

## **Exploring Factors Influencing Customer Usage of Mobile Payments – A Review**

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### **Abstract**

Mobile payment is quickly changing consumers' spending patterns and payment habits. Mobile payments are encouraged due to emergence of m-Commerce and digitalisation of financial services and thus have given opportunities of mobile wallets also in the hands of consumers. Many empirical studies have been conducted globally in the last decade about consumers' mobile payment behaviour. To analyse and synthesize the findings, a meta-analysis is conducted to build consensus about what factors significantly affect consumers' mobile payment behaviour. To encourage consumers' adoption of mobile payment, especially in developing countries like India, the factors such as perceived usefulness, perceived risk, social influence, trust and perceived ease of use must be carefully considered and incorporated into mobile payment products and marketing campaigns. We conducted a systematic review of various researches done on mobile payments, to explore this term by collecting, reviewing and synthesizing studies that related to mobile payments published from 2010 to 2020.

### **Key Words**

Mobile Payment, m-Commerce, m-Wallets, Digitalisation of Financial Services

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### **INTRODUCTION**

New technologies and digitalization of life are shaping the ways of doing business as well as the behaviours of consumers. Finding opportunities in the dynamic business scape and benefiting from them using new

technologies is a major area of focus for organizations in creating value. In this new digital era, mobile devices have become one of the most prominent consumer products ever to be launched. These devices and the services provided by them rapidly became basic necessities of daily life throughout the world. The increasing popularity of the mobile devices around the globe may be attributed to their omni-present access to a wide range of services (communication, access to information, entertainment, or commerce). Mobile devices create value in a multitude of dimensions for their users. Another trend emerged with the increasing mobile device adoption is the move towards mobile devices in accessing the Internet. India has more than 150 million mobile phone users and is expected to grow approximately 3.5 times in next five years. Data also shows that there will be 30% growth in the mobile wallet market in India during 2015-2019 (Bureau, 2016). Mobile payments allow us to perform transactions for goods & services with a mobile device, such as mobile phones, smartphones etc. These wireless communication technologies can be useful to us in a variety of ways like payments, ticketing and paying fees & fares electronically. Mobile wallet is one of the mobile payment instruments available that can be used for various financial transactions. Mobile payment services bring a range of technology innovations and provides multiple offers to users for greater convenience (Price & Pilorge, 2009).

### **OBJECTIVES OF THE STUDY**

- (i) To find out various factors affecting the use of mobile payments like m-wallets by consumers
- (ii) To analyse various motives for which the mobile payments are used by customers.

### **BASIC CONCEPTS AND RELATED TERMINOLOGIES**

**m-Commerce :** m-Commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets. As a form of e-commerce, m-commerce enables users to access online shopping platforms without needing to use a desktop computer.

**Mobile Payments :** Mobile payments (which encompass mobile wallets and mobile money transfers) are regulated transactions that take place through the mobile device. That is, instead of paying for anything with cash, cheques, or physical credit cards, mobile payment technology allows you to do so digitally.

**m-Wallets** : A mobile wallet is a virtual wallet that stores payment card information on a mobile device. Mobile wallets are a convenient way for a user to make in-store payments and can be used at merchants listed with the mobile wallet service provider.

## RESEARCH METHODOLOGY

A systematic review of various researches done on mobile payments by doing meta-analysis was done by collecting, reviewing and synthesizing studies that related to mobile payments published from 2010 to 2020. To include research studies in this paper, empirical studies on mobile payments were chosen and those papers were having models, hypothesis developed and statistical tools were used. Only those research papers are considered which are published by 5 famous publishers, i.e., Emerald, Elsevier, Sage, Taylor and Francis Group and Springer from 2010 to 2020.

Initially Google scholar was used to identify the papers with key-words of mobile payments and m-payments, then only published papers in the reputed journals were included, books and reports were excluded and 87 papers were shortlisted. After reading the full text of research papers, the empirical papers with good quality, proper research methodology, models, hypothesis, statistical tools, with proper analysis and which are relevant to this study were finally chosen that came out to be 41 in number.

## REVIEW OF LITERATURE

Kar, A. K. (2020) investigated the study with an aim to identify the determinants of usage satisfaction of mobile payments and he found out that information privacy, usefulness, trust, cost, credibility and responsiveness are the important factors to increase the usage satisfaction of mobile payments.

Nidhi Singh *et al.* (2019) developed a conceptual model to determine the most significant factors influencing user's intention, perceived satisfaction and recommendation to use mobile wallet and found that ease of use, usefulness, perceived risk, attitude, to have significant effect on user's intention, which further influenced user's perceived satisfaction and recommendation to use mobile wallet services. TAM (Technology Acceptance Model) and UTAUT2 (Unified Theory of Acceptance And Use of Technology) models were used to develop the conceptual framework.

Deepak Chawla and Himanshu Joshi (2019) examined the factors that influence a consumer's attitude and intention to use mobile wallets using a sample representative of Indian users. The results show that factors like

perceived ease of use, perceived usefulness, trust, security, facilitating conditions and lifestyle compatibility have a significant impact on the consumer attitude and intention to use mobile wallets. It was also found that security and trust play an important role in determining trust.

Anup Kumar *et al.* (2018) investigated the impact of perceived usefulness, perceived security, perceived ease of use, trust, grievance redressal and satisfaction on young users' intention to continually use m-wallet in India. Expectation–confirmation theory and structural equation modelling was used to analyse the study.

Amit and Biplab (2018) have identified the factors affecting mobile payment (m-payment) adoption intention in India by proposing a conceptual framework based on Technology Acceptance Model (TAM). The results show that perceived ease of use, perceived usefulness, trust, and self-efficacy have a significant positive impact on m-payment adoption intention. However, subjective norms and personal innovativeness have no significant impact on m-payment adoption intention.

Mona Sinha *et al.* (2018) studied Indian consumers' intention to use mobile payments by examining their adoption readiness in the larger context of their technology readiness and their privacy concerns. The study finds that adoption readiness positively mediates the relationship between technology readiness and intention to adopt mobile payments. More importantly, privacy concerns negatively relates between adoption readiness and intention to adopt.

Abhipsa Pal *et al.* (2018) investigated the factors that accelerated mobile payments over debit/credit cards in the demonetization era by developing the model of seven constructs from existing technology adoption literature and three moderators.

Bhartendra Pratap Singh *et al.* (2017) intended to analyse the service quality in MPS in light of extant research on Technology Acceptance and Service Quality via construct of behavioural interaction to use and actual usage.

Ainsworth Bailey *et al.* (2017) tested a revised TAM that has taken into consideration variables like individual mobile payment self-efficacy, mobile payment privacy concerns, and technology anxiety in the assessment of mobile payment adoption in the United States and thus observed that individual difference factors such as self-efficacy and privacy concerns have an impact on consumer response to mobile payment adoption in the United States.

Vikas Gupta (2017) made an attempt to understand the consumer adoption status of mobile wallet. The result shows that Personal Innovativeness,

Perceived Ease of Use, Perceived Usefulness and Variety of Services are important factors in deciding consumer adoption of mobile wallet.

Nidhi Singh *et al.* (2017) explained the relationship between perception, satisfaction, and preference of north Indian consumers on the use of mobile wallets and it shows a strong correlation between consumers' perception, preferences and satisfaction. Another contribution of this study is to determine the effect of gender on consumers' preferred services like account statement, money transfer, payments, recharge etc.

Khushbu and Rajan (2016) analysed users' acceptance of mobile wallet services and the main factors that have a significant impact on it. The study successfully extended the existing technology adoption frameworks to include two new variables. Results indicated that factors such as performance expectancy, social influence, facilitating conditions, perceived value, perceived trust, perceived regulatory support and promotional benefits had a positive influence on mobile wallet. Whereas, perceived risk was found to have a negative influence, while effort expectancy was found to be insignificant.

Gokhan and Sebnem (2016) carried out a study to understand the factors contributing to consumer attitude development towards and intention to use mobile payment systems using partial least squares structural equation modeling. The findings highlighted the importance of ease of use and usefulness in attitude development. On the other hand, security concerns were found to have low level of effects on attitudes and use intentions. Effect of social influence was found to be insignificant among the users. There were differences between users' and non-users' perceptions and beliefs indicated by significant differences in the majority of the constructs employed in the study.

Jinnan Wu *et al.* (2016) conducted a study with the purpose to understand the differences of consumers' intention to accept an innovative m-payment service, We Chat payment in China, across two different diffusion stages. Findings says that in the market introduction stage, the negative effect of perceived risk is significant. However, this effect is not significant during the market growth stage.

Chanchai Phonthanukitithaworn *et al.* (2016) developed a conceptual model based on elements of innovation diffusion theory and technology acceptance which was empirically validated using structural equation modelling analysis. The empirical results indicate that consumer adoption of mobile payment Services in Thailand was determined by four factors compatibility, subjective norm, perceived trust, and perceived risk.

Umesh Chandershekar *et al.* (2016) explained that for mobile payment

success users must find it useful and compatible to their lifestyle/personality and peers also influence its usage intent. Partial least square structural equation modelling (PL-SEM) was used to analyse the constructs.

Tiago Oliveira *et al.* (2016) aims to identify the main determinants of mobile payment adoption and the intention to recommend this technology with the help of two well-known theories; the extended Unified Theory of Acceptance and Use of Technology (UTAUT2) with the innovation characteristics of the diffusion of innovations (DOI), with perceived security and intention to recommend the technology construct. The research model was empirically tested on 301 respondents in a European country, Portugal using the Structured Equation Modeling (SEM). Sumedha Chauhan (2015) investigated the acceptance of mobile-money (m-money) among target populations, i.e. below-poverty-line citizens in India, using the Technology Acceptance Model (TAM). The findings imply that the trust and the core constructs of TAM such as perceived usefulness, trust and attitude towards usage contribute in influencing the intention to accept m-money. Perceived ease of use neither impacts perceived usefulness nor attitude towards usage of m-money. The survey data were collected from 225 actual and prospective m-money users and analysed using partial least square technique.

Tomi Dahlberg *et al.* (2015) assessed the progress of mobile payment research over the last 8 years. The possible reasons for the lack of research diversity and new recommendations to enhance future mobile payment research were also find out.

Aik-ChuanTeo *et al.* (2015) incorporated a research model on the basis of the Unified Theory of Acceptance and Use Technology (UTAUT) with trust (TR), Perceived Financial Cost (PFC), and the Moderating Variable of Experience to understand the adoption intention using Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. The results demonstrated that only Performance Expectancy (PE), Effort Expectancy (EE), Facilitating Conditions (FC), and Trust (TR) are significant with the intention to adopt.

Parijat Upadhyay and Saeed Jahanyan (2015) attempted a study to highlight those factors which have significant impact on the adoption of mobile based payment service so that the adoption rate can be increased. The study finds that factors like perceived usefulness, perceived ease of use, system quality, connectivity, discomfort, task-technology fit and structural assurance have significant impact on the usage intention of mobile money services whereas factors such as perceived monetary value, absorptive capacity and personal innovativeness have been found to be insignificant.

Tao Zhou (2014) carried out the study to identify the factors affecting continuance usage of mobile payment and Structural Equation Modeling (SEM) Technology was employed to examine the research model. Findings indicated that performance expectancy, trust in mobile payment and flow affect continuance usage. Among them, flow has a relatively larger effect. In addition, system quality has strong effects on performance expectancy and flow.

Joa o Porto de *et al.* (2014) contributed to the study with an aim to provide a clear account of the knowledge that exists on mobile payments by providing a comprehensive scoping study of literature published between 2001-2011 and includes a detailed analysis of 12 primary case studies on existing mobile payment schemes.

Emma L. Slade; Michael D. Williams; Yogesh K. Dwivedi (2014) sought to extend an appropriate model of adoption with theoretically grounded constructs. UTAUT2 was developed to translate UTAUT (Unified Theory of Acceptance and Use of Technology) to the consumer context and it was extended with self-efficacy, innovativeness, trialability, perceived risk and trust with regard to m-payments, m-commerce and m-banking.

Emma Slade *et al.* (2014) tried to explore the potential of a new model of consumer technology adoption and its extension with trust and risk constructs, in explaining non-users' adoption of proximity MPs. The study on UK consumers reveals that the extended model explains more variance in behavioural intention, but performance expectancy remains the strongest predictor across both models.

Kawaljeet Kaur Kapoor *et al.* (2014) conducted a study with an aim to examine the set of attributes that predicts the adoption of Interbank Mobile Payment Service (IMPS) in an Indian context and concluded that the diffusion of IMPS in the Indian context is in the progressive stages and the influences of innovation attributes on its use intentions and adoption will differ and vary over time.

Francisco Jose *et al.* (2013) proposed and tested an integrative theoretical model that allows to determine the relative influence of the determining factors (external influences, ease of use, attitude, usefulness, trust and risk) for the acceptance of a new m-payment system and to analyze the effect of the gender of the consumer on its usage.

Emma L. Slade *et al.* (2013) examined the usage of m-payments in UK through the development of a classification framework and studied existing research literature relating to m-payments to provide a contribution to existing knowledge by finding out various gaps.

Niklas Arvidsson (2013) carried out the study to know consumers' attitudes to start using mobile payment services. The study was done in Sweden by using Technology Adoption Models (TAM) and diffusion of innovation theories and found out that the most important factor explaining whether consumers are likely to use a mobile payment service is ease of use. In addition, relative advantage, high trust, low perceived security risks, higher age and lower income were associated with a positive view on adopting the service.

Rakhi Thakur and Mala Srivastava (2013) intended to accomplish two objectives – to test the functional relationship between Adoption Readiness (AR), Perceived Risk (PR) and usage intention for mobile payments in India and to investigate the stability of proposed structural relationships across different customer groups by using Structural Equation Modelling (SEM). The results helped in finding out the role of different factors on the mobile payments usage intention among customers and expanded the knowledge on consumer behaviour towards financial technological innovations.

Shuiqing Yang *et al.* (2012) carried out the study to identify the determinants of pre-adoption of mobile payment services and explore the temporal evolution of these determinants across the pre-adoption and post-adoption stages from a holistic perspective including behavioural beliefs, social influences and personal traits. By using structural equation model they observed that behavioral beliefs in combination with social influences and personal traits are all important determinants for mobile payment services adoption and use, but their impacts on behavioral intention do vary across in different stages.

Rakhi Thakur (2011) investigated the factors involved in adoption of a new innovation by consumers specifically in the mobile payment services context by adopting TAM model. The empirical findings indicate that the constructs of performance expectancy, effort expectancy, social influence and facilitating conditions have significant impact on mobile payment services adoption among the consumers.

Yaobin Lu *et al.* (2011) investigated whether a customer's established trust in Internet payment services is likely to influence his or her initial trust in mobile payment services. It was found by using SEM analysis that trust had a substantial impact on the cross environment relationship and in combination with the positive and negative valence determinants directly and indirectly influenced behavioural intention to use mobile payments.

Changsu Kim *et al.* (2010) attempted to categorize m-payment users into early and late adopters and delineated the different factors for these two types



of adopters that affect their intention to use m-payment. Findings indicate that early adopters value ease of use, confidently relying on their own m-payment knowledge, whereas late adopters respond very positively to the usefulness of m-payment, most notably reachability and convenience of usage.

Shalini Chandra *et al.* (2010) examined the role of trust in m-payment adoption systems and simultaneously investigates the facilitators for consumer trust in m-payment systems by conceptualizing two dimensions facilitating consumer trust in contrast with mobile service provider characteristics and mobile technology characteristics.

Paul Gerhardt Schierz *et al.* (2010) developed and tested the conceptual SEM model focusing on factors determining consumers' acceptance of mobile payment services. The empirical results show strong support for the effects of compatibility, individual mobility, and subjective norm and offers several implications for managers in regards to marketing mobile payment solutions to increase consumers' intention to use these services.

Dong-Hee Shin (2009) analysed a comprehensive model of consumer acceptance in the context of mobile payment. It uses the Unified Theory of Acceptance and Use of Technology (UTAUT) model with constructs of security, trust, social influence, and self-efficacy. Structural equation modeling is used to construct a model of attitudes toward the mobile wallet. They observed in their findings that users' attitudes and intentions are influenced by perceived security and trust.

Tomi Dahlberg *et al.* (2007) proposed a framework of four contingency and five competitive force factors to organize the mobile payment research and found that consumer perspective of mobile payments as well as technical security and trust are best covered by contemporary research but the impacts of social and cultural factors on mobile payments, as well as comparisons between mobile and traditional payment services are entirely uninvestigated issues.

Yoris A. Au; and Robert J. Kauffman (2007) carried out the framework that emphasizes the roles of m-payment innovation producers and m-payment services consumers, as well as selling and network intermediaries, and government regulators and standards groups, which are relevant to a variety of issue areas and observed various factors like consumer choice and demand, network externalities, switching cost, IT value, complementary goods and technology adoption and diffusion theory as a means to analyze the issues from the different stakeholders' points of view.

Niina Mallat (2007) carried out exploratory study to examine factors

that affect consumer adoption of mobile payments. The findings suggest that the relative advantage of mobile payments is related to the specific benefits provided by the new mobile technology; time and place-independent payments, remote and ubiquitous access to payment services, and the possibility to avoid queuing and to complement cash payments.

Jan Ondrus and Yves Pigneur (2006) discovered what factors have hindered the technical and commercial development by using a DSS based on a multi-criteria decision making method. Classification framework, qualitative analysis and multiple criteria model was used to assess various aspects related to the adoption of mobile payments from a market perspective.

## **CONCLUSION**

Mobile payment Services bring a range of technology innovations and provides multiple offers to users for greater convenience (Price & Pilorge, 2009). The objective of the present paper was to do the review of literature and to find out various factors affecting the use of mobile payments like m-wallets by consumers. After reviewing the forty-one research papers and with the help of meta-analysis it can be analysed that the maximum research is done on the variable 'Perceived Ease of Use' and 'Perceived Usefulness'. Security & trust and social influence is also taken into consideration by maximum researchers. But the least studied variables are aesthetic, information quality, marketing influence, variety of services; peer influence etc. can be taken into consideration for future research. The other objective was to analyse various motives for which the mobile payments are used by customers. It can be concluded from the review that the motives for which the m-payments are done, are for the convenience, ease of doing the transaction etc. Thus it can be concluded that for the future reference of research, the factors which are least explored can be taken by the researchers like the marketing influence and variety of services.

The limitation of the study is that only empirical research papers from the journals are selected, the literature from the reports and books was excluded which should be taken for the more understanding. And another limitation is that basically 5 reputed publishers were taken more international publishers may be taken for selection of journals.

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