

Potential Impact of Perceived Security, Trust, Cost and Social Influence on M-Commerce Adoption in a Developing Economy

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The rapid penetration of mobile telephony in developing countries has opened up new, innovative ways of conducting business today. However, the uptake of m-Commerce by businesses in this region is still being hampered by factors such as security and trust. This is because, while efforts are being made to address real concerns associated with these factors, the presence of perceived risks is limiting the impact of these efforts. Therefore, considering that there are various factors that influence m-Commerce adoption in developing countries, this paper will focus on addressing four m-Commerce adoption factors – security, trust, cost and social influence. Within the paper, various recommendations for addressing these issues are made such as creating awareness of security features among customers; and developing appropriate promotional and pricing strategies that can attract price conscious customers. Also, the paper discusses practical steps being adopted by businesses in Nigeria to address these four factors such as the use of Pay on Delivery service, Celebrity endorsements, etc. Potential impacts of addressing these factors includes customer loyalty, increased profit and more information about customers.

Key words: m-Commerce Adoption, Perceived Security, Trust, Cost, Social Influence, Developing Economy, Nigeria

1. Introduction

E-Commerce opportunities are revolutionising the way businesses operate today (Molla & Licker, 2004), due to the elimination of geographical limitations and physical contact that is associated with traditional ways of conducting business. Convenience, speed and ease of completing transactions, and wider product varieties are amongst the benefits consumers enjoy via e-Commerce activities. However, there is a growing favour of m-Commerce due to recent development of portable, SIM-enabled devices and applications that enables ubiquity, versatility and ease of conducting commerce. Despite the potential economic, financial and social benefits associated with entering the emerging market that m-Commerce adoption provides (Ebibi et al., 2012), its adoption by businesses in developing countries appears to be low. In addition, there are on-going and emerging factors that are largely under-researched, which when identified and addressed can help businesses leverage the benefits m-commerce can provide. This paper will seek to discuss some of these factors with particular emphasis on their potential impact on m-Commerce adoption.

The International Telecommunication Union (ITU) suggests that almost 40% of the world's population (2.7 billion people) are online, and access to the internet via mobile phones has risen from 268 million to 2.1 billion between 2007 and 2013, making mobile broadband the most dynamic ICT market (ITU, 2013). This is in keeping with the evolution of smart phones and applications that support internet connectivity and activity on mobile phones.

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Interestingly, growth of internet access via SIM enabled devices e.g. mobile phones in developing countries more than doubled from 472 million to 1.16 billion between 2011 and 2013 (ibid). The figure may be indicative of a growing preference for activities on mobile phones, because it overcomes the limitations of traditional computer based internet access e.g. size, cost and ease of access. However, in spite of the observed growth in mobile access to the internet, there appears to be low levels of m-Commerce adoption by businesses in developing countries. This justifies the need to explore factors that can lead to increased adoption of m-Commerce in developing countries, as this would in turn, help unlock the potential benefits that are inherent in its adoption.

However, considering that all the factors that influence m-Commerce adoption by businesses cannot be discussed in one single paper, this paper is part of a series of papers that seek to highlight particular factors, with the aim of discussing possible ways through which businesses can overcome identified barriers or take advantage of identified facilitators. Within this paper, a brief summary of some factors that influence m-Commerce adoption in a developing country like Nigeria is discussed. Recommendations and practical steps toward leveraging the factors to enhance m-Commerce adoption is also presented. The discourse will be supported through the use of literature, as well as, some findings from a survey and interview of micro and small business owners / managers in Nigeria. The findings of the survey and interviews provided insight into current adoption trends, as well as factors that influence m-Commerce adoption by the target population. These findings also provided insight into unique strategies being adopted by micro and small businesses in Nigeria. This contribution is particularly useful because, considering that some of these strategies were not previously captured in existing studies on m-Commerce adoption in developing countries like Nigeria, the findings are reflective of on-going trends that have been largely influenced by the rapid uptake of mobile devices in Nigeria, among other factors. The next section of this paper will provide a brief review of the literature on trends of m-Commerce adoption in developing countries. The study's methodology, findings, summary and conclusion will also be respectively discussed in the remaining sections of this paper.

2. Literature Review

Since the advent of m-Commerce, the act of conducting business has witnessed significant change. Developing countries are not left out of this trend as businesses are leveraging m-Commerce to achieve some form of benefit. In Ghana, Boadi et al. (2007) found that m-Commerce provides tremendous benefits to small scale fishing and farming businesses as this has led to cost savings through disintermediation. Also, these businesses have been able to increase their visibility, establish stronger business relationship and customise or differentiate their services for target buyers (ibid). Through the help of m-Commerce, farmers in Bangladesh are able to find the proper prices of rice and vegetables (Dholakia, 2002). Likewise, groups of small farmers in remote areas of Côte d'Ivoire leverage m-Commerce to follow hourly fluctuations in coffee and cocoa prices (ibid).

In 2010, the Central Bank of Nigeria (CBN), as part of its effort towards achieving Vision 2020, implemented the Payments Systems Vision (CBN, 2011), which led to the implementation of the National Mobile Payments Scheme in Nigeria within the same year (Komolafe, 2010; CBN, 2011). This was as a result of a decision by the apex bank (Central Bank of Nigeria) to increase the financial inclusion of the un-banked through "the creation of an enabling regulatory environment as a policy path towards achieving availability, acceptance and usage of mobile payments services in Nigeria" (CBN, 2009).

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In addition, the Central Bank of Nigeria introduced a new policy in 2012 called the Cashless Policy which was aimed at improving the efficiency of payment systems and reducing the amount of physical cash in circulation (CBN, 2012b). As a result, a total of 101,154 POSs and 9,676 ATMs were deployed in Nigeria as at September 2012 (CBN, 2012a). Furthermore, the 20 Licensed Mobile Payment Operators in Nigeria carried out transactions worth over N8billion with over 40,000 agents across the country (ibid). As at 2013, these figures significantly increased. It was disclosed by the Director of Banking and Payment System Department of the Central Bank of Nigeria, Mr Dipo Fatokun, that more than 5.73 million Nigerians have embraced the mobile banking platform (Komolafe et al., 2013). Statistics show that revenues through m-Commerce increased from N19.0billion in 2011 (CBN, 2012b) to N139.7billion in 2013 (CBN, 2014) and was projected to reach N151billion in 2015 (MobilePaymentsToday, 2013). Similarly, Sinha (2005) reported that government policy decisions were instrumental in shaping the phenomenal growth of mobile adoption in Uganda; and Kenya, is considered the world leader in mobile money payments as a result of the introduction of M-PESA (The Economist, 2013).

These trends reflect growing preference for m-Commerce adoption in developing countries. This is largely because, compared to the adoption of e-Commerce by businesses, the introduction of m-Commerce pushes the boundaries of innovation in the world of business. By extension, the factors that influence m-Commerce adoption tend to differ from the factors that influence e-Commerce adoption to some extent. This is because m-Commerce helps to overcome some of the challenges that e-Commerce adopters tend to face in developing countries. For instance, availability of infrastructure was identified as a factor in e-Commerce adoption (Attafar & Nezam, 2010; Mustonen-Ollila & Lyytinen, 2003). However, this problem of infrastructure is minimal with m-Commerce because with a mobile phone, anyone can engage in m-Commerce. Interestingly, users do not need to have a smart phone before they can conduct m-Commerce transactions. In Africa, Paga can be used to transfer money and pay bills using a phone that is SMS enabled (PagaTech, 2016). This is particularly useful in an environment like Nigeria where many people have more than one mobile phone (GSMA, 2014; Onyango-Obbo, 2014) which may not necessarily be *smart*. Similarly, given that conducting commercial transactions online tends to be heavily dependent on power supply (Omonedo & Bocij, 2014), poor power / electricity supply has been identified as a limitation in the adoption of e-Commerce (E. Agwu, 2012); Olakotun & Bankole, 2011). While an e-Commerce user would need to be close to a power source to connect their computer or their router, an m-Commerce user can conduct business or commercial transactions online by simply using their mobile phones whose battery life could last for a longer time before needing power source to recharge the battery (Omonedo & Bocij, 2014).

Since the year 2000, there has been a growing interest in m-Commerce research but different authors have focused on different aspects of m-Commerce. Mobile Banking seems to be quite popular as it has received attention from many authors including Al-jabri & Sohail, 2012; Tiwari & Buse, 2007; Luarn & Lin, 2005. In addition to literature that focus on different aspects of mobile banking, m-Commerce literature also include those that focus on the technical aspect of m-Commerce such as Kounelis, Baldini, Muftic, & Loschner, 2013; Zhao & Feng, 2009; Itani & Kayssi, 2003. Also, a number of authors have focused on identifying, understanding or explaining factors that influence m-Commerce adoption (Xin, 2009a; Hung, Ku, & Chang, 2003; Zhang, Yuan, & Archer, 2002). Some of the existing literature further identified viable solutions towards overcoming the identified challenges (Chong, 2013; Saidi, 2010; Wei et al., 2009; Khalifa & Shen, 2008a; Scharl et al., 2005; Wu & Wang, 2005; Hung et al., 2003). However, most of these studies focus on the consumers' perspective with only a limited number of studies focusing on how to encourage businesses' adoption of m-

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Commerce, particularly in developing countries. In addition, the few existing studies were conducted within the context of developed or emerging economies (Wang & Xu, 2012; Niu & Bai, 2008; Balasubraman et al., 2002; Clarke III, 1997). At the time of this research, literature search conducted by the authors did not find journal articles that clearly reported on business' adoption of m-Commerce in developing countries. This is a gap that the research helps to fill.

While a limited number of studies have sought to identify factors that influence business adoption of m-Commerce, some limitations can be associated with these studies. An example of such studies is Saidi (2010). Although the aim of the study was to focus on factors and solutions that address challenges affecting the adoption of m-Commerce in a developing country, from a business perspective, other perspectives such as policy making and technical challenges were also researched. In addition to the fact that this study leaned towards negative factors, their research design and broadened perspective limits the applicability and transferability of their findings and conclusions to businesses. Similarly, although Boadi et al., (2007) focused their research on how mobile commerce can enhance business activities of small scale fishing and farming businesses in a developing country, the study's emphasis was placed on benefits rather than factors affecting m-Commerce adoption. The implication is that existing literature cannot act as primary guide to inform m-Commerce adoption by small businesses in developing countries. This gap presents another justification to conduct a study that will inform this area of research. As mentioned in the introduction, this paper is part of series of papers from a wider study that was conducted on m-Commerce adoption by micro and small businesses in Nigeria, as such, only part of the findings from the research is presented in this paper.

3. The Methodology

This study was conducted using a mixed method approach. A major advantage of using mixed methods approach is that different methods may be used for different purposes in a single study as this could increase confidence in the study (Saunders et al., 2009). For instance, interviews could be used at the initial stages of the research to collect exploratory data before using questionnaires to collect explanatory data later. Also, the use of mixed methods approach may be very useful in overcoming the weaknesses inherent in each method; thereby creating more confidence in conclusions drawn (Saunders et al., 2009). This study was conducted through the use of two methods - Surveys (Quantitative method) and Interviews (Qualitative method). In a research conducted using the combinations of qualitative and quantitative methods, interviews are usually semi-structured (Hennink et al., 2012); thus making semi-structured interview more suited for this research than the other types of interviews. The data collected through the semi-structured interviews were analysed using thematic analysis which helped to capture new trends among the target population. A total of n=12 interviews were conducted with owners or manager of micro and small businesses from at least one state in each of the six geo-political regions of Nigeria. Respondents were recruited by soliciting participants from a list of registered businesses provided by the Nigerian Bureau of Statistics. Also, personal contacts, as well as the use of snowball approach was leveraged in recruiting participants for the study. After analysing the data from the interviews, the survey was conducted on a wider sample of owners or managers of micro and small businesses in the 6 geo-political regions of Nigeria through the use of questionnaires. The design of the questionnaire was informed by findings from the data collected during interviews, with some input from literature reviews that were conducted throughout this study. At the time of data analysis, 230 responses were received but only 197 of them were complete. Incomplete responses were not included in the data set that

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was used for analysis. The data was analysed by conducting various relative frequency statistics.

Some inclusion and exclusion criteria were chosen for the study in order to ensure a clear focus and scope in the target population. Micro and small businesses that have a fixed location were chosen in order to have a manageable range of samples that is not skewed as a result of businesses that are at the very low end of the retail spectrum, e.g. movable kiosks and hawkers. Also, businesses that have only an online presence were excluded based on this criteria because they operate different business models to businesses with fixed locations which means that their mode of interaction with customers will differ. Therefore, including both business types might result in contrasting patterns. More so, the business category that was selected for this study is likely to benefit more from this study than click only businesses because arguably, the latter category of businesses already have a higher level of sophistication and use of technology than the former category of businesses.

Another inclusion criterion for this study is the focus on businesses that sell products because this will ensure that the range of items being sold are tangible; therefore, businesses that sell services were excluded. Examples of businesses that meet the inclusion criteria include restaurants, supermarkets and farming outlets. In addition to selling tangible products, another criterion is that the businesses should operate as wholesalers or retailers. Most micro or small businesses that sell products in Nigeria often operate as wholesalers or retailers; however, to ensure a level of uniformity among participating businesses, this condition was set.

The last inclusion criterion for this study is that managers or owners of businesses that were included in the study must be fluent in the English language. Although English is the first language in Nigeria, there are parts of Nigeria where other local dialects are accepted as the lingua franca. According to Ethnologue (2015), there are 510 indigenous languages in Nigeria. Therefore, the option of translating the study's questionnaires was not taken because taking on the task of translating the questionnaire into these languages would have made, conducting the study, almost impossible. More so, some of the context of the words, when translated into other languages, might change the meaning in the translated languages; particularly because some of the words are technical or specialist terms.

4. The Findings

From literature, various factors that influence the adoption of m-Commerce include: usability (Min, Li, & Zhong, 2009); perceived cost (Wei, Marthandan, Chong, Ooi, & Arumugam, 2009); perceived usefulness (Khalifa & Shen, 2008); customer loyalty (Benou et al., 2012); design aesthetics (Cyr, Head, & Ivanov, 2006); access issues (Bouwman et al., 2007); trust (Wei et al., 2009); privacy (Khalifa & Shen, 2008); policy and management irregularities (Song, 2010); limited processing power (Lee & Benbasat, 2003); perceived enjoyment (Nysveen, Pedersen, & Thorbjørnsen, 2005); lack of security (Zhang, Yuan, & Archer, 2002); personal innovativeness (Lu et al., 2005); limited input/output interface (Lee & Benbasat, 2003). However, given the fact that the concept of m-Commerce is still evolving in developing countries, there exist, very little literature that focus on m-Commerce adoption by businesses in developing countries. Hence, this research set out to investigate the factors that influence the adoption of m-Commerce by micro and small businesses in a developing country, Nigeria. The results provide insight into current trends of adoption among the target population. The result also highlighted current factors that influence the observed pattern of

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adoption, as well as unique strategies being leveraged by the target population in their adoption of m-Commerce. However, considering that this paper is part of a series of papers that seek to present the findings of the research, only the factors of security, trust, cost and social influence will be discussed.

4.1 Security & Trust

Issues of security and trust are factors that have received a lot of attention in m-Commerce literature. Various studies have identified trust and security as factors that influence m-Commerce adoption (Yan & Yang, 2015; Duane et al., 2014; Alsultanny, 2012; Bouwman et al., 2007). However, due to the similarity and relationship or interaction of these two factors in influencing m-Commerce adoption, they are being discussed together in this section. Although Arvidsson (2014) argued that security and trust are different, it is not uncommon for these two factors to be discussed together (Vasileiadis, 2014; Hamed, Hamza, & Saroit, 2011). This is largely because both factors are inter-related, that is, they impact on each other and can both be affected by actual or perceived concerns. For instance, a customer's perceived suspicion or distrust of a website does not directly undermine its credibility. Notwithstanding, the customer's lack of trust will inform their decision to transact with that business. Similarly, the security of a mobile transaction will be of little value to a customer who is biased against mobile transactions. Therefore, such customers are less likely to adopt or engage in m-Commerce activities due to their security concerns. Consequently, these security concerns, if not dealt with, might translate into lack of trust which further impacts on the customer's decision to adopt m-Commerce.

Sadly, both factors have been at the receiving end of negative word of mouth, particularly in developing countries like Nigeria due to past unfortunate or less satisfactory experiences which has led to lingering negative perceptions about the security and trustworthiness of m-Commerce activities or transactions. As a result, irrespective of measures taken by companies or developers to provide safe, secure systems, some users still have less confidence in m-Commerce transactions. This is because, in addition to technology acceptance factors, perceived security and trust have been found to influence users' attitudes and intentions to adopt m-Commerce (Shin, 2009). However, results of another study found that security concerns tend to be associated with transactions and location based services (Chan, 2013). This is quite understandable because both activities involve financial commitments or potential infringements on privacy.

This finding sheds some light on the survey results. From the survey, about 80% of current adopters of m-Commerce who have functional websites or mobile applications highlighted security concern as a barrier. This figure is reflective of the findings of Chan (2013)'s study because the conduct of online transactions requires a higher level of trust from customers since their decision to engage in this activity has financial implications.

While there are real concerns, like unauthorized access to sensitive data (Koukia, Rigou, & Sirmakessis, 2006), reliability of wireless services and the presence of malicious software / activities that negatively affect security perception of m-Commerce activities (Vasileiadis, 2014), some security fears or trust issues are largely subjective and may be the result of negative word of mouth or previous experience. This aligns with previous research that highlighted the role of perceived security in influencing m-Commerce adoption (Arvidsson, 2014; Peng, Xiong, & Yang, 2012; Shen, Huang, Chu, & Hsu, 2010). In the same vein, trust has been associated with cultural and attitudinal influence. Efendioglu, et al. (2005) observed that the presence of lack of trust towards a business, also known as transactional trust, is amplified by cultural characteristics. This corroborates Uzoka, et al. (2007)'s position

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that attitudinal issues can play significant role in e-Commerce (and indeed m-Commerce) adoption.

From the foregoing, it is clear that while there are real security risks that can influence m-Commerce adoption, the subjective elements of security and trust are equally important because they influence m-Commerce adoption. As such, while such security risks are taken into consideration as factors that influence m-Commerce adoption, perceptions of security risk or lack of trust should also be considered as a factors that influence m-Commerce adoption, even if there are no apparent security risks or breach of trust. It is therefore no surprise that although security *fear* and *lack of* trust leans towards subjective, rather than objective assessment or considerations, they have been identified in this study as factors that influence m-Commerce adoption.

4.2 Cost

Previous studies have identified cost as a factor that influences m-Commerce adoption (Agwu & Carter, 2014; Chong, 2013; Choi, Seol, Lee, Cho, & Park, 2008). However, the influence of cost as a factor, depends on the nature of the m-Commerce activity being conducted. For instance, m-Commerce activities that involve the use of voice call, text messages or social media for information transfer, product reservation, payment confirmation, mobile transfer, etc. may not necessarily be affected by cost in developing countries like Nigeria. The survey results showed that only about 40% of businesses that engage in such activities agreed that cost was a barrier to their adoption of m-Commerce. One reason for this can be attributed to the increasing level of competition that can be observed among various telecommunication providers in Nigeria. With the increasing competition in the telephone industry, customers are given various offers by different operators in a bid to win the hearts of their customers. However, considering the unique mobile phone culture in Nigeria where high dependence on mobile phones means that the average Nigerian has at least 2-4 mobile numbers (GSMA, 2014; Onyango-Obbo, 2014), most people tend to have multiple SIM cards in order to cash in on different deals. Therefore, it has become increasingly cheaper to make calls and send text messages through various network providers. By extension, engaging in activities such as confirming payment, making product enquiry, reservation or advertisement through calls or text messages, etc., has become relatively cheaper than before.

Also, various telephone operators have different competitive data bundles that has made access to data on mobile phones more accessible to many mobile phone users. Therefore engaging in activities such as surfing the internet and accessing social media has become more affordable than in previous times. According to the Nigerian Communications Commission, internet access moved from 27.69 million subscribers in November 2012 to 97.82 million subscribers in November 2015. This shows a steep progression in the accessibility of internet facilities via mobile phones.

In addition, charges for transactions relating to the use of mobile money has become competitive among various providers. However, these charges are minimal due to regulations by the Central Bank of Nigeria. In a document released in 2015, a clear guideline was set to regulate the activities of Mobile Money Operators (MNOs) (CBN, 2015). One of such guidelines restricts the deduction of transaction charges from customers' airtime (top up balance) and also restricts the application of transaction charges on settlement accounts for customers of these Mobile Money Operators (ibid). Therefore, for businesses whose adoption of m-Commerce is limited to the use of voice calls, text messaging and social media platforms, cost may not be a barrier to their adoption.

However, for businesses that support m-Commerce activities such as the use of website for online payment, location based advertisement, installation of NFC facilities, etc., cost tends to become one of the barriers to their adoption of m-Commerce. The survey results showed that about 63% of businesses that engage in such activities agreed that cost was a barrier to their adoption of m-Commerce. This is because, at this level of m-Commerce adoption, in addition to the cost of data bundles for social media interaction and top up for voice calls, businesses have to consider other costs such as the cost of building and maintaining the online platform. Also, businesses need to consider transaction charges that might be incurred from integrating a payment platform on their website such as PayPal charges, bank charges, etc. In addition, business that want to develop a mobile application will need to consider the cost implications involved because cost is a “major concern” when designing mobile applications (Benou et al., 2012). Furthermore, businesses that might consider the use of location based advertisements, NFC, or offering loyalty reward schemes, etc. are likely to encounter further cost implications (Ondrus & Pigneur, 2007). Therefore, although cost might not be a concern for a certain level of m-Commerce adoption, cost implication remains a factor that influences the adoption of m-Commerce.

4.3 Social Influence

In understanding the factors that influence m-Commerce adoption, the influence of society or culture cannot be overlooked. This is because societies and cultures differ; as such, different dynamics within different societal contexts can influence the perception, response, behaviour or decision of residents towards the adoption of technology. With respect to m-Commerce, some literature have highlighted the influence of society on adoption behaviour (Faqih & Jaradat, 2015; Lu, 2014; Hung & Chou, 2014). Therefore, it is no surprise that this factor was identified by up to 83% of all the respondents in the survey, as a factor that influenced their current level of m-Commerce adoption.

Within the Nigerian context, the tendency to follow local or global trends is a norm among many Nigerians. This can be attributed to the ostentatious culture inherent in developing countries like Nigeria where people tend to do or buy things that they may not necessarily understand or need just because it is fashionable. For instance, the uptake of smartphones in Nigeria is on the increase (eMarketer, 2015); yet, the rate of m-Commerce adoption is not commensurate with the level of smartphone uptake. This could be because users within the Nigerian context adopt new technologies as a way of identifying with a social norm or class. Segun Martins, a Nigerian technology researcher and blogger echoed that in Nigeria, status is a big deal. Consequently, current trends determine whether or not one makes use of smartphone (Martins, 2012). As another technology blogger in Nigeria noted, the high end prices and perception of Blackberry phones and iPhones as “status symbols” helps to drive the sale of these brands in Nigeria (Arinze, 2013). This is a rather interesting culture when compared to developed economies like UK, where constant effort is put into blurring out class distinction as reflected in Hofstede’s Power Distance Index for UK. Nonetheless, businesses can take advantage of this culture to engage more customers in m-Commerce. The logic behind this is that, the more people try out and use a technology like m-Commerce, the more acceptable and social it becomes; hence, more people are likely to become comfortable to adopt or utilise the technology.

From the responses, the influence of social norm was highlighted by up to 83% of all the respondents in the survey as a factor that influenced their adoption. This implies that the increasing uptake of mobile phones in Nigeria has contributed towards the increasing use of mobile phones for business activities such as making and receiving calls or text

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messages, etc. Also, the figure may be a reflection of the desire of business owners / managers to align their business practices with standards obtainable in other parts of the world. Although various owners / managers might have different reasons or motivation for wanting to align their business practices to international standards, evidence from literature shows that m-Commerce can have important influence on businesses and societies (Chen, Li, Chen, & Xu, 2011; Isiguzo, 2010; Arvidsson, 2014). Therefore, business owners or managers that are adopting m-Commerce as a result of global trends or social influence may be said to be positioning themselves to reap the benefits that m-Commerce adoption can provide their business.

5. Summary and Conclusions

Having discussed the factors in the previous section, this section seeks to highlight some recommendations for addressing these factors, based on findings from literature, as well as unique strategies that were identified by some current adopters of m-Commerce in Nigeria. From the study, one factor that, if not effectively managed by businesses, can negatively impact on the adoption of m-Commerce is security fears; which ironically, is mostly the product of customers' perception, rather than a reflection of reality (Islam, 2014). Notwithstanding, this concern has to be addressed because perceived security has been identified from literature as a factor that influences m-Commerce adoption (Shin, 2009). Therefore businesses are advised to establish user trust in m-Commerce activities by ensuring that they meet user expectations such as providing reliable services and keeping promises and commitments (ibid). Also, businesses are encouraged to work towards developing and strengthening the determinants of consumer trust in their company. These determinants include having a good reputation, offering good encryption security, maintaining transparency on data usage, guaranteeing effective dispute resolution, etc. (Vasileiadis, 2014).

In a study conducted by Chong et al. (2012), trust, cost and social influence were collectively found amongst other factors, to have significant impacts on m-Commerce adoption. As a result, one of the recommendations from that study is for m-Commerce developers to look beyond technology related factors and instead, focus on cultural factors such as trust and social influence. The study went on to suggest that businesses may explore the use of social networks and marketing campaigns that will help educate customers and create awareness among them (Chong et al., 2012). Furthermore, businesses were advised to sensitise their customers on security features such as the ability to use encryption and firewalls to prevent third party intrusion, as this would positively influence customer trust in their mobile applications (ibid). In addition, businesses can educate consumers on secure, effective use of m-Commerce; provide user-friendly and enjoyable systems; and emphasise the benefits of m-Commerce (Shen et al., 2010). These recommendations can help businesses to effectively manage the negative effect of security concerns on their adoption of m-Commerce.

Within the Nigerian context, businesses like Jumia and Konga have taken various steps to incorporate some of these recommendations such as increasing consumer trust in their business and creating a good reputation. These steps include the use of pay on delivery service (Jumia, 2016; Konga, 2016) and celebrity endorsements through advertisement and Nollywood movies campaign¹. As a result of these and other strategies, these businesses are currently ranked as the top 2 online shopping sites in Nigeria (Miracle, 2016; Nicholas, 2015). While there may be no statistics that directly reflect the impact of celebrity endorsement and pay on delivery service on business profit in Nigeria, anecdotal evidence suggests that these strategies tend to attract favourable disposition of Nigerians towards

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online transactions with the companies. Therefore, businesses can adopt similar or other strategies that can incorporate some of the recommendations of academic experts as these may yield positive impacts on consumer perception of security, which in turn will positively influence m-Commerce adoption.

Furthermore, with respect to cost, Chong et al. (2012)'s recommendation to businesses is the introduction of creative promotional and pricing strategies that can attract price conscious customers. These strategies relating to trust, cost and social influence are already being implemented by some of the top online shopping companies in Nigeria like DealDey, Jumia, Kaymu, Konga, and Slot. Most of these companies often include buzzwords that reflect security and access to exclusive deals through their mobile app as these mirror considerations of cultural factors such as trust and cost. Also, with the help of reviews, campaigns and celebrity endorsement, these companies are displaying an understanding of the impact of social influence on m-Commerce adoption.

In summary, this paper discussed four factors that influence m-Commerce adoption in Nigeria – security, trust, cost and social influence. Various recommendations were made to support businesses' effort towards addressing these issues. These recommendations include developing secure systems and creating awareness of these security features among customers. Also, businesses were advised to develop appropriate promotional and pricing strategies that can attract price conscious customers.

This research was conducted with due diligence to ensure appropriate levels of robustness and rigour. However, considering that no single study can cover every aspect of a particular research area, this research also has a few limitations. While these limitations do not undermine the results of this research, these limitations are a reflection that different patterns or result might be observed if this research was conducted in a different context. For instance, this research focused on micro and small businesses in Nigeria. Therefore, if a similar research is conducted on micro and small businesses in other contexts or countries such as Canada, England, etc., different results might be obtained. As such, care would need to be taken if the results of this research are to be applied to other cultural contexts that are different from Nigeria.

Also, considering that this research focused on micro and small businesses that are involved in the sale of tangible goods, different patterns or results might be observed if a similar research is conducted on micro and small businesses that offer services in Nigeria. Similarly, different patterns might also be observed if the research is conducted on medium, large scale or international businesses in Nigeria. As a result, while some of the factors and patterns observed in this study might be applicable to some extent, the possibility of observing differences in the combined list of factors that influence m-Commerce adoption by this category of businesses cannot be ruled out.

Therefore, future research direction might focus on conducting a similar study with a sample of micro and small businesses (MSBs) that offer services since the sample included in this research only sell products. Also, a comparison of results from the responses of service based MSBs and product based MSBs may be researched in order to identify potential differences between their patterns of adoption. Where differences are observed, possible reasons for the differences in their adoption behaviour can also be explored. It might also be worth extending the present research to include large scale businesses in different industries. Reasons for potential differences in the pattern of adoption between MSBs and large scale businesses may be explored. Differences might also exist in the adoption

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behaviour of companies in different industries due to different factors that might be unique to the different industries. These can also be researched.

Endnotes

ⁱ Samples of the TV adverts for Jumia and Konga can be viewed on YouTube at <https://www.youtube.com/watch?v=liXEaeCPMU4> AND <https://www.youtube.com/watch?v=3yIM-qVo8rM> respectively

References

- Agwu, E 2012, 'A Qualitative Study of the Problems and Prospects of Online Banking in Developing Economies – Case of Nigeria', *Journal of Internet Banking and Commerce*, vol. 17, no. 3.
- Agwu, EM and Carter, A 2014, 'Mobile Phone Banking In Nigeria : Benefits, Problems and Prospects', *International Journal of Business and Commerce*, vol. 3, no. 6, pp. 50–70.
- Alsultanny, Y 2012, 'Opportunities and challenges of M-commerce in Bahrain', *Journal of Database Marketing & Customer Strategy Management*, vol. 19, no. 1, pp. 31–38.
- Arinze, A 2013, *Top Ten Mobile Phone Brands In Nigeria*, Connect Nigeria, <<http://connectnigeria.com/articles/2013/08/top-ten-mobile-phone-brands-in-nigeria/>>.
- Arvidsson, N 2014, 'Consumer Attitudes on Mobile Payment Services - Results from a Proof of Concept Test', *International Journal of Bank Marketing*, vol. 32, no. 2, pp. 150–170.
- Attafar, A and Nezam, MHK 2010, 'Trust and Relationship Protection as Key Factors for Success in E-commerce', *Proceedings of 1st Conference on Executive MBA*.
- Benou, P Vassilakis, C and Vrechopoulos, A 2012, 'Context management for m-commerce applications: determinants, methodology and the role of marketing', *Information Technology and Management*, vol. 13 no. 2, pp. 91–111.
- Boadi, RA Boateng, R Hinson, R and Opoku, RA 2007, 'Preliminary Insights into M-commerce Adoption in Ghana', *Information Development*, vol. 23 no. 4, pp. 253–265.
- Bouwman, H Carlsson, C Molina-Castillo, FJ and Walden, P 2007, 'Barriers and drivers in the adoption of current and future mobile services in Finland', *Telematics and Informatics*, vol. 24, no. 2, pp. 145–160.
- CBN 2009, *Regulatory Framework For Mobile Payments Services In Nigeria*, vol. 7, Abuja, <[http://www.cenbank.org/OUT/CIRCULARS/BOD/2009/REGULATORY FRAMEWORK FOR MOBILE PAYMENTS SERVICES IN NIGERIA.PDF](http://www.cenbank.org/OUT/CIRCULARS/BOD/2009/REGULATORY_FRAMEWORK_FOR_MOBILE_PAYMENTS_SERVICES_IN_NIGERIA.PDF)>.
- CBN 2011, *The Central Bank of Nigeria Annual Report - 2010*. <[http://www.cenbank.org/OUT/2011/PUBLICATIONS/REPORTS/RSD/AR2010/Link Files/PART 1.pdf](http://www.cenbank.org/OUT/2011/PUBLICATIONS/REPORTS/RSD/AR2010/LinkFiles/PART1.pdf)>.
- CBN 2012a, *Launching of Nigeria's National Inclusion Strategy*, Abuja, <[http://www.cenbank.org/out/2012/ccd/launching of the nigeria's national financial inclusion strategy.pdf](http://www.cenbank.org/out/2012/ccd/launching%20of%20the%20nigeria%27s%20national%20financial%20inclusion%20strategy.pdf)>.
- CBN 2012b, *The Central Bank of Nigeria Annual Report - 2011*, <[http://www.cenbank.org/Out/2012/publications/reports/rsd/arp-2011/2011 Annual Report_Complete Report.pdf](http://www.cenbank.org/Out/2012/publications/reports/rsd/arp-2011/2011%20Annual%20Report_Complete%20Report.pdf)>.
- CBN 2014, *Economic Report for the First Half of 2014*, <[http://www.cenbank.org/Out/2015/RSD/CBN 2014 Half Year Report.pdf](http://www.cenbank.org/Out/2015/RSD/CBN%202014%20Half%20Year%20Report.pdf)>.
- CBN 2015, *Guidelines on Mobile Money Services in Nigeria*, <[http://www.cenbank.org/out/2015/bpsd/guidelines on mobile money services in nigeria.pdf](http://www.cenbank.org/out/2015/bpsd/guidelines%20on%20mobile%20money%20services%20in%20nigeria.pdf)>.
- Chan, FTS 2013, 'Analysis of the determinants of consumers' m-commerce usage activities' *Online Information Review*, vol. 37, no. 3, pp. 443–461.

- Chen, ZS Li, R Chen, X and Xu, H 2011, 'A Survey Study on Consumer Perception of Mobile-Commerce Applications', *Procedia Environmental Sciences*, vol. 11, pp. 118–124.
- Choi, J Seol, H Lee, S Cho, H and Park, Y 2008, 'Customer Satisfaction Factors of Mobile COMmerce in Korea', *Internet Research*, vol. 18, no. 3, pp. 313–335.
- Chong, AYL 2013, 'A two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption', *Expert Systems with Applications*, vol. 40, no. 4, pp. 1240–1247.
- Chong, AYL Chan, FTS and Ooi, KB 2012, 'Predicting consumer decisions to adopt mobile commerce: Cross country empirical examination between China and Malaysia', *Decision Support Systems*, vol. 53, no. 1, pp. 34–43.
- Cyr, D Head, M and Ivanov, A 2006, 'Design aesthetics leading to m-loyalty in mobile commerce' *Information & Management*, vol. 43, no.8, pp. 950–963.
- Dholakia, N 2002, *The Global Digital Divide and Mobile Business Models : Identifying Viable Patterns of e-Development*, <[http://ritim.cba.uri.edu/working_papers/Global-Digital-Divide-e-Development-Models-v7\[1\].pdf](http://ritim.cba.uri.edu/working_papers/Global-Digital-Divide-e-Development-Models-v7[1].pdf)>.
- Duane, A O'Reilly, P and Andreev, P 2014, 'Realising M-Payments: Modelling consumers' willingness to M-pay using Smart Phones', *Behaviour and Information Technology*, vol. 33, pp. 318–334.
- Ebibi, M Snopce, H Fetaji, B and Fetaji, M 2012, 'Quantifying the Business Benefits of Implementing m-commerce Software Solutions', *Proceedings of the ITI 2012 34th International Conference on Information Technology Interfaces*, pp. 275–280.
- Efendioglu, AM Yip, VF and Murray, WL 2005, 'E-Commerce in Developing Countries: Issues and Influences', *4th International Business and Economy Conference*, Indian Institute of Mass Communication.
- eMarketer 2015, *Smartphones, Tablets Spread Across the Middle East and Africa*, <<http://www.emarketer.com/Article/Smartphones-Tablets-Spread-Across-Middle-East-Africa/1012989>>.
- Ethnologue 2015, *Languages of the World: Nigeria*, <<http://www.ethnologue.com/country/ng>>.
- Faqih, KMS and Jaradat, MIRM 2015, 'Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective' *Journal of Retailing and Consumer Services*, vol. 22, pp. 37–52.
- GSMA 2014, *Analysis - Country overview: Nigeria*, <http://draft-content.gsmaintelligence.com/AR/assets/4161587/GSMA_M4D_Impact_Country_Overview_Nigeria.pdf>.
- Hamed, WS Hamza, HS and Saroit, IA 2011, 'Towards a Unified Trust Model for M-commerce Systems', *Eighth International Conference on Information Technology: New Generations*, IEEE, pp. 992–997.
- Hennink, M, Hutter, I & Bailey, A 2012, *Qualitative Research Methods*, Sage Publications Ltd, London.
- Hofstede, G nd, *What about the UK*, <<http://doi.org/10.1093/oxfordhb/9780199585762.013.0019>>.
- Hung, CL and Chou, JCL 2014, 'Examining the Cultural Moderation on the Acceptance of Mobile Commerce', *International Journal of Innovation and Technology Management*, vol. 11, no. 2.
- Isiguzo, I 2010, *The Impact of Mobile Services in Nigeria. How Mobile Technologies are transforming Economic and Social Activities*, Pyramid Research, <<http://nairametrics.com/wp-content/uploads/2013/01/IMPACTofMobileServicesInNIGERIA.pdf>>.

- Islam, S 2014, 'Systematic Literature Review : Security Challenges of Mobile Banking and Payments System', *International Journal of U- and E- Service, Science and Technology*, vol. 7, no. 6, pp. 107–116.
- ITU 2013, *The World in 2013: ICT Facts and Figures*, <<http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf>>.
- Jumia 2016, *Pay on Delivery*, <<https://www.jumia.com.ng/cash-on-delivery/>>.
- Khalifa, M and Shen, KN 2008, 'Explaining the adoption of transactional B2C mobile commerce' *Journal of Enterprise Information Management*, vol. 21, no. 2, pp. 110–124.
- Komolafe, B 2010, 'National Mobile Payment Scheme to take-off this year, CBN', *Vanguard Newspaper*, January 26, <<http://www.vanguardngr.com/2010/01/national-mobile-payment-scheme-to-take-off-this-year-cbn-2/>>.
- Komolafe, B Egwuatu, P and Onuoha, R 2013, '5.7m Nigerians now on mobile banking platform', *Vanguard Newspaper*, July 8, <<http://www.vanguardngr.com/2013/07/5-7m-nigerians-now-on-mobile-banking-platform/>>.
- Konga 2016, *Convenience & Choice When You Shop*, <<http://www.konga.com/pay-on-delivery/>>.
- Koukia, S Rigou, M and Sirmakessis, S 2006, 'The Role of Context in m-Commerce and the Personalization Dimension', *International Conference on Web Intelligence and Intelligent Agent Technology Workshops*, IEEE/WIC/ACM, pp. 267–276.
- Lee, YE and Benbasat, I 2003, 'Interface Design for Mobile Commerce', *Communications of the ACM*, vol. 46, no. 12, pp. 48–52.
- Lu, J 2014, 'Are personal innovativeness and social influence critical to continue with mobile commerce?', *Internet Research*, vol. 24, no. 2, pp. 134–159.
- Lu, J Yao, JE and Yu, CS 2005, 'Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology', *The Journal of Strategic Information Systems*, vol. 14, no. 3, pp. 245–268.
- Martins, S 2012, *The Nigerian Smartphone Market – Trends and Statistics*, <<http://martins.com.ng/?p=36>>.
- Min, Q Li, S and Zhong, Q 2009, 'An Empirical Study of M-Commerce Adoption from Usability Perspective', *Eighth International Conference on Mobile Business*, IEEE, pp. 215–220.
- Miracle, O 2016, *Top 10 Online Shopping Sites in Nigeria : Best Pay in Naira eMalls*, <<http://www.3ptechies.com/business/online-shopping-websites-nigeria.html>>.
- MobilePaymentsToday 2013, *Nigerian mobile money market to hit \$1B by 2015*, <<http://www.mobilepaymentstoday.com/news/nigerian-mobile-money-market-to-hit-1b-by-2015/>>.
- Molla, A and Licker, PS 2004, 'Maturation Stage of eCommerce in Developing Countries: A Survey of South African Companies', *Information Technologies and International Development*, vol. 2, no. 1, pp. 89–98.
- Mustonen-Ollila, E and Lyytinen, K 2003, 'Why organizations adopt information system process innovations: a longitudinal study using Diffusion of Innovation theory', *Information Systems Journal*, vol. 13, no. 3, pp. 275–297.
- Nicholas, E. (2015). Nigerian Trend.
- Nysveen, H Pedersen, PE and Thorbjørnsen, H 2005, 'Intentions to Use Mobile Services: Antecedents and Cross-Service Comparisons', *Journal of the Academy of Marketing Science*, vol. 33, no. 3, pp. 330–346.
- Olakotun, W and Bankole, B 2011, 'Factors Influencing Electronic Business Technologies Adoption and Use by Small and Medium Scale Enterprises (SMES) in a Nigerian Municipality', *Journal of Internet Banking and Commerce*, vol. 16, no. 3.

- Omonedo, P and Bocij, P 2014, 'e-Commerce versus m-Commerce: Where is the Dividing Line?', *International Journal of Science, Education, Economics and Management Engineering*, vol. 8, no. 11, pp. 3402 – 3407.
- Ondrus, J and Pigneur, Y 2007, 'An Assessment of NFC for Future Mobile Payment Systems', *International Conference on the Management of Mobile Business*, IEEE, pp. 43–43.
- Onyango-Obbo, C 2014, *The good, the bad, the ugly: 15 things in which Nigeria leads or trails Africa*, <<http://mgafrica.com/article/2014-08-14-the-good-the-bad-the-ugly-15-things-in-which-nigeria-leads-or-trails-africa-1>>.
- PagaTech 2016, *Paga: Your cash, anywhere, anytime*, <<https://www.mypaga.com/paga-web/start.paga#>>.
- Peng, R Xiong, L and Yang, Z 2012, 'Exploring Tourist Adoption of Tourism Mobile Payment : An Empirical Analysis', *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 7, no. 1, pp. 21–33.
- Saunders, M, Lewis, P & Thornhill, A 2009, *Research Methods for Business Students*. 5th edn, Pearson Education Limited, England.
- Shen, YC Huang, CY Chu, CH and Hsu, CT 2010, 'A benefit–cost perspective of the consumer adoption of the mobile banking system', *Behaviour & Information Technology*, vol. 29, no. 5, pp. 497–511.
- Shin, DH 2009, 'Towards an understanding of the consumer acceptance of mobile wallet', *Computers in Human Behavior*, vol. 25, no. 6, pp. 1343–1354.
- Sinha, C 2005, *Effect of Mobile Telephony on Empowering Rural Communities in Developing Countries*, <http://irfd.org/events/wf2005/papers/sinha_chaitali.pdf>.
- Song, J 2010, 'Status quo and challenge of M-commerce in China', *2010 Second International Conference on Communication Systems, Networks and Applications*, IEEE, pp. 252–255.
- The Economist 2013, *Why does Kenya lead the world in mobile money*, <<http://www.economist.com/blogs/economist-explains/2013/05/economist-explains-18>>.
- Uzoka, FME Shemi, AP and Seleka, GG 2007, 'Behavioural Influences on E-Commerce Adoption in a Developing Country Context', *The Electronic Journal on Information Systems in Developing Countries*, vol. 31, no. 4, pp. 1–15.
- Vasileiadis, A 2014, 'Security Concerns and Trust in the Adoption of M-Commerce', *Social Technologies*, vol. 4, pp. 179–191.
- Wei, TT Marthandan, G Chong, AYL Ooi, KB and Arumugam, S 2009, 'What drives Malaysian m-commerce adoption? An empirical analysis' *Industrial Management & Data Systems*, vol. 109, no. 3, pp. 370–388.
- Yan, H and Yang, Z 2015, 'Examining Mobile Payment User Adoption from the Perspective of Trust', *International Journal of U- and E- Service, Science and Technology*, vol. 8, no. 1, pp. 117–130.
- Zhang, JJ Yuan, Y and Archer, N 2002, 'Driving Forces for M-Commerce Success', *Journal of Internet Commerce*, vol. 1, no. 3, pp. 81–106.