia. In addition, Al-Sharafi *et al*. (2017) investigated the effect of perceived ease of use and usefulness on customer's intention to use online banking services: the mediating role of perceived trust. The study observed that perceived usefulness positively impacts the attitude towards mobile banking adoption. Based on it, this study develops the following hypothesis:

H_2: There is a positive relationship between perceived usefulness and adoption of mobile banking.

Perceived ease of use

Chin and Ahmad (2015) found that perceived ease of use is important to determine perceived usefulness and consumers' intention to use the single platform e-payment system. Likewise, Lin (2007) concluded that perceived ease of use can be used as intermediary of perceived enjoyment as perceived ease of use is a significant factor in a consumer's intention to shop online. Similarly, Barry and Jan (2018) found positive and significant effect of perceived ease of use on perceived usefulness and behavioral intention to use particular system. Likewise, Abrazhevich *et al.* (2009) revealed that there is ease of use in making batch transactions, possibly in both situations since the task is easier compared to the manual payment method. Furthermore, Chuang *et al.* (2016) concluded that a user-friendly system may help consumers in adopting financial technology products with easy software design and modern devices. Based on it, this study develops the following hypothesis:

H_3: There is a positive relationship between perceived ease of use and adoption of mobile banking.

Trustworthiness

Wong *et al*. (2020) investigated adoption behavior in sustaining the mobile banking services. The study found that there is a significant relationship between trustworthiness and the adoption of mobile banking. Similarly, Gao and Waechter (2017) found that the existence of expressions of low levels of trust is the main reason for not adopting online payments offered by financial institutions. Likewise, Pavlou *et al.* (2006) found that trust is critical in the development and acceptance of any system or technology, as it creates a positive attitude between citizens. Furthermore, Bunduchi (2005) found that trust is an important factor in the success of inter organizational systems or internet-based electronic markets. Likewise, Wang *et al.* (2003) found that trust has a significant positive influence on the behavioral intentions to use online banking. Based on it, this study develops the following hypothesis:

H_4: There is a positive relationship between trustworthiness and adoption of mobile banking.

Social influence

Souiden *et al.* (2021) investigated the mobile banking adoption: a systematic

review. The study found that there is a significant relationship between social influence and the attitude towards mobile banking. Sitorus *et al*. (2019) investigated the role of usability, compatibility and social influence in mobile banking adoption in Indonesia. The study found that the intention to continue using mobile banking is significantly determined by social influence. Prastiawan *et al.* (2021) investigated the effect of perceived usefulness, perceived ease of use, and social influence on the use of mobile banking through the mediation of attitude toward use. The study revealed that social influence have significance impact on mobile banking adoption. Alalwan *et al.* (2017) investigated factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. The study found social influence has a strong positive impact on mobile banking adoption. Usman *et al.* (2020) investigated E-Banking and mobile banking effects on customer satisfaction. The study observed that social influence positively impacts the attitude towards mobile banking adoption. Based on it, this study develops the following hypothesis:

H_5: There is a positive relationship between social influence and adoption of mobile banking.

3. Results and discussion

Correlation analysis

On analysis of data, correlation analysis has been undertaken first and for this purpose, Kendall's Tau correlation coefficients along with mean and standard deviation has been computed and the results are presented in Table 1.

Table 1

Kendall's Tau correlation coefficients matrix

This table presents Kendall's Tau coefficients between dependent and independent variables. The correlation coefficients are based on 126 observations. The dependent variable is AOMB (Adoption of mobile banking). The independent variables are PU (Perceived usefulness), PEOU (Perceived ease of use), T (Trustworthiness), A (Accessibility) and SI (Social influence).

Variables	Mean	S.D.	AOMB	PU	PEOU	T	A	SI
AOMB	4.428	0.564	1					
PU	4.538	0.453	0.435**	1				
PEOU	4.457	0.461	0.416**	0.488**	1			
T	4.254	0.543	0.413**	0.289**	0.373**	1		
A	3.772	0.585	0.448**	0.526**	0.490**	0.385**	1	
SI	3.741	0.528	0.414**	0.434**	0.364**	0.441**	0.437**	1

Note: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 1 shows that perceived usefulness is positively correlated to adoption of mobile banking. It indicates that increase in perceived usefulness leads to increase in adoption of mobile banking. Likewise, perceived ease of use is positively correlated to adoption of mobile banking. It indicates that perceived ease of use leads to increase in adoption of mobile banking. Further, trustworthiness is positively correlated to the adoption of mobile banking indicating that increase in trustworthiness leads to increase in adoption of mobile

banking. Likewise, accessibility is positively correlated to adoption of mobile banking. It implies that accessibility provided on mobile banking influences mobile banking adoption. Further, social influence is also positively correlated to the adoption of mobile banking. It shows that the social influence leads to increase in mobile banking adoption.

Regression analysis

Having indicated the Kendall's Tau correlation coefficients, the regression analysis has been carried out and the results are presented in Table 2. More specifically, it shows the regression results of perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence on adoption of mobile banking.

Table 2

Estimated regression results of perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence on adoption of mobile banking

The results are based on 126 observations using linear regression model. The model is $AOMB = \beta_0 + \beta_1 PU + \beta_2 PEOU + \beta_3 T + \beta_4 A + \beta_5 SI + e$ where the dependent variable is AOMB (Adoption of mobile banking). The independent variables are PU (Perceived usefulness), PEOU (Perceived ease of use), T (Trustworthiness), A (Accessibility), and SI (Social influence)

Model	Intercept	Regression coefficients of					Adj. R_bar^2	SEE	F-value
		PU	PEOU	T	A	SI			
1	1.745 (6.224)**	0.577 (8.261)**					0.350	0.5765	68.247
2	1.741 (5.282)**		0.571 (7.012)**				0.278	0.6079	49.165
3	2.087 (6.335)**			0.484 (5.954)**			0.216	0.6335	35.456
4	2.087 (6.335)**				0.597 (7.897)**		0.329	0.5860	62.356
5	2.146 (7.249)**					0.474 (6.448)**	0.245	0.6216	41.581
6	1.228 (3.827)**	0.417 (4.868)**	0.287 (3.023)**				0.390	0.5589	40.930
7	0.807 (2.335)*	0.362 (4.228)**	0.221 (2.325)*	0.226 (2.829)**			0.423	0.5436	31.509
8	0.735 (2.135)*	0.292 (3.160)**	0.157 (1.570)	0.182 (2.206)*	0.597 (7.897)**		0.435	0.5380	25.025
9	0.706 (2.039)*	0.264 (2.707)**	0.157 (1.570)	0.157 (1.570)	0.183 (1.719)	0.083 (0.897)	0.434	0.5384	20.149

Notes:

i. Figures in parenthesis are t-values.
ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.
iii. Adoption of mobile banking is dependent variable.

The regression results show that the beta coefficients for perceived usefulness are positive with adoption of mobile banking. It indicates that perceived usefulness has a positive impact on adoption of mobile banking. This finding is consistent with the findings Mutahar *et al*. (2018). Similarly, the beta coefficients for perceived ease of use are positive with adoption of mobile banking. It indicates that ease of use has a positive impact on adoption of mobile banking. This finding is similar to the findings of Barry and Jan (2018). Likewise, the beta coefficients for trustworthiness are positive with adoption of mobile banking. It indicates that trustworthiness has a positive impact on adoption of mobile banking. This finding is similar to the findings of Wang *et al*. (2003). Further, the beta coefficients for accessibility

are positive with adoption of mobile banking. It indicates that accessibility has a positive impact on adoption of mobile banking. This finding is similar to the findings of Gumussoy *et al.* (2018). In addition, the beta coefficients for social influence are positive with adoption of mobile banking. It indicates that social influence has a positive impact on adoption of mobile banking. This finding is similar to the findings of Prastiawan *et al.* (2021).

4. Summary and conclusion

Digital payment can be defined as platform which is used for making monetary transaction for various goods or services purchased over the internet. Digital payment system engages many digital or e- payment system which many financial institutions are able to provide easy services to their customers such as debit cards, credit cards, net banking, etc. Digital or E-Payments are very important mode of payments used by the population which is a very secured, fast and convenient mode of making any payment using the internet and it is also an opening for an economy to grow and excel its technological advancement in the world economy.

This study attempts to examine the determinants of mobile banking adoption in Kathmandu Valley. The study is based on primary data of 126 respondents.

The major conclusion of this study is that perceived usefulness, perceived ease of use, trustworthiness, accessibility and social influence have positive impact on adoption of mobile banking. The study also concludes that the most influencing factor is accessibility followed by perceived usefulness that explains the adoption of mobile banking.

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