

MOBILE BANKING ADOPTION: A REVIEW

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Abstract

The world has undergone a major shift with the technological development impacting life of a common man. It has also changed the way of doing business. Business has already evolved from traditional business to online business and now shifting towards mobile operated business. Present study is an attempt to review the articles published on mobile banking adoption during 2010 to 2018 by using keywords like m banking, mobile banking, m banking adoption etc. from different reputed publishers and journals and present comprehensive knowledge on mobile banking adoption studies. Findings of reviewed literature reveals that variables like perceived usefulness, perceived ease of use, performance expectancy, effort expectancy, facilitating conditions, social influence, awareness, positively affects the adoption of mobile banking services whereas variables like security, perceived risk, complex process, technical problems, improper security, and inadequate knowledge hinders the adoption of mobile banking. This study theoretically adds existing body of knowledge in the area of mobile banking adoption in specific and mobile commerce in general and helps future researchers, banks, marketers and other practitioners while providing useful insights for directed decisions. This paper presents crux of crux of mobile banking adoption literature within a decade. This paper provides overview of reviewed literature, key variables, objectives, findings, limitations, and future research suggestions in tabular form. The insights of the paper will be fruitful in promoting designing, customising and successfully implementing mobile banking technologies in the new markets.

Keywords: Mobile banking, M banking, Mobile banking adoption, Systematic Review of Literature, Review of Literature

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INTRODUCTION

Technology has impacted all walks of human life (Kurzweil, 2005) and gradually improved the quality of life (Changchit&Chuchuen 2018). Not only it has impacted our personal life but also it has transformed the way business is conducted. Advantages that technology offers mainly to business organizations include "increase in efficiency" and "operating cost" (Laukkanen&Lauronen, 2005; Leung &Matanda, 2013). Due to these reasons banks also adopted technology and that has transformed the banking scenario. Banking has been advanced from branch banking to internet banking to mobile banking just because of emergence of self-service technologies (SSTs). In recent years, smart phones have become an integral part of consumers' lives (Singh, Srivastava & Srivastava, 2010) due to which mobile banking is gaining momentum. From bankers perspective mobile banking is a way of offering financial services through smartphones (Pousttchi and Schurig, 2004). Whereas from customers perspective mobile banking simply refers to accessing bank account and performing banking transactions and availing various banking services in smart phone (mobile) either through banking application or through wireless internet. Mobile banking is getting popularized due to several reasons such as: (i) smart phone penetration, (ii) availability of mobile network (The World Bank, 2009), (iii) convenience, (iv) user friendliness (Alalwan et al., 2015), (v) any time - anywhere access (Lee & Chung, 2009). Mobile banking allows customers to perform, throughout day and night, fund transfer, recharge, bill payments, balance enquiry, mini statement, cheque book request, SMS alerts etc. (Zhou et al., 2010; RBI, 2014). It also helps in knowing transaction details, location of banks and ATMs, exchange rates; handling card related issues like activation and blocking of cards; availing insurance and mobile brokerage services etc. (Tiwari & Buse, 2007).

This review paper is an endeavour to explore the literature on mobile banking adoption and to classify these studies based on their perspectives on mobile banking adoption. This paper highlights major factors due to which mobile banking was adopted by customers. Research gap of the research papers were identified and presented in the form of suggestion to future researchers. Systematic and precise review of earlier research presented in this paper will not only enhance conceptual understanding but also it will save time and effort of future researchers and academicians while providing crux of mobile banking adoption literature within a decade in tabular form. After introduction, review methodology is discussed in the next section, followed by literature analysis, results & discussions, implications, limitations & future research agenda and conclusions.

REVIEW METHODOLOGY

Research Objectives

The present paper aims: (i) to present comprehensive view of research conducted in the area of mobile banking adoption by consumers, (ii) to enhance conceptual foundation through systematic and systematized review, (iii) to provide suggestions for future research.

Data Sources

The data was collected from secondary sources. Search for journal articles related with consumers' mobile banking adoption was made using key words like m-banking adoption, mobile banking adoption, and mobile commerce services adoption through: (i) search engines - Google and Google Scholar and (ii) Infilbnet consortium. Collected articles belong to J-Gate, Science Direct, Research Gate, Emerald, SAGE, Springer, Taylor & Francis.

Review Process

Present paper conducts systematic review of mobile banking adoption literature in three stages as suggested by Armstrong et al. (2012) and Turner et al. (2013): (i) identifying the literature, (ii) analysis of literature (structure / content wise), and (iii) categorizing articles.

Stage I: Identifying the literature

The study was carried out during August and September 2019. We included open access full text peer reviewed publications from year 2010 until 2018 found in English language. Preference was given to the empirical articles for the study. This process resulted in a total of 33 journal articles on mobile banking adoption.

Stage II: Analysis of literature

All 33 articles identified during stage one were analyzed in depth with respect to objectives of the research and for classifying into different categories.

Stage III: Arranging articles

All the articles were numbered from 1 to 33 and arranged chronologically in tabular form and on the basis of authors, respondents, country, sample size, statistical techniques used for data analysis, findings and future suggestions.

Literature Analysis

After reviewing 33 articles it was found that target groups for the empirical studies mostly included the bank customers and the university students who are having awareness of the mobile banking. Selected studies were from Asian countries (China, India, Iran, Jordan, Malaysia, Pakistan, Philippines, Saudi Arabia, Singapore, UAE, Taiwan, and Thailand), followed by African countries (Ghana, Kenya, Sudan), European countries (France, Portugal, Turkey), North America (USA), South America (Brazil), and Australia. This reveals that this review work represents entire globe and most of the studies have been conducted in developing nations where mobile banking is in budding stage.

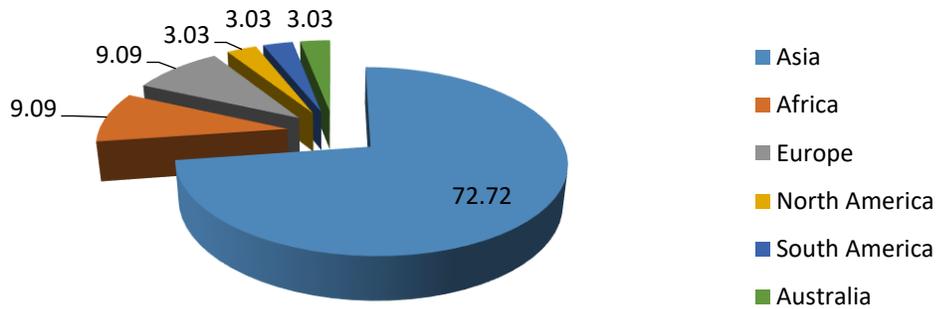


Figure 1: Continent wise distribution of reviewed articles (in percentage)

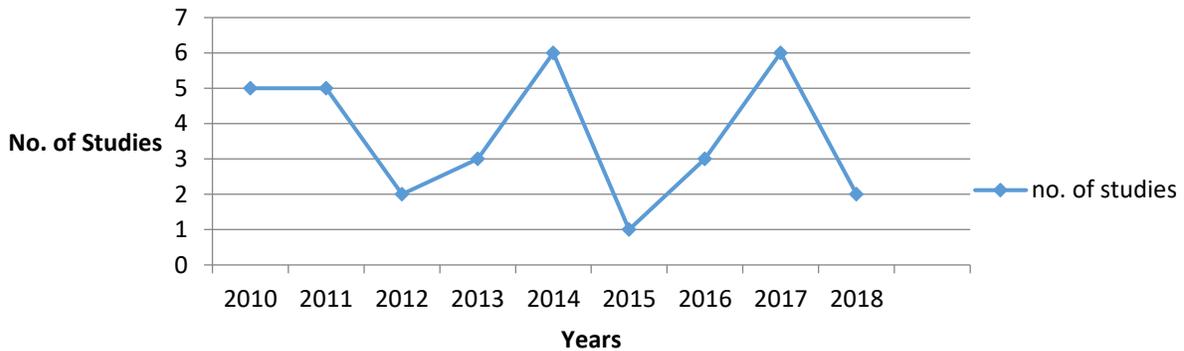


Figure 2: Year wise distribution of reviewed papers in numbers

Year wise distribution of reviewed papers in numbers is shown in figure 2 and in percentages in figure 3.

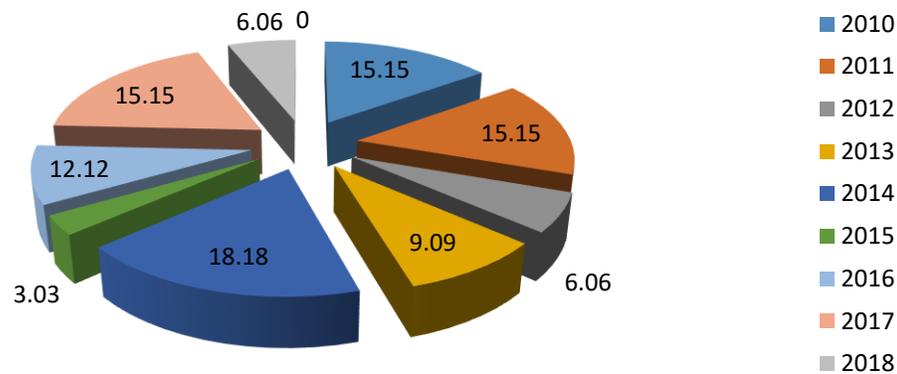


Figure 3: Year wise distribution of reviewed papers (in percentage)

RESULTS AND DISCUSSION

Table 1: Overview of Reviewed Papers

Sr.	Author(s)	Respondents	Country	Sample Size	Statistical Technique Used
1	Deng et al. (2010)	College students	China	209	Structural Equation Modelling (SEM)
2	Riquelme & Rios (2010)	Electronic banking customers	Singapore	600	Exploratory Factor Analysis (EFA)
3	Puschel et al. (2010)	Bank Customers	Brazil	666	Partial Least Squares (PLS)
4	Shen et al. (2010)	Working Class People	Taiwan	400	SEM
5	Wessels & Drennan (2010)	Australian Consumers	Australia	314	Multiple Regression Analysis (MRA)
6	Cheah et al. (2011)	Mobile users	Malaysia	175	MRA
7	Daud et al. (2011)	Bank customers	Malaysia	300	Correlation, Regression
8	Khraim et al. (2011)	Bank customers	Jordan	301	Correlation, Regression
9	Safeena et al. (2011)	University students	Saudi Arabia	53	Factor Analysis (FA)
10	Zhou (2011)	Mobile banking users	China	210	Confirmatory Factor Analysis (CFA)
11	Lule et al. (2012)	M-Kesho Users	Kenya	395	CFA
12	Samudra & Phadtare (2012)	Online banking users	India	109	EFA
13	Aboelmaged & Gebba(2013)	Mobile banking users	UAE	119	Regression, FA
14	Iddris (2013)	Non users of mobile banking	Ghana	189	Chi Square (CS)
15	Kazemi et al. (2013)	Bank customers	Iran	315	SEM
16	Deb & Lomo-David(2014)	Bank Customers	India	600	SEM, Cluster Analysis (CA)
17	Karma et al. (2014)	Bank Customers	Sudan	181	Regression, FA
18	Hanafizadeh et al. (2014)	Bank customers	Iran	361	SEM
19	Oliveiraa et al. (2014)	Customers	Portugal	194	PLS
20	Goh et al. (2014)	University students	Malaysia	183	PLS, CA
21	Goh & Sun (2014)	Muslim customers	Malaysia	105	PLS
22	Mortimer et al. (2015)	Mobile banking customers	Thailand & Australia	348	EFA, CFA
23	Alalwan et al. (2016)	Banking customers	Jordan	343	SEM
24	Burucuoglu & Erdogan (2016)	Mobile banking users	Turkey	175	SEM
25	Kishore & Sequeira (2016)	villagers	India	959	MRA, EFA
26	Mehrad & Mohammadi (2017)	Smartphone users	Iran	384	SEM
27	Boonsiritomachai & Pitchayadejanant (2017)	Mobile banking users	Thailand	480	SEM
28	Changchit et al. 2017	University students	USA	309	MRA, FA
29	Chaouali et al. (2017)	Bank customers	France	1,250	SEM
30	Gupta et al. (2017)	Households	India	176	EFA, CFA
31	Chiu et al. (2017)	Bank customers	Philippines	314	Mediation
32	Chawla & Joshi (2018)	banking users	India	367	MRA, Moderation, EFA, CFA
33	Haider et al. (2018)	Banking customers	Pakistan	243	SEM

(Source: Prepared by authors from reviewed papers)

Table 2: Key Variables Identified in Reviewed Literature

S r.	Author(s)	A T	A W	CO N	CO M	F C	P C	PE OU	P R	P U	R A	S E	SE C	S I	S N 1	S N 2	S R	T R
1	Deng et al. (2010)	√					√	√		√				√				
2	Riquelme & Rios (2010)							√		√	√				√		√	
3	Puschel et al. (2010)	√			√	√		√	√		√	√				√		
4	Shen et al. (2010)			√									√					√
5	Wessels & Drennan (2010)	√			√			√	√	√								√
6	Cheah et al. (2011)							√		√	√				√			
7	Daud et al. (2011)		√				√	√	√	√								
8	Khraim et al. (2011)				√	√					√	√						
9	Safeena et al. (2011)		√					√	√	√						√		
10	Zhou (2011)									√								√
11	Lule et al. (2012)						√	√		√		√				√		
12	Samudra & Phadtare (2012)			√	√	√		√						√				
13	Aboelmaged & Gebba (2013)	√						√		√						√		
14	Iddris (2013)			√										√				
15	Kazemi et al. (2013)	√			√	√		√	√	√		√						√
16	Deb & Lomo-David (2014)	√				√		√		√			√	√				
17	Karma et al. (2014)							√	√	√								√
18	Hanafizadeh et al. (2014)				√		√	√	√	√								√
19	Oliveiraa et al. (2014)					√								√				√
20	Goh et al. (2014)														√			
21	Goh & Sun (2014)						√			√					√			
22	Mortimer et al. (2015)						√	√	√	√				√				
23	Alalwan et al. (2016)							√	√	√		√						
24	Burucuoglu & Erdogan (2016)														√			√
25	Kishore & Sequeira (2016)	√							√					√				
26	Mehrad & Mohammadi (2017)	√						√							√			√
27	Boonsiritomachai & Pitchayadejanant (2017)					√						√	√	√				
28	Changchit et al. (2017)	√						√		√			√					
29	Chaouali et al. (2017)	√																√
30	Gupta et al. (2017)								√									
31	Chiu et al. (2017)											√						√
32	Chawla & Joshi (2018)	√						√							√			√
33	Haider et al. (2018)						√			√					√			

(Source: Prepared by authors)

AT= Attitude, AW= Awareness, CON= Convenience, COM= Compatibility, FC= Facilitating Conditions, PC= Perceived Credibility, PEOU= Perceived Ease of Use, PR= Perceived Risk, PU= Perceived Usefulness, RA= Relative Advantage, SE= Self-Efficacy, SEC= Security, SI= Social Influence, SN1= Social Norms, SN2= Subjective Norms, SR= Social Risk, TR= Trust.

Table 3: Description of Key Variables

Sr.	Key Variables	Description
1.	Attitude	It is "individual's beliefs for the prediction of his/ her behaviour" (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980).
2.	Awareness	It is "degree to which a consumer is aware of electronic banking channel" (Lee et al, 2007).
3.	Convenience	In this study, convenience means benefit to consumers offered by mobile banking like time saving, cost saving and ease.
4.	Compatibility	It is referred as the "degree to which Mobile banking services are in line with consumers' lifestyle and current needs." (Kleijnen et al., 2004; Wu and Wang, 2005).
5.	Facilitating Conditions	It refers to the infrastructure that supports use of system (Venkatesh et al., 2003).
6.	Perceived Credibility	It is users' perception of protection of their transaction details and personal data against unauthorized access (Karjaluoto et al., 2002; Muniruddeen 2007).
7.	Perceived Ease of Use	It is the belief of an individual that using a system would require least effort or no effort (Davis, 1989).
8.	Perceived Risk	It is the perception about security aspect with respect to the use of an innovation (Gerrard & Cunningham, 2003).
9.	Perceived Usefulness	It is considered as the perception of customers about offered alternatives as useful or advantageous (Davis 1989). Whereas in case of users usage experience determines usefulness (Lin 2010).
10.	Relative Advantage	Relative advantage is defined as "the degree to which an innovation is perceived to be better than the idea it supersedes" (Karayanni, 2003; Rogers, 1983).
11.	Self-Efficacy	It is the degree to which one is confident in successfully completing the task Bandura (1998).
12.	Security	It refers to the threats related to destruction, disclosure and modification of data; denial of service; fraud (Kalakota & Whinston, 1997).
13.	Social Influence	It is the influence of others to use an innovation. (Fishbein & Ajzen, 1975)
14.	Social Norms	It is the influence of family, relatives, or friends in the decision to use a product or service (Pedersen & Ling, 2002).
15.	Subjective Norms	It is the influence of important persons' to use a product or service (Taylor & Todd, 1995).
16.	Social Risk	It refers to the negative opinion of reference group towards that may result in non-adoption of a product / service (Shuhidan et al, 2017).
17.	Trust	It refers to the feeling of confidence or assurance (Gefen, 2000).

(Source: Prepared by authors from reviewed papers)

It can be interpreted from the table 1, that majority of the sampled respondents in the selected studies were bank customers. The sample size ranged 53 to 1250. The statistical techniques used in these studies were SEM, FA, MRA, correlation, regression, mediation and moderation. Summary of key variables identified in the reviewed papers are presented in table 2. Table 3, provide description of these key variables. Further table 4 present summaries of objectives, findings, limitations and future research suggestions of reviewed papers.

Findings of these studies reveals that variables like perceived usefulness, perceived ease of use, performance expectancy, effort expectancy, facilitating conditions, social influence, awareness, positively affects the adoption of mobile banking services whereas variables like security, perceived risk, complex process, technical problems, improper Security, and inadequate knowledge hinders the adoption of mobile banking.

Table 4: Summary of Objectives, Findings, Limitations and Future Research Suggestions of Reviewed Papers

S r.	Author(s)	Objectives	Main Findings	Major Limitations	Future Research Suggestions
1	Deng et al. (2010)	To examine adoption of mobile banking.	PC significantly influences adoption.	Sample includes college students.	<ul style="list-style-type: none"> Use random sampling. Compare the development of internet banking and mobile banking.
2	Riquelme et al. (2010)	To study adoption of mobile banking and role of gender as moderator.	<ul style="list-style-type: none"> Adoption is mostly influenced by usefulness, SN1 and social risk (SR) Female are strongly influenced by EU, SN1 Males are strongly influenced by RA. 	<ul style="list-style-type: none"> Mobile banking services were studied in general. Only the moderating effect of gender was studied. 	<ul style="list-style-type: none"> Adoption of different mobile banking services may be studied separately. In-depth Qualitative study should be conducted.
3	Puschel et al. (2010)	To propose integrated framework of mobile banking adoption intention.	<ul style="list-style-type: none"> The proposed framework explained 69 percent variance for mobile banking non-users and 27 percent for users. Attitude was found as most important influencer. 	<ul style="list-style-type: none"> Mobile banking users and non-users were not compared statistically. Only internet users were sampled. 	<ul style="list-style-type: none"> Intention to continue should be studied. Statistical comparison should be made between users and non-users.
4	Shen et al. (2010)	To study benefit-cost perspective of mobile banking adoption.	Consumers consider both the benefit (convenience) and cost (security) while adopting the mobile banking services.	Only benefit-cost model was used to study adoption behaviour.	Other factors' roles in the adoption should be studied.
5	Wessels & Drennan (2010)	To find out key motivators and inhibitors for consumers' acceptance of mobile phone banking.	PU and COM acted as motivators whereas PR and cost acted as inhibitors.	<ul style="list-style-type: none"> Data was collected through web-based survey Only inhibitors and motivators were studied. Actual usage behaviour was not studied. 	Interrelationship between variables should be studied.
6	Cheah et al. (2011)	To investigate mobile banking adoption intention.	PU, PEOU, RA and personal innovativeness (PI) positively influenced intention to adopt mobile banking services where as PR negatively influenced.	<ul style="list-style-type: none"> Study is conducted in Malaysia. Only adoption intention was studied 	Longitudinal study should be done at different intervals.
7	Daud et al. (2011)	To examine adoption of mobile Banking.	PU, PC and AW influence the intention toward mobile banking.	<ul style="list-style-type: none"> Study is conducted in Malaysia. Only adoption intention was studied 	Studies should be conducted with respect to security and risk perception of consumers.
8	Khraim et al. (2011)	To identify factors that affects mobile banking adoption.	SE, trialability (TRA), COM, complexity, risk and RA significantly influenced mobile banking.	Perceived risk, trustworthiness and permissibility were not studied.	Influence of perceived risk, trustworthiness and permissibility on adoption intention should be studied.
9	Safeena et al. (2011)	To study consumers' awareness and acceptance about mobile banking.	PU, PEOU, SN1, AW and PR were found as important determinants of mobile banking adoption.	The study includes University students.	Comparative study can be conducted with respect to demographics, location and other universities.

10	Zhou (2011)	To study the effect of initial trust on mobile banking adoption.	Initial trust affects PU and both factors predict the usage intention of mobile banking.	<ul style="list-style-type: none"> • Study was conducted in China. • Study includes only experienced users of mobile internet. 	Future researchers may include inexperienced users of mobile internet.
11	Lule et al. (2012)	To examine factors that influences the adoption of M-banking.	PEOU, PU, Perceived Self Efficacy (PSE) and PC significantly influence customers' attitude towards usage of M-banking.	<ul style="list-style-type: none"> • The study used TAM model. • Only M-Kesho users were sampled in Kenya. 	The study framework is generic and can be used in any developing country.
12	Samudra & Phadtare (2012)	To study mobile banking adoption.	CON, COM, SI and perception emerged as significant influencers to adopt mobile banking.	<ul style="list-style-type: none"> • Study was conducted in Pune city of India. • The validity test of factors identified from exploratory factor analysis was not conducted. • Confirmatory factor analysis was not conducted. 	Impact of risks and trust on adoption intention should be studied along with adopters' lifestyle.
13	Aboelmaged & Gebba (2013)	To understand the adoption of mobile banking.	SN1 influenced the adoption of mobile banking positively.	Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) models were used to predict mobile banking adoption.	<ul style="list-style-type: none"> • Researchers may include more variables beyond TAM and TPB. • Sample users of different background and experience. • Conduct study to know adoption rate, mode and type of services.
14	Iddris (2013)	To investigate barriers in adoption of mobile banking.	Knowledge and learning; additional banking charges; poor telecommunication network; consumer preference for traditional banking were the four main reasons for rejecting Mobile banking.	The study sampled young consumers in Ashanti region of Ghana.	M-Banking adoption constraint can be studied with respect to demographics such as age, income level, mobile phone usage experience and marital status.
15	Kazemi et al. (2013)	To investigate mobile banking adoption intention.	AT and perceived behavioural control were found as crucial factors influencing mobile banking adoption where as impact of SN1 was insignificant.	<ul style="list-style-type: none"> • This study used Decomposed Theory of Planned Behavior model (DTPB). • Only behavioural intention was studied. 	<ul style="list-style-type: none"> • Impact of demographics and culture on mobile banking adoption should be studied. • Longitudinal study may be conducted.
16	Deb & Lomo-David (2014)	To identify factors impacting m-banking adoption.	PU, PEOU and SI formulate positive attitude which result in intention to adopt m-banking.	Actual usage behaviour was not studied.	<ul style="list-style-type: none"> • The study can be replicated to increase generalizability of the findings. • Actual usage behaviour can be studied.
17	Karma et al. (2014)	To identify factors influencing mobile banking adoption.	PEOU, PR and perceived trust (PT) were found as strong influencers. No influence of PU was found.	<ul style="list-style-type: none"> • Study was limited to Sudan. • Only adoption was studied. 	Future studies may focus towards actual usage behaviour.
18	Hanafizadeh et al. (2014)	To study the factors affecting the adoption of mobile banking.	PU, PEOU, PR, COM, PC, TR, need for interaction (NI), and perceived cost, successfully explain	Only the effect of motivators and inhibitors on behavioural intentions was examined.	• Interrelationships between variables could be investigated.

			adoption of mobile banking but life style and TR were emerged as the most significant antecedents.		<ul style="list-style-type: none"> Longitudinal study may be conducted
19	Oliveiraa et al. (2014)	To examine factors affecting the adoption of m-banking.	FC and behavioural intentions (BI) directly influence m-banking adoption.	This study did not differentiate between the retail banks, commercial banks, community development banks or private banks.	<ul style="list-style-type: none"> Role of telecom industry in m-banking adoption should be studied. M-banking adoption should be studied in rural and urban areas.
20	Goh et al. (2014)	To explore consumption values for Islamic mobile banking adoption.	It was found that Muslims assign importance to emotional factors, whereas for non-Muslims conditional factors are important while adopting Islamic mobile banking.	<ul style="list-style-type: none"> The findings represent an early adoption phase in Malaysia. The result may not apply to other Islamic countries as Malaysia has a diverse ethnic and cultural background. 	Future study should focus reason of adoption of Islamic products.
21	Goh & Sun (2014)	To study influence of gender in adoption of Islamic mobile banking among Muslims.	Perceived self-expressiveness influences male Muslims, where as perceived usefulness and social norms influences female Muslims to adopt Islamic mobile banking.	<ul style="list-style-type: none"> Study includes youngsters. Study represents adoption of 3G Smartphone. The result may not apply to other Islamic countries as Malaysia has a diverse ethnic and cultural background. 	Study should be conducted to know adoption behaviour at a different diffusion stage.
22	Mortimer et al. (2015)	To examine the motivators for intentions to use mobile banking.	For Australian consumers, PEOU, PU and PR were the primary determinants of mobile banking adoption; whereas for Thai consumers, PU, PR and SI emerged as determinants that lead to adopt mobile banking.	The study does not include attitude and actual usage behaviour.	<ul style="list-style-type: none"> Future researchers should study actual usage behaviour. More exploratory research is needed for mobile banking adoption in Thailand.
23	Alalwan et al. (2016)	To study mobile banking adoption intention.	PU, PEOU and PR significantly influence intention to adopt mobile banking.	<ul style="list-style-type: none"> The study was conducted in Jordan. The study was limited to identify factors influencing intention to adopt. 	<ul style="list-style-type: none"> Future research should compare mobile banking with internet banking and tele-banking. Role of intrinsic motivation, financial limitations, trust, habit, word-of-mouth should be identified. Future researches should compare developed and developing countries considering technological, cultural, and human differences.
24	Burucuoglu & Erdogan (2016)	To study relations between consumption values, trust and mobile banking adoption.	Trust, conditional value, emotional value and epistemic value had positive effect on adoption of mobile banking,	Studied mobile banking services in general.	<ul style="list-style-type: none"> Future research may study mobile banking with respect to money transfer, investment and credit application.

					<ul style="list-style-type: none"> Relation between consumption values and PR, PEOU, PU should be studied.
25	Kishore & Sequeira (2016)	To investigate mobile banking service adoption in rural Karnataka.	Performance expectancy (PE), effort expectancy (EE), social influence (SI), and attitude significantly influenced the behavioural intention to adopt mobile banking services.	The study was conducted in rural Karnataka.	Relation between behavioural intention and attitude should be explored compared in north and south India.
26	Mehrad&Mohammedi (2017)	To explore impact of word of mouth on mobile banking adoption.	“Word of Mouth” was found to be the main factor affecting users attitudes toward the use of mobile banking.	<ul style="list-style-type: none"> Internet users and non-users are not considered. Demographic factors are not considered. 	<ul style="list-style-type: none"> Comparison should be made between internet users and non-users. Role of demographic factors should be studied.
27	Boonsiritomachai and Pitchayadejanant (2017)	To explore determinants of mobile banking adoption intention among generation Y.	Hedonic motivation emerged as most important factor that influences generation Y to adopt mobile banking.	Study includes generation Y consumers only.	Future research should include other generation of consumers.
28	Changchit et al. 2017	To examine mobile banking acceptance.	“Perceived usefulness (PU)”, “perceived ease of use (PEU)”, “perceived security (PS)”, previous experiences (PEX) plays crucial role in mobile banking adoption	Sample includes University students only.	Future research should include non students sample from other countries.
29	Chaouali et al. (2017)	To study mobile banking adoption intention.	It was found that attitude t and trust along with coercive, normative and mimetic pressures are key antecedents to mobile banking adoption intentions.	<ul style="list-style-type: none"> The study was conducted in France only. The study deliberately focuses only on the interplay between SSTs and the contagious effects of social influences. 	Future research should address customers involvement in SSTs.
30	Gupta et al. (2017)	To study relationship between level of security and the risk perceptions towards mobile banking adoption.	Perceived risk and control significantly influenced mobile banking adoption of urban customers whereas, perceived control significantly influenced metropolitan customers.	The study compares urban and metropolitan customers.	Future studies may conduct in-depth study of inhibitors and drivers of mobile banking adoption in India and abroad.
31	Chiu et al. (2017)	To assess non-adopters’ behavioral intention to use mobile banking.	The result revealed that initial trust significantly influence on behavioral intention to use online banking services	<ul style="list-style-type: none"> This study investigates mobile banking adoption in Philippines. This study does not measure cultural influence. Non-adopters were not studied. 	<ul style="list-style-type: none"> Future studies may study non adopters’ behaviour. Influence of culture may be studied.
32	Chawla & Joshi (2018)	To analyze influence of demographics on user attitude towards mobile banking.	Results show that gender, age, qualification, experience, occupation, income and marital status were significant moderating variables.	<ul style="list-style-type: none"> The study was conducted in North India. The study looks at the relationship between the antecedent variables and attitude towards mobile banking adoption and the moderation effect of various demographic 	Causal relations between antecedent variables should be studied along with moderation effect of demographics.

				variables.	
3 3	Haider et al. (2018)	To explore the effect of gender in the intention to adopt Islamic mobile banking.	Males are significantly impacted by PU and perceived self-expressiveness. Whereas, females intention is significantly impacted by perceived credibility.	<ul style="list-style-type: none"> • The study includes m-banking services through smart phones and tablets in Pakistan only. • The present study includes only urban sample. 	<ul style="list-style-type: none"> • Future studies should include rural sample. • Future studies should be conducted in other Islamic countries.

(Source: Prepared by authors from reviewed papers)

Implications of the Study

There is high prospect of mobile banking in developing countries. The review comprehends scholarly articles for different stakeholders. To attain the ultimate goal of customers' satisfaction and retention almost all the banks have started offering banking services through mobile. Mobile banking is becoming popular among customers due to its unique features like ubiquity, timeliness, localization and personalization. By systematically reviewing the relevant scholarly literature, this study provides current state of knowledge on mobile banking adoption. This study systematically presents comprehensive review of mobile banking adoption literature with the focus on key variables and their description, objectives, findings, limitations and suggestions. Mobile banking is an efficient and effective tool in the hands of banks to provide retail services to both urban and rural customers without extra cost and it also reduces dependability on employees and enhances virtual banking. In this respect banks have their banking apps but adoption so far is not up to the marks. Understanding of various factors that influence adoption of mobile banking at different countries will help banks, to customize their services in efficient and effective manner, and to formulate and execute strategies to mitigate adoption barriers. This study also suggests future research opportunities in the area of mobile banking adoption for further theoretical and empirical advancement. This study also enhances the knowledge of academicians towards customers' mobile banking adoption while presenting systematic review of various studies at one place.

CONCLUSIONS

Through this research we have tried to sum up chronologically the factors that affect consumers' adoption of mobile banking in diverse market places. This review paper includes studies from all the continents but most of the studies were from Asia. Respondents of these studies were mainly bank customers. Minimum sample size was 53 and maximum was 1250. Statistical technique used by most of the studies was structural equation modelling. Studies revealed that customers adopted mobile banking mainly due to perceived ease of use and perceived usefulness. This study explores customers' readiness to adopt new banking model. The insights of the paper will be fruitful in promoting designing, customising and successfully implementing mobile banking technologies in the new markets. Banking and financial institutions can create awareness that mobile banking is safe and secure. They may further create awareness that mobile banking can also be used for purposes like shopping and payments. Cellular service operators can foster mobile banking through availability of uninterrupted internet services. Finally this conceptual examination theoretically adds existing body of knowledge in the area of mobile banking adoption in specific and mobile commerce in general and helps future researchers, banks, marketers and other practitioners while providing useful insights for directed decisions.

Limitations and Future Research Agenda

Unlike other studies this study also has some limitations. This study reviews only empirical papers on mobile banking adoption published during year 2010-18 which were in open access and published in English language. Empirical articles were explored from search engines – Google and Google Scholar and Infilbnet consortium only, so there might be possibility of missing some important articles on mobile banking adoption. Future researchers may study empirical articles published by reputed publisher which are not in open access. For conducting systematic review this study followed Nord and Nord (1995) and excluded empirical articles published in edited books as book chapters, magazine articles, conference papers, master theses, doctoral dissertations, and unpublished working papers. Future researchers may include them based on relevance in their study. This study did not put stress on theories and models with respect to mobile banking adoption. This review was restricted to the various factors responsible for mobile banking adoption. Factors that are unexplored till date can be future prospects of study. Though ample amount of research has been conducted so far with respect to adoption in developed nations but still pre and post adoption behavioural have to be analysed in developing nations where demographics and cultural factors plays crucial role in deciding the marketing operations. Future researchers may study customers' preference, usages, satisfaction, and continuance intention towards mobile banking. The non-adoption behaviour may be studied by future researchers. This study excludes merchants' mobile banking adoption that may be studied by future researchers.

Ethical Clearance

There is no physical, social and psychological risk attached with this study. The authors have done the review of the already published papers which were found appropriate by the respective journals.

Declaration of Conflicting Interests

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