



A Framework For Overcoming M-commerce Adoption Barriers In Angola.

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Abstract.

The COVID-19 pandemic has significantly impacted the global economy, with brick-and-mortar businesses particularly hard-hit. In Angola, the lockdown imposed in response to the pandemic forced many companies to close their doors, leading to widespread job losses and economic hardship. However, the pandemic also presented an opportunity for businesses that could adopt m-commerce or other alternative sales channels. This study aims to understand the factors that have impeded the adoption of m-commerce by brick-and-mortar retail SMEs in Angola during the COVID-19 pandemic. The study also proposes a conceptual framework for overcoming the m-commerce adoption barriers that these SMEs have encountered. The study was conducted using a mixed-method approach, with data collected from 306 retail business managers/owners and professionals through a structured questionnaire and semi-structured interviews. The study's findings suggest that the factors impeding m-commerce adoption were the lack of experience in using m-commerce, skills to configure forward and backward distribution systems, personnel with IT skills; the cost of m-commerce infrastructure; and the lack of support from the external environment. The study concludes by proposing a framework/strategy for stimulating the adoption of m-commerce in Angola. This strategy includes providing training and support to businesses on using m-commerce, developing a supportive regulatory environment, and investing in m-commerce infrastructure.

Keywords: M-commerce, brick-and-mortar retail SMEs, COVID-19, Small and Medium Enterprises (SMEs), Angola.

JEL Codes: M4, M10, M14, M42

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1. Introduction

The COVID-19 pandemic saw a worldwide upsurge in the need for brick-and-mortar retail SMEs to integrate electronic commerce (e-commerce) channels such as Web commerce and mobile commerce (m-commerce) for contactless store pick-up and home delivery (Finotto, Christine & Procidano, 2020; Gamser & Chenevix, 2020; Goddard et al., 2020; Justino, Tengeh & Twum-Darko, 2022; Vinerean et al., 2022). During this period, customers were highly motivated to use m-commerce by multiple lockdowns and insecurity of health risks (Vinerean et al., 2022). In addition, customers' intention to use m-commerce was also incited by performance expectancies such as the usefulness of m-commerce and timely access to their mobile shopping goals, and social influences and hedonic motivation like fun, playfulness and a general sense of pleasure (Vinerean et al., 2022).

Although previous research observed that firms that face heavy pressure from customers are more likely to adopt m-commerce (Picoto, Bélanger & Palma-dos-Reis, 2014; Wang et al., 2016; Chau & Deng, 2018), brick-and-mortar retail SMEs in Angola, have shown persistent weaknesses in m-commerce adoption despite customers' demands (Almeida, 2019; Mwamba & Qutieshat, 2021; Justino et al. 2022). According to reports from Ghana and Indonesia, most small and medium-sized retail establishments have not given in to client pressure or appeal to use online channels (Oktora et al., 2020; Naab & Bans-Akutey, 2021). At the start of the pandemic, international leaders recommended COVID-19 relief measures to help SMEs from shutting down and becoming financially unstable. However, several SMEs did not receive government support for various reasons: bureaucratic hassles, ineligibility (Bartik et al., 2020; Fubah & Moos, 2022) or lack of response from support schemes (Fubah & Moos, 2022). In addition, those SMEs that received government support or took out loans to sustain their firms also exposed themselves to the risk of credit contraction (Gourinchas et al., 2021). However, this raises the obvious question of why most retail SMEs did not embrace m-commerce or other alternative sales channels, given that they have been forced to close their doors, their worsening financial situations, and the compulsion of customers due to lockdown regulations.

The COVID-19 pandemic has significantly impacted the global economy, with small and medium-sized enterprises (SMEs) in the brick-and-mortar retail market in Angola being particularly hard hit. Lockdowns, social distancing measures, and decreased consumer traffic have all contributed to declining sales and profits for these businesses. Mobile commerce (m-commerce) emerged as a promising alternative for SMEs to reach customers and generate revenue in the face of these challenges. However, despite the potential benefits of m-commerce, many brick-and-mortar retailers in Angola have not adopted this business model.

Understanding the factors impeding the adoption of m-commerce by brick-and-mortar retail SMEs in Angola is critical for addressing the challenges these businesses face and creating systems that support their digital transformation. This paper examines the factors that have inhibited the adoption of m-commerce by brick-and-mortar retail SMEs in Angola during the COVID-19 pandemic and proposes a framework for addressing the m-commerce adoption barriers that these SMEs have experienced in Angola.

The paper is organised as follows: section 2 provides a brief overview of mobile commerce (m-commerce) and discusses the factors that have impeded the adoption of m-commerce; section 3 discusses



the research methodology; sections 4 and 5 present and discuss the results of the study and sections 6, 7, 8, and 9 highlight the study's implications, recommendations, limitations, and conclusions.

2. Literature review

Barriers to the adoption of technologies in traditional businesses can vary according to country (e.g. developing country or developed country) (Kapurubandara & Lawson, 2006; Rahman, 2013) or potential adopter perspective on the technology (e.g. merchant or customer) (Mallat & Tuunainen, 2008; Khan, Talib & Faisal, 2015; Moorthy et al., 2017). Some divergence between barriers can also be detected at all levels of the business environment, i.e. at a macro level, a business market level and an organisational level. Barriers to adoption can further be analysed as internal or external barriers (Kapurubandara & Lawson, 2006).

2.1 A macro environment perspective

At a macro level, the absence of concrete government policies and regulations, the shortage of trained personnel or cost-efficient programmers/web designers, and the increase in the invasion of privacy, surveillance and cybersecurity issues are suggested as possible barriers to the integration of electronic commerce into business (The Earth Institute & Ericsson, 2016; Kamble et al., 2019; Singh, Thakkar & Jenamani, 2019; GSMA, 2020b). Other barriers to electronic commerce adoption, particularly in developing countries, have been identified as mobile operator infrastructure issues, which many researchers have found to be lacking (Maritz, 2014; Poulson, 2014; The Earth Institute & Ericsson, 2016; Kamble et al., 2019). Issues such as slow connection and poor coverage of networks have been assessed and noted to be barriers to adoption (Khan et al., 2015). Furthermore, the adoption of m-commerce by retailers in developing countries has been claimed to be inhibited by the limitations of digital payment methods (GSMA, 2015) or payment gateway to deal efficiently with wireless electronic transaction systems, privacy and security architecture in the region (Masihuddin et al., 2017; Kalbande, 2019). Traditional businesses' failure to adopt electronic commerce could also be caused by limitations of government and/or non-government technological cooperative institutions that subsidise the IT or m-commerce infrastructure and training of personnel of SMEs and/or promote science, technology and innovation (Siwundla, 2013; The Earth Institute and Ericsson, 2016; Jaramillo, 2019).

2.2 An overview of the market environment

Failure to adapt has been linked to low competitive pressure (Lu et al., 2015), m-commerce popularity (Kapurubandara & Lawson, 2006; Mallat & Tuunainen, 2008), and business-critical e-commerce partners. Business technology adoption failures must be carefully examined. Recent research shows that Angolan customers urged retail SMEs to adopt m-commerce during COVID-19 (Mwamba & Qutieshat, 2021; Justino et al., 2022). Even so, most conventional businesses have resisted demands for mobile shopping (Mwamba



& Qutieshat, 2021). However, addressing these factors and assessing the new, unobserved factors can enable the adoption of m-commerce and foster entrepreneurship in the market (Siwundla, 2013; The Earth Institute and Ericsson, 2016:10; Singh et al., 2019).

2.3 The failure to use from a business capability perspective.

Barriers to m-commerce integration into traditional businesses have been analysed based on several business-related factors.

2.3.1 Resistance to the use

The GSMA's (2020a) report (*Global Mobile Trends 2021: Navigating COVID-19 and beyond*) reveals that the adoption of the Internet of Things (IoT) is still a challenge among enterprises. One of the challenges pertains to employee/internal resistance to integrating new technology. However, resistance to adoption could be influenced by some underlying but interrelated factors of failure to adopt. By the same token, it could be affected by the lack of in-house technological skills (GSMA, 2020a) or the lack of interest in m-commerce.

2.3.2 Senior management support

Researchers have observed that a lack of senior management support could hinder adoption (EY, 2015; Jokonya, 2019). Since most traditional SMEs are highly dependent on owners/managers, technology deployment may be avoided if they lack the ability or have no vision of the new technology. Senior management support can help a firm get the necessary resources to integrate technology (Gangwar, Date & Ramaswamy, 2015; Wang et al., 2016).

2.3.3 Awareness of the technology

Low awareness of m-commerce and its benefits could be a potential barrier to adoption. Previous researchers have analysed business leaders' low awareness of return on investment as a measurement of a barrier to technology adoption (Kapurubandara & Lawson, 2006; Wamuyu & Maharaj, 2011; Siwundla, 2013). Lack of understanding of the digital business environment has also been a barrier to use (Chang & Dasgupta, 2015). The m-commerce ecosystem could be regarded as a complex structure. According to Chang and Dasgupta (2015), some business leaders may fear deploying electronic business due to uncertainties about the market.



2.3.4 Lack of computer skills

In-house capabilities might hinder company IoT implementation (GSMA, 2020a). Without in-house skills, m-commerce system integration and utilisation may fail. According to prior studies, specialised HR with computer skills like IT and mobile distribution system workers are essential in-house capabilities (Kapurubandara & Lawson, 2006; Chang & Dasgupta, 2015; EY, 2015; Jokonya, 2019; Song, Song & Sun, 2019). Factors that inhibit the use of technology were also analysed, with one being the workers' level of experience in using technology (Chang & Dasgupta, 2015). Previous research also indicates that the inability to use m-commerce technology could be a potential factor in business failure (Kapurubandara & Lawson, 2006; Wamuyu & Maharaj, 2011; Siwundla, 2013).

2.3.5 Logistics and distribution systems

Some research reported that the inability of the leadership to develop mobile distribution systems could be a barrier to adoption (EY, 2015; Hübner et al., 2016; Caro, Kök & Martínez-de-Albéniz, 2020). EY (2015) reported that the complexities surrounding the distribution systems design would be the retailer's biggest challenge. The electronic retailers' distribution systems, mainly groceries, must be designed to ensure same-day delivery to multiple destinations but at low costs of carrier services (EY, 2015; Hübner et al., 2016; Song et al., 2019).

2.3.6 Profit margin

Traditional business leaders are also concerned about the operating profit margin. A mobile shopping channel is presumed to absorb enormous costs, including acquiring products, operating the sales channel, and delivering products to customers. It has been regarded as a low-profit margin business model (EY, 2015). EY found that over one-third of respondents reported that their omnichannel strategies dilute margins. In other words, the strategy may lead to growth but also put the retail sector at risk of margin dilution.

2.3.7 Organisation characteristics

Business traits might hinder m-commerce adoption. For example, Chang and Dasgupta (2015) believe that the SME characteristics that would cause obstacles to adoption include limited financial and personnel resources and high dependence on the owner/manager. Due to their narrow profit margins, SMEs may lack financial resources and basic ICT infrastructure for m-commerce adoption (Siwundla, 2013; EY, 2015).

2.4 Complexity of technology and its security, privacy and cost dilemmas

Some barriers to adoption have been reported as being associated with the technological innovation itself. An m-commerce system would be perceived as a complex technology. It has been reported that



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businesses find it extremely challenging to integrate m-commerce with the existing traditional business model and its IT platforms (Mallat & Tuunainen, 2008; GSMA, 2020a). Wang et al. (2016) investigated factors affecting mobile hotel reservation system adoption in Taiwan and found the system's complexity to be an inhibitor. The challenge is how m-commerce technologies can fit well together, including shopping applications, mobile payment systems, back-office systems, and mobile distribution systems.

Electronic commerce has been analysed as a business model associated with significant security and data privacy risks (Siwundla, 2013; Chang & Dasgupta, 2015; Jokonya, 2019). The GSMA (2020a) report reveals that security and data privacy concerns are significant setbacks in the deployment of the IoT. Even though the high degree of uncertainty over m-commerce security is persistent (Kapurubandara & Lawson, 2006; Wamuyu & Maharaj, 2011; Siwundla, 2013), the most compelling evidence is that tighter security measures are available but at high costs, which is a security and cost dilemma of technology. However, because of security measures concerns, business data and consumer data privacy issues are also problematic. An online business cannot prevent an invasion of privacy without tightening security measures (Jokonya, 2019). Therefore, a company must be equipped with cutting-edge systems, devices and encryption formats to tighten its security measures to protect its data, consumer data and transactions against viruses, hackers and other cybercrimes (Chang & Dasgupta, 2015).

The cost factor as a barrier to adoption discussed in this subsection pertains to technology implementation costs. Some researchers observed that m-commerce requires high initial and operating costs to succeed (Mallat & Tuunainen, 2008; EY, 2015; Jokonya, 2019; GSMA, 2020a). All types of investments require resources (i.e. capital, time) must be deployed before reaping the rewards. This, however, raises the question of whether the m-commerce business model is associated with high capital requirements or whether the businesses themselves have no interest in investing their resources in m-commerce. However, if the deployment of m-commerce requires a high investment capital for a company to compete effectively, the cost factor of failure to use it would constitute a barrier to entry, which is associated with the technology itself.

3. Methodology

A mixed-method approach was used to address the research problem. This approach draws on positivist and interpretive philosophical perspectives, qualitative and quantitative paradigms, and a cross-sectional study design. The cross-sectional study design was selected to explore and understand the perception of barriers to m-commerce adoption at a particular time, namely during the COVID-19 pandemic.

Structured questionnaires and semi-structured interviews were used as data collection instruments. A total of 301 questionnaires were distributed to brick-and-mortar business owners/managers, and 5 interviews were conducted with business professionals. A cluster sampling approach was used as a probability sampling strategy. Of the 306 respondents that participated in the study, 259 questionnaires were returned, four were discarded due to defects and incompleteness, and 260 questionnaires and interviews were deemed suitable for analysis. Descriptive analysis and content analysis were performed. Thus, qualitative and quantitative data were triangulated to guarantee concurrent validity. The data



collected from the questionnaire and interview instruments were coded into two datasets of respondents: Dataset I contained the data from the interviews, and Dataset II contained the data from the questionnaires.

4. Presentation of results

4.1 Demographic information

The study showed that men owned 100% of businesses in Dataset I (professionals). In comparison, 53.7% of companies in Dataset II (brick-and-mortar business owners/managers) were owned by men. Dataset II respondents were predominantly young, with a median age of 25. Most of them have some sort of secondary education or higher (38% bachelor's degree or above) (27.8 %). Dataset I lacked this detail.

Food items were the most popular retail item in Dataset I (40%) and Dataset II (29.8%). Dataset I also included sales of apparel (20%), mobile communication and the Internet (20%), and training and education (20%). Dataset II included retailed clothing (17.6%), home furniture (9.8%), footwear (9.4%), and construction supplies (7.1%).

Finally, while 80% of companies in Dataset I employed more than ten people, only 57% of companies in Dataset II did so.

4.2 Dataset I: Results

The results from the interviews (qualitative data), Dataset I, are presented in this section. The first question put to interviewees was:

Question one: what factors within the brick-and-mortar retailer setup will impede m-commerce?

Thus, the following challenges to the use of m-commerce were noted:

Lack of financial services: Getting financial assistance from the government and financial institutions is one of the economic infrastructure challenges faced by m-commerce businesses in Angola. Respondent A said, "We have financial challenges. We do not have a specific institution that deals with electronic issues, making e-commerce easy."

Lack of trust: Consumers' lack of confidence in m-commerce is a challenge in Angola. Respondent E said, "there is still some lack of trust from the people in the country, especially the old ones". This statement also received support from Respondent A, who stated that "many people still do not believe in m-commerce. People are still very sceptical about doing business the way it is". Respondent E added, "some people are afraid ... because they think their data will be exposed".

Bureaucratic issues: The government's continued involvement in private businesses is a challenge to m-commerce adoption. Respondent C stated, "The government is too involved, which cuts the possibility of the private business to develop." Similarly, Respondent A said that "We have too many bureaucratic issues. The government does not make things easy."



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Network problems: Issues of poor coverage of networks have been reported as a challenge. Respondent D stated that “The Internet is still a problem here, especially in some other provinces. People have issues having access to the Internet.” Furthermore, Respondent B also made an unsatisfied demand for the network service. He said that “There is a constant network failure. So, networks should be reliable to avoid creating unnecessary backlogs.” Respondent B added. It is conducive. However, it still needs improvement in terms of network reliance”. In support of the above, Respondent C stated that “We have many problems with signals, with the network”. Moreover, respondent D noted that “There are still many things that need to be done, but we are moving toward getting coverage all the country.”

A question related to m-commerce business complaints was posed to Respondent D, and he said:

“The network is really good at the places we have coverage. Well, I am really talking about the capital and some suburban areas. Because at some places in the country, I am talking about some provinces, we still have problems with the coverage, and sometimes users cannot make their transactions and so on. Yes, there are a few complaints but mostly from places where the network coverage is not really good.”

Therefore, it is safe to say that the current network services provided by the mobile operator are partially adequate for the use of m-commerce by brick-and-mortar retailers.

Lack of affordable Internet data service to the public: Unaffordability of mobile data poses a challenge to the m-commerce business and its customers. Respondent D stated that:

The Internet is quite expensive on this side, and not everyone can afford that. So, businesses cannot get as many customers as possible because most people are not connected to the Internet and struggle to do that.

Respondent D discussed the lack of affordable public mobile service to consumers and stated, “not just the customers, but also the affordability of services to them”.

Question two: What support is required for the use of m-commerce by brick-and-mortar retailers?

Need for government intervention: The m-commerce business managers expect policymakers’ interventions in their business. Respondents A, B, and C agreed that the government should intervene in m-commerce businesses with new policies and regulations. The view of Respondent B is that “everyone should know who is who, and what are the procedures to be in this kind of business”, While Respondent C stated that “the government should have more control of the security issues.” Previous studies also found the need for policymakers’ interventions critical, particularly for developing countries (Zhu & Kraemer, 2005:80; Kamble et al., 2019:165).

Support service for m-commerce: Although the m-commerce businesses reported that they also need other kinds of support, such as financial and managerial support, they only receive support for m-commerce applications (software) from private technological cooperative institutions. Respondent A stated, “These private institutions sell software to support you to do your electronic business easily.” In



support of the above, Respondent C added: "there is not any company of our government, but we have international companies running here".

Mobile electronic payment services: Mobile money is expected to be available for m-commerce to support online businesses in the Angolan market. Respondent D stated that "mobile money was something that was actually missing in the country ... our company will be launching mobile money very soon". Respondent E reported that:

"People are still doing business in the traditional way, with limited access to Internet banking transfers and ATMs, even when the world is evolving. Online payment methods like credit and debit cards should be available in the Angolan market for complete electronic transactions".

Potential target market: M-commerce business seeks support from all age groups. Respondent B stated that:

The younger generation, from 18 and up to earlier 30s, are the people that mainly use m-commerce. However, online businesses need the support of all age groups.

4.3 Dataset II

The results from the questionnaire (quantitative data), Dataset II, are presented in this section. The results are related to the following research question:

Question one: What factors within the brick-and-mortar retailer setup will impede m-commerce?

4.3.1 Business internal variables

The results in Figure 1 indicate that:

- 68% of brick-and-mortar business owners/managers revealed that they lacked experience in m-commerce;
- 62% of brick-and-mortar business owners/managers had a difference of opinion about the lack of trust in mobile transactions as an impediment to its use;
- 81% reported the cost of m-commerce infrastructure as an impediment to its adoption;
- 76% affirmed that the lack of personnel with IT skills impeded the adoption of m-commerce;
- 88% disclosed that they lack skills to configure forward distribution systems; and
- 89% admitted that they lacked the skills to configure backward distribution systems.

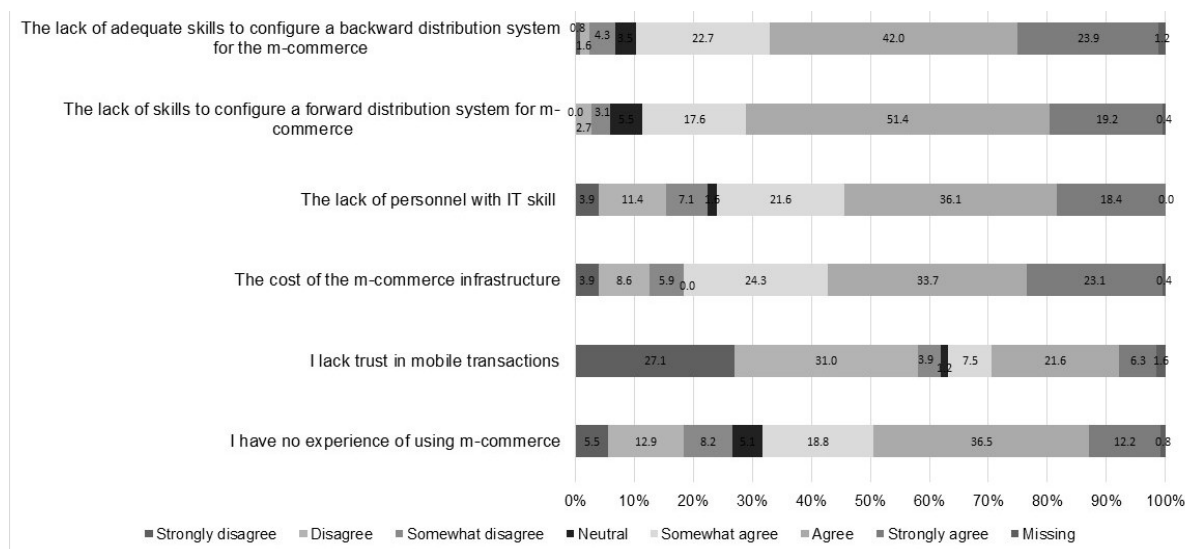


Figure 1: Impediment to the adoption of mobile commerce in the business’s internal environment
 (source: authors’ calculation)

The results in Figure 2 show that:

- 82% of brick-and-mortar business owners/managers had a difference of opinion about the lack of a contribution to profit margin in the adoption of m-commerce;
- 83% of the respondents had a difference of opinion about the lack of a contribution to sales increases in the adoption of m-commerce and
- 71% of respondents had a different perspective on the lack of competitive advantage in adopting m-commerce.

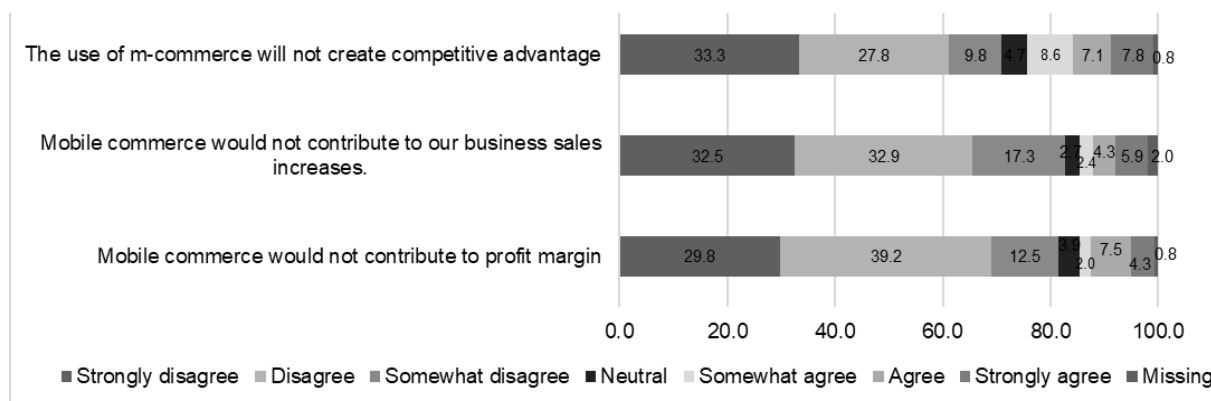


Figure 2: The perception of the technology as an impediment to adoption
 (source: authors’ calculation)



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4.3.2 Business external variables

The results in Figure 3 show that:

- 68% of brick-and-mortar business owners/managers disclosed that the lack of governmental online business policies and regulations had impeded the use of m-commerce;
- 81% revealed that the lack of cybersecurity measures constitutes an impediment to the use of m-commerce;
- 54% affirmed that mobile operators' network failure and poor coverage had impeded the use of m-commerce;
- 71% marked the lack of financial support as an impediment to use;
- 63% reported that the lack of agencies to provide m-commerce training and education had been an impediment to use;
- 65% of brick-and-mortar business owners/managers affirmed that the lack of online payment options such as credit cards, smart cards, debit cards, and electronic cash constitute an impediment to use;
- 81% marked the lack of customers pressure or demand on their business as an impediment to the use of m-commerce;
- 52% stated that the lack of popularity of online retail shops had impeded the use of m-commerce; and
- 78% disclosed the lack of competitive pressure as an impediment to use.

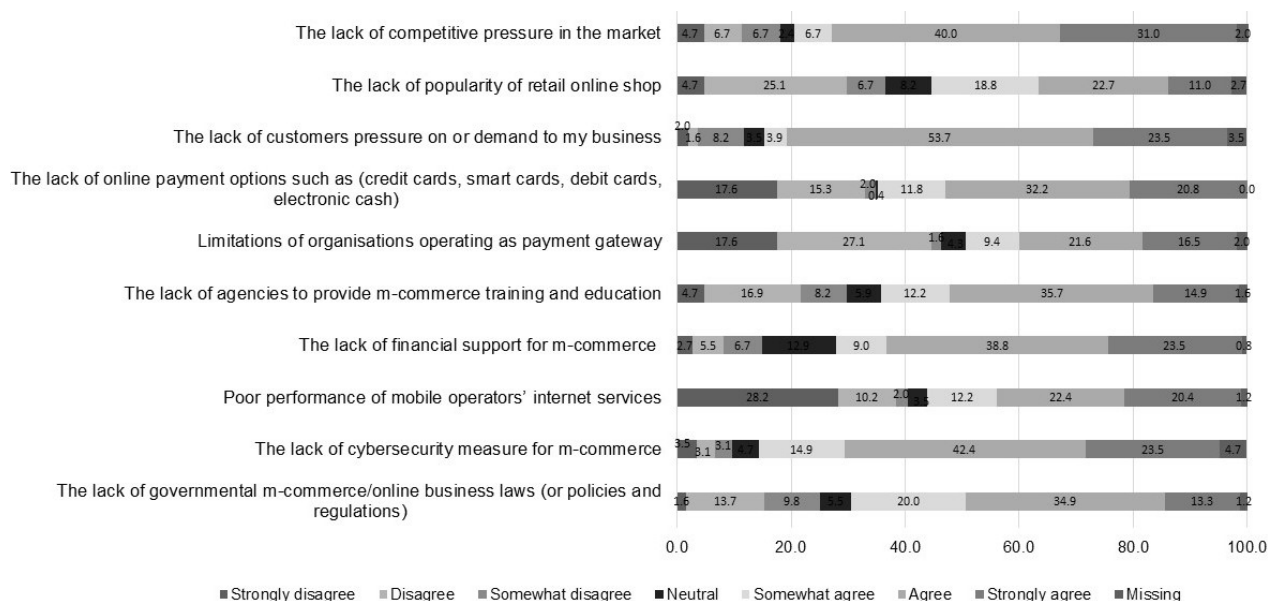


Figure 3: Business external environment as an impediment to the use of m-commerce
 (source: authors' calculation)

5. Discussion

5.1 Business internal variables

Previous experience using m-commerce is critical, and proper training in digital business should be received in its absence. The results in Figure 1 show that the lack of experience (68% in agreement) and lack of adequate skills to configure forward distribution systems (88% in agreement) and backward distribution systems (89% in agreement), as well as the lack of personnel with IT skills (76% in agreement) were greatly supported as impediments to adopting m-commerce by conventional business owners/managers. These results are supported by earlier research which reported that the inability to use m-commerce technology would lead to the failure to adopt it (Chang & Dasgupta, 2015). Moreover, in-house technological expertise is critical for the effective adoption and use of m-commerce. Thus, the lack of personnel or management with IT skills will be an additional barrier to the deployment of m-commerce. Prior research supports these results (Kapurubandara & Lawson, 2006; Chang & Dasgupta, 2015; Jokonya, 2019). However, the lack of adequate skills to configure a forward distribution system and a backward distribution system for the m-commerce strategies was also critical in this study. These results are supported by prior research (Hübner et al., 2016; Caro et al., 2020). That is, conventional business owners/managers' inability to develop mobile distribution systems will lead to a barrier to the use of m-



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commerce. Mobile retailers' forward and backward distribution systems, particularly groceries, must ensure same-day delivery to multiple destinations and the return of products from customers. Thus, the complexities surrounding the design of forward and backward distribution systems are some of the biggest challenges retailers face (EY, 2015; Hübner et al., 2016; Song et al., 2019).

Furthermore, the results indicate that the majority (62% in disagreement) of brick-and-mortar business owners/managers do not support that they lack trust in mobile transactions. That is, conventional business leaders, believe that they have confidence in m-commerce. However, these results also reveal that albeit a low but considerable proportion of respondents who agreed (35%) that they lack trust in m-commerce also still believe that electronic commerce business models are not safe and reliable.

The results show that the cost of m-commerce infrastructure (81% in agreement) deters traditional businesses from adopting and using m-commerce. These findings are corroborated by past studies (Mallat & Tuunainen, 2008; EY, 2015; Jokonya, 2019). Due to their tight profit margins, SMEs may lack financial resources and fundamental ICT infrastructure for m-commerce. M-commerce adoption and use will involve high initial and operating costs to succeed (Mallat & Tuunainen, 2008; Jokonya, 2019).

Contrary to all expectations, the results show that many brick-and-mortar business owners/managers believe that m-commerce can contribute to increased sales and their business profit margin. That suggests that integrating m-commerce into brick-and-mortar retail SMEs will boost sales, which yields a positive synergy. These results are supported by prior research (Pozzi, 2013; Huang, Lu & Ba, 2016). Similarly, the majority of respondents disagreed (71%) with the statement “the use of m-commerce will not create a competitive advantage”. That is, they also believe that m-commerce may give a competitive advantage to their traditional business. It has been observed that brick-and-mortar retailers may be forced to adopt and use m-commerce due to the belief that they can stay ahead (Chandra & Kumar 2018).

5.2 External variables

Conventional business leaders feel discouraged from adopting m-commerce due to the lack of governmental online business policies and regulations (68% in agreement) and cybersecurity measures (81% in agreement) to reduce cybercrime. The results of Dataset I concur with these findings. The participants anticipate that politicians would set processes for doing m-commerce operations and enact privacy and security legislation. In previous studies, the need for policymakers' interventions was also found to be critical, particularly for developing countries (Zhu & Kraemer, 2005; Kamble et al., 2019; Almeida, 2019). It suggests that potential users tend to gather and evaluate valuable information about the technology in the initiation stage of technology integration. Thus, government policies and regulations are critical factors, particularly in developing countries in the initiation stage. This study found that the lack of cybersecurity measures, by common consent, is an additional barrier to adoption. Findings of Dataset I support that businesses engaging in m-commerce activities should be equipped with adequate protection and technical control over the data no longer needed in transit and a storage device. It was found that a slightly higher proportion of brick-and-mortar business owners/managers agreed (54%) with the poor performance of mobile operators' networks as an impediment to adoption. These results are corroborated by the findings of Dataset I, in which respondents cited network failure and inadequate coverage as further obstacles to their continued use of m-commerce. Similarly, prior research found that the infrastructure of



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most mobile operators in developing countries is not up to scratch, which constitutes a barrier to the use of m-commerce (Maritz, 2014; Poulson, 2014; The Earth Institute & Ericsson, 2016; Kamble et al., 2019).

There is a lack of agencies providing m-commerce training, education and financial support to businesses in Angola. The results show more agreement (63%) than disagreement (30%) about the lack of agencies to provide conventional business owners/managers with m-commerce training and education. These results are corroborated by the findings of Dataset I, which demonstrated that m-commerce enterprises had not engaged any outside support for m-commerce applications. These results are also supported by Almeida (2019), who found that e-commerce businesses in Angola still suffer due to limited institutional support. Similarly, other research supports that the lack of institutions that subsidise the IT or m-commerce infrastructure and training of personnel of the business and/or promote science, technology and innovation may cause barriers to the use of m-commerce by small and medium enterprises (Siwundla, 2013; Chang & Dasgupta, 2015; Justino & Tengeh, 2016; Jaramillo, 2019). Furthermore, more respondents agreed (71%) that the lack of financial support impedes adoption. The results of Dataset I concurred that the absence of financial assistance from the government and financial institutions was a challenge in Angola. The study of Cossengue (2020) also supports that the lack of financial assistance from the government and financial institutions remains a problem in Angola. However, it would be interesting to learn more about the 13% of respondents who remained neutral and whether they believed there was sufficient financial support. In either event, it was not high enough to cause a barrier to Adoption.

There was no significant difference between the proportion of brick-and-mortar business owners/managers that agreed (48%) and disagreed (46%) that the lack of organisations which operate payment gateways impedes the adoption of m-commerce. That is, the variable received moderate support. In contrast, the lack of online payment options such as credit cards, smart cards, debit cards and electronic cash received high support (65% in agreement) as an impediment to adopting m-commerce by brick-and-mortar business owners/managers. The findings of Dataset I support these results. Since these electronic payment options are not in the Angolan market (Savita, 2020), the findings reflect that they are expected to be available for m-commerce businesses.

The results show that the lack of customer pressure or demand on the business was highly supported (81% in agreement) by brick-and-mortar businesses as an impediment to the adoption of m-commerce. These findings imply that there was weak pressure from customers or potential consumers on brick-and-mortar retailers to adopt m-commerce during COVID-19 in Angola. Moreover, although there was slightly more agreement (53%) than disagreement (36%) for the lack of popularity of online retail shops as an impediment to adoption, the results were a little skewed in that a significant proportion of respondents disagreed, and some remained neutral (8%). However, these results show moderate support for the variable. These results are supported by prior research (Kapurubandara & Lawson, 2006; Mallat & Tuunainen, 2008). Until a technology gains widespread use, firms are under no compulsion to adopt and apply it. In addition, 78% of respondents agreed with the absence of competitive pressure as a hindrance to adoption, while just 18% disagreed with the statement. These results are supported by prior research, where weak competitive pressure was associated with the failure to adopt (Lu et al., 2015:294). Thus, the brick-and-mortar retail SMEs did not face competitive pressure to adopt m-commerce.



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The lack of a free m-commerce application and the government regulatory processes required to legalise an m-commerce business further limit its adoption. However, Dataset I shows that private technological cooperative organisations assist m-commerce firms with software. Thus, insufficient knowledge and comprehension of m-commerce may explain the paucity of applications in these results (Chang & Dasgupta, 2015). Dataset I supports legalising an m-commerce business's bureaucratic procedure. It was concluded that the government is excessively involved in private business activities, making things more challenging.

Customers are scarce due to a lack of faith in m-commerce and economical Internet data connection. Many customers doubt mobile business transactions. Many people cannot afford an Internet data plan either. The m-commerce business managers warned that their business operations had been affected by bureaucratic red tape. It was revealed that the government is very involved in private business, causing difficulties rather than making things easier.

6. Implications of the study results

Research on SMEs' difficulties in adopting mobile commerce during the COVID-19 epidemic has various practical and theoretical consequences. The following are examples of such ramifications:

- To survive the pandemic, the study found that traditional SMEs in the retail sector needed to embrace digital transformation and implement m-commerce. Companies must make technological investments, strengthen their digital capacities, and adjust to shifting consumer preferences.
- There is a pressing need for small and medium-sized retailers to put their attention and resources into making online purchasing as simple and stress-free as possible for their customers.
- The report emphasises the significance of cooperation between SMEs, industry groups, and digital service providers in easing the transition to m-commerce. Sharing information and experiences, collaborating with service providers to create unique solutions, and using trade groups to gain access to capital and other resources might benefit retailers.
- The report hints that SMEs embrace of mobile commerce may have far-reaching consequences for the sector. Foot traffic in stores may drop as more people become used to purchasing online instead. SMEs who do not adopt m-commerce may be at a competitive disadvantage if not forced to close their doors.
- To encourage SMEs to use m-commerce, the report suggests that governments offer financial incentives and other forms of support. Helping SMEs overcome the obstacles of adopting mobile commerce might involve providing financial aid, training, and educational opportunities.

7. Recommendations

The recommendations in this section are derived from the factors within the brick-and-mortar retailer setup that impede the use of m-commerce and the support required for m-commerce in Angola. Thus, the framework depicted in Figure 4 underpins how these recommendations can lead to m-commerce adoption.



7.1 Brick-and-mortar retail SMEs

Selling goods or services to the final consumer through two or more channels requires multi-channel integration and management skills. M-commerce adoption by brick-and-mortar retailers demands knowledge of m-commerce resources and digital management skills. Therefore, traditional business leaders should have personal knowledge or acquire specialist knowledge of relevant resources to the application and use of m-commerce, and abilities to build m-commerce distribution systems, manage m-commerce transactions, warehousing, inventory, delivery, return and other personalised client services. The business leader should have a vision that incorporates m-commerce and be surrounded by personnel who have IT-related skills and can instil m-commerce business confidence into the public. Furthermore, without financial support, the brick-and-mortar retail store should have the necessary m-commerce infrastructure or investment capital to adopt m-commerce. The business should be willing to raise and invest funds in m-commerce.

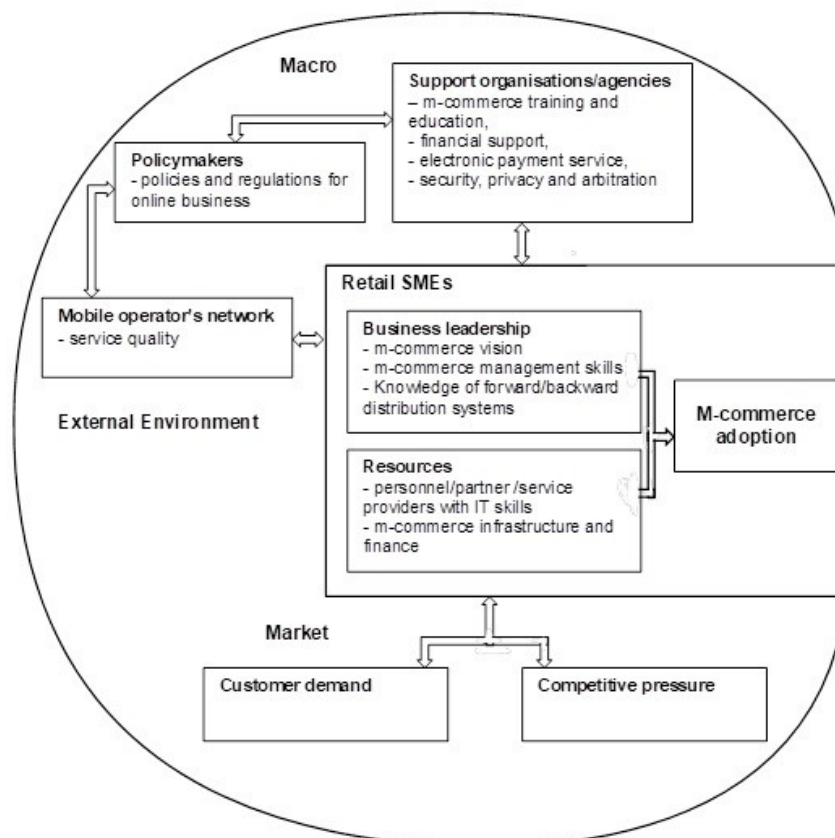


Figure 4: A framework for overcoming m-commerce adoption barriers in Angola.
(source: authors' representation)



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7.2 Macro environment

Policymakers: Since one of the significant roles of government economic policies and regulations in an economy is to create a structured environment for businesses, customers and society, it is therefore crucial that policymakers put in place electronic commerce policies and regulations. Prior research has also called for appropriate governmental actions that lead to e-commerce adoption in Angola (Almeida, 2019). Such action may boost confidence in conventional businesses and accelerate the adoption and use of m-commerce.

Support organisations/agencies: In general, SMEs have a limited number of workers and often lack financial resources and basic ICT infrastructure (Justino & Tenge, 2015:585; Siwundla, 2013:v; EY, 2015:7; Prasanna et al., 2019:1). Usually, their continuation or expansion into the market is supported by government business and large private companies. The Angolan government should set up support organisations/agencies to assist businesses when they call for financial support, managerial guidance on digital business models and technical support. Such support organisations should promote science, technology and innovation and exercise elements of online business control and arbitration. Doing so may accelerate the adoption of m-commerce and resolve critical issues of security and privacy in the Angolan market.

Network: There is a low opinion of the reliability of mobile operators' networks in Angola. Mobile operators are expected to improve their network signals and coverage and provide affordable mobile broadband Internet services to businesses and the public.

7.3 Market environment

Customer demand: For a consumer to step up demand for m-commerce, the existing m-commerce businesses and the potential adopters should increase or provide quality customer service and endeavour to promote the novelty value of m-commerce to customers and society at large. Potential adopters should be involved in promoting m-commerce, building customers' trust and expanding the customer base. Thus, these actions can instil m-commerce business confidence and mobile shopping in the public. In addition, we suggest that policymakers and support organisations spend far more on promoting technology transfer to the country and public awareness of technological innovation adoption and use. Furthermore, since there is a lack of customer demand for m-commerce and most of the public cannot afford the mobile operators' Internet services or broadband data packages (Mwamber & Qutieshat, 2021:1569), we urge the mobile operators to make inroads into the problem of unaffordability of internet data service in order to increase the number of internet users in Angola.

Competitive pressure: This study found that most brick-and-mortar business owners/managers do not face competitive pressure to adopt m-commerce in Angola. Similarly, the availability of competitive pressure in local and national markets has been observed as a critical factor in technological innovation adoption (Picoto et al., 2014:587). Thus, we suggest that the government should spend more on promoting entrepreneurship to stimulate competition; introduce several incentive schemes for new and existing SMEs in order to push potential entrants into new commercial ventures and influence competition in the country.



8. Limitations and future research

This study was conducted in Angola, where SMEs' adoption and use of m-commerce is undervalued. The study investigated factors within the brick-and-mortar retail SME sector that hindered m-commerce adoption in Luanda, Angola, during the COVID-19 outbreak and proposed a conceptual framework to overcome these barriers. The results of this study should not, therefore, be extrapolated to other situations. The characteristics that hinder m-commerce adoption discovered in this study should be investigated in other settings given the fact that the obstacles to adopting m-commerce tend to change according to different business contexts and situations. However, since this study only focussed on non-adopters, i.e. conventional business owners/managers, some divergence between views of barriers to m-commerce adoption may exist in the Angolan market. Therefore, further studies may focus on different stakeholders, such as users of m-commerce and non-adopters, and business leaders and employees (Gangwar et al., 2015; Justino et al., 2022). The actual users' view of initial and/or essential challenges faced by their m-commerce businesses in the market may provide helpful insight into the problem.

9. Conclusion

This study investigated the factors that impeded the adoption of m-commerce by brick-and-mortar retail SMEs in Angola during the COVID-19 pandemic. The study found that the following factors were the most significant barriers to m-commerce adoption: Lack of experience in implementing effective and efficient m-commerce systems; Lack of skills to configure forward and backward distribution systems; Cost of m-commerce infrastructure; and Lack of support from the external environment.

The study also revealed that the following elements might assist in overcoming these obstacles and promoting the growth of m-commerce in Angola: Government legislation and initiatives that facilitate m-commerce; Support organisations/agencies that give financial support, managerial coaching, and technical support to enterprises, as well as investments in network infrastructure and a vision of m-commerce usage and the capability to establish m-commerce distribution channels.

The research shows that adopting mobile commerce by Angola's small and medium-sized retail SMEs is essential to the country's economic recovery from the COVID-19 pandemic. The study's findings provide policymakers, businesses, and other stakeholders with a blueprint for removing barriers to m-commerce adoption and fostering its subsequent expansion.

In addition to the variables mentioned earlier, the study concluded that the following factors might influence the adoption of m-commerce by brick-and-mortar retail SMEs in Angola: market competitiveness, customer knowledge of m-commerce, trust in m-commerce, and the availability of m-commerce payment alternatives.

The report suggests that governments, firms, and other stakeholders take the following actions to remove the hurdles to m-commerce adoption and support the growth of this vital economic sector: 1) Governments should adopt rules and legislation that favour mobile commerce. 2) Organisations or agencies should be created to give enterprises financial aid, managerial coaching, and technical assistance. 3) Infrastructure for networks should be invested in. 4) Businesses should establish an intuitive grasp of m-commerce usage and the capacity to create m-commerce distribution platforms. 5) Consumers should be informed of the advantages of mobile commerce. 6) Trust in m-commerce must be developed. And 7) There



should be accessible M-commerce payment systems. By taking these steps, Angola can position itself as a leader in the m-commerce market and reap the economic benefits of this growing sector.

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