

# **Adoption of Mobile Payments in Ghana: A Merchant Perspective**

*Completed Research*

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## **Abstract**

Despite the potential benefits of merchant adoption of mobile payment, merchants still hesitate to employ it in their transactions, making the penetration of merchant adoption of mobile payment relatively low compared to other recent modes of cashless, noncontact payment. Therefore, this study seeks to theoretically discover the drivers and barriers of mobile payment adoption by merchants and to provide a theoretical explanation of how the adoption of mobile payment enhances the payment experience of merchants. The study adopted an exploratory approach by strategically using the case study of two merchants in the retail sector in Ghana. The findings demonstrate that, in Ghana, the business model and nature of the business, contextual factors and technology type as well as competition and cost serve as drivers of merchant adoption of mobile payment. On the other hand, factors such as risk, legal challenges, lack of trust in the expertise of the telecom industry in financial service delivery and lack of skills on the part of some merchants to comprehend mobile payment application were classified as barriers to mobile payment adoption in Ghana.

## **Keywords**

Ghana, merchants, adoption, mobile payments

## **Introduction**

The evolution of mobile technology and extensive diffusion of mobile phones for performing several functions and tasks have led to phenomenal growth in the ownership of mobile phones globally. Notable among these everyday tasks is the use of mobile phones to make payments for goods and services without the need for cash or the participation of banking institutions (Chandra, Srivastav & Theng, 2010; Dahlberg, Guo & Ondrus, 2015; Liébana-Cabanillasa & Lara-Rubio, 2017). Mobile payments enable consumers to rely on the convenience, flexibility and speed of mobile phones for commercial activities in order to positively influence customers' purchasing decisions (Pham & Ho, 2015). More importantly, mobile payment is gradually becoming an alternative to traditional modes of payments, such as cash, cheque or credit cards, and is of growing interest within many societies. Its accessibility and ease of use has led experts to classify mobile payments as the potential payment of choice (Koenig-Lewis, Palmer & Moll, 2010; Liébana-Cabanillasa & Lara-Rubio, 2017).

The rising interest in the use of mobile payments from the consumer to merchants has become central to commerce. This innovation is considered to be the most significant payment tool for potential consumers and merchants, as it provides opportunity for merchants to do business with their customers at any time

and from any location (Carton, Hedman, Damsgaard, Tan & McCarthy, 2012; Lu, Yang, Chau & Cao, 2011). Additionally, mobile payment has been acknowledged by scholars and industry experts as a very good opportunity to stair economic growth and development, and present opportunities to citizens in resource-poor environments who do not have bank accounts, thus helping provide financial security for developing countries (Humbani & Wiese, 2018; Mothobi & Grzybowski, 2017; Peruta, 2018). Finally, mobile payments are a new medium of commerce with special characteristics, such as ubiquity, personalisation, flexibility and localisation, that are not present in traditional payments systems (Aithal, 2016; Liébana-Cabanillas, Muñoz-Leiva & Sánchez-Fernández, 2018). They therefore offer opportunities for different functionalities and applications, which provide customers with value-added benefits (Kumar, Joshi & Saquib, 2015).

Despite the potential benefits of merchant adoption of mobile payment, merchants still hesitate to employ mobile payment in their transactions, making the penetration of merchant adoption of mobile payment relatively low compared to other recent forms of cashless, noncontact payment modes, such as credit cards and e-payment systems (Dahlberg et al., 2015). Additionally, there is a gap between academic research and industrial practice in understanding the merchant perspective on, and experience of, this new information systems (Dahlberg et al., 2015). In their reviews of mobile payments research, researchers like Slade, Williams and Dwivedi (2013) and Dahlberg, Guo and Ondrus (2015) have emphasised the lack of literature on merchant adoption despite more than a decade of research into mobile payments. Previous studies have examined mobile payment adoption based on characteristics of the technology, individual adopters and organisations (Abrahão, Moriguchi & Andrade, 2016; Liébana-Cabanillasa & Lara-Rubio, 2017). Even though useful, these studies are often silent on merchants' perceptions about the maturity of mobile technology as a mode of payment and the willingness to adopt (Cabanillas et al., 2017; Mallat, Rossi, Tuunainen & Oorni, 2006; Pousttchi, 2008). This gap calls for a theoretical understanding to discover the drivers and barriers of mobile payment adoption from the merchant's perspective and to elicit deeper understanding and provide theoretical explanation of how adoption of mobile payment enhances the payment experience of merchants. Explaining these gaps in the literature will help both researchers and practitioners to appreciate the key mechanisms that could affect merchants in adopting mobile payments in their business transactions in Ghana. The remainder of this paper is organized as follows: The next section reviews the literature on mobile payments and briefly discusses the theoretical underpinnings. The third section presents the conceptual framework guiding the study; the section that follows details the methodology employed. Subsequently, the findings are analysed and discussions of the findings presented. Finally, the paper concludes with specific contributions and direction for future research.

## **Literature Review**

Research has shown that merchant adoption of mobile payment has not fully matured (Li, 2018). Therefore, this study seeks to examine the extent to which merchants evaluate and consider the benefits mobile payment offers as well as the challenges it poses to merchants. The study will examine the technological features and analyse the drivers and barriers of mobile payments from the perspective of merchants, and it will consider how these influence the adoption decision. To enable a holistic understanding of mobile payment research, it is essential that mobile payment is examined from multiple perspectives due to the multifaceted nature of the mobile payment environment. Despite this assertion, a recent review of literature on mobile payment by Dahlberg et al. (2015) indicates that mobile payment research is concentrated on consumer adoption (see Chandra et al., 2010; Gerpott & Kornmeier, 2009; Humbani & Wiese, 2018; Liébana-Cabanillas, Sánchez-Fernández & Muñoz-Leiva, 2014; Lu et al., 2011; Mallat et al., 2006; Slade, Williams, Dwivedi & Piercy, 2015; Tan et al., 2014; Zhou, 2013), with substantially less research attention on merchants or mobile payment service providers (Lai & Chuah, 2010; Mallat and Tuunainen, 2008; Teo, Fraunholz & Unnithan, 2005). Irrespective of researchers' recommendations as research gaps in the literature (e.g. Dahlberg, et al., 2008; Slade et al., 2015) and despite the potential benefits of merchant adoption of mobile payment, research focusing on merchant adoption is scarce. In Ghana for example, literature has fairly covered studies on mobile payment use and adoption. Among the studies are: Preliminary insights into m-commerce adoption in Ghana (Boadi et al. 2007); Determinants of mobile banking adoption in the Ghanaian banking industry: a case of access bank Ghana limited (Cudjoe et al. ,2015); Adoption of mobile money transfer technology using the structural equation modeling approach (Tobbin & Kuwornu ,2011). It is abundantly evident from the review that there is not much work

done on merchant adoption of mobile payment in the Ghanaian context. This is not surprising because the lack of research on merchant adoption appears to be a global phenomenon (de Albuquerque et al, 2016).

Notwithstanding this scarcity, a limited number of articles have examined adoption from the perspective of merchants. For example, Teo, Fraunholz and Unnithan (2005) investigated inhibitors and facilitators of mobile payment adoption by businesses in Australia. Their study found that some businesses were unwilling to experiment with mobile payment before mass adoption and businesses were not comfortable with restricted participation of users based on solution-provider monopoly. Furthermore, Mallat and Tuunainen (2008) explored qualitatively in Finland the determinants of merchant adoption intention. The findings established that a lack of standardisation and critical mass as well as the complexity of mobile payment systems were the main barriers to merchant adoption. Moreover, Lai and Chuah (2010) interviewed industry experts in an attempt to explore merchant adoption of mobile payment. Inadvertently, current mobile payment research on consumer adoption has espoused factors like compatibility (e.g., Lu et al., 2011; Mallat et al., 2009) and trust (e.g., Chandra et al., 2010; Zhou, 2013) as positive drivers of mobile payment adoption. In addition, scholars like Iacovou, Benbasat and Dexter (1995) identified organisational readiness, external pressure toward adoption and perceived benefits as the main factors that could influence firms to adopt innovation. Studies on electronic payments argue that the comparative advantages of electronic payment systems include convenience, costs savings, enhanced inventory management, speed and efficiency at checkout counters, easier and faster collection of funds, and reduction in the processes of paper-based payments, such as cash and cheques.

Despite the advantages of mobile payments, the available literature demonstrates that there are inherent challenges to the adoption of electronic payments. These include the need for investment in a huge financial operation, possible non-usage by customers and the immaturity of mobile technology as an alternative for payment (Liébana-Cabanillas et al., 2014). Wang and Cheung (2004) investigated the acceptance and understanding of twelve travel agency CEOs in Taiwan of mobile business. The findings reveal that even though all the CEOs anticipated mobile commerce to diffuse in the long run, they intimated that there is low applicability and usage of mobile commerce because there is less competitive pressure, lack of customer need for the service, limited performance and possible incompatibility of current mobile technologies in the purchase process of complex travel services. Additionally, factors like perceived financial cost and perceived risk have been identified as barriers to adoption in most consumer-centric research on mobile payment (Liébana-Cabanillas et al., 2014; Lu et al., 2011; Slade et al., 2015). It is likely that the above-stated factors may influence merchant adoption of mobile payment.

## **Conceptual Framework**

From the literature review, the study adopted the conceptual framework of Mallat and Tuunainen (2008), which stipulates three categories of merchant adoption determinants: prerequisites, drivers and barriers.

### ***Prerequisites***

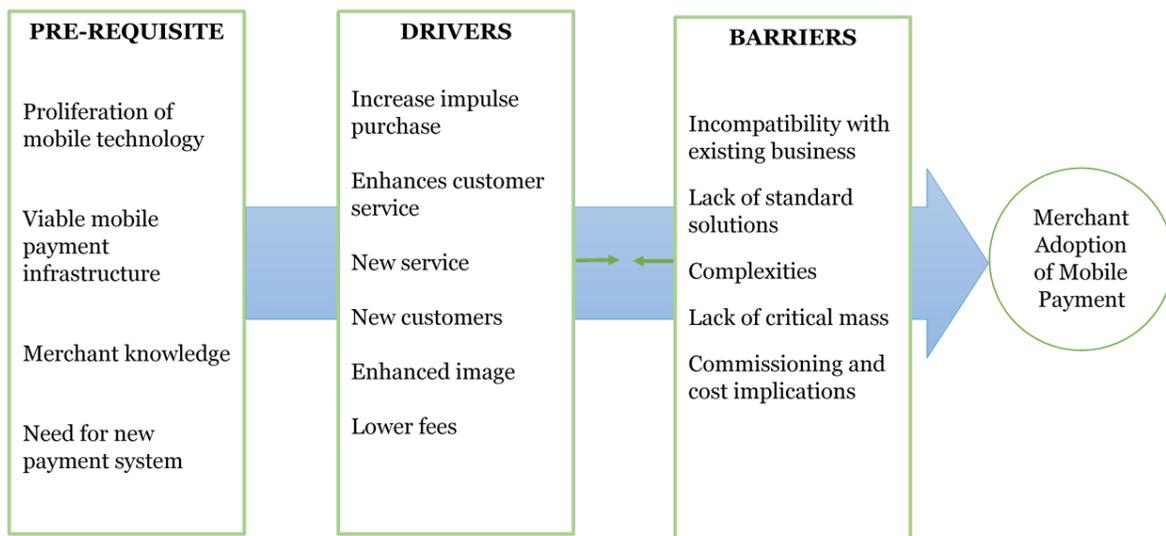
According to Mallat and Tuunainen (2008), the initial category of adoption determinants are the prerequisites, which form the basis of, but do not control, the decision of the merchants for adoption.

### ***Drivers***

The second category of adoption determinants in the framework are the key drivers of merchant adoption. They include issues such as avenues to increase sales, ways to bring payment processing costs down and the specific benefits provided by the mobile technology (Jarvenpaa & Lang, 2005; Mallat & Tuunainen, 2008).

### ***Barriers***

The last group of factors in the framework are the barriers to merchant adoption of mobile payments. These barriers either prevent the adoption of mobile payments altogether or act as impediments to the use of mobile payments for some categories of products or services (Mallat & Tuunainen, 2008).



**Figure 1. Conceptual framework for merchant adoption of mobile payment**

## Research Methodology

The study adopted an exploratory approach to help bring deeper understanding of the issues under study (Denzin & Lincoln, 2005; Saunders, Lewis & Thornhill, 2012). As such, a case study was used as the research method. Case study is considered appropriate for this research based on Yin's (2009) assertion that the case study is where the 'why' and the 'how' questions are asked. In addition, case studies help in areas where the researcher does not have much control over the situation or where the issues under investigation are new and there is not much theory to explain issues adequately (Eisenhardt, 1989; Yin, 1994). Empirical research on merchant adoption of mobile payments is limited. In this case, the phenomenon is new and needs an in-depth understanding from the perspective of a developing country experience (Liébana-Cabanillas et al., 2018).

The case study enabled a better appreciation of the drivers and barriers of merchant adoption of mobile payments in Ghana. Face-to-face interviews were used as a data collection method. The researcher also observed mobile payment activities in the two companies by examining transaction documents, including reports and customer information placed at vantage points in the business. To help understand and document the mobile payment activities of these merchants, some customers, staff and service providers of these merchants were also interviewed. The interview guide consisted of both open- and closed-ended questions. The questions were such that they satisfied the objectives of the study and helped to ascertain the enablers and barriers of merchant adoption of mobile payments. The interview guide went through a process of review to ensure that the questions were adequate and in conformance with the objectives of the study. The interview was conducted with two merchants, with different business models an online business that has adopted mobile payments and as such have experience with mobile payment transactions, and a brick and mortar, more traditional retailing business who has no previous experience in mobile payment adoption in their business transactions. According to Walsham (1993) and Yin (2003), case study research has no universally accepted number of cases; it may use a single case or multiple cases. This research was based on the case study of two merchants from the retail industries. The cases were strategically selected to enhance their external validity but not based on statistical consideration. Also, the validity of a case study is mostly dependent on the credibility and rigor of the reasoning rather than the number of cases (Walsham, 1993). These merchants were strategically selected due to their experience and knowledge with mobile payments in their respective businesses. They were regarded as suitable to provide adequate responses for analytical enquiry in this research. The transcription of the interviews was discussed with the respondents to ensure consistency and make sure it represented their views. The case was analysed using pattern-matching as described by Yin (1994) to help establish the findings that support the research question.

## **Case Findings**

The case findings of this research are presented in this section. As already mentioned in previous sections, the purpose of this research is to evaluate the drivers and barriers of mobile payment adoption by merchants in Ghana. The case study is based on the mobile payment experiences of two merchants from the retail sector.

The first interview was conducted with the executive director and CEO of an online vendor who trades in locally processed virgin coconut oil. The company has existed for the past eight years with an annual turnover of about 1.5 million Ghana cedis. Initially, the company was a physical store but the business model later changed to a business mainly transacting online. The company distributes processed virgin coconut oil, sourced from the western part of Ghana, throughout the country.

The respondent stated that their company has a big advantage in adopting mobile payment for their transactions because of their business model and their target customers. The operation of the business is such that it does not interface directly with customers who buy the finished products. Moreover, their target customers are the middle class, who appreciate convenience and make their purchases irrespective of place and time. Negotiations are done online, via WhatsApp and phone calls; once a deal is reached, payment is made using mobile payment and the items delivered to the customer via a courier. Hence, mobile payment via mobile phone was the appropriate option for this company's business operations.

As intimated by the CEO:

The nature of my business is one major reason why I adopted mobile payment. I don't see my customers; I transact with them on phone, WhatsApp and Facebook. Had it not been mobile payment, it would have been difficult to collect my money. Right from my home, I do all transactions and receive my money instantly.

Other motivating factors that influenced the company's adoption of mobile payment, according to the respondent, include the almost zero investment required to set the mobile payments. The CEO further indicated that 'all the business needed was a mobile phone and the SIM to start operations; there is no cost to installing mobile payment in my company.'

Additionally, the respondent intimated that there is a high penetration rate and widespread ownership of mobile phones among his target customer group in Ghana and this was seen as an initial motivating factor. The CEO believed that mobile payment is an innovation that will reach the tipping point of rapid growth to alter the method of commerce. The regulatory framework also demonstrates that mobile payment is the future of business:

There is a wave of change which is bringing a new culture in payments, and with the help of the mobile service operators you don't need any sophisticated equipment. An 'ordinary' phone is all you need to set up.

Finally, the respondent mentioned that operating mobile payment is very easy. Every transaction comes with records, which is useful for managing the business. More importantly, the respondent mentioned that the use of the mobile payments enables him link his account with his bank which reduces his charges. He believes mobile payment is very central to his business, because he pays his suppliers in the villages and staff at the manufacturing plant through mobile payment at the end of every week. According to the respondent, this has reduced his transaction costs and made his business operations more efficient. The company no longer employs a sales team because Facebook drives considerable traffic to his page, which has proven to be efficient and creates a lot of value.

The use of mobile payments has helped my customers to receive their product on time because I dispatch through a partner courier as soon as I receive my money; this has also brought about an individual starting a small courier business. Mobile payments have brought about convenience, increased my operational efficiency and reduced my transaction cost. What is most exciting is records of every transaction are kept on the phone which allows for verification.

The respondent intimated that mobile penetration is very high and that competitors have also had to sign on to the mobile payment platform.

I adopted mobile payment because I did not want to lose customers, since some customers ask for the service and in this day of competition, if I do not offer mobile payment as an additional service, I will lose sales.

The second interview was conducted with the proprietor of a family-owned retailer located in the central business district of Accra, Ghana. The business has existed for more than 25 years and has four shops within the business district in Accra. The annual turnover is four million Ghana cedis. The company sells all kinds of consumables. Even though the merchant interviewed has not yet adopted mobile payment, she acknowledges that mobile payment could decrease the cost of transactions. The interview uncovered various issues that influenced the merchant in her non-adoption of mobile payment. First, the payment infrastructure and commerce culture of Ghana, according to the respondent, does not encourage merchant adoption of mobile payment. For instance, payment transactions in the retail value chain customarily use cash, from the distributors to the petty traders. Hence, mobile payment is not regarded as an alternative payment solution. As intimated by the respondent:

I do not see the need for it, because my suppliers prefer cash or cheque. Additionally, we deal with very huge sums of money, which is not quite feasible with the present mobile payment structure. Besides, the suppliers are always in the market with us so we pay them in cash or cheque, the petty traders do not ask for [mobile payment], neither do the consumers ... they always come with cash.

In addition, the respondent intimated that most of the people who buy from them struggle with the English language and cannot operate all phone functions. Thus, there is lack of confidence to use mobile payment for fear of billing errors, misdirected payment messages, fraudulent charges stemming from identity theft or compromised mobile accounts resulting from loss of handsets. Moreover, she mentioned that criminals hide behind technology to evade customers' mobile accounts to defraud the unsuspecting consumer. The respondent also stated that she does not trust the expertise and experience of the telecom industry in financial service delivery because she thinks they lack experience in financial regulation and their expansion into financial services poses business risk to merchants who adopt mobile payment:

With mobile payment, you are not sure where to seek redress when your money 'gets lost' in the virtual payment network between agent and service provider, but with the banks, you can always go to the bank to address theft issues.

## **Analysis and Discussions**

### ***Drivers***

From the case analysis, it appears that, remote payment is the most popular form of electronic mobile payment adopted by merchants in Ghana. The merchants interviewed expressed a low perceived risk or barrier to adopting remote payment, and as such there was an incentive to adopt mobile payment for their transactions. More importantly, it was established from the study that the online business uses mobile payment more than the brick-and-mortar business does. This goes to confirm earlier studies that adoption of mobile payment by merchants is dependent on the business model (Petrova & Wang, 2013). The study found that cost was a major influencer in adopting mobile payment in Ghana compared to other forms of electronic payment. Remote payments enable merchants to save costs by not having to invest in expensive equipment or adhere to restrictive rules. This finding is consistent with Pisani and Moormann's (2018) finding that cost plays a critical role in investment decisions in commerce. The use of mobile payment by merchants also reduces processing cost through instant authentication and confirmation of payments needed for the stages of payment transactions (Jack & Suri, 2011; Peruta, 2018 Murendo et al., 2018). It was also discovered from the research that merchants adopt mobile payment because of competition. The specific aspects of competition that influence merchant adoption include the intensity of the competition, spatial proximity and organisational proximity to competitors (see Yang et al., 2015). For example, if shops are located close to each other and competitors are perceived as similar organisations to one another, this impacts the merchant decision to adopt mobile payment. This goes to explain that merchants are influenced by the competitive environment to adopt mobile payment as an additional mode to help speed up transactions and to satisfy customers who prefer to pay in this way. This finding reaffirms those of other studies on merchant adoption of mobile payment (Pisani & Moormann, 2018).

## **Barriers to Merchant Adoption**

One of the major barriers identified is the inherent risk of mobile payment and the clear threat it poses to business transactions and operations. Merchants were of the view that criminals are able to hide behind technology to evade customers' mobile accounts and defraud the unsuspecting consumer. This is because mobile payment is a kind of online payment and does not involve face-to-face interaction. This helps promote anonymous and opaque experiences that facilitate criminal activities. The findings project the fact that mobile payments are in their incipient stage and have not reached maturity, unlike traditional forms of payment. Thus, there is a lack of experts who can identify and rectify electronic payment crimes, which enables potential abuse of the mobile payment systems (see Merritt, 2011). Moreover, there is an issue of trust in the expertise and experience of the telecom industry in financial service delivery; merchants and traders have expressed a lack of confidence in telecom operators to regulate financial transactions and that their expansion into financial service poses business risk to merchants who adopt.

More importantly, the research findings also indicate that merchants are not sure where to address legal issues with regards to responsibilities and liabilities among the stakeholders. For instance, in the case of lost payments through faulty transmissions, fraudulent transactions, identity theft or criminal activity, will responsibility be on the part of the mobile operator, agent or other payment service provider? Merchants mention that there are no clear laws on the applicability of payment since mobile network operators unlike the banking industry, are not mandated to provide consumer protection. For example, in the instance of an issue related to fraud, they may comply to an extent, but actual enforcement of the regulations and laws is ambiguous. This makes the mobile payment environment 'foggy' as to who will assume responsibility or liability for dispute resolution for billing errors, misdirected payment messages, fraudulent charges stemming from identity theft or compromised mobile accounts resulting from lost handsets when authentication controls are intercepted.

Finally, one of the critical barriers identified in the study was lack of skill in the use of the mobile phone and inability to comprehend the English language. This demonstrates that in developing countries, basic skills and competencies are significant barriers to mobile payment adoption. In Ghana, for instance, there is a synchronized access code for mobile payments, and subscribers are required to follow sequential instructions for transaction execution. This makes knowledge of both technological skills and basic English imperative for the smooth running of the system. This finding is similar to those of earlier studies that demonstrated that initial skills in, and understanding of, mobile phone use will influence the use and adoption of mobile payment systems (Schierz, Schilke & Wirtz, 2010).

## **Conclusion**

From the findings, first, there is great acceptance of the use of the mobile payments among merchants whose business models are online. Second, the location of the business such as urban or rural is seen as prerequisite for merchants to adopt mobile payment. Furthermore, the use of mobile payment by merchants for their payment transactions provides a relative advantage in comparison with existing payment modes, in the sense that it has changed merchants' service delivery process and their companies' value proposition. Merchants are able to make payments and receive payments as well as access information in real time. This has helped in the way resources are managed and large operational gains have been achieved (Ferreira et al., 2014).

The study has contributed to mobile payment adoption analysis from the supply side of the market and developing country perspective, which will serve as a guide for future studies in retail business. Moreover, the study of merchant perceptions of mobile payments adoption will enable practitioners, especially mobile service providers, to understand merchants' perspective on mobile payment, which will be a foundation for the delivery of appropriate service to their clients.

In spite of these contributions, the study has a limitation in that it considers a limited number of cases. However, the purpose of selecting the cases was to strategically enhance the external validity of the case and not to address statistical considerations. As an initial step in understanding merchant adoption issues from a developing country perspective, this finding has thrown light on how future studies could be conducted.

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