

**FACTORS THAT INFLUENCE THE SUCCESSFUL  
ADOPTION OF M-COMMERCE VIA SIM-  
ENABLED DEVICES IN NIGERIA**

**PRISCILLA ESEOGHENE OMONEDO**

**Doctor of Philosophy**

**ASTON UNIVERSITY**

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Aston University  
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via SIM-Enabled Devices in Nigeria**

Priscilla Eseoghene Omonedo

Doctor of Philosophy

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## **THESIS SUMMARY**

This research sought to identify the factors that influence m-Commerce adoption by micro and small businesses in Nigeria. However, considering that different categories of these businesses are likely to be influenced by different set of factors, depending on their level of exposure and adoption of m-Commerce, a stage model was designed. This stage model provided a prototype of the progression of m-Commerce adoption by micro and small businesses in Nigeria. Through the analysis of data collected from semi-structured interviews and questionnaires, the stage model was confirmed. Also, unique factors that influence m-Commerce adoption by micro and small businesses in Nigeria were identified such as: Nigeria's mobile phone culture, the Central Bank of Nigeria's regulatory cashless policy, Nigeria's ostentatious culture, and cultural emphasis on physical contact in the conduct of business activities.

Within the thesis, recommendations for leveraging the presence of the identified factors were discussed. These recommendations include creating awareness of security features among customers and introduction of regulatory policies that can support increased adoption of m-Commerce such as money back guarantee. Theoretical implications of the research include contributing to the debate on the divide between m-Commerce and e-Commerce, providing an update to existing literature on m-Commerce adoption factors and presenting a stage model that can guide business adoption of m-Commerce. Practical implications of the research include highlighting opportunities to create additional sources of revenue for businesses, strategies towards optimising business processes, increasing brand or business awareness and inspiring customer loyalty. Practical steps towards leveraging Nigeria's unique socio-cultural factors were highlighted including the use of Pay on Delivery service. Although this study focused on micro and small businesses in Nigeria, findings from the study may be generalised to countries that have similar socio-cultural contexts such as Pakistan and India.

**Key Words:** m-Commerce adoption, m-Commerce adoption stages, Adoption Factors, Developing Economy, Nigeria

## **DEDICATION**

I dedicate this research to my Heavenly Father, who made it possible for me to complete this work. I also dedicate this research to my most supportive guardian and godfather, Kennedy Edeni, whose immense support, mentorship and contribution made this work a reality. In addition, I dedicate this work to my wonderful parents, Lucky Omonedo and Clara Omonedo, whose prayers, words of encouragement and financial support always came timely. Lastly, I dedicate this work to Paul Bocij, a supervisor like no other.

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## LIST OF ABBREVIATIONS

ATG = Allied Trade Group

BBM = Blackberry Messenger

B&Q = Block and Quayle

CBN = Central Bank of Nigeria

CDMA = Code Division Multiple Access

DoCoMo = Do Communications over the Mobile network

e-Commerce = Electronic Commerce

ESRC = Economic and Social Research Council

FRE = Framework for Research Ethics

GDP = Gross Domestic Product

GITR = Global Information Technology Report

GSM = Global System for Mobile communication

GSMA = The GSM Association

HMV = His Master's Voice

IBM = International Business Machines Corporation

IBID = IBIDEM (Latin)

IBTC = Investment Banking Trust Company

IDT = Innovation Diffusion Theory

IKEA = Ingvar Kamprad (Founder of IKEA Group)

ITU = International Telecommunication Union

m-Commerce = Mobile Commerce

MNOs = Mobile Money Operators

MNP = Mobile Number Portability

MSMEs = Micro, Small and Medium Enterprises

MSMESDF = Micro, Small and Medium Enterprises Development Fund

MTN = Mobile Telephone Networks

NBS = Nigerian Bureau of Statistics

NCC = Nigerian Communication Commission

NFC = Near Field Communication

NTT = Nippon Telegraph and Telephone

PDA = Personal Digital Assistants

POS = Point of Sale

RFID = Rapid Frequency Identification

SMEDAN = Small and Medium Development Agency of Nigeria

SME = Small and Medium Enterprise

SMS = Short Messaging Service

SIM = Subscriber Identity Module / Subscriber Identification Module

SPSS = Statistical Package for the Social Science

TAM = Technology Acceptance Model

UCLA = University of California, Los Angeles

UITP = International Association of Public Transport

TPB = Theory of Planned Behaviour

WAP = Wireless Application Protocol

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# LIST OF PUBLICATIONS

## JOURNAL PAPERS

1. Omonedo, P., & Bocij, P. (2016). Potential Impact of Perceived Security, Trust, Cost and Social Influence on m-Commerce Adoption in a Developing Economy. *World Journal of Social Sciences*. (Accepted for Publication)
2. Omonedo, P., & Bocij, P. (2014). e-Commerce versus m-Commerce: Where is the Dividing Line? *International Journal of Science, Education, Economics and Management Engineering*, 8(11), 3402 – 3407.

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1. Omonedo, P., & Bocij, P. (2016). Potential Impact of Perceived Security, Trust, Cost and Social Influence on m-Commerce Adoption in a Developing Economy. *Annual Paris Business Research Conference*. 28 – 29 July, 2016. Paris, France.
2. Omonedo, P., & Bocij, P. (2014). e-Commerce versus m-Commerce: Where is the Dividing Line? *ICMB 2014: 16th International Conference on Mobile Business*. 21-22 November, 2014. Paris, France.

## COLLOQUIUM PAPERS

1. Omonedo, P. (2014, April). Factors That Influence the Successful Adoption of M-Commerce via Mobile Phone Devices in a Developing Economy. The West Midlands Regional Doctoral Colloquium. Nottingham Business School, Nottingham.
2. Omonedo, P. (2016, June). The Impact of Perceived Security, Trust, Cost and Social Influence on m-Commerce Adoption in a Developing Economy. The West Midlands Regional Doctoral Colloquium. Aston Business School, Birmingham.

## PAPERS IN PROGRESS

1. Socio-cultural Factors that Influence the Adoption of m-Commerce in a Developing Economy.
2. Exploring Opportunities for the Conduct of Mobile Commerce: A Case Study Of Micro and Small Businesses in Nigeria.

# OVERVIEW OF CHAPTER ONE



# CHAPTER 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 unlock the benefits m-commerce can provide for businesses.

The International Telecommunication Union 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. 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.

Therefore, the purpose of this research is to understand how micro and small businesses in a developing country like Nigeria can successfully implement m-Commerce as part of a new or existing business enterprise. The understanding of factors that are unique to developing countries like Nigeria and their impact on the adoption of m-Commerce will help in the development of a model that may be used to guide businesses in future.

## **1.1 Research Aim and Objectives**

The aim of this research is to develop a model that may be used to guide successful m-Commerce adoption by micro and small businesses in a developing country - Nigeria. The objectives of the research include:

- ✓ To identify from literature, factors that contribute towards successful adoption of m-Commerce with a focus on factors that are specific to businesses in developing countries like Nigeria
- ✓ To propose a model, using the identified factors, that can serve as a guide to encourage m-Commerce adoption by micro and small business in Nigeria
- ✓ To design an instrument that will be used to test and validate the model, using data collected from micro and small businesses that adopt m-Commerce in Nigeria
- ✓ To identify from the study, current and unique factors that influence m-Commerce adoption by micro and small businesses in Nigeria
- ✓ To discuss implications of the identified factors and provide recommendations for effectively leveraging the factors to support m-Commerce adoption by the target population

## **1.2 Rationale for Environmental Context**

### **1.2.1 Developing Countries**

The introduction of e-Commerce has brought about various changes to the way business is conducted today; nonetheless, businesses are encouraged to embrace m-Commerce because it tends to open up new benefits and opportunities. An internet company like Facebook, for instance, will attest to the fact that m-Commerce has been a worthy investment because in the first quarter of 2013, Facebook announced that 30% of all advertisement revenue (\$375 million) came from adverts shown on mobile devices (Park, 2013). By the second quarter of 2013, their advertisement revenue had risen to \$655.6 million, reflecting an increase of 41% (Stenovec, 2013). This reflects the fact that m-Commerce indeed has a potential to bring positive impact on businesses which lends credence to the importance of this study as it seeks to identify barriers and facilitators of m-Commerce adoption by businesses. This is because, an awareness of these factors would provide a starting point toward encouraging businesses, particularly in developing countries, to embrace m-Commerce in order to take advantage of potential direct and indirect benefits that m-Commerce can provide to businesses. However, it is important to understand why developing countries have been chosen as the focus of this study.

Reports by the International Telecommunication Union stated that Africa is the region with the highest growth rates over the past three years (ITU, 2013). This data provides a good justification for focusing on Africa since its growth rate can provide a platform for the introduction of evolving technologies of m-Commerce. Nonetheless, considering that Africa has different regions, the Sub-Saharan part of Africa has been selected for this study and the justification of this selection is captured in a speech by the President of the United States of America. President Obama regards “Sub-Saharan Africa as a region of extraordinary opportunity for growth and economic development and that their economies are among the world’s fastest growing” (Blank, 2012). The acting Secretary of Commerce, Rebecca Blank, at the Launch of “Doing Business in Africa” Campaign agreed with the US president’s position and also went further to state that “Internet and mobile technologies are dramatically shifting the way business is done” (Blank, 2012). Therefore, it may be observed that the opportunities for growth and economic development, as well as, the potential role that internet and mobile technologies can play in enhancing this growth, makes Sub-Saharan Africa a good region to focus a study on m-Commerce adoption in Africa.

However, considering that Sub-Saharan Africa consists of several countries, the effectiveness of the study will be optimised by focusing on a particular country and Nigeria has been chosen for this study. This is because, Nigeria, with a population of about 167 million people and a land area of 923,768 km<sup>2</sup>, is the largest economy in West Africa and the second largest in Sub-Saharan Africa (ORWA, 2013). Furthermore, Nigeria ranks second to South Africa among countries in the Sub-Saharan Africa for “Business-to-consumer Internet use index” with a score of 4.54 (GITR, 2013). This index suggests the extent to which businesses in particular countries use internet for selling goods and services to consumers. However, in comparison to South Africa, the index for individuals using internet is higher in Nigeria (ibid); thus providing a potentially higher consumer base for businesses seeking to adopt m-Commerce. More so, tele-density<sup>1</sup> in Nigeria rose from 29.98% to 101.85% between 2007 and 2015 (NCC, 2015) with 83.2m active internet subscriptions via mobile phone (ibid). This figure reflects that in Nigeria, there is a downturn in reliance on fixed telephones for internet connection in favour of internet access through mobile phones. As at April 2012, mobile phone (Global System for Mobile communication [GSM]) accounted for 98.26% of technology used for data access while fixed (wired/wireless) technology accounted for just 0.14% (NCC, 2015). The remaining 1.60% is accounted for by Mobile CDMA<sup>2</sup> usage for internet connection (ibid). The current trend of

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<sup>1</sup> Tele-density is an indication of the number of telephone subscriptions in an area. The Macmillan Dictionary online defines it as a “measurement of how many telephones are available, expressed as the number of telephone lines for every 100 people in a country”. Retrieved from <http://www.macmillandictionary.com/dictionary/british/teledensity>

<sup>2</sup> CDMA is an abbreviation for Code Division Multiple Access. It “refers to any of several protocols used in second-generation (2G) and third-generation (3G) wireless communications”. Retrieved from <http://searchtelecom.techtarget.com/definition/CDMA>

increasing reliance on mobile phones in Nigeria presents a potential environment for m-Commerce adoption to thrive. Figure 1 shows the progression of internet subscriptions which moved from 90.78% tele-density in March 2014 to 101.85% tele-density in February 2015.



*Figure 1: Active Internet Subscriptions in Nigeria (NCC, 2015)*

### 1.2.2 Micro and Small Businesses

Having established a justification for choosing Nigeria as the target country for this study, it is equally important to justify the category of businesses that have been chosen for this study and this is the focus of this section. The first justification relates to the financial contribution of this category of businesses to the economy. In Nigeria, micro, small and medium enterprises contribute 46.54% to the Gross Domestic Product (GDP) of Nigeria (NBS & SMEDAN, 2010).

This represents a significant contribution. However, a general concern that tends to attend the introduction of any technology is resistance which is often associated with older people. In literature, it is argued that older people usually pose more resistance to technology adoption than younger people (Morris & Venkatesh, 2000), but thankfully, this might not be a concern within the category of businesses that has been chosen for this study. A survey revealed that the age bracket of 24-50 dominates the ownership structure of MSMEs in Nigeria. Therefore encouraging m-Commerce adoption by MSMEs in Nigeria is less likely to be a challenge, considering that “youth entrepreneurs are dominant” (NBS & SMEDAN, 2010). Moreover, considering the number of micro and small businesses in Nigeria, encouraging a good number to embrace m-Commerce is likely to further increase their contribution to Nigeria’s GDP. More so, an increase in m-Commerce activities as a result of MSMEs involvement will likely lead to increase in competition. This increase in competition might then trigger the evolution of innovative m-Commerce activities in Nigeria.

However, the adoption of m-Commerce by micro and small businesses appears to be challenged by limited access to funds. Currently, a good number of widely used mobile applications in Nigeria are owned by multi-national or large scale indigenous companies seeking to carve a niche by tapping into the first-mover advantage. For instance, as at 2013, Rocket Internet (an international internet incubator headquartered in Berlin) with four (and still counting) arguably successful mobile applications in Nigeria seem to be enjoying a first mover advantage within this sector. Being a multi-national company, they have immense resources at their disposal to embark on m-commerce venture(s). While this company advantage may benefit the economy of Nigeria, this is in contrast to the situation of indigenous micro and small scale businesses, whose potential for m-Commerce adoption could be disadvantaged by limited resources. Although there is an estimated N220 billion (US\$1.42 billion) in a Micro, Small and Medium Enterprises Development Fund (MSMESDF), there still exist the challenge of weak access to finance, especially for SMEs (ORWA, 2013). This underscores another justification to focus on micro and small businesses because academic research can help reduce the cost of research that these businesses would need to incur. More so, a research on the identification of factors that influence successful adoption of m-commerce adoption by micro and small scale industries in Nigeria will help guide these businesses towards making appropriate, cost-effective decisions.



## 1.3 Contribution

### 1.3.1 Theoretical Contribution

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-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 author did not find journal articles that clearly reported on business' adoption of m-Commerce in developing countries. This is a gap that this research will aim 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.

In summary, this study will identify the factors that affect micro and small business adoption of m-Commerce in developing countries with the aim of providing a model that could be used to

inform successful m-Commerce adoption by businesses in similar environments. The research findings will provide an update to the existing literature.

### 1.3.2 Practical Contribution

There is an on-going debate about theory-practice divide in which academics are accused of conducting scientific research that has little or no practical relevance. Therefore, this study will ensure its findings are relevant to practice by validating its proposed model so that it does not only satisfy a theoretical need, but also provides practical implications. The fact that the proposed model will hinge on factors that are unique to businesses in a developing economy such as the Nigerian environment means that businesses within similar environments can use the model to inform their adoption of m-Commerce. During the course of the research, presentations at different local and international conferences, seminars within and outside Aston Business School and publications such as Omonedo & Bocij (2014), will increase the potential impact this study can have on different audience. Through data collection from the study's primary target audience, awareness will be created about this work. Also, an easy to understand report summary will be sent out on demand to target audience. In addition, the report will be made available online in order to further increase practical relevance as business owners can remotely access the report and adapt or adopt recommendations from the research findings.

### 1.3.3 Personal Interest

Prior to this research, I conducted research on factors affecting e-Commerce adoption in a developing country (Omonedo, 2012). Results from that research showed that some of the factors that were previously reported to be important in previous studies were no longer relevant. For instance, the problem of electricity usually topped the list in previous studies but interestingly, this was not the case when I conducted the research. This is largely because of increased access to the internet via mobile phones or other portable mobile devices. As a result, electricity was no longer a major problem or challenge for achieving access to the internet. This finding buttresses the need for more recent studies to be conducted to identify on-going and emerging factors that affect m-Commerce adoption in developing countries. Also, changing environmental contexts means that interpreting and consequently relying on findings from existing literature may be misleading.

## **1.4 Research Questions**

This research will seek to provide answers to the following questions:

- ❖ What is the current state of m-Commerce adoption in Nigeria?
- ❖ What are the factors that affect m-Commerce adoption in Nigeria?
- ❖ What factors influence the successful adoption of m-Commerce by micro and small businesses in Nigeria?

## **1.5 Study Context**

This study will be conducted within the six geopolitical regions of Nigeria. Micro and small businesses that meet the criteria specified in this section will be selected for the purpose of this study.

### **1.5.1 Inclusion Criteria**

With respect to the inclusion criteria, micro and small businesses that have the following criteria will be included:

- have a fixed location
- sell physical products
- operate as wholesalers or retailers
- and have owners or managers who are proficient in English

### **1.5.2 Exclusion Criteria**

With respect to the exclusion criteria, the following categories of micro and small businesses will be excluded:

- Click only businesses<sup>3</sup>

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<sup>3</sup> Click only businesses refers to businesses that have a website/online presence without a physical store. They only sell their products through their website. Retrieved from <http://www.mbaskool.com/business-concepts/marketing-and-strategy-terms/2587-click-only-companies.html>

- Service based companies
- Companies whose owners or managers are not proficient in English

### 1.5.3 Rationale / Justification

The inclusion and exclusion criteria for the study were chosen for the purpose of having 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 will be 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 has been selected for this study are 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 will be 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 has been set.

The last inclusion criteria for this study is that managers or owners of such businesses to be 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.

#### 1.5.4 Meaning of Successful Adoption of m-Commerce

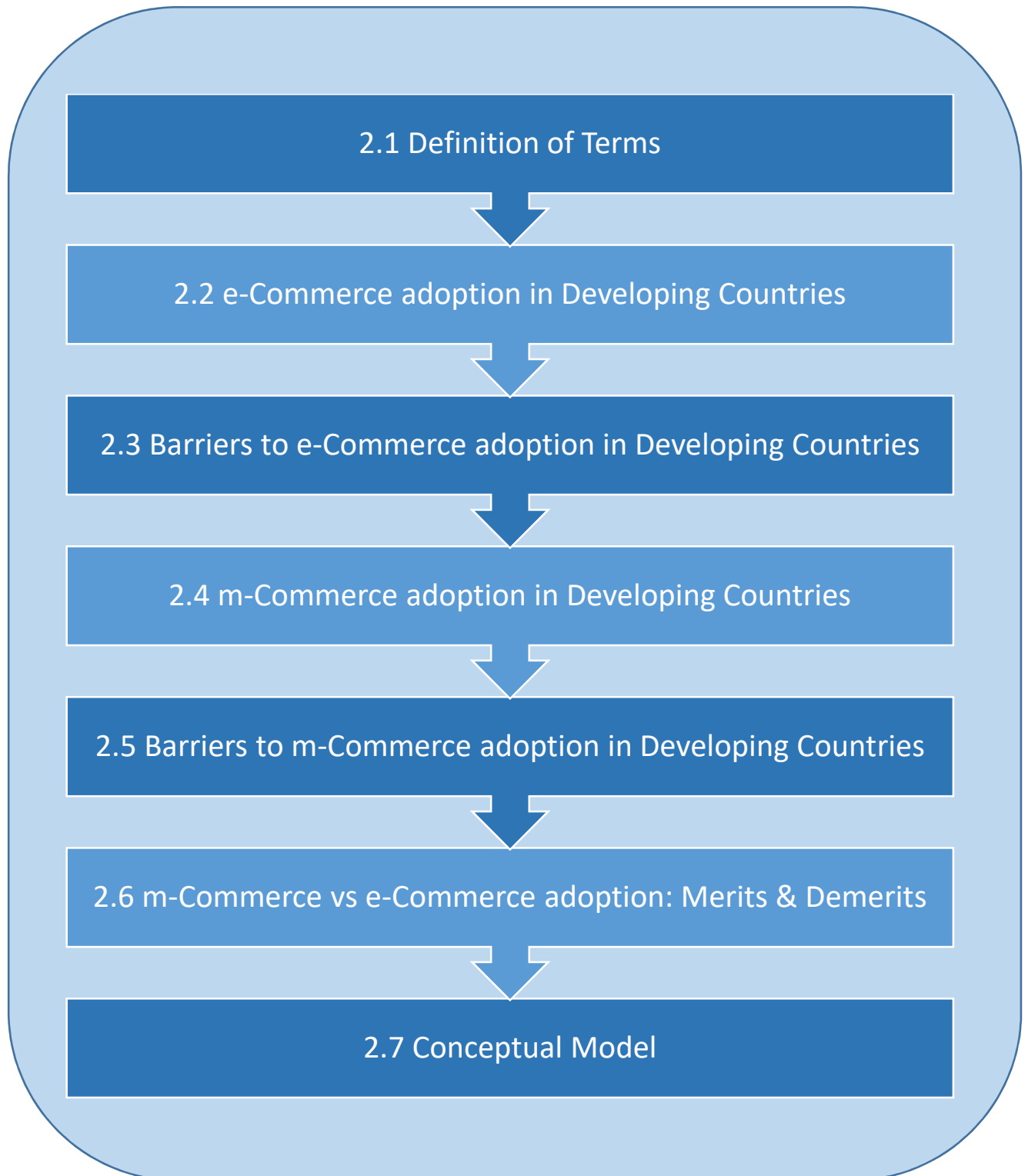
Within this thesis, successful adoption of m-Commerce by businesses refers to the ability of businesses to leverage the use of m-Commerce in order to observe some benefit within their business. This benefit can include profit making, e.g. creating additional streams of revenue for the business or saving cost, e.g. using automated systems to confirm payment rather than incurring cost for personnel to receive calls that can be handled by automated systems. In addition, successful adoption of m-Commerce could also include other non-monetary benefits that businesses can receive e.g. increased publicity, increased loyalty, customer acceptance, etc.

### 1.6 Structure of Thesis

This report is divided into eight chapters: Introduction, Literature Review, Research Strategy and Design, Design of m-Commerce Adoption Model, Exploratory Study of m-Commerce Adoption Model through Interviews, Study of m-Commerce Adoption Model through Survey, Discussion of Findings from Survey, and Conclusion. In this first chapter, the aim, objectives, and rationale for the research were outlined. The research questions, study context and structure of the thesis were presented within this chapter. Chapter two provides a review of existing literature within the area of m-Commerce. This review leads on to findings that are vital for developing the stage model in chapter four and also provides insight into the current state of the literature on m-Commerce adoption in developing countries. Chapter three presents the strategy that will be adopted in the conduct of this research. This chapter documents the process involved in conducting the interviews that are discussed in chapters four and five; and the survey that is discussed in chapters six and seven. The philosophical paradigm and statistical tools that will be used in this research are also presented in this chapter.

In chapter four, preparations the first study of this research are presented. Within this chapter, the adoption model is presented. Pilot interviews are also conducted in order to validate the interview questions to be used for the qualitative study. The results and findings from the qualitative study are discussed in chapter five. These findings provided a foundation for the quantitative study which was conducted and presented in chapter six. In chapter six, the data collected from the survey is presented through the use of graphs and tables while chapter seven focuses on discussing the findings of the quantitative study from different perspectives. Chapter eight presents a complete picture of the research and also helps to reiterate and emphasis major findings and implications of this research. In addition, limitations of the research, as well as future research directions are presented in this chapter. References and appendices are presented after chapter eight.

## OVERVIEW OF CHAPTER TWO



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Definition of Terms

##### 2.1.1 E-Commerce

e-Commerce has been defined by several authors in slightly different ways. Although there is no single definition of e-Commerce, it can be loosely defined as the buying and selling of goods and services online. IBM defined it as an element of e-Business that includes the act of selling products and services on the internet (IBM, 2001). Similarly, Coppel (2000) defined it as “doing business over the Internet, selling goods and services which are delivered offline as well as products which can be “digitised” [coded] and delivered online, such as computer software”. e-Commerce has also been defined as the process of buying, selling, or exchange of products, services, and information via computer networks, including the internet (Ghasemzadeh & Sahafi, 2003). From these definitions by an industry expert and academic papers, it can be observed that for many people, e-Commerce involves commercial transactions conducted over the internet.

While e-Commerce and e-Business share similarities and indeed are often used interchangeably, these terms are conceptually different. IBM (2001) stated clearly that e-Commerce is just “one element of e-Business”. Furthermore, Tiwari & Buse (2007) made this difference clear by defining “business” and “commerce”. In their definition, “business” refers to all the activities involved in the production and sales of goods and services which may not necessarily be of “commercial” value. Therefore, activities such as customer relationship management, procurement, human resources management, etc. are included within the concept of business. In contrast, they defined “commerce” as activities that involve or relates to buying and selling of goods and services such as marketing, after-sales services, etc. (Tiwari & Buse, 2007). From these definitions, it is apparent that the use of e-Commerce and e-Business interchangeably might be misleading since both terms appear to have different meanings. Therefore, within this thesis, the terms are used as defined above, rather than being used interchangeably.

##### 2.1.2 E-Business

IBM (2001) defined e-Business as the transformation of business processes in order to leverage the use of internet technology for business benefit. This includes making use of internet technologies to manage different aspects of a business such as human resources, customer relationship, supply chain, etc. The term “e-Business” can also be used to refer to all

electronically mediated *information exchanges*, both within an organisation and with external stakeholders, supporting the range of business processes (Bocij, Greasley & Hickey, 2008, p. 675). Again, a triangulation of both definitions from industry and academia reflect that e-Business is more than just buying and selling. It includes the transformation of business processes, improving communications and sharing information for business purposes.

Progressing from the concept of e-Business, there is also a concept of m-Business. As has been pointed out with e-Business and e-Commerce, m-Business is also different from m-Commerce to a certain extent. Although m-Business is not usually given as much attention as m-Commerce in literature, it is important to point out the difference.

### 2.1.3 M-Business

m-Business has been defined as the conduct of information inquiries and/or business transactions through the use of mobile devices via wireless communications (Ning, Di, & Xiu-kun, 2010). Like e-Commerce, m-Commerce is only a part of m-Business. Duan & Song (2010) explains the difference in this way: m-Commerce is the buying and selling of products and services over the internet using mobile devices, whilst m-Business is the ability to interact and transact with anything and anyone, anytime and anywhere. This difference suggests that m-Commerce is an integral subset of m-Business; a view also shared by Tiwari & Buse (2007). However, this study will take a slightly different view on the difference. Rather than considering m-Commerce as an integral subset of m-Business, this study posit that m-Commerce only shares a subset of characteristics or features with m-Business (Omonedo & Bocij, 2014). The reason for taking this stance is because there are certain aspects of m-Commerce that can be considered as m-Business but they both have unique aspects (ibid). Further explanation of these differences are captured in the definition of m-Commerce which is covered in the next section.

### 2.1.4 M-Commerce

m-Commerce, also known as mobile commerce, has been defined by several authors in slightly different ways. There are diverging views about whether there is a clear difference between e-Commerce and m-Commerce, some schools of thought arguing for their independence, while others support m-Commerce as an extension of e-Commerce (Tiwari & Buse, 2007). Although this study does not directly join in the debate, as a result of this study, a paper has been written by the author to contribute towards this debate (Omonedo & Bocij, 2014). Therefore, this section



will focus on defining m-Commerce within the context of this study. However, a review of some definitions of m-Commerce by different authors is first discussed, before presenting the study's stance on the definition of m-Commerce.

m-Commerce refers to "...e-commerce activities carried out using a mobile device such as a phone or PDA" (Xin, 2009a). In another paper, Xin (2009b) defined m-Commerce as "...any direct or indirect transaction with a potential monetary value conducted via wireless telecommunication networks". In contrast to this definition, Tiwari & Buse (2007) stated that restricting the definition of m-Commerce to transactions having monetary value is problematic because it fails to distinguish between m-Business and m-Commerce. Also, they are of the opinion that such a definition suggests that transactions have to be exclusively completed via mobile telecommunication networks as a prerequisite; thus limiting m-Commerce products and services to immaterial items such as information (Tiwari & Buse, 2007). They therefore define m-Commerce as "...any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device" (Tiwari & Buse, 2007).

m-Commerce has also been defined as commercial transactions conducted through a variety of mobile equipment - such as wireless application protocol (WAP) equipped cellular phones and personal digital assistants (PDA) - over a wireless telecommunication network in a wireless environment (Min & Li, 2009). Long (2011) also supported a similar view by defining m-Commerce as the ability to conduct commerce using a mobile device, such as mobile phones, personal digital assistants (PDA) and smartphones. However, Chong (2013) simply defined it as "...the buying and selling of goods and services through wireless handheld devices".

From the sample of definitions, it is commonly agreed that m-Commerce involves business transactions conducted over mobile devices such as mobile phones, smartphones and other handheld devices. Hence, this study will also support the view that m-Commerce involves the use of mobile WAP and/or SMS enabled electronic devices (or SIM-enabled mobile devices). However, although most authors tend to agree with this general definition based on the access point, there exist some less obvious, albeit divergent opinions about the specific kinds of activities that fall under the umbrella of m-Commerce. While some literatures suggest that m-Commerce entails content delivery and information transfer, others suggest that m-Commerce goes beyond content delivery and information transfer to include transactions that offer some form of monetary gain. For instance, some authors suggest that m-Commerce activities involves business transactions conducted over mobile devices for the purpose of monetary value such as product and service ordering, e-auction (Clarke III, 1997; Huang, Qi, & Dong, 2006; Khalifa & Shen,

2008); some other authors opine that m-Commerce includes a wider range of activities such as sending and receiving emails, downloading music/graphics/animations, playing interactive games online, trading stocks, booking tickets, finding friends, conducting financial and business transactions (Hung, Ku, & Chang, 2003; Xin, 2009b).

In a bid to identify m-Commerce activities, authors such as Long, (2011) and Chong (2013) have zoomed the focus of m-Commerce on mobile applications that allow customers to engage in various activities such as completing transactions, involving mobile banking and mobile purchase, getting access to mobile vouchers and mobile games. In addition to these, some other authors have included internet browsing, location-based services, customer services and automated home appliances as part of m-Commerce activities (Hung et al., 2003). Considering the divergence of opinions, some authors, rather than focus on itemising m-Commerce activities, took a different approach by highlighting the features of m-Commerce. Buellingen & Woerter, 2004 identified the features of m-Commerce as comfort, spontaneity and mobility. Other features of m-Commerce have been identified to include ubiquity, immediacy, localisation, instant connectivity, pro-active functionality and simple authentication procedure (Tiwari & Buse, 2007; Li & Autran, 2009).

Having considered various definitions of m-Commerce based on access point, types of m-Commerce activities and features of m-Commerce, this study will take a position on the definition of m-Commerce. In order to achieve this, Leung & Antypas (2001)'s position on m-Commerce will be favoured as it best captures the intended scope of this study. In their work, Leung & Antypas (2001) defined m-Commerce as "content delivery (notification and reporting) and transactions (purchasing and data entry) on mobile devices" such as Short Message Systems (SMS) devices, Wireless Application Protocol (WAP)-enabled devices, Personal Digital Assistants (PDA), etc. (Leung & Antypas, 2001). From this definition, Leung & Antypas (2001) are suggesting that m-Commerce involves business transactions that have direct and indirect monetary value. For instance, although notification and reporting may not necessarily have a direct monetary value, they could play an important role in building consumer trust which could in turn increase consumer loyalty (Clarke III, 1997; Cyr, Head, & Ivanov, 2006). Following this line of thought therefore, Leung & Antypas (2001) indicated that m-Commerce activities include the use of SMS to deliver marketing and status messages such as promotions and flight verifications as well as the use of WAP for interactive processes such as purchasing or reservation applications, etc. (ibid).

Hence, this study will define m-Commerce as business communication and/or transaction which is facilitated through the use of mobile access to electronic devices<sup>4</sup> for direct or indirect monetary benefit. Therefore, the focus of this study will be on businesses that leverage on the growing usage of SIM-enabled mobile devices in Nigeria to reach consumers. These businesses include, but are not limited to, micro and small enterprises that:

- ✓ Have mobile optimised websites, that is websites that consumers can access on their mobile devices in order to request, reserve or purchase products and/or services
- ✓ Leverage the use of mobile phones or other SIM-enabled mobile devices to facilitate business transactions (e.g., text 5000 to 131 to pay for car park; call for product enquiry or reservation)
- ✓ Provide mobile applications that are developed to increase channels or routes through which consumers can engage in commercial transactions with their business
- ✓ Make use of SMS to deliver status messages and personalised content delivery such as advertisement, location based offers and/or services

#### 2.1.5 Micro and Small Business

Micro, small and medium enterprises (MSMEs) form a part of the economy that has received insufficient attention of researchers especially with respect to electronic or mobile commerce adoption, yet it is widely acknowledged that these businesses contribute significantly to their economies (Grandon & Pearson, 2004; Aris, 2007; Ayyagari, Beck, & Demircuc-Kunt, 2007). In Nigeria, a survey conducted by the National Bureau of Statistics (NBS) and Small & Medium Enterprises Development Agency of Nigeria (SMEDAN), revealed that MSME sector is “strategically positioned to absorb up to 80% of jobs, improve per capita income, increase value addition to raw materials supply, improve export earnings and step up capacity utilisation in key industries” (NBS & SMEDAN, 2010). This emphasises the important role SMEs and MSMEs play in economic growth and development, particularly in emerging economies like Nigeria.

Although varying definitions exist about SMEs (Hashim & Abdullah, 2000) and MSMEs (Oborah, 2011), this study will favour the definitions provided by Nigeria’s National Bureau of Statistics (NBS) and the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN). By their definition, micro enterprises refer to businesses that employ 1-9 persons;

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<sup>4</sup> Mobile access to electronic devices means that people can access the devices on the go. This includes portable, electronic devices that people can use to support m-Commerce activities on the go e.g. mobile phones, POS, etc.

small enterprises refer to businesses that employ 10-49 persons and medium enterprises refer to businesses that employ 50-199 persons (NBS & SMEDAN, 2010). In Nigeria, there are about 17,284,671 MSMEs (micro -17,261,753, small - 21,264, and medium - 1,654) (ibid). At the time of the survey, the initial start-up capital of micro enterprises were found to be predominantly less than fifty thousand Naira (about one hundred and ninety pounds), while small and medium enterprises were predominantly less than ten million Naira (about thirty eight thousand pounds).

The Nigerian National Policy on MSMEs cited in NBS & SMEDAN (2010) stated that micro enterprises are those enterprises whose total assets (excluding land and buildings) are less than Five Million Naira; small enterprises are those enterprises whose total assets (excluding land and building) are above Five Million Naira but not exceeding Fifty Million Naira; medium enterprises are those enterprises whose total assets (excluding land and building) are above Fifty Million Naira, but not exceeding Five Hundred Million (ibid). These figures have been converted to pounds in Table 1.

From the foregoing, the size of micro and small businesses in Nigeria and their potential to significantly impact on the economy raises the need to turn the spotlight in this direction because their success or failure has the tendency to impact on Nigeria’s economy.

The table below presents a summary of definitions for SMEs in Nigeria. Note that conversion to pounds was done based on the current conversion rate of ₦260 to £1. Also, figures have been rounded up to the nearest whole number.

<b>CLASSIFICATION OF MSMEs in NIGERIA</b>			
	<b>Micro Enterprise</b>	<b>Small Enterprise</b>	<b>Medium Enterprise</b>
Total number in Existence	17,261,753	21,264	1,654
Number of Employees	1 - 9 persons	10 - 49 persons	50 - 199 persons
Total assets (excluding land and building)	Less than £19,000	Greater than £19,000 but less than £190,000	Greater than £190,000 but less than £1.9million

*Table 1: Classification of MSMEs in Nigeria (NBS & SMEDAN, 2010)*

## **2.2 E-Commerce adoption in developing countries**

The advent of electronic commerce (e-Commerce) has changed business practice globally (Lee, 2001; Chiemeké and Ewwiekpaefe, 2011). e-Commerce refers to the process of buying, selling, or exchange of products, services, and information via computer networks, including the internet (Ghasemzadeh & Sahafi, 2003). Its adoption in developing countries provides access to global markets which enables businesses to expand their reach (Aghaunor and Fotoh, 2006). e-Commerce eliminates restrictions of geographical boundaries that characterize early practise of buying and selling (Akintola et al, 2011), affords a place for direct retail shopping 24-hourly, provides consumer interaction and multimedia prospects, and has become a multibillion dollar source of revenue for the world's businesses (Ketel and Nelson, 2005). Businesses that have embraced and incorporated e-Commerce as part of their activities have experienced positive results. This is owing to increased internet usage opening up opportunities and activities for e-Commerce globally (Lawrence and Tar, 2010; Ajayi et al., 2008). Recent research corroborates this claim as it suggests 40% of the world's population (2.7 billion people) are online (ITU, 2013). As the internet can help reduce transaction costs and increase market reach, e-Commerce can contribute to the advancement of businesses (Molla and Licker, 2005), as well as provide better discounts and a variety of product choices for consumers (ibid).

In view of the prevailing global economic recession, e-Commerce provides a strategy to improve trade (Akintola et al, 2011). As a marketing tool, e-Commerce has created new industry structures, thereby changing intensity of rivalry, threats to new entrants and substitutes, which implies that "every organisation, irrespective of size, can be a major player in the new global market" (Oborah, 2011). This is a motivation for e-Commerce adoption, as it provides a platform upon which businesses can interact and liaise with each other in order to expand their reach to potential customers globally. In addition, e-Commerce adoption in developing countries presents the opportunity for businesses to benefit from international value chains and also improve internal and external market efficiency (Molla and Licker, 2005). An increase in market reach and access will increase competition among businesses, which ensures that high quality of goods and services are maintained. Sadly, developing countries are yet to maximise the gains that e-Commerce can provide, due to factors or barriers that hinder its adoption (Lawrence and Tar, 2010). Interestingly, Nigeria, regarded as a leading economy and the most populous country in Africa, is yet to enter the mainstream of the e-Commerce boom (Akintola et al, 2011). Nigeria's sizable population suggests that it is a potentially lucrative market for e-Commerce activities (Ajayi et al., 2008). However, there is doubt regarding the extent of e-Commerce growth that is achievable in developing countries such as Nigeria (Lawrence and Tar, 2010) due to several barriers that are discussed in the next section.

### **2.3 Barriers to e-Commerce adoption in developing countries**

Several studies have indicated a range of barriers to the adoption of e-Commerce in developing countries. Some of those barriers include: high cost of and limited access to the internet (Lawrence and Tar, 2010); poor electricity supply, lack of purchasing power (Kshetri, 2007); scarcity and high cost of computers (Lawrence and Tar, 2010); a lack of technical know-how (Aghaunor & Fotoh, 2006); limited IT user acceptance and friendliness (Ledbrook, 2012); lack of trust (Humphrey et al, 2003); poor information security (Attafar & Nezam, 2010); limited environmental and organisational e-readiness (Molla & Licker, 2005a).

Kshetri (2007) indicated that lack of purchasing power is one of the many barriers to e-Commerce utilisation in developing countries, owing to low rural internet usage. This is understandably so, because in most rural areas, internet, which forms the basis for e-Commerce utilisation, is rarely regarded as a priority. Also e-Commerce relies on technological infrastructure, which are expensive for many consumers, due to the unfavourable economic condition; making low purchasing power a key barrier to e-Commerce adoption in developing countries (Lawrence and Tar, 2010). In spite of the unfavourable economic condition, consumers are likely to seek means through which they can access the internet. However, this will be largely dependent on their knowledge of technologies such as computers.

Computer illiteracy and language barriers pose major challenges to the utilisation of e-Commerce in developing countries (Kshetri, 2007; Lawrence and Tar, 2010). There is a fairly low level of computer literacy in developing countries, particularly in rural and semi-urban areas, where traditional methods of communicating, teaching, conducting businesses, and leisure activities still continue. The no-change stance could be viewed as a strategy to protect and preserve inherited cultural belief systems, and to resist any external invasion and contamination from foreign cultures. Apart from this, many websites are designed with Anglo-Saxon consumers in mind, with little consideration for non-English or non-French speakers. This approach will marginalize native speakers, encourage their embrace of traditional methods for doing things, and dismiss any motivation for engaging in online activities.

Kshetri (2007) also indicated that developing and maintaining relationships between buyers and sellers are important for businesses, particularly in developing countries. This implies that most consumers within developing economies prefer personal, face-to-face contact and communications in comparison to e-mails, and the virtual electronic stores that e-Commerce provides. This preference reflects the “lack of feel-and-touch associated with online purchases” (Efendioglu et al, 2005). It may also be a reflection of an unwillingness to embrace a shift from long endeared cultural beliefs and social practices; thereby resulting in poor relationships between

trading parties and consequently, low e-Commerce adoption in developing countries (Efendioglu et al, 2005). Also, the widespread increase in cases of internet fraud (Toppo, 2015; Boyce, 2014; The Hindu, 2013; Dube, 2010) discourages online business activities and further encourages consumers' preference for physical contact at stores over online trading.

This issue of poor personal relationships between business parties can be closely linked to a lack of trust and xenophobia as highlighted by Attafar and Nezam (2010) and Uzoka, Shemi, & Seleka (2007) respectively. It is difficult to isolate issues of trust when considering the role of personal relationships in e-Commerce utilisation. Lawrence and Tar (2010) suggested that in developing countries, "trust is established and reinforced through family association, repeated personal contact and interaction". Hence, the more familiar and aware consumers are of businesses and products (including previous demonstration of business integrity), the more likely they will engage in e-Commerce activities involving such businesses. Although trust is said to be subjective; integrity, risk, reputation, competence, etc. are key factors that can significantly affect trust (Attafar and Nezam, 2010). Chiemeké & Ewwiekpaefe (2011) suggested that personal trust, perception and believe in a given technology, particularly with regards to security will significantly affect their adoption of such technology. The emphasis is on the individual, corroborating Attafar and Nezam's position that trust can be subjective, and making it difficult to ascribe a value, measure or concrete definition to it. Efendioglu et al (2005) observed that the issue of lack of trust, also known as transactional trust, is also amplified by cultural characteristics. This corroborates Uzoka et al (2007)'s position that attitudinal issues also play significant role in e-Commerce adoption.

Kshetri (2007) suggested that low utilisation of e-Commerce observed in developing countries can arise from consumer's poor awareness and limited knowledge of e-Commerce benefits. In support, Chiemeké et al (2011) posit that since e-Commerce is a fairly new concept in developing countries, there is a need to educate the people on its benefits in order to boost its utilisation (Chiemeké and Ewwiekpaefe, 2011). In contrast however, Adeyeye, (2008) stated that although many are unaware of the concept of e-Commerce in developing countries, some actually engage in it without realising. This position potentially implies that the drive for goods and services rather than the perceived benefits may be the driver for consumers engaging in e-Commerce activities. The recentness of Chiemeké and Ewwiekpaefe (2011)'s work makes their position more favourable and current when compared to Adeyeye (2008).

Furthermore, a lack of consumer confidence in service providers has also been implicated for low e-Commerce utilisation in developing countries (Kshetri, 2007). The vast number of people and businesses, whose online activities are most times unregulated, can act as a deterrent to potential

consumers from engaging in e-Commerce activities (Lawrence and Tar, 2010). This may be related to concerns about trust and security.

Chiemeké et al (2011) defines security as “the extent to which consumers believe that his or her payment online is free from unauthorized access, use, alteration, and destruction”. Sadly, the near absence of potent legal framework and policies to regulate online activities of businesses, added to the weakness of the juridical system in developing countries hampers e-Commerce adoption because of consumers’ perceived or real insecurity (Lawrence and Tar, 2010). Generally speaking, consumers in developing countries are not so confident to engage in e-Commerce without the fear of their information being compromised. This is in contrast to their counterparts in developed economies of the world. Chiemeké et al (2011) further posited that an individual’s perception of e-Commerce’s ability to perform its required function without failure plays a vital role in e-Commerce utilisation. In contrast, Uzoka et al (2007) was of the opinion that the negative impacts of consumers’ perceived disadvantages of e-Commerce are “not statistically significant” in developing countries. However, Chiemeké et al (2011)’s position appears to be more favourable as it implies that a lack of consumer confidence in e-Commerce will very likely affect their e-Commerce behaviour and activities. Interestingly, results from a survey conducted by ATG (acquired by Oracle in 2010) revealed that the level of consumer retention is proportional to their level of satisfaction during e-Commerce activities (Oracle, 2011). Although the significance of consumers’ perception for e-Commerce adoption may be argued, from all indications, there is a need for e-Commerce education and reorientation in developing countries. Uzoka et al (2007) stated that because of the significant role behavioural influences play in e-Commerce adoption, it is important that customers are educated and made aware of the benefits of e-Commerce.

#### **2.4 M-Commerce adoption in developing countries**

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 on 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, 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).

In addition, the Central Bank of Nigeria introduced a new policy in 2011 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). As at July 2013, it was noted by the Banking and Payment System Department that the volume of transactions on the mobile payment platform had come up to 6.85 million transactions with a value of N74.26 billion (ibid). These figures reflect substantial progress being made on mobile banking deployment in Nigeria with a strong influence from the Central Bank of Nigeria.

## **2.5 Barriers to m-Commerce adoption in developing countries**

Given the fact that the concept of m-Commerce is still very much at its infancy especially in developing countries, there exists very little literature that focuses on m-Commerce adoption in developing countries. However, this section will start with a list of factors that influence the adoption of m-Commerce. This includes a range of factors that have been generally identified in m-Commerce literature. Then, factors that reflect the business' perspective will be elaborated before an analysis of available literature that focuses on factors that affect m-Commerce adoption by businesses in developing countries.

Several authors that identified various factors that affect the adoption of m-Commerce adoption - these include: usability (Min, Li, & Zhong, 2009); perceived cost (Wei et al., 2009); perceived usefulness (Khalifa & Shen, 2008b); customer loyalty (Benou et al., 2012); design aesthetics (Cyr et al., 2006); access issues (Bouwman et al., 2007); trust (Wei et al., 2009); privacy (Khalifa & Shen, 2008b); policy and management irregularities (Song, 2010); limited processing power (Lee & Benbasat, 2003); perceived enjoyment (Nysveen, Pedersen, & Thorbjørnsen, 2005); lack of security (Zhang et al., 2002); personal innovativeness (Lu et al., 2005); limited input/output interface (Lee & Benbasat, 2003). This list represents factors that affect different players in the adoption of m-Commerce. Therefore, since this study is more interested in businesses, factors that relate to business adoption of m-Commerce will be elaborated in the following paragraphs.

Usability has been identified as a factor that affects the adoption of m-Commerce by users (Min et al., 2009). However, the challenge of usability is not generated by users but by the providers of the m-Commerce platform being used. This implies that businesses that seek to derive commercial benefits from the use of m-Commerce need to ensure that the issue of usability is addressed (Venkatesh, Ramesh, & Massey, 2003). To do this, they need to bear in mind that whatever m-Commerce platform they hope to implement in their business needs to be effective (achieve its goal); efficient (use less resources); satisfactory; easy to learn and secure (Min & Li, 2009). In other words, businesses should seek to make m-Commerce experience less stressful and more useful. As suggested in Venkatesh et al. (2003), businesses should place high premium on delivering relevant content and making navigation less cumbersome.

Design aesthetics is another issue that weighs on businesses. Like usability, design is an important aspect of m-Commerce implementation as it impacts on a number of other factors like perceived enjoyment, usefulness, ease of use and consumer loyalty (Cyr et al., 2006). Therefore, shrinking web pages to fit cell phone or PDA is not enough for m-Commerce implementation (Venkatesh et al., 2003). Businesses should follow unique design principles that will alleviate m-Commerce limitations like limited input/output interface and limited processing power. Principles such as careful use of graphics (Condos et al., 2002); personalised or predictive content delivery (Soriano & Ponce, 2002); consistent and simple navigation (Condos et al., 2002); easy to use structure (Venkatesh et al., 2003); limited user input (Condos et al., 2002) may be implemented in a bid to improve users' m-Commerce experiences.

Security is one issue that often arises with virtual transfer of money or vital information. In m-Commerce, security, trust and privacy concerns are issues that affect its adoption. Although these issues are consumer related in the sense that they could be largely subjective, businesses have a key role to play in ensuring that they gain consumers' confidence in their m-Commerce venture.

For instance, businesses have the responsibility to ensure that data transfer via their m-Commerce venture is secure (Zhang et al., 2002; Xin, 2009b). Also, giving the importance of trust in users' adoption of m-Commerce (Chong, 2013b), businesses need to ensure that appropriate technologies and checks are in place as this will enhance consumers' confidence in them (Fan et al., 2005). Furthermore, privacy is another cause of concern for users because businesses can have access to more sensitive consumer information such as personal interactions and physical location (Khalifa & Shen, 2008b). Proper targeting of consumers for advertisements (J. J. Zhang et al., 2002) as well as intervention by regulatory policies (Saidi, 2010) could ensure that businesses effectively manage this issue of privacy.

Personal innovativeness is another issue that affects m-Commerce adoption. Although the importance of personal innovativeness in m-Commerce adoption has been studied with consumers in view (Lu et al., 2005; Xiang, Wu, & Chen, 2008), this concept can also relate to businesses. Just as personal innovativeness plays a role in consumers' willingness to try out new technologies related to m-Commerce (Chong, 2013b), personal innovativeness can also play a role in managerial decisions to adopt m-Commerce. As was highlighted in Molla & Licker (2005b), managers' innovativeness and their reception of, or commitment to innovation affects their decision to adopt a new innovation. This may be a reflection of the fact that business leaders' personal innovativeness could largely impact on whether or not such businesses will have m-Commerce implemented as part of their business structure.

## **2.6 M-Commerce vs. E-Commerce adoption: Merits and Demerits**

This section will seek to highlight the comparative advantages and disadvantages of m-Commerce and e-Commerce within the developing countries context. Quite obviously, a good number of people will agree that both m-Commerce and e-Commerce provide similar benefits to varying degrees. Interestingly, this variation in the degree of benefits could be a merit for either of them which could result in increasing preference for one type of Commerce over the other. For instance, the issue of Convenience is a common benefit of e-Commerce and m-Commerce. However, it may be argued that in developing countries, m-Commerce provides more convenience to consumers than e-Commerce. This could be because the platforms required for the conduct of m-Commerce are more readily available than the platforms required for the conduct of e-Commerce in developing countries.

The adoption of e-Commerce by businesses results in reduced transaction and production costs and potentially, increases sales (Shahram et al., 2011). This is because businesses can record sales

and make profits just by having an online presence (Oduntan, 2010). Also, through the help of e-Commerce, physical boundaries and geographical barriers associated to traditional business transactions are alleviated, thus increasing business market reach. For the consumer, they experience reduced cost of product search and have access to more varieties of product when they engage in e-Commerce (Oduntan, 2010). Also, e-Commerce encourages an increase in competition which often results in increased product innovation and economies of scale (Oduntan, 2010).

Although e-Commerce provides such immense benefits, the introduction of m-Commerce pushes the boundary of innovation in the world of business even further. While e-Commerce provides the opportunity of conducting business transactions with little or no geographical barriers, a major advantage of using m-Commerce is that it provides the opportunity of conducting business transactions anywhere and anytime (Xin, 2009b). This makes it possible to conduct business transactions on the go. Also, the introduction of m-Commerce provides features of localisations and instant connectivity (Tiwari & Buse, 2007). With these features, businesses can send targeted information or advertisements to potential consumers based on their current location. The fact that mobile devices make it possible to remain connected to the internet means that such information is more likely to reach consumers in real time. This feature tends to be more effective with m-Commerce than with e-Commerce because such location based information is likely to encourage more sales. For instance, a hungry consumer who receives a coupon on their mobile phone by walking past a McDonald's outlet is more likely to visit that outlet than a hungry person receiving the coupon from their office computer.

Another advantage of m-Commerce is reflected in the presence of NFC (Near Field Communication) technology. NFC refers to the integration of RFID (Radio Frequency Identification) technology with mobile phones (Ondrus & Pigneur, 2007). Through this technology, it is possible to make payments through mobile devices. Also, with the help of "smart posters", consumers can wave their phone close to a poster and get more information about the poster (Ondrus & Pigneur, 2007). This feature of m-Commerce provides a smarter way of making payments and getting information than e-Commerce.

Although it seems m-Commerce presents advantages over e-Commerce both m-Commerce and e-Commerce have their limitations. Interestingly, just as some of the limitations of e-Commerce may be overcome through the use of m-Commerce, some of the limitations of m-Commerce can also be overcome through the use of e-Commerce. For instance, an issue with m-Commerce is that of minimum screen size and display type (Clarke III, 1997). With the use of mobile phones, there is usually a limit to how information may be displayed due to the size of the screen, but on

the other hand, laptops and computer screens can accommodate a larger amount of information due to their larger screens. By implication, the display and number of advertisements available to mobile users is limited compared to those available to computer users.

Just as e-Commerce and m-Commerce present some common advantages such as convenience, they also both present some common disadvantages. Several authors have identified security as a common concern that plagues e-Commerce (Coppel, 2000; Vatanasakdakul et al., 2004; Lawrence & Tar, 2010) and m-Commerce (Ayo & Ekong, 2007; Li et al., 2010; Jianping, 2011).

Given the fact that e-Commerce as well as m-Commerce presents both advantages and disadvantages, the focus in comparing both technologies should not be on which technology is better. Rather, the focus should be: in this context, e.g., developing countries, which technology is more favourable?

From the foregoing discourse on comparisons of m-Commerce vs. e-Commerce, m-Commerce appears to be more favourable in developing countries because some of the barriers to e-Commerce (Section 2.4) are overcome through the use of m-Commerce. For instance, the problem of infrastructure is minimal with m-Commerce because with a mobile phone, anyone can engage in m-Commerce. Thankfully, 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<sup>5</sup>. This is particularly useful in an environment like Nigeria where many people have more than one SIM card or mobile phone (GSMA, 2014; Onyango-Obbo, 2014) which may not necessarily be *smart*.

Also, considering the issue of power supply, with mobile phones, conducting commercial transactions online is quite heavily dependent on power supply. Whereas 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.

## **2.7 Conceptual Model**

In order to have a proper understanding of this research topic, it is necessary to understand the semantic context within which it is located. Thus, a conceptual model is presented to provide a

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<sup>5</sup> <https://www.mypaga.com/paga-web/start.paga#>

visual representation of the concepts that aid the understanding of this research topic and how they fit together. From the review of m-Commerce literature conducted by Ngai & Gunasekaran (2007), basic concepts relevant to understanding this study may be identified: m-Commerce theory, m-Commerce infrastructure and m-Commerce application. Another concept identified from literature is m-Commerce definition (Okazaki, 2005). These concepts are discussed as follows:

**Definition:** In a paper released in 2005, it was highlighted that one major problem with m-Commerce research is the “lack of standards in terms, concepts, and theories” (Okazaki, 2005). It may be argued that this statement is correct because m-Commerce has been defined by several authors in slightly different ways. Worryingly, this is quite important because when studies are conducted based on differing concepts; it becomes difficult to have a reasonable comparison of results.

Popular definitions of m-Commerce reflect the position that m-Commerce is the buying and selling of goods and services through handheld devices (Chong, 2013b). While this definition seems quite easy, the major flaw here is the handheld devices. A similar flaw is reflected in Tiwari & Buse (2007)’s definition that m-Commerce includes the transfer of goods and services through mobile access to computer-mediated networks with the help of an electronic device. Although they stated that laptops do not provide truly mobile access to communication, one can safely say laptops are excluded. But what about tablets like i-pad and i-pad minis? They are not as bulky as laptops but they also require access to communication networks via other means such as a Wi-Fi hotspot. Should we then exclude tablets from the scope of m-Commerce? If we do, that means that SIM-enabled tablets would also be excluded from m-Commerce. This is just an example of how important it is to get a definition of m-Commerce as a foundation towards understanding its adoption. In order to do this, it is important to triangulate definitions from academic literature, industry experts and possibly policy makers.

**Theory:** In literature, three major theories that have been used to understand individual information technology in general (Khalifa & Shen, 2008b). These three theories – Innovation Diffusion Theory (IDT), Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) – have also been used, modified or adapted to understand m-Commerce adoption, particularly from consumer’s perspective. Al-jabri & Sohail (2012) made use of the innovation diffusion theory to identify the factors or attributes that may facilitate or inhibit mobile banking adoption by adult banking users in Saudi Arabia. Considering the fact that Technology Acceptance Model does not include subjective norm such as trust in understanding the factors that affect technology adoption, most studies usually use a combination of constructs from TAM

and TPB. An example of such studies is Luarn & Lin (2005). However, some authors like Wu & Wang (2005) have used a combination of TAM and IDT to inform their study.

Over the years, the use of theories has helped to confirm and reaffirm the vital role that theories play in understanding certain aspects of m-Commerce adoption, particularly with regards to the factors that affect its adoption. From literature, factors affecting e-Commerce adoption may be categorized into four broad components: managerial, organizational, technological and environmental factors (Molla & Licker, 2005a). These components may be used to have a broad understanding of factors affecting m-Commerce adoption within organisations.

The managerial component explains innovation adoption based on managers' IT background, their innovative attributes and commitment to the innovation (Molla and Licker, 2005). The organizational component focuses on the organizations' internal characteristics (Uzoka et al, 2007; Molla and Licker, 2005). The environmental component looks at external influences such as market pressure, institutional and socio-economic forces (Uzoka et al, 2007; Molla and Licker, 2005). The technological component focuses on complexity, compatibility, ease of use of innovation (Molla and Licker 2005)

***m-Commerce Infrastructure:*** The infrastructure required for m-Commerce includes Wireless Network Infrastructure and Wireless User Infrastructure (Ngai & Gunasekaran, 2007). While an in-depth understanding of the infrastructure is not necessary for understanding m-Commerce adoption, it is important to have a basic understanding. This is because infrastructure has indirect cost (Ondrus & Pigneur, 2007). Also, the available infrastructure determines the scope of m-Commerce adoption. For instance, in their study, Ondrus & Pigneur (2007) found that in Switzerland, available infrastructure meant that contactless payment could not be conducted whereas, this is not the case in Japan where available infrastructure supports contactless payment. As suggested in Xin (2009c), infrastructure include mobile transport<sup>6</sup>; mobile services and delivery support; mobile internet and applications. Ngai & Gunasekaran (2007) gave a clearer picture of the classification as follows:

Wireless Network Infrastructure – network requirements; wireless and mobile network

Wireless User Infrastructure – mobile Interface; mobile handheld devices

***Application:*** This is another concept that should be included when seeking to understand m-Commerce adoption as this will help to appreciate the various ways to engage with m-Commerce.

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<sup>6</sup> Mobile transport refers to the “basic network involved in communications, including transportation, transmission and switching for voice and data” Xin (2009c). This includes major telecommunication players such as AT&T and Vodafone, and forthcoming high speed transmission technologies like Universal Mobile Telecommunications Systems (UTMS) (ibid).

These include mobile advertising; location-based services; mobile entertainment services and games; mobile financial applications (Ngai & Gunasekaran, 2007).

Having discussed the four broad concepts that relate to m-Commerce adoption, it is worth noting that each of these four broad concepts have other concepts that fall within each broad category. The first broad concept that was discussed is Definition. However, in order to understand the definition of m-Commerce, it is important to take into consideration, the perspectives of Academic Literature, Industry Experts and Policy Makers. These three concepts are subsets of the broad concept of Definition.

The second broad concept that was discussed is Theory. However, just like the concept of Definition, m-Commerce Theory has subsets because different theories have been developed by different academics to address different aspects of m-Commerce. However, many of these theories have focused on observing patterns of adoption or intention to adopt m-Commerce. Therefore, the subset of m-Commerce Theory that was captured for the purpose of this study is Factors affecting m-Commerce adoption. Nonetheless, it may be observed from Figure 2 that this subset of Theory may be further divided into two – Consumer factors and Business factors – but Business factors has been further divided into 4 themes, that is, Managerial factors, Organisational factors, Technological factors, and Environmental factors.

The third broad concept that was discussed is Infrastructure which also has two subsets – Wireless Infrastructure and Wireless User Infrastructure. Similarly, the fourth broad concept, Application, also has four subsets – Mobile Advertising, Location-based services, Mobile entertainment, and Mobile financial applications.

This study may be located within the conceptual model presented in Figure 2. From the broad area of m-Commerce Adoption, the study fits within the subcategory of Theory. Given that only one subset of this category has been provided, the study fits into the subset of Factors affecting m-Commerce adoption. However, considering that this concept may be researched from two perspectives as presented in the Conceptual Model, this study fits into the Business factors concept. Therefore, from the Conceptual Model, the aim of this study to research on factors that influence m-Commerce adoption from the perspective of businesses may be identified.



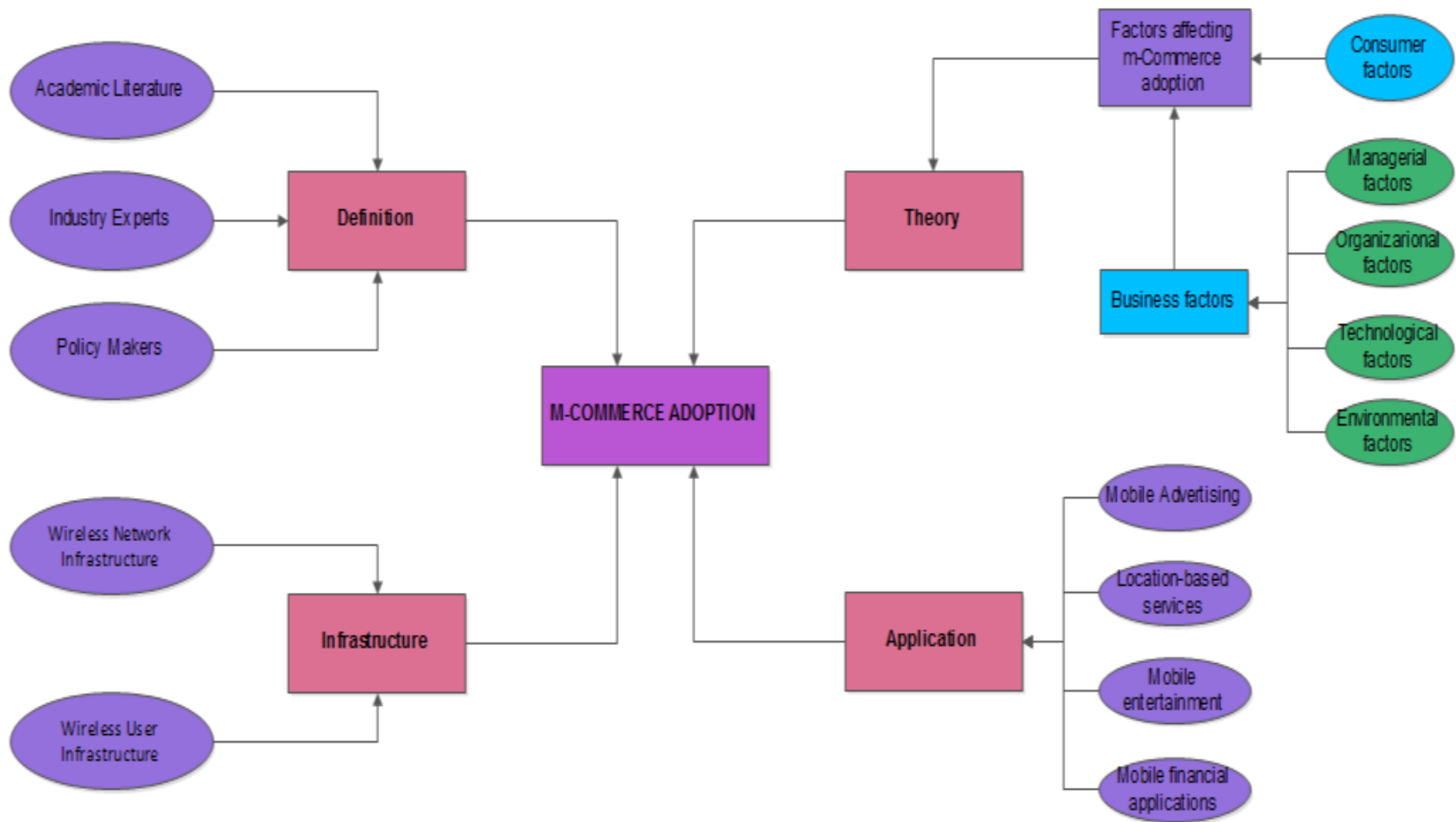


Figure 2: Model of m-Commerce Adoption Concepts

# OVERVIEW OF CHAPTER THREE



## CHAPTER 3

### RESEARCH STRATEGY AND DESIGN

#### **3.1 Introduction**

This chapter seeks to provide an insight into the approach taken in the conduct of this research. This includes a discussion of the philosophy behind the research approach, as well as a rationale for the chosen methods. In addition, the different procedures adopted in the collection of data, sampling of respondents and analysis of the data will be discussed. Finally, the chapter will discuss ethical considerations and the approach towards addressing potential risks associated to the conduct of the research. The research philosophy and rationale for the research methods will be discussed from a theoretical perspective, through with the use of literature. However, discussions on the research procedure will include literature, as well as, summary of practical steps taken in the conduct of the research.

#### **3.2 Philosophical paradigm**

A paradigm can be defined as a way of examining social phenomena which can lead to particular understanding and explanation of such phenomena (Saunders et al., 2009). Quite simply, paradigms are perspectives or ways of looking at reality (Hennink, et al., 2012). They refer to the different approaches that could be taken towards research (ibid) and may be viewed as general philosophies of scientific inquiry (Lee & Lings, 2008).

From an ontological point of view, there are two paradigms in social science - objectivism and subjectivism (Saunders et al., 2009). Ontology refers to the study of the nature of reality; that is, a set of beliefs about what the world we are studying actually is (Lee & Lings, 2008). Objectivism reflects the belief that social entities exist in reality independent of social actors while subjectivism reflects the belief that social phenomena are dependent on the perceptions and actions of social actors (Saunders et al., 2009). These two paradigms can be further explained with respect to the analysis of social theory. In order to do this, four paradigms have been identified: functionalist, interpretive, radical humanist and radical structuralist (Burrell & Morgan, 1979; Burrell & Morgan, 1982 cited in Saunders et al., 2009). Going by these ontological perceptions, this research will be placed under the Functionalist category.

The Functionalist paradigm can be viewed as a problem-oriented approach that is concerned with providing practical solutions to practical problems (Saunders et al., 2009). This paradigm is based on the assumption that “society has a concrete, real existence, and a systemic character oriented to

produce an ordered and regulated state of affairs” (Morgan, 1980). The functionalist paradigm has an orientation that is geared towards stability and maintaining status quo (Gioia & Pitre, 1990). The functionalist perspective is “primarily regulative and pragmatic in its basic orientation” (Morgan, 1980). From the functionalist perspective, organisational structure is usually viewed as a stable, objective characteristic (Gioia & Pitre, 1990). In this paradigm, a researcher is probably concerned with rational explanations of why a particular organisational problem is occurring and developing a set of recommendations that will effect no change to the current structure of the organisation’s current management (Saunders et al., 2009).

The Functionalist paradigm has been chosen for this research because the goals, theoretical concerns and theory-building approach of this study take on a functionalist position. For instance, in functionalism, theory refinement rather than new theory generation is often practised (Gioia & Pitre, 1990). Also, the steps involved in the conduct of this research are similar to the pattern typified in the functionalist paradigm.

However, beyond the ontological perspectives already mentioned, there also exist four epistemological paradigms in social science. These paradigms (frequently referred to as philosophies) are positivism, realism, interpretivism and pragmatism (Saunders et al., 2009). This research is based on positivism since positivism takes on the ontological perspectives of the functionalist paradigm.

Positivism is often regarded as the scientific approach to research because of its emphasis on value-free, objective measurements of social issues (Hennink et al., 2012). The positivist is often concerned with the collection of facts (empirical data), formulation and testing of hypothesis in order to produce quantifiable and if possible generalizable conclusions (Anderson, 2009).

The merit attributable to the positivist approach is the position that data collection involves the collection of facts which may be observed and measured in an objective way with no influence of the researcher on the data collection process (Hennink et al., 2012). However, this position has been criticised in two ways. One of the criticisms centres on the fact that such objective stance separates the researcher from the researched and fails to acknowledge the interactive and subjective nature of social reality; thus ignoring the contextual influences on people’s lives (Hennink et al., 2012). Another criticism focuses on the fact that it is not entirely possible to completely separate the researcher’s value from the research (Saunders et al., 2009). For instance, the choice of study, research objectives and data to be collected is inherently reflective of the researcher’s value position (Saunders et al., 2009).

Other criticisms of positivist approach include the method of dealing with complexity and the problem of categorisation (Anderson, 2009). Since positivist approach involves the reduction of

situations and isolation of discrete variable for analysis, it becomes somewhat complicated to effectively engage with organisational enquiry which tends to be “complex and messy” (Anderson, 2009). Anderson (2009) further pointed out that the meaning of findings and analysis may not be held with much certainty because of the inherent limitations attached to categorisations. For instance, is it reasonable to confine ‘young’ to under-21s or to include temporary and permanent employment types within the categories for hourly-paid staff (Anderson, 2009)?

While these criticisms present valid points, it may be observed that the criticisms are more reflective of the methods of data collection; these may be addressed through the use of mixed method approach. Hence, one of the justifications for the adoption of mixed methods approach in this research. Below is a summary of the research methodology:

<b>SUMMARY OF PROPOSED RESEARCH METHODOLOGY</b>	
Philosophical paradigm	<i>Positivist</i>
Research Methods	<i>Quantitative</i>
	<i>Qualitative</i>
Techniques	<i>Questionnaires</i>
	<i>Semi-structured Interviews</i>
Tools	<i>Microsoft Excel</i>
	<i>Microsoft Word</i>

*Table 2: Summary of Proposed Methodology*

### **3.3 Rationale for mixed methods research design**

This study was conducted using a mixed method approach. This approach was chosen for the purpose of triangulation. Triangulation was defined by Bryman (2012) as the use of more than one method or source of data in the study of social phenomenon in order to cross-check findings. As has been noted by Lee & Lings (2008), mixing methods is not the same as mixing paradigms because methods are independent of philosophical paradigms. This means that although a single project might tend to lean towards different paradigms at various stages, it is the overall aims and objectives of the research that defines the paradigm of the research. Since these stages cannot be regarded as different projects, but rather as different stages within a single project, the overall

philosophical paradigm of the project dominates (Lee & Lings, 2008). Having clarified this, although this project falls within the positivist paradigm, it is very much possible to use a mixed method approach and this has no implication on the paradigm in terms of change.

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).

Therefore, this study will make use of two methods - Surveys (Quantitative method) and Interviews (Qualitative method). Quantitative method can be defined in terms of data collected as a research strategy that seeks to collect data that may be counted or quantified while qualitative method seeks to collect data that is based on meanings which are expressed through words and language (Anderson, 2009). Quantitative research is conducted based on concepts from positivist paradigm while qualitative research is guided by concepts from interpretive paradigm (Hennink et al., 2012). However, it is worth noting that although these two methods represent different epistemological and ontological perspectives, these differences are not hard-and-fast which means that they can be “fruitfully combined” within a single project (Bryman, 2012).

### 3.3.1 Qualitative Method

As has already been noted, the qualitative method used in this research is Interview. Interviews refer to a research method that seeks to gather information about behaviour, attitudes, beliefs, norms and values (Bryman, 2012). The person who seeks the information is often called the interviewer and the person who provides the information is regarded as the interviewee or the respondent. Saunders et al. (2009) identified the categorization of interviews as Structured (the use of questionnaires based on predetermined questions or identical set of questions), Semi-structured (the use of a list of themes or questions to be covered which could vary in interviews) and Unstructured or In-depth (informal, in-depth exploration). This study will adopt the use of Semi-structured Interviews in order to collect qualitative data that will be analysed using thematic analysis. This data will be used for exploratory purposes which will facilitate the process of testing, modifying and validating the model.

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 typical structure of such interviews

is: Introduction, Opening questions, Key questions and Closing questions (Hennink et al., 2012). Following this generic template, a series of questions were designed to guide the structure of the semi-structured interviews that were conducted.

The merits of using semi-structured interview include the fact that it allows for some level of flexibility. This means that questions may be added or omitted in particular interviews in order to explore research questions and objectives based on the nature of events within particular organisations (Saunders et al., 2009). This is particularly useful in this research because the concept of successful m-Commerce adoption within this research is not limited to profitability. Therefore, for organisations that currently adopt some form of m-Commerce, questions that could centre on just profitability were omitted in order to ensure that other forms of benefits being enjoyed were adequately captured during interviews. Another merit of semi-structured interviews is the opportunity to develop positive relationship of trust between interviewer and interviewee; thereby enhancing the quality of data provided (Anderson, 2012).

Nevertheless, there exists some data quality issues related to the use of semi-structured interviews. These issues include reliability, forms of bias, validity and generalizability (Saunders et al., 2009). Though some of these issues can sometimes be unavoidable (e.g., interviewee bias in which respondents provide little or misrepresented information), their occurrence or impact within an interview can be limited through appropriate training. Sometimes, the mere awareness of these potential problems could help the interviewer ensure that they are avoided.

In addition, semi-structured interviews are time intensive which could have negative implication on the number of respondents that could be captured (Anderson, 2012). This challenge could be overcome within the context of this research through the use of questionnaires which are less time consuming. Also, another challenge with using semi-structured interview is the problem of recording data (Anderson, 2012). Whether the interviewer chooses to take notes (which could be distracting) or use audio-recording (which could inhibit the interviewee), there is a potential consequence involved. This problem usually arises with face-to-face interviews, but considering that the interviews were mostly done via telephone, the impact of this was largely reduced. Furthermore, to reduce the amount of time needed to transcribe audio recordings, much reliance was placed on notes as this represents the exploratory stage (a summary of the notes taken during the interviews is attached as Appendix 3). However, the interviews were still recorded so that it was possible to make reference to the audio recordings in order to retrieve information that was omitted in the notes.

Understandably, there were some difficulty in gaining access or consent of owners and/or managers of some businesses. In such situations, where possible, personal contacts were used to facilitate access in order to increase trust in the interviewer's credibility and handling of data. Conducting

the interviews via telephone helped to reduce the time intensity inherent in conducting traditional face-to-face interviews because the time needed to commute to interview locations, for instance, was eradicated. However, there are also some limitations to the use of telephone interviews; one of which is the issue of trust. It was somewhat awkward to get respondents to provide sensitive information over the telephone; albeit where a good rapport was established and the purpose (and storage) of the information was made clear, this tendency was reduced. Also, keeping the interview focused and relatively short helped to ensure that respondents were not bored or providing answers that were off-course. Although having a relatively short interview could mean reduced depth, interview questions were streamlined and adapted to align with each interview in order to ensure a clear focus and efficient use of time to explore different aspects of the interview.

### 3.3.2 Quantitative Method

As earlier mentioned, the quantitative method used in this research is Survey. Survey refers to a research strategy that involves the structured collection of data from a sizable population (Saunders et al., 2009). Survey can also be used to refer to a research that employs a cross-sectional research design that includes the collection of data by questionnaire or by structured interview (Bryman, 2012). Although this term is often used to describe the collection of data using questionnaires, it includes other techniques such as structured observation and structured interviews (Saunders et al., 2009). In this research, questionnaires were used for the survey. This assisted in the collection of descriptive and explanatory data which also contributed towards the process of testing and validating the model.

Questionnaires can be defined as a set of questions administered to respondents (Bryman, 2012). In this research, these set of questions were informed by findings from the data collected during interviews with some input from literature reviews that were conducted throughout this study. One of the benefits of using questionnaire is that it provides the opportunity to collect data from more than one respondent simultaneously. This was useful in this research in terms of reducing the amount of time it took for the entire process of data collection which may not have been possible if the data collection was dependent solely on interviews. Another advantage of using questionnaires is that with the right set of tools, data analysis might be faster in comparison to data analysis for interviews. In this study, MS-Excel was used to conduct various relative frequency statistics, thereby reducing the process of data analysis.

However, a major disadvantage to the use of questionnaires lies in the fact that a poorly designed questionnaire will likely lead to poor, unclear or confusing results (Riley et al., 2000). This means that the process of questionnaire design may be time consuming from learning how to get it right



to designing, piloting and redesigning the questionnaire. But this time challenge could be largely reduced by adapting questionnaires used in previous studies. However, considering that there was no existing questionnaire that could be adapted for the purpose of this study, designing the questionnaire was time intensive. Another limitation to the use of questionnaire is that it offers only one chance to collect data unlike interviews where further clarification can be sought on answers provided by respondents (Saunders et al., 2009). Mitigating this limitation requires the need for adequate preparation of the instrument and inserting checks that will ensure participants provide appropriate information that will be useful for the research. Within the context of this study, the online survey was designed such that participants were made to provide all required information before they were able to submit. Also, those who administered physical copies of the questionnaire were instructed to cross-check the questionnaires in order to ensure that relevant questions were duly answered before leaving the company premises.

### **3.4 Data Collection Procedure, Sample size and selection**

This study was conducted through the use of two instruments for data collection - Interviews and Questionnaires - for the purpose of triangulation and also to extend the number of possible participants. Already established contacts and links in Nigeria were used to facilitate access during data collection. Also, a Frame<sup>7</sup> which was provided by the Nigerian Bureau of Statistics (NBS) was used for the selection of some participants. Participants Information Sheets and consent forms were provided to respondents prior to data collection.

#### **3.4.1 Semi-structured Interviews**

##### *3.4.1.1 Instrument Design*

The instrument for the semi-structured interviews was designed following principles of best practice from existing literature such as (McNamara, 2009; Turner, 2010). The design process started off with the compilation of a list of open-ended questions that focused on the broad aspects of the model – the characteristics of m-Commerce adopters at each stage of adoption and the factors that influence the adoption of m-Commerce at those stages. This list of questions were then divided into 4 broad categories as displayed in Appendix 1.1. This division was made in order to ensure that each question was appropriately asked in order to align with the broad themes and purpose of the interview. The categories also provided a platform to ensure that possible questions that could

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<sup>7</sup> The Frame refers to a document that contains the details of registered companies

help collect the needed data from the participants were identified. This initial design of the interview guide went through further corrections and changes based on feedback from project supervisors and colleagues. These changes and corrections are reflected in the interview guide that was then used for the pilot interviews (see Appendix 1.2). Based on an assessment of how the pilot interviews went, feedback or questions from respondents, and an analysis of the quality of data that was gathered from each interview, additional corrections and changes were then made to the interview guide. A copy of the interview guide that was used for the Explorative Study is attached as Appendix 1.3.

In order to ensure the validity and reliability of the exploratory study, Golafshani (2003) suggests that the concept of dependability, trustworthiness and triangulation are taken into consideration. As such, within this study, interview questions were phrased such that the researcher's bias is limited through the use of open ended questions (Turner, 2010). Also, results from all the pilot tests were analysed in order to make sure that the questions being asked were well suited for the research objectives. Questions that did not seem to provide useful information for the study were edited or removed, depending on the original intention for asking the question. For example, in order to identify how businesses make use of their mobile phones to interact with their customers, respondents were previously asked "What kinds of contacts do you have with your customers?" Considering that respondents kept asking for clarification before they could answer this question, the question was updated to "In terms of customer needs, enquiry & complaints, do you make use of mobile phones or any form of technology?" With this updated question, respondents were able to easily respond to the question without asking for further clarification.

The process of analysing the participants' responses also helped to assess their understanding of the questions. As such, where participants provided answers that did not seem to address the question or asked to clarify the question before they could answer, such questions were also edited. Therefore the interview questions that were used in the collection of data for the exploratory study were refined in order to help the respondents to provide straight to the point information that effectively addressed the study's objectives. In addition, results from the qualitative study were triangulated through the conduct of a quantitative study in order to further ensure validity and reliability of the study as suggested by (Golafshani, 2003).

#### *3.4.1.2 Data Collection Procedure*

The initial phase of data collection for this study was conducted through the use of semi-structured interviews. A copy of the interview guide is attached in Appendix 1. These interviews were

conducted in different stages. First, two sets of pilot interviews were conducted over the telephone with a total for 4 owners or managers of micro and small businesses in Nigeria. Access to these participants was facilitated through the help of family and friends who live in the Western and Southern parts of Nigeria. These family and friends were informed that only owners or managers of micro and small businesses that sell products were required for the study. Nonetheless, to make sure that the respondents met the inclusion criteria, the author asked questions about the business and the position of the respondent in the company.

Afterwards, additional telephone interviews were used to generate data from a total of 12 owners or managers of micro and small sized Enterprises in one or two states within each of the six geo-political regions of Nigeria (Appendix 2 shows a map of Nigeria with the geo-political regions and the thirty-six states of Nigeria). A breakdown of the states where interview participants were resident is as follows:

- North Central – 1 business in Benue (frame) & 1 business in Abuja (facilitated)
- North West – 1 business in Kebbi (frame) & 1 business in Kaduna (facilitated)
- North East – 2 businesses in Adamawa (facilitated)
- South West – 1 business in Lagos (frame) & 1 business in Oyo (facilitated)
- South East – 1 business in Imo (frame) & 1 business in Imo (facilitated)
- South South – 1 business in Bayelsa (facilitated) & 1 business in Delta (facilitated)

From the breakdown, it may be observed that 4 of the interviewed businesses were accessed through the contact list on the Frame that was obtained from the Nigerian Bureau of Statistics<sup>8</sup> while 8 businesses were accessed through the help of family and friends. This is largely because most of the contact information provided on the Frame were not valid and some of the businesses that were contacted could not take part due to language barrier, particularly in the North East. More details on the process of selecting participants are hereby discussed.

A total of 3263 records were listed in the frame. However, after deleting records without contact details, the number of businesses in the frame was reduced to 1110. Also, records that did not fit the criteria of wholesale or retail SMEs were eliminated. However, considering that it was difficult to identify the business type of some records from the details provided (e.g. name of business), businesses that clearly did not fit the criteria (e.g. XYZ School or ABC Hotel, etc.) were removed. Also, businesses that did not have valid telephone numbers were filtered. As such, given that a significant number of the records did not have valid telephone numbers (either the records did not have any number listed or the numbers were short of the required 11 digits), this process drastically

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<sup>8</sup> The Official Website of the Nigerian Bureau of Statistics can be found at <http://www.nigerianstat.gov.ng/>

reduced the number of records to 56. This made the task of searching for 12 interviewees manageable.

Of the 56 businesses, 23 businesses turned out to be not relevant to the study and were excluded. The remaining 33 businesses were contacted. Of the 33 businesses, 10 businesses agreed to take part, 1 business declined and the other businesses were unreachable either because they were wrong number, switched off or the lines were no longer in use. At the time of data collection, 4 of these businesses were interviewed while the other 5 were not interviewed as they seemed to have changed their minds about participating in the study probably due to issues of trust since they had no previous personal contact with the author and were probably sceptical about whether or not the research was really genuine. For those that participated, the author was taken through a series of personal questions<sup>9</sup> before the interview was eventually granted. Perhaps these questions were asked by the respondents as a way of reassuring themselves of the genuineness of the author and the research. Due to the fact that the author was only able to obtain 4 interviews through the contacts provided on the frame, personal contacts had to be relied on to get the other 7 interviewees needed. In the North East, after getting referral for the first business that was interviewed, through the use of snowballing effect, that business was able to provide access to the second business that was interviewed. This area was handled differently due to on-going civil unrest associated with Boko Haram activities in the region (CNN, 2016; Chothia, 2015; Calderwood, 2014; Onuoha, 2012).

### 3.4.2 Questionnaires

#### 3.4.2.1 Instrument Design

While preparing to collect data for the second phase of this study, the first option for the questionnaire design was to identify a questionnaire for a similar study which could be adapted for this study. However, considering that no such questionnaire was found at the time of instrument design, the questionnaire that was used for this study had to be designed based on Model B, as well as the interview responses. As suggested by Brace (2013), the role of questionnaire is to collect the most accurate data that will help the researcher achieve the objectives of the survey by helping the respondents provide the required information. One way the researcher can help respondents to provide the required information is by asking the questionnaire in the most simple, easy to understand format. Therefore, considering that the questionnaire was intended to elicit responses

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<sup>9</sup> Personal questions included enquiry about the author's state of origin, age, when the author left Nigeria for studies abroad, what university or previous education the author had in Nigeria, location of the author's residence in Nigeria, etc.

that reflect the characteristics of the businesses and also capture the factors that influence their current level of adoption, it was important to ensure that the questionnaire was as simple as possible. Also, considering that the respondents are responsible for managing at least one business, simplifying the questionnaire into a format that is easy to fill within a few pages was also a priority as this category of respondents are less likely to invest a considerable amount of thought and time into filling a student survey. Therefore, rather than asking multiple questions for each characteristic as some questionnaires might do in order to triangulate responses, the different characteristics in each stage were provided as options of activities from which the respondents can select. Businesses were then advised to select as many activities as they currently engage in. Their responses were then used to identify their current stage of adoption. Similarly, rather than multiple question for each factor, the different factors were asked as questions which the respondents can agree or disagree to. The responses were then used to identify the facilitators or barriers that can be associated with each level of adoption. However, it must be noted that the questionnaire that was administered to the study's respondents underwent a series of reviews, corrections and feedback from experts and non-experts within and outside academia.

Based on the initial set of reviews that were obtained from the questionnaire, an earlier version of the questionnaire was sent out for pilot tests. A copy of this version of the questionnaire is attached as Appendix 4.1. Participants in the pilot tests provided further feedback which necessitated a process of further reviews and corrections. The main corrections were focused on simplifying the questionnaire in order to reduce the amount of time it takes to complete the questionnaire. Other corrections also included updating the language that was used in order to avoid the use of specialist terms which could be misunderstood. Also, the way the questions were asked needed to be further simplified into patterns that are easy to understand. Attention was also given to simplifying the instructions on completing the questionnaire. This was particularly important because businesses in particular stages were required to only answer factor-related questions that matched their level of adoption. For instance, if a business only ticked activities in Section A and B, they were required to only answer questions 1a, 1b, 2a and 2b. Therefore, the process of simplifying the instructions went through several reviews. Appendix 4.2 represents a copy of the questionnaire that was administered for the second phase of data collection.

In order to ensure the validity and reliability of this study, feedback that was provided by those who helped to assess or test the instrument, including those who took part in the pilot studies were used to update the questionnaire till there was a general consensus that the questionnaire was improved – that is, easy to understand, easy to fill, less complex, less clumsy and less cluttered. At every point of the review, reference was consistently made to the study's objectives in order to ensure that each question contributed towards answering the study's aim and objectives. For example,

questions relating to the business' assets were previously asked in order to help identify whether they were micro, small or medium size businesses. But considering that most respondents during the pilot study felt uncomfortable with the question and some did not provide this information, these questions were removed because, following the definition of SMEs by the Nigeria's National Bureau of Statistics (NBS) and the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), the number of employees can be used to classify businesses as micro, small or medium. Thus, asking questions relating to the number of employees were sufficient in helping to identify the size of the business. Therefore, although questions relating to business assets were removed, care was taken to ensure that a means of identifying the size of the business was still possible. Also, prior to administering the questionnaire, each question was mapped to specific aspects of the study's objectives in order to further ensure that the questionnaire was fit for purpose and void of ambiguity.

#### *3.4.2.2 Data Collection Procedure*

For the second phase of data collection, questionnaires were used to conduct the survey on owners or managers of micro and small businesses. Questions in the questionnaire were designed based on the results of the qualitative study. After a series of rigorous scrutiny, corrections and feedback from various academics, PhD students and friends, the questionnaire was piloted with 5 micro or small businesses. This led to the design of the questionnaire that is attached as Appendix 4. An online version of the questionnaire was designed through the use of LimeSurvey and a link to the questionnaire was forwarded to email addresses provided on the frame. However, considering that the initial frame that was obtained from the NBS did not have sufficient contact details, another copy of the frame was requested from the NBS. This seemingly updated copy was used to obtain email addresses to which the link to the survey was attached in an email. However, businesses that clearly did not meet the inclusion criteria as reflected by their names e.g. ABC School or XYZ Hotel, were removed. Unfortunately, of the 594 emails that were sent, 404 postmaster return emails were received and after about a week, only 1 complete response and 2 incomplete responses had been received. Therefore, personal contacts had to be used to solicit participants.

The people who assisted in administering the questionnaires were remotely trained via telephone on what was required. In addition, an email of the requirement was forwarded to them. Therefore, besides serving as a reminder of the main requirements for administering the questionnaire, this email was also forwarded to friends of friends and contacts of contacts who helped administer the questionnaire in the different parts of Nigeria. A copy of the email is attached as Appendix 5.

The assistants were sent pdf copies of the questionnaire and the link to the online version. While some of the assistants printed copies of the pdf version of the questionnaire which they distributed, some of the assistants forwarded the link to the online survey to the respondents. Interestingly, some of respondents completed the online survey, perhaps because they received the link from someone they know. However, assistants who distributed hard copies of the questionnaires helped to complete the online survey using the responses from the hard copies. In some cases, scanned copies were forwarded to the author or the author's assistants and the responses were then transferred to the online survey. At the time of data analysis, 230 responses were received although only 197 of them were complete. Incomplete responses were not included in the data set used for analysis.

### **3.5 Data Analysis Techniques**

As has already been mentioned, Microsoft Word and Microsoft Excel packages were used for the purpose of analysis. Microsoft Word was used for the conduct of thematic analysis while Microsoft Excel was used for the conduct of various relative frequency statistics.

Thematic Analysis refers to a method of analysis that focuses on identifiable themes and patterns of living and/or behaviour from conversations (Aronson, 1994). It also refers to a form of pattern recognition within the data, where emerging themes become the categories for analysis (Fereday & Muir-Cochrane, 2006). These themes and patterns represent ideas that may be used to provide better understanding of processes, behavioural tendencies and other research interests. Thematic analysis is carried out on qualitative data such as conversations and interviews. One of the benefits of thematic analysis is its flexibility (Braun & Clarke, 2006). This is essentially because “thematic analysis can be an essentialist or realist method, which reports experiences, meanings and the reality of participants, or it can be a constructionist method, which examines the ways in which events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society” (Braun & Clarke, 2006).

Other benefits include the fact that thematic analysis can help generate unanticipated insights and results are largely accessible to educated general public (Braun & Clarke, 2006). Although thematic analysis presents such benefits, it could be seen as a poorly demarcated qualitative method which could further subject it to the criticism of “anything goes” (Braun & Clarke, 2006). However, with clarity of purpose and direction provided within a research, this should be overcome. Furthermore, like most qualitative research, thematic analysis may be criticised for being time intensive but with proper planning and the use of software, this should be a minor issue. Also, there could be the criticism of uncertainty whereby the researcher constantly lives with the hope of finding reasonable

patterns. However, this also comes with an inherent strength such that unexpected trends and insights could be uncovered.

The process involved in thematic analysis outlined in Silverman (2011) and Braun & Clarke (2006) is as follows (these steps will also be followed in this research):

- Get familiar with dataset (take note of initial comments and ideas)
- Generate initial codes (systematically code whole dataset)
- Search for themes (organize similar codes into potential themes and gather data for the themes)
- Review themes (ensure that themes work in relation to dataset and create a thematic map)
- Refine themes (on-going analysis, generate clear definitions and names for each theme)
- Produce the report (conduct final analysis and writing up)

Within this research, thematic analysis was very useful in analysing the data collected through the semi-structured interviews. By using this method of analysis, insights was gained on current, emerging factors that influence m-Commerce adoption.

Considering that the data collected from the survey was categorical in nature, the most effective way to analyse the data is by placing results into different groups in order to observe different trends or patterns (Peters, 2015). Also, categorical data may be analysed through the use of tests such as chi-square, chi-square goodness-of-fit, Fisher's exact test, etc. (UCLA: Statistical Consulting Group, 2014). However, due to the nature of responses, it was most beneficial to descriptively analyse the data as this provided richer insight to the data than other categorical tests. Therefore, through the use of Microsoft Excel, various relative frequency statistics were conducted and presented in various tables and graphs.

### **3.6 Risk Analysis / Challenges**

As with many projects, some challenges posed a threat to the successful completion of this research. The challenges were mostly related to the process of data collection. The data collection process was quite challenging for different reasons. First, the ongoing civil unrest in the Northern part of the country was a concern because physically accessing potential respondents posed a threat to life, safety and security. Therefore, the number of responses from the North East and North West were the lowest in the survey with figures of a total of 17 respondents (7.39%) and 20 respondents



(8.70%) respectively. These respondents were accessed through a chain of personal contacts and contacts of contacts.

Secondly, the different versions of the frame that was received from the Nigerian Bureau of Statistics were not as useful as envisaged. Although the frames contained over 3000 micro, small and medium businesses in the 36 states of Nigeria, most of the records did not have valid email addresses or mobile phone numbers. Therefore, it was difficult to recruit participants for the telephone interview or the online survey. More so, many of the businesses may have declined to fill the online survey or grant the interview because they had no personal contact with the author. While this may be related to some of the socio-cultural factors that were identified from this study such as trust and cultural emphasis on physical contact or personal relationship, one other reason for this trend can also be attributed to limited exposure. Perhaps many of the respondents were not familiar with participating in telephone interviews for academic research; as such, they probably felt sceptical or afraid of possible fraudulent activities. Less surprisingly, respondents were more forthcoming when there was a reference from someone they know. Therefore, the use of familiar contacts helped to increase trust and facilitate access to respondents. It is worth pointing out that information on data handling, anonymity and confidentiality, etc. did not have as much impact on respondents' decision as the presence of some level of trust, recommendation and personal relationship.

### **3.7 General Ethical considerations**

Business ethics refer to a set of generally accepted standards in the context of business (Gavai, 2010). However, in the context of research, ethics refer to the practice of protecting research subjects, safeguarding the wellbeing of those researchers might study (Piccolo & Thomas, 2009). Some guidelines have been published in order to ensure that ethical practices are adhered to in research. These include Data Protection Act 1998, ESRC Framework for Research Ethics (FRE) 2010, Association of Internet Research Ethics' recommendations for Ethical decision-making and Internet research and Aston Business School's Research ethical Guidelines.

#### **3.7.1 Consent and Approval**

One of the ethical resolutions that was made for this research was to ensure that all participants are kept fully informed about the expectations from them and the purpose of the research project. To achieve this, the use of Participant Information Leaflet (PIL) prior to collecting data helped to provide necessary information about the research such as:

- ✓ The purpose of the research
- ✓ Duration of their participation
- ✓ Description of the study procedures / protocol
- ✓ Responsibility of the researcher
- ✓ Study expectations from the respondents
- ✓ Description of potential benefits of the outcome of the study
- ✓ A statement to allay fears of any potential risks or threats
- ✓ Assurance that data they provide will be collected anonymously and kept confidential
- ✓ A statement that the participation is voluntary and that refusal to participate involves no penalty of loss of benefits to which the person is otherwise entitled, and that they are free to discontinue at any time
- ✓ Name and email address of my supervisors will be provided as a reference point should an unplanned event occurs

The Participant Information Leaflet (PIL) for the survey is attached as Appendix 6.

### 3.7.2 Research Transparency

Research Transparency is vital in order to ensure that a future researcher will be able to assess the data and understand how conclusions were arrived at. Within this study, this was achieved through the following strategies:

- 1) Properly written documentation of data collection procedure and protocol. This includes documentation of all data handling and data management activities undertaken during the research.
- 2) Use methods of data collection that eliminates or minimises bias. This enhanced the validity and reliability of research findings.
- 3) Clarity of result tables and figures. Also ambiguity and unnecessary complexities were avoided.
- 4) Analysis that are less risky or susceptible to error was used. Also, no program codes were used for analysis; thereby limiting possible errors.
- 5) The report was presented in a good logical order so as to enhance understanding, and unnecessary use of jargon was avoided. Where the use of certain jargon, terminology or concepts was unavoidable, sufficient explanation or definition was included in the report.

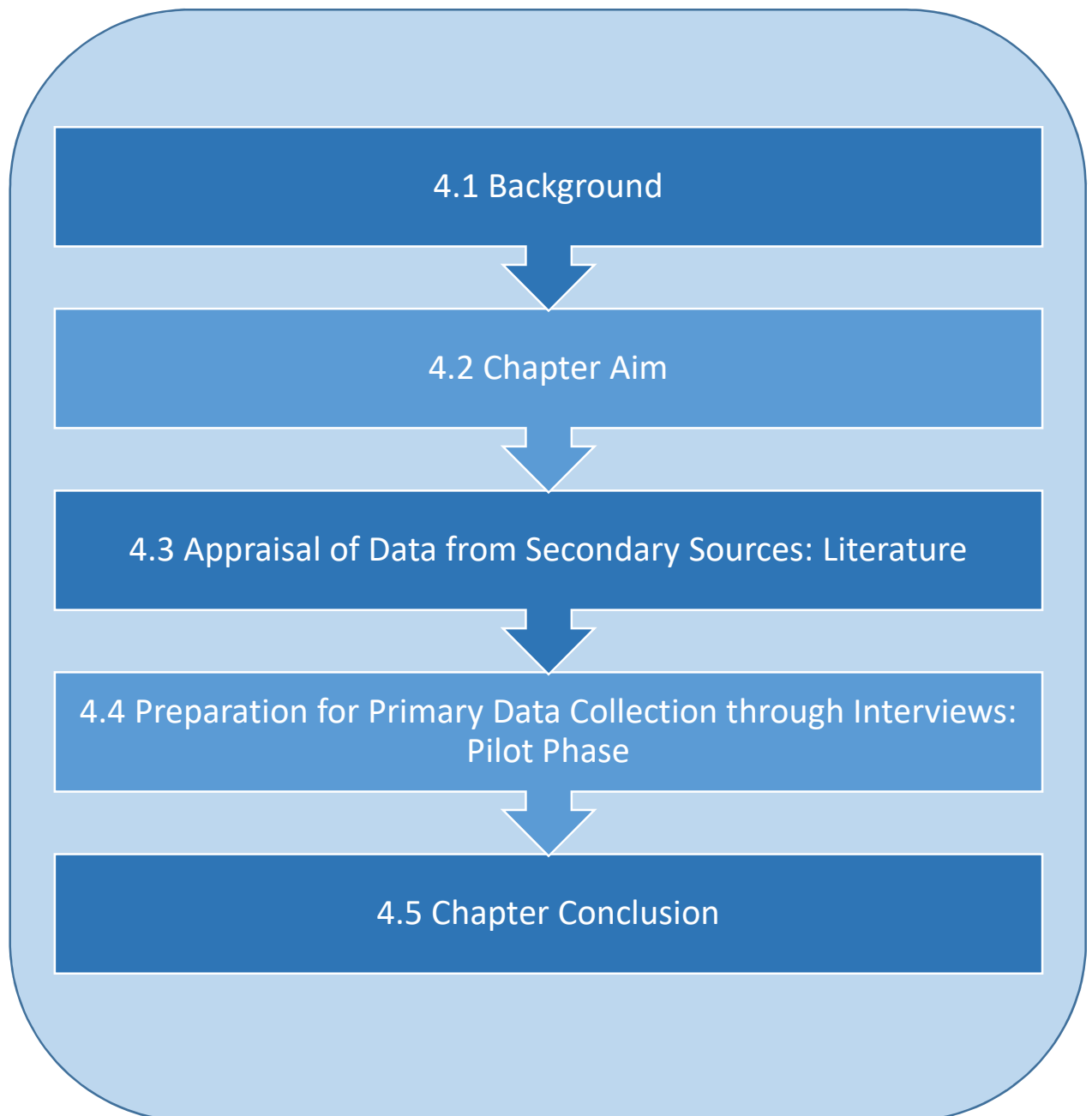
### 3.7.3 Data Storage and Security

Data collected from interviews were transferred from the recording device into a subfolder within a folder labelled “PHD” which contains materials related to the PhD research. Back up was undertaken for all data on electronic devices and research related files used on personal, external storage devices. The subfolder containing collected data was anonymously labelled and stored in password protected devices such that unauthorised access is prevented. Also, data stored via cloud technology such as Dropbox was password protected.

To further reassure participants of confidentiality, they were duly informed of mechanisms for data management prior, during and post data collection. Participants were also made aware that the study will comply with the data protection act and where this is breeched; my supervisors’ email address was provided as a medium through which they could raise concerns or lodge complaints.

Within ABS research guidelines, electronic data should be retained for 5 years, albeit the Data Protection Act 1998 provides the option of keeping data indefinitely. During this time, all physical and electronic data will continue to be kept securely and password protected. Where there are concerns of data security, the university can contact my supervisory team for verification of proper data handling and security. However, data handling and management procedures have been documented in this chapter.

# OVERVIEW OF CHAPTER FOUR



## CHAPTER 4

### DESIGN OF M-COMMERCE ADOPTION MODEL

#### **4.1 Background**

The aim of the thesis is to develop a model that may be used to guide successful m-Commerce adoption by micro and small businesses in a developing country - Nigeria. In order to achieve this aim, one of the objectives of the research is to identify from literature; factors that generally contribute towards successful adoption of m-Commerce, and then focus on those factors that are specific to businesses in developing countries like Nigeria. This objective has been partly fulfilled in Chapter 2 where general m-Commerce adoption factors were identified from literature. However, given the rapidly changing patterns of advancements in technological adoption in developing countries, the reliability of the identified factors as a true representation of on-going trends cannot be guaranteed. Therefore, there is a need to collect primary data from the target population in order to address potential discrepancies between literature and reality. Furthermore, given that different businesses will be at different stages of m-Commerce adoption, it is reasonable to expect that the factors that will influence their adoption of m-Commerce will differ. As a result, in addition to identifying current factors that influence the adoption of m-Commerce by micro and small businesses, there is the need to identify the stages of m-Commerce adoption in order to understand the factors that influence adoption across those stages. Therefore, the m-Commerce adoption model to be designed will consist of 2 major parts: the stage grouping and the corresponding factors that will influence increased level of m-Commerce adoption from one stage to the other.

This chapter presents the design of the model through the use of secondary data in the form of literature, and the use of primary data in form of Interviews. The secondary data provided a start point for identifying a range of factors and stage characteristics that had been presented in existing studies. The findings from this secondary data provided the required guidance and framework needed for collecting the primary data.

#### **4.2 Chapter Aim**

The aim of this chapter is to develop a stage model for m-Commerce adoption by micro and small business in a developing economy. The model presents a pattern of adoption from one level of adoption to another. The different levels of adoption represents the different stages which are distinguished by the nature and complexities of m-Commerce activities that are involved. Developing the stage model will be achieved through the following objectives:

- Identify a stage model within the field of e-Business that may be adapted for m-Commerce
- Adapt the model to reflect the stages of m-Commerce adoption
- Identify the factors that influence m-Commerce adoption
- Place the factors into groups that support adoption across stages

### **4.3 Appraisal of Data from Secondary Sources: Literature**

Given that the collection of data is an important part of any research, the exploratory study was initiated with a process of data collection. The process of Data Collection started with the conduct of Literature Review on the stages involved in the adoption of e-Commerce. Considering that at the time of search, no m-Commerce adoption stage studies were found, it was necessary to broaden the search to include e-Commerce in order to gain potentially useful insight into possible patterns that may be modified to fit this study context. From the literature review, papers that discussed the stages of e-Commerce adoption were identified. However, it was observed that these studies were mostly done in developed countries. As a result it was important to seek answers to the following questions in order to identify plausible lines of action with respect to designing the m-Commerce adoption stage model.

- ✓ Are the e-Commerce adoption stage models applicable to m-Commerce in Nigeria?
- ✓ If not, can the models be adapted or modified to fit the stages of m-Commerce adoption in Nigeria?

Given that the nature of e-Commerce and m-Commerce, and the requirements for engaging in each type of commercial activity are different to certain extents, it was found that the e-Commerce adoption stage model cannot be directly extrapolated to fit m-Commerce. However, it was observed that concepts such as the pattern, progression and stage differentiation can guide the design structure of the m-Commerce adoption stage model. Therefore, a further review of m-Commerce literature was done with the aim of identifying the characteristics and factors of m-Commerce as these will be needed in the design of the model. Again, this led to the following question:

- ✓ Can these characteristics and factors be used to design the stages of m-Commerce adoption for the Nigerian context, making use of the conceptual flow that is reflected in the e-Commerce adoption stage models?

Fortunately, the review reflected that the identified characteristics and factors could be used in conjunction with the concepts to be adapted from e-Commerce to develop a stage model for m-Commerce. The following section presents the initial design of the m-Commerce adoption stage model.

### 4.3.1 Design of Model A

As indicated in the previous section, the design of the model started with a review of literature to find existing models of the stages of m-Commerce adoption. Since this was not found, a review of literature to find existing models of the stages of e-Commerce adoption was conducted. In the review, 3 relevant articles (Rao, Metts, & Monge, 2003; Molla, 2005; Rowley, 2001) were identified. In their paper, Rao et al. (2003) presented 4 stages in the evolution of e-Commerce – Presence, Portals, Transactions Integration and Enterprises Integration. Similarly, Molla (2005) identified 4 stages of e-Commerce evolution as Informational Capability, Interactive Capability, Transactional Capability and Integrated Capability. In the same vein, Rowley (2001) presented 4 stages of e-Commerce evolution as Contact, Interact, Transact and Relate. Although the models feature 4 stages, in addition to differences in the chosen nomenclature, subtle differences also exist in the allocation of activities / features / capabilities to the different stages. However, in spite of these differences, the models share a lot of similarities. These include:

- Increasing complexity with each stage
- Increasing capability and functionality with each stage
- Increasing interaction with customers and suppliers
- Progression of adoption moved from static information display to interactive information display to integration of financial transactions to full system integration with suppliers

Figure 3 shows the model developed by Rao et al., 2003. This model provides a detailed guide on the progression of e-Commerce adoption, which may be used as a blueprint for designing a model of the stages of m-Commerce adoption.



*Figure 3: Stages of e-Commerce Development and their Characteristics (Rao et al., 2003)*

The next section seeks to adapt the patterns presented by all the e-Commerce models that have been discussed in this section to inform a robust design of a model that could be used for m-Commerce.

#### ***4.3.1.1 Stages of e-Commerce Adoption***

*Adapted from (Rao et al., 2003 and Molla, 2005)*

As indicated in the previous section, there were similarities between the stages of e-Commerce adoption suggested in the three articles by Rao, Metts, & Monge, 2003; Molla, 2005; Rowley, 2001. These similarities provide an indication of the progression of adoption based on the complexity of the system of adoption at the different stages, the nature of activities that can be conducted at each stage and the level of interaction between the business and their customers at each stage. Therefore, following a similar pattern of progression presented in the e-Commerce adoption models, m-Commerce activities and functionalities that reflect similar levels of complexity and interaction were identified from literature and assigned to the different stages of the m-Commerce adoption model. The following paragraphs provide details of the features of each e-Commerce adoption stage presented by Rao et al. (2003) and Molla (2005); and the respective features for m-Commerce.



## **STAGE 1**

### **e-Commerce Adoption Stage 1: Presence | Informational Capability**

According to Rao et al. (2003), the first stage of e-Commerce adoption is the Presence stage which is similar to the first stage of e-Commerce adoption that was described by Molla (2005). Although Roa et al. (2003) refers to their first stage as Presence and Molla (2005) labels the first stage as Informational Capability, the features they described reflects a basic use of internet by the business. At this stage, businesses make use of website to publish basic information about the business and its products and services in a static manner. The major feature of this stage is the ability to share information and provide one-way communication.

Facilitators: The factors that support this level of adoption, as indicated by Rao et al. (2003) include Commitment, Content, Price Flexibility, Competitive access cost, etc.

Barriers: The factors that represent challenges that confront the businesses' adoption of e-Commerce at this stage include (Rao et al., 2003) Technological Resistance, Acceptance of growth by managers, Financial Investment, Telecommunication Infrastructure development.

### **m-Commerce Adoption Stage 1 – Initiation Capability**

Considering that the first stage of e-Commerce adoption features a basic use of the internet by businesses, a similar level of m-Commerce adoption will include a basic use of mobile phones by businesses. Therefore, an equivalent m-Commerce functionality and level of complexity for this stage may include the ability of businesses to make use of mobile phones for tele-communication, as well as minimal use of internet for e-mail access. This stage has been labelled Initiation Capability because it reflects the starting point of the m-Commerce adoption spectrum.

Similar to the approach adopted by Rao et al. (2003), factors that seem to have some impact on the nature of activities that are conducted at this stage were identified from literature. These factors include perceived cost (Luarn & Lin, 2005); Device Technology (Amin et al., 2011); Customer Innovativeness (Chong, 2013b); Product fit (Scharl et al., 2005); Social Influence (Wei et al., 2009); Low literacy (Saidi, 2010); etc. The first row of Table 3 contains a list of facilitators and barriers that can be associated with a migration of businesses from stage one to stage two of the m-Commerce adoption continuum.

## **STAGE 2**

### **e-Commerce Adoption Stage 2: Portals | Interactive Capability**

The second stage of the e-Commerce adoption model that was suggested by Rao et al. (2003) is referred to as Portals. A similar level of e-Commerce adoption, labelled as Interactive Capability, is also defined by Molla (2005). According to Molla (2005), businesses at this stage provide users with the ability to search the business's product catalogue, make queries and enter orders. This reflects an increase in the functionalities of the website that is available to customers. According to Rao et al. (2003), in addition to being able to access static information about the business's products, customers can now have two-way communications with the business via the website by being able to order the products they want, provide product feedback and complete surveys. From both descriptions by Molla (2005) and Rao et al. (2003), it can be observed that at this stage, businesses provide additional functionalities to their customers. For instance, whereas in stage 1, customers can only view products on the website, this stage provides customers the opportunity to place their orders for the products they want. This additional feature also opens up a new channel through which customers can interact with the businesses.

Facilitators: According to Rao et al. (2003), the factors that support a migration to this stage of e-Commerce adoption include: Internal Organisational Changes, Investment and Usability.

Barriers: Roa et al. (2003) also indicated that the factors that could hinder the adoption of e-Commerce at this stage include: Development of Business-to-Business interface, language and cultural issues.

### **m-Commerce Adoption Stage 2 – Informational Capability**

From the description of e-Commerce adoption at this stage, an m-Commerce equivalent for this stage needs to reflect an increase in the functionality that the businesses offer to customers. One such addition may include running websites that provide static display of information in order to gain web presence. At this stage, customers can access the business's website on their mobile phones but it is worth noting that the website is not necessarily optimised for mobile phones. Nonetheless, the website opens up an additional channel through which customers can interact with a business. For instance, rather than visiting or calling a business in order to know if they sell particular products, customers can visit the business's website to get this information. At this stage, communication with the business is mostly one-way and contact is often initiated by the customer. This stage has been labelled Informational Capability because of the additional channel through which businesses can provide information about their products.

Similar to the approach adopted by Rao et al. (2003), factors that seem to have some impact on the nature of activities that are conducted at this stage were identified from literature. These factors include Perceived Enjoyment (Verkasalo et al., 2010); Personal Innovativeness (S. Hung et al., 2003); Design aesthetics (Cyr et al., 2006); Social Influence (López-Nicolás et al., 2008); Connection speed (S. Hung et al., 2003); Perceived credibility (Luarn & Lin, 2005); Facilitating Conditions (S. Hung et al., 2003); Perceived Usefulness (K. C. C. Yang, 2005); User Satisfaction (Hamed, Hamza, & Saroit, 2011); Culture (Xin, 2009a); etc. The second row of Table 3 contains a list of facilitators and barriers that can be associated with a migration of businesses from stage two to stage three of the m-Commerce adoption spectrum.

### **STAGE 3**

#### **e-Commerce Adoption Stage 3: Transactions Integration | Transactional Capability**

The third stage of e-Commerce adoption that was described in the Rao et al. (2003) model is referred to as Transactions Integration. Molla (2005) also described a similar third stage of e-Commerce adoption called Transactional Capability. At this stage, companies allow online selling and purchasing of products and services including online payment and customer service (Molla, 2005). This stage also features the presence of financial transactions, buying and selling interactions, virtual communities, e-auctions, etc. (Rao et al., 2003). From the descriptions of this stage, it can be observed that the website has additional features which provides customers with the opportunity to pay for their goods online and also provides increased channels through which customers can interact with the business.

Facilitators: According to Rao et al. (2003), the factors that facilitate the adoption of e-Commerce at this stage include Extension of internal IT technology, acquisition of necessary IT skills, partnership for B2B/3rd party opportunities, e-Commerce community development, selection of competitive payment systems, etc.

Barriers: Rao et al. (2003) also indicated that the factors that hinder the adoption of e-Commerce at this stage include Financial systems, Government tax and trade policies, security and/or privacy, government contractual and legal environment, treatment of intellectual property

#### **m-Commerce Adoption Stage 3 – Interactive Capability**

Considering the progression of e-Commerce adoption from stage two where customers can order their products online to stage three where customers can pay for their products online, a similar

progression of m-Commerce adoption from stage two to stage three should also provide additional features or capabilities. Whereas in stage two, businesses might have websites that are not necessarily mobile optimised, at this stage of m-Commerce adoption, the websites are optimised for mobile phones and customers can purchase or reserve products through their mobile phones. However, it is worth noting that at this stage, company systems are not integrated. For instance, a different company (Bank or Telecommunication operator) handles monetary transactions (debit / credit card or text charges) while the company fulfils orders. This stage has been labelled Interactive Capability because communication between businesses and their customers at this stage is two-way although contact is often initiated by the customer.

In line with the approach adopted by Rao et al. (2003), factors that seem to have some impact on the nature of activities that are conducted at this stage were identified from literature. These factors include Trust in Service (Xin, 2009a); Reliance on Cash Payment (Saidi, 2010); Media Cost (Scharl et al., 2005); Peer Influence (S. Hung et al., 2003); Past Adoption Behaviour (K. C. C. Yang, 2005); Transmission Process (Amin et al., 2011); Technology Cluster (K. C. C. Yang, 2005); Relative Advantage (Al-jabri & Sohail, 2012); Integrity of Transactions (Xin, 2009a); Personalisation (Dickinger et al., 2004); Content Quality (Hamed et al., 2011); Lack of Technical Expertise among Policy Makers (Saidi, 2010); etc. The third row of Table 3 contains a list of facilitators and barriers that can be associated with a migration of businesses from stage three to stage four of the m-Commerce adoption continuum.

#### **STAGE 4**

##### **e-Commerce Adoption Stage 4: Enterprises Integration | Integrated Capability**

The last stage of the e-Commerce adoption model described by Rao et al. (2003) and Molla (2005) have been labelled as Enterprises Integration and Integrated Capability respectively. At this stage, the company's e-commerce systems are integrated with suppliers, customers and other back office systems allowing most business transactions to be conducted electronically (Molla, 2005). This stage presents the concept of e-world – e-commerce, Supply Chain Management + Customer Relations Management (Rao et al., 2003).

Facilitators: The factors that facilitate the adoption of e-Commerce at this stage include Competencies of Internal staff, business process integration & control, back office integration, etc. (Rao et al., 2003).

Barriers: The factors that hinder the adoption of e-Commerce at this stage include Technological availability and diffusion, international standards, development of e-market & network complexity, etc. (Rao et al., 2003).

#### m-Commerce Adoption Stage 4 – Integrated Capability

Following the pattern of integration at the fourth stage of the e-Commerce adoption spectrum, at this stage of m-Commerce adoption, the company website is also fully functional; and departments and systems are integrated. At this stage, customers can track orders, make payments with PayPal or similar systems, status messages may be sent, etc. It is worth noting that since the systems are integrated, information may be retrieved from one central location – the company’s website. A key feature of this stage is that the two-way communication is enhanced although contact is still often initiated by the customer. However, the company can also initiate contact through email subscriptions and details provided through account registration. This stage has been labelled Integrated Capability because of the systems integration.

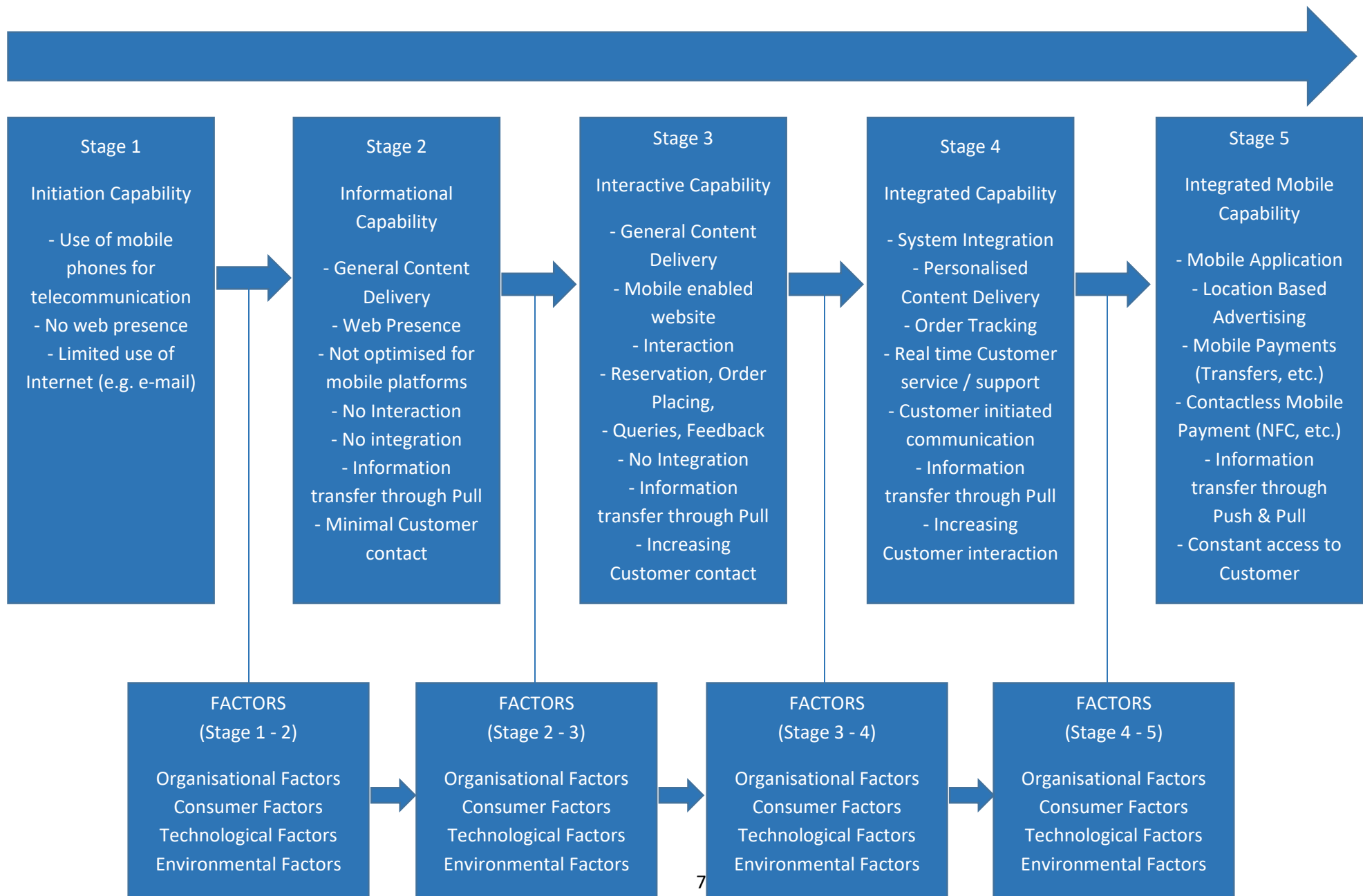
In line with the approach adopted by Rao et al. (2003), factors that seem to have some impact on the nature of activities that are conducted at this stage were identified from literature. These factors include Regulatory Policy (Saidi, 2010); Observability (Al-jabri & Sohail, 2012); Privacy (Luarn & Lin, 2005); Perceived Risk (Al-jabri & Sohail, 2012); Perceived Self-efficacy (Khalifa & Shen, 2008b); Perceived Value (A. Y.-L. Chong, 2013b); Compatibility (Al-jabri & Sohail, 2012); etc. The fourth row of Table 3 contains a list of facilitators and barriers that can be associated with a migration of businesses from stage four to stage five of the m-Commerce adoption continuum.

#### m-Commerce Adoption Stage 5 – Integrated Mobile Capability

Considering the uniqueness of m-Commerce to e-Commerce, a fifth stage was added in order to capture other aspects of m-Commerce that are more advanced in nature such as the use of mobile applications, location based advertisement and contactless payment. At this stage, the company has the capacity to develop and maintain mobile applications which provides additional channels for interaction with the business. Customers can download the app and use that as a channel to interact with the company rather than going through a website. It is worth noting that at this stage, the business now has 24-hour contact with customers and there is a two-way push and pull effect going on, where either the business or the customer can initiate communication. For instance, rather than just waiting for the customers to contact the business, the business can send location based advertisement to customers or deliver personalised messages. This stage has been labelled

Integrated Mobile Capability because it captures the integration of various systems that are unique to m-Commerce.

Figure 4 presents the first design of the model, Model A.



*Figure 4: Model A - Initial Design of m-Commerce Adoption Model based on Findings from Literature Review*

STAGES	ORGANISATIONAL FACTORS	CONSUMER FACTORS	TECHNOLOGICAL FACTORS	ENVIRONMENTAL FACTORS
Stage 1 - 2	<ul style="list-style-type: none"> <li>• Awareness &amp; Appreciation of m-Commerce</li> </ul>	<ul style="list-style-type: none"> <li>• Content &amp; Product Fit</li> <li>• Consumer Innovativeness</li> <li>• Perceived cost</li> <li>• Low Literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Service costs</li> <li>• Device Technology</li> </ul>	<ul style="list-style-type: none"> <li>• Social Influence</li> </ul>
Stage 2 - 3	<ul style="list-style-type: none"> <li>• Commitment</li> <li>• Personal Innovativeness</li> <li>• Resource investment</li> </ul>	<ul style="list-style-type: none"> <li>• User satisfaction</li> <li>• Personal Innovativeness</li> <li>• Perceived Usefulness</li> <li>• Facilitating Conditions</li> <li>• Perceived Enjoyment</li> </ul>	<ul style="list-style-type: none"> <li>• Connection speed</li> <li>• Perceived credibility</li> <li>• Design aesthetics</li> <li>• Hardware and Handsets</li> </ul>	<ul style="list-style-type: none"> <li>• Social Influence</li> <li>• Culture</li> </ul>
Stage 3 - 4	<ul style="list-style-type: none"> <li>• Reliance on cash payment</li> <li>• Media cost</li> <li>• Capital Investment</li> <li>• Readiness</li> </ul>	<ul style="list-style-type: none"> <li>• Personalization</li> <li>• Customer Control</li> <li>• Peer Influence (WoM)</li> <li>• Past Adoption Behaviour</li> <li>• Trust in services</li> <li>• Relative Advantage</li> <li>• Content Quality</li> </ul>	<ul style="list-style-type: none"> <li>• Transmission Process</li> <li>• Technology Cluster</li> <li>• Network Infrastructure</li> <li>• Integrity of Transactions</li> <li>• Security</li> </ul>	<ul style="list-style-type: none"> <li>• Social Norm</li> <li>• Lack of Technical Expertise among Policy Makers</li> </ul>
Stage 4 - 5	<ul style="list-style-type: none"> <li>• Privacy</li> <li>• Risk Taking Ability / Drive</li> </ul>	<ul style="list-style-type: none"> <li>• Perceived risk</li> <li>• Compatibility</li> <li>• Perceived Value</li> <li>• Perceived self-efficacy</li> </ul>	<ul style="list-style-type: none"> <li>• Observability (Visibility)</li> </ul>	<ul style="list-style-type: none"> <li>• Regulatory Policy</li> </ul>

*Table 3: List of m-Commerce Adoption Factors for Model A*



#### **4.4 Preparation for Primary Data Collection through Interviews: Pilot Phase**

Following the design of Model A, it was important to test the validity of the model to ensure that it is reflective of the trend of m-Commerce adoption obtainable amongst micro and small businesses in Nigeria. This was facilitated through the conduct of a series of Interviews. The rationale for conducting twelve interviews takes support from an ESRC document that was put together by Baker & Edwards (2012). From this review of expert voices on how many interviews are sufficient for qualitative studies, it may be observed that, although a general guide to qualitative studies is the conduct of twelve to sixty interviews, twelve interviews are ideal for the purpose of identifying themes within a cultural context. This aligns to the purpose of the interviews that were conducted in this study. The interviews provided a platform for the main study of this research which was conducted through the use of questionnaires. However, to ensure that appropriate questions were being asked during the interviews, two sets of pilot interviews were conducted. The next section provides a discussion of the data collection procedure for this pilot phase.

##### **4.4.1 Method**

Prior to data collection, some essential documents were prepared and sent to the Aston University ethics committee for approval in order to ensure that proper ethical requirements had been incorporated into the Research Methodology. These documents included List of Possible Interview Questions, Participant Consent Form and Participants Briefing & Debriefing Sheets. During the process of seeking ethical approval, contacts were made with the National Bureau of Statistics (NBS) in order to get the Frame containing a list of small and medium scale enterprises in Nigeria. At about the time the Ethical approval was granted, a copy of the Frame was received. This was useful for the participant recruitment.

In a bid to ensure rigour, pilot interviews were conducted with participants who were randomly selected by contact persons in the Northern and Southern parts of Nigeria. These broad regions were chosen in line with the geopolitical groupings of Nigeria. At the end of the first set of pilot interviews, 3 questions were replaced. This was done to ensure better quality of information gathered. Afterwards, another set of pilot interviews were conducted and seemingly ambiguous questions were edited and the position of some questions were re-arranged to ensure better flow of the interview.

#### 4.4.2 Pilot Phase 1 – Interviews (n = 2)

As earlier mentioned, after the design of Model A, it was important to test the validity of the model to ensure that it is reflective of the trend of m-Commerce adoption obtainable amongst micro and small businesses in Nigeria. This was facilitated through the initial conduct of n=2 interviews. These interviews were meant to serve as the first pilot for the Exploratory Study. In addition to testing the quality of data that may be gathered from the interview questions, this first pilot interviews indicated that Model A was not reflective of the current level of m-Commerce adoption by micro and small businesses in a developing country – Nigeria. Two main reasons were identified:

- ✓ There was no representation of stages 4 and 5 amongst micro and small businesses in the target population
- ✓ Progression of stages in Model A did not reflect the pattern observed from the pilot data

Therefore, Model A was modified to reflect observations from the first pilot data collection. The re-description and redistribution of stages 1 - 3 of Model A are captured in stages 1 - 4 of the new model - Model B.

#### 4.4.3 Design of Model B

Having observed that Model A was not representative of the current level of adoption among micro and small wholesale and retail businesses in Nigeria, it became imperative to modify the model to reflect the current level of adoption. This meant removing high end advancements in m-Commerce such as Contactless payment (NFC), Location Based Advertisement, etc. and redistributing Stage 1 – 3 of Model A into Stage 1 - 4 of Model B. However, some Stage 4 characteristics of Model A were included in Stage 4 of the Model B.

In addition, given that this study is focused on m-Commerce via SIM-enabled devices, m-Commerce activities that are not supported by this category of devices were removed from the updated model B. As a result, although the data collected from the interview reflects that Point Of Sale (POS) payment appears to be gaining popularity amongst wholesale and retail shops, it was not added to the modified model because these kinds of payments are currently not supported by SIM-enabled devices. Furthermore, the interview questions were modified slightly in line with observations from the collected data. For instance, some questions had to be edited, some replaced with new questions and the order of questioning was also rearranged (See Appendix 1).

#### 4.4.4 Pilot Phase 2 – Interviews (n = 2)

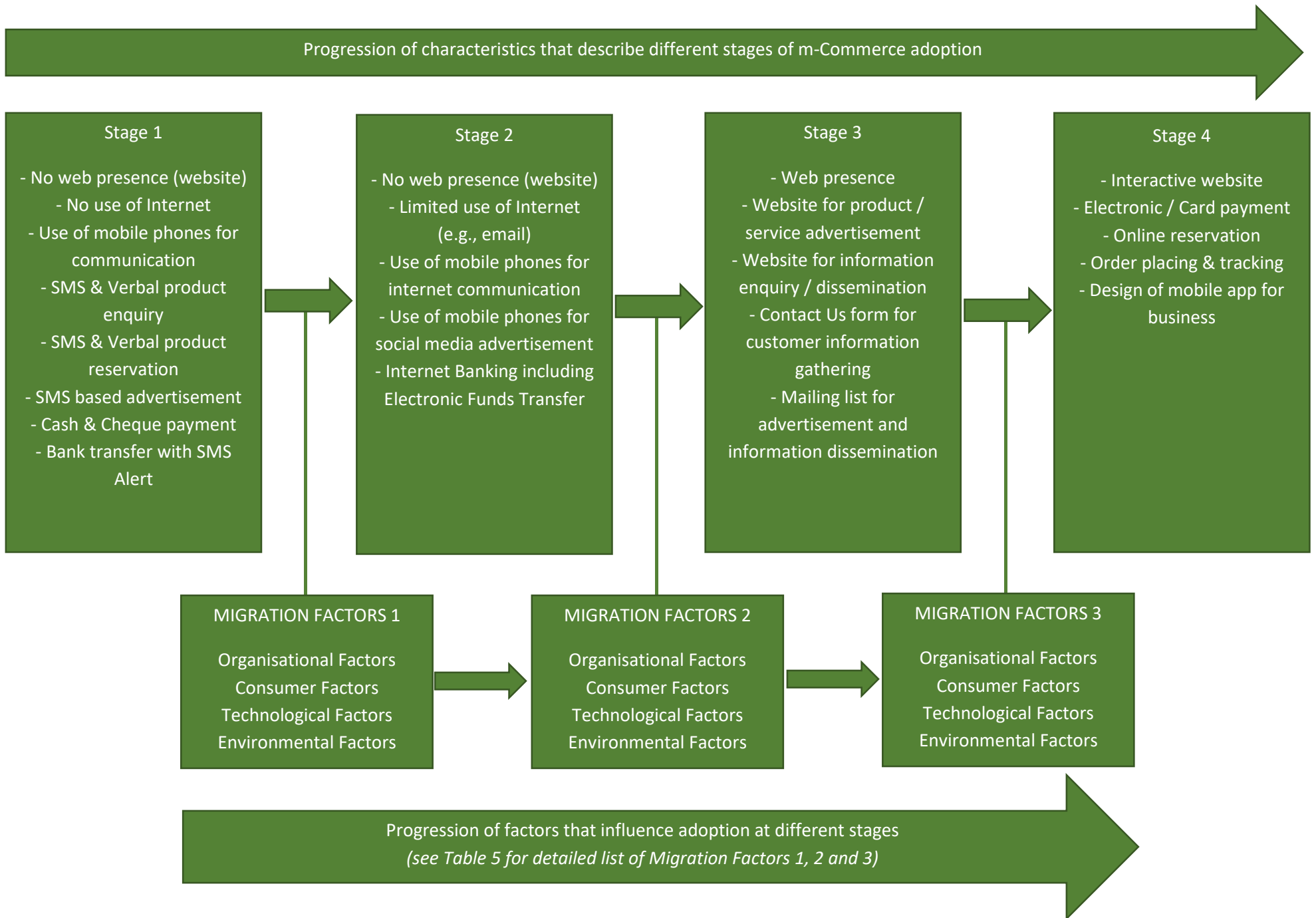
A second pilot phase was conducted in order to assess whether or not the new model was more representative of the given context. From the responses, Model B was observed to be more representative of the current level and progression of m-Commerce adoption by micro and small businesses in the target population. This is because there was negligible discrepancy between expected trends that were predicted in the model and observed trends from the information provided. For instance, some characteristics that were expected in the businesses that were interviewed were similar to characteristics that they reported e.g. their level of awareness, exposure and utilisation of m-Commerce. Furthermore, the new model provided a better fit for the businesses' progression of adoption stages with respect to complexity of the technology. Also, the model had a clear demarcation between the stages which was also reflective of the current level of m-Commerce adoption in Nigeria.

In addition, the interview questions were useful in collecting better quality of data by avoiding repetition, ambiguity and misunderstanding of questions. As a result, the new set of interview questions were used for Phase 1 data collection for this study – Exploratory Interviews.

### **4.5 Chapter Conclusion**

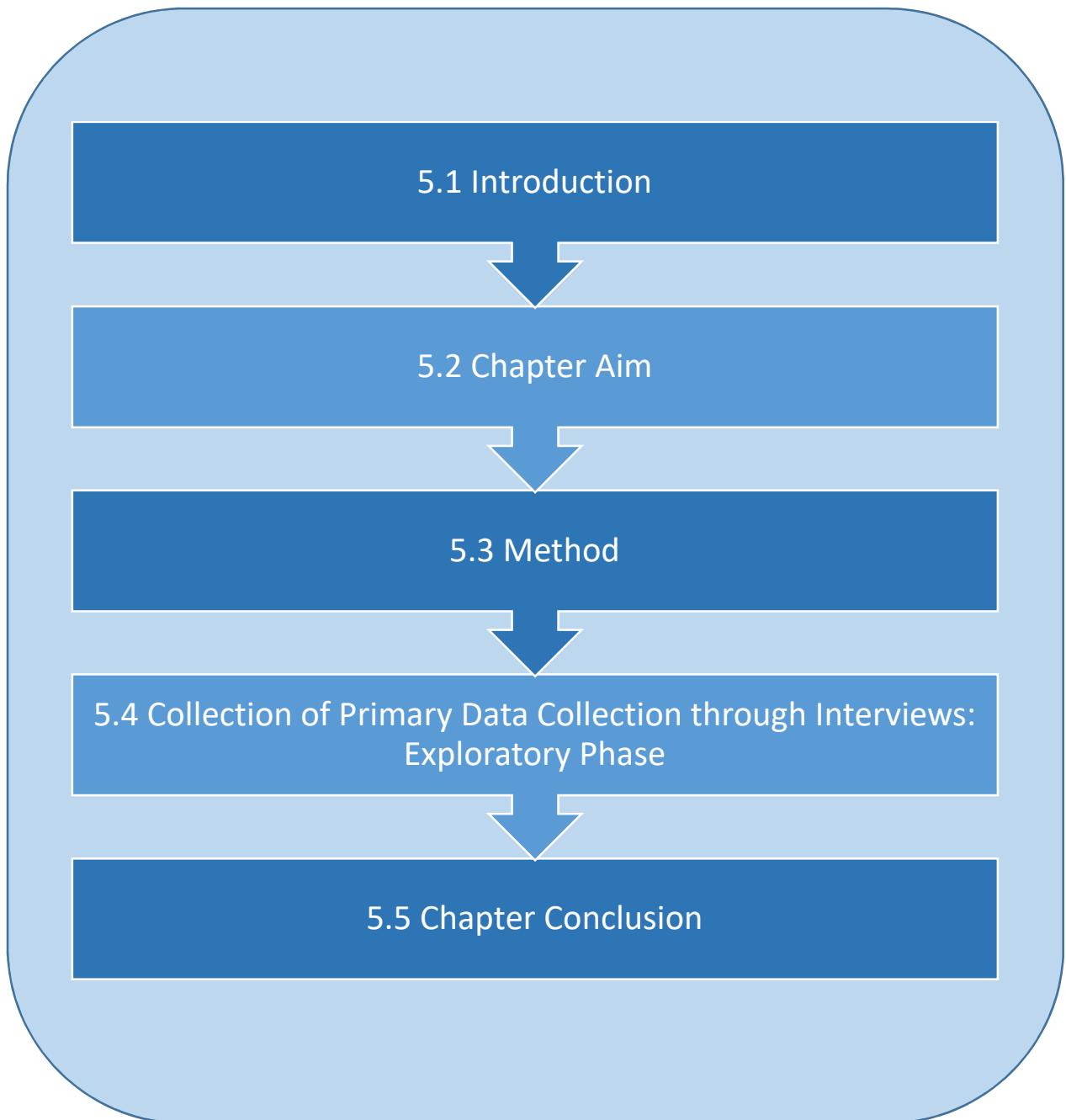
This chapter sought to develop a stage model for m-Commerce adoption by micro and small business in a developing country, Nigeria. Through the use of secondary data collected from literature, Model A was designed. However, after conducting the first set of pilot interviews, Model A was observed to present a different picture of m-Commerce adoption in the target population. As a result, Model B was designed which, after a second set of pilot interviews, was observed to be more representative of the current trends of m-Commerce adoption among micro and small businesses in Nigeria. Therefore, Model B is the proposed model of m-Commerce adoption among micro and small businesses in a developing country such as Nigeria. Figure 5 presents a picture of Model B.

In the next chapter, findings from the Phase 1 data collection for this study will be presented. The data collection will be conducted through the use of Interview Questions that have been tested through 2 pilot interviews in this chapter. Findings from the data will be used to make further changes to the model where necessary. Therefore, the validity of the model is being further tested to improve its fit for businesses at different levels of adoption across the different geo-political regions of Nigeria.



**Figure 5: Model B - Updated Design of m-Commerce Adoption Model to reflect the Nigerian Context**

# OVERVIEW OF CHAPTER FIVE



## CHAPTER 5

### EXPLORATORY STUDY OF M-COMMERCE ADOPTION MODEL THROUGH INTERVIEWS

#### **5.1 Introduction**

In the previous chapter, two models of m-Commerce adoption were designed. After the first set of pilot interviews, the original model had to be modified and a second model was designed which appeared to be more representative of the target population. Also, it was explained that the interview questions to be used for the first phase of data collection for this study were piloted and modified in the previous chapter. Appendix 1 provides a copy of the Interview Questions that were used to guide discussions during each interview.

Within this chapter, Model B will be further tested through the use of n=12 interviews. This further test will seek to identify potential areas of change within the model before the second phase of data collection where the model will be applied to a larger population through the use of questionnaires. Results, findings and discussions from the interviews will be presented within this chapter. Where changes to the model are necessary, these will also be presented within this chapter.

#### **5.2 Chapter Aim**

The aim of this chapter is to test Model B in order to validate factors and adoption stages

#### **5.3 Method**

Model B was tested through the use of n=12 interviews conducted with owners or managers of micro and small businesses within the six geo-political regions of Nigeria. Participants for the interviews were selected from the Frame provided by the National Bureau of Statistics. Further details of the step by step process of selecting participants is provided in chapter 3.

#### **5.4 Collection of Primary Data through Interviews: Exploratory Phase**

After the pilot interviews, data was collected for the exploratory part of this study through the use of n=12 Interviews. At the end of the data collection, two major questions needed to be answered:

1. Does the stage model fit?

Criteria: Identify features of interviewed businesses that fit predefined stages and can help identify other characteristics that define the different stages of m-Commerce adoption by micro and small businesses

## 2. Do the Migration Factors fit?

Criteria: Identify factors that can help define activities of micro and small businesses toward progressing their m-Commerce adoption stages

## **5.5 Result**

### 5.5.1 Profile of Businesses

This study set out to interview managers or owners of micro and small businesses in the 6 geopolitical regions of Nigeria (Appendix 2 provides details of states where businesses were selected from within each region). Considering that micro and small businesses fall into different categories and industries, this study focused on micro and small businesses that operate as wholesalers or retailers. In this study, 13 micro and small businesses that fit this criteria were interviewed and 1 record had to be removed because the target was to interview 12 companies – 2 from each region. Of the 12 businesses, 5 businesses operated as supermarkets – 2 of which had other parts within the businesses such as restaurants, boutique and furniture sales. The other 7 businesses were: 2 laboratory consumable suppliers, 2 Agricultural units (animal nutrition, poultry, crops, livestock, etc.), 1 communication outlet (selling mobile phones, top ups, etc.), 1 restaurant & bakery, and 1 rice mill.

With respect to the Stage model, there was at least one business in each stage as follows:

- Stage 1: n=2 businesses
- Stage 2: n=6 businesses
- Stage 3: n=3 businesses
- Stage 4: n=1 business

Appendix 3.1 provides a summary of responses from the n=12 interviews conducted on the owners or managers of micro and small businesses. These responses were defined into words or phrases that are similar to the characteristics and factors identified from the literature e.g. Ease of Use, Perceived Value, etc. Where new concepts were identified from the responses, these were captured in words or phrases that follow similar naming conventions identified from literature. An example of this is: where a respondent indicated that there was “no other way” for them to make use of their

mobile phones than how they are already using it, this was redefined as “low literacy”. Similarly, where a respondent indicated that they make use of their “friends” to advertise their product, this was coded as “Word of mouth”.

In order to group the businesses into the different stages of adoption, the list of activities they currently conduct within their business was compared with the list of characteristics that were defined in Model B. Businesses were then placed within the adoption stage of Model B that had a combination of characteristics that is closest to the list of activities indicated by the businesses. Appendices 3.2 to 3.5 provide details of the activities that were indicated by the businesses and the codes that were assigned to them, following similar naming convention as the pattern observed in literature. These activities (which represent the characteristics of the business), were then compiled into the last column of the respective stages (see Appendices 3.2 to 3.5). A combination of all the activities / characteristics that were indicated by all the businesses in each stage of adoption are presented in Table 4.

The factors presented in Table 4 were also derived from the interview responses. Again, the interview responses were coded into naming conventions that fit patterns observed in literature. Based on the responses of the businesses in each stage, the factors they identified were then used to inform the factors that were placed into the different levels of migration factors. Appendices 3.6 to 3.9 provides details of the factors that were identified by each business. As can be observed, the tables were colour coded in order to provide clarity of how the factors were assigned into the different migration stages from Stages 1 - 2, 2 - 3 and 3 - 4. Considering that each business was asked questions that sought to identify factors that influence their current level of adoption, as well as, other factors that could impact on their increased adoption of m-Commerce, each business’ responses contributed to the list of factors for 2 stages. For instance, the responses of businesses in Stage 1 on the factors that influence their current level of adoption (captured as “Reason for Tech Adoption”, “Mobile Transfer Challenges / Factors” and “Factors - business decision”) contributed to the Migration Factors list for Stage 0 - 1; while their response on factors that could influence their increased adoption of m-Commerce (captured as “Factors - advanced Mobile Usage”), contributed to the Migration Factors list for Stage 1 - 2.

Through the literature review conducted in Chapter 2 to identify general factors that influence m-Commerce adoption, 4 categories were identified – Consumer Factors, Organisational Factors, Technological Factors and Environmental Factors. However, in this study, the Consumer Factors category was removed because getting direct data from consumers on their perspectives of the m-Commerce adoption process is outside the scope of this study.



STAGE	CHARACTERISTICS	MIGRATION	ORGANISATIONAL FACTORS	TECHNOLOGICAL FACTORS	ENVIRONMENTAL FACTORS
1 n = 2	<ul style="list-style-type: none"> <li>• No web presence (website)</li> <li>• No use of Internet</li> <li>• Use of mobile phones for communication</li> <li>• SMS &amp; Verbal product enquiry</li> <li>• SMS &amp; Verbal product reservation</li> <li>• SMS based advertisement</li> <li>• Cash &amp; Cheque payment</li> <li>• Bank transfer / deposit with SMS Alert</li> <li>• <i>Word of mouth</i></li> <li>• <i>Product display</i></li> <li>• <i>Calculate transaction</i></li> <li>• <i>Alarm</i></li> <li>• <i>Check time</i></li> <li>• <i>Sale of recharge card</i></li> </ul>	Stage 1-2	<ul style="list-style-type: none"> <li>• Presence of Trust</li> <li>• Limited Awareness &amp; Appreciation of technology</li> <li>• Need for Training and Guidance</li> </ul>	<ul style="list-style-type: none"> <li>• Ease of use / Usability</li> <li>• Suitability “appropriate” for business</li> <li>• Availability of Internet access &amp; High connection speed</li> <li>• Effectiveness</li> <li>• Perceived Usefulness</li> <li>• Convenience</li> <li>• Perceived Value</li> <li>• Profitability</li> <li>• Technology Popularity</li> <li>• Availability and affordability of Device Technology</li> <li>• High business cost</li> <li>• High Transaction Cost</li> </ul>	<ul style="list-style-type: none"> <li>• Keep up with trend / Social Influence</li> <li>• Regulatory Policy - Cashless Policy</li> <li>• Increased popularity</li> <li>• In vogue, general acceptance</li> <li>• Positive impact on Crime (reduction)</li> <li>• Supplier Readiness / acceptance</li> <li>• Customer acceptance</li> </ul>
2 n = 6	<ul style="list-style-type: none"> <li>• No web presence (website)</li> <li>• Limited use of Internet (e.g., email)</li> <li>• Use of mobile phones for internet communication</li> </ul>	Stage 2-3	<ul style="list-style-type: none"> <li>• Profitability</li> <li>• Positive Impact on business</li> <li>• Personal Innovativeness</li> <li>• Trust</li> </ul>	<ul style="list-style-type: none"> <li>• Staff capability</li> <li>• Trainability / Ease of Use</li> <li>• Effectiveness (scope coverage) / reach</li> <li>• Trustworthiness of technology</li> <li>• Customer acceptance</li> </ul>	<ul style="list-style-type: none"> <li>• Global Trend / Social Influence</li> <li>• Culture</li> <li>• Customer awareness</li> <li>• Positive Impact of Regulatory Policy - Cashless Policy</li> </ul>

	<ul style="list-style-type: none"> <li>• Use of mobile phones for social media advertisement</li> <li>• Mobile transfer for payment</li> <li>• Bank wire transfer</li> <li>• Internet Research</li> <li>• Vehicle publicity</li> <li>• Media advert – TV, Radio, Billboard, newspaper, bulk SMS</li> </ul>		<ul style="list-style-type: none"> <li>• Access to Orientation, training and support</li> <li>• Commitment</li> <li>• Willingness to engage in Resource investment</li> </ul>	<ul style="list-style-type: none"> <li>• Effective Security Feature</li> <li>• Instability / unreliableness of technology</li> <li>• Security fears</li> <li>• High Cost of Technology</li> <li>• Poor resolution of issues (technical support)</li> <li>• Network issues</li> </ul>	<ul style="list-style-type: none"> <li>• Third Party and Government understanding and appreciation / Lack of Technical Expertise / Government policy</li> </ul>
3 n = 3	<ul style="list-style-type: none"> <li>• Web presence</li> <li>• Website for product / service advertisement</li> <li>• Website for information enquiry / dissemination</li> <li>• Internet banking</li> <li>• Advertisement via TV, radio, website, pamphlet, flyers, signposts</li> <li>• Social Networking</li> <li>• Use of mobile phone for internet research</li> </ul>	Stage 3-4	<ul style="list-style-type: none"> <li>• Possibility of gaining competitive advantage</li> <li>• Culture – natural emphasis on personal relationships</li> <li>• Personal Innovativeness</li> </ul>	<ul style="list-style-type: none"> <li>• Positive Impact on business</li> <li>• Profitability</li> <li>• Presence of Training</li> <li>• Relevance to business type / Suitability</li> <li>• Access to credit facility for customers</li> <li>• Installation problem</li> <li>• Network issues</li> <li>• Poor Expertise of installation team</li> <li>• Little or no appreciation of technology</li> <li>• Low level of literacy among prospective consumers</li> <li>• Security fears</li> </ul>	<ul style="list-style-type: none"> <li>• Meet International standards / Social Norm</li> <li>• Reduce queue in store</li> <li>• Increase trust &amp; Confidence</li> </ul>

4 n = 1	<ul style="list-style-type: none"> <li>• Interactive website</li> <li>• Electronic / Card payment</li> <li>• Online reservation</li> <li>• Order placing &amp; tracking</li> <li>• Design of mobile app for business</li> <li>• Mobile tracking of website and orders</li> <li>• Sending of daily reports</li> <li>• Online &amp; card payment</li> </ul>				
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\*\*\* *Blue code represents additional characteristics that were identified from interviews; Green code represents positive factors; Red code represents negative factors*

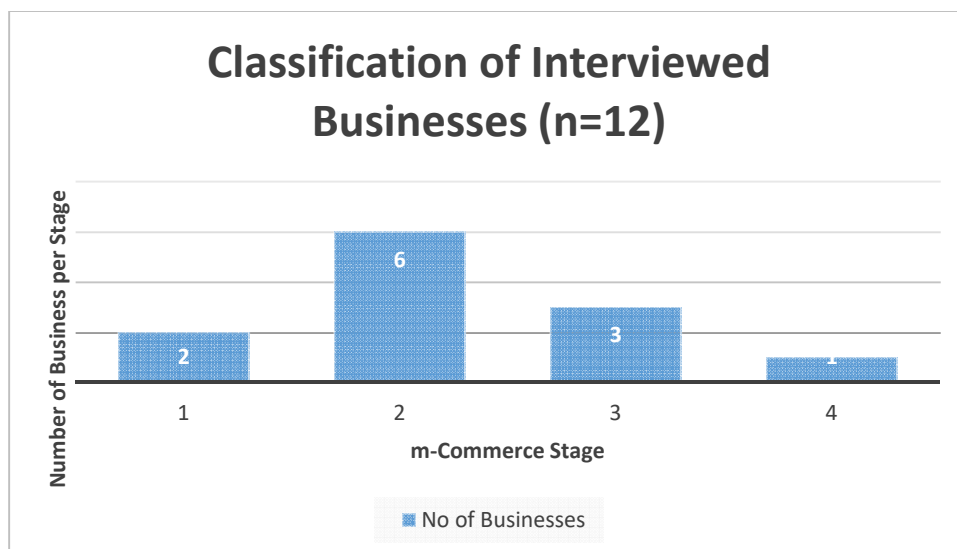
**Table 4: m-Commerce adoption Characteristics and Factors identified from Interviews**

## 5.6 Discussion of Interview Findings

### 5.6.1 Overview of Results

As indicated at the beginning of this chapter, this section of the study was designed to gain exploratory knowledge of current trends of m-Commerce adoption among micro and small wholesale/retail businesses in Nigeria. While there have been previous studies that have provided some insight into factors that could influence m-Commerce adoption, these studies did not adequately capture the current trends of m-Commerce which is crucial in understanding the barriers and facilitators of m-Commerce adoption. Therefore, this part of the study provided a platform to observe and assess the current trend of m-Commerce adoption within the target population which will form the foundation for identifying current, existing factors that influence their adoption of m-Commerce.

Within this study, 12 managers/owners of micro and small wholesale/retail businesses in Nigeria were interviewed. Of the 12 managers/owners interviewed, 2 businesses came under Stage 1 category of the Model B<sup>10</sup>. This reflects the reality that despite the increasing penetration and dependence on mobile telephony in countries like Nigeria, there exist businesses that are yet to tap into the potential benefits inherent within the adoption of m-Commerce. While Stage 1 of the model includes traditional use of mobile phones for SMS and calls which could also be classified as m-Commerce, it is concerning to observe that these businesses are not leveraging the increasing functionalities of new generation mobile phones to support or benefit their business.



*Figure 6: Classification of Interviewed Businesses (n=12)*

<sup>10</sup> Within this chapter, the use of “the model” shall be interpreted to mean “Model B”.

From the interviews, it was observed that half of the businesses interviewed (Figure 6) came under the Stage 2 category of the model. This shows that although most of the businesses have not advanced much in their adoption of m-Commerce, there is an increasing appreciation of m-Commerce and social commerce<sup>11</sup> amongst businesses in Nigeria. This is similar to a study conducted on small and medium enterprises in Nigeria (Oborah, 2011). Although this study was focused on identifying e-Commerce resources used by SMEs in the industrial capital of Nigeria, Lagos, the study found that there was “high use” of e-mails and World Wide Web among this population. This probably reflects the reason why most of the businesses interviewed were represented by Stage 2 of the model. More so, considering that there is high proliferation of mobile phones in Africa with Nigeria being the largest mobile market at 75% penetration<sup>12</sup>, quick and handy access to internet facilities have become possible for an increasing number of people within the region which is also influencing businesses’ access and usage of internet facilities.

Although the findings of the study conducted by Oborah (2011) presents some similarity in the pattern of internet usage and engagement with virtual commerce observed in this study, it is worrying to see that despite the presence of a rather sharp increase in the adoption of smart phones in Nigeria (from 4 million subscribers in 2012<sup>13</sup> to 10 million subscribers in 2014<sup>14</sup>); for almost 3 years since that 2011 study, there appears not to be a corresponding progression in the general online behaviour observed in Nigeria. A series of factors such as lack of awareness, limited appreciation of technology, etc., might be responsible for this trend. The next section will focus on discussing the factors that were identified from the n=12 interviews. Table 5 provides a compact summary of findings from the interviews presented in Table 4. However, it might be worth noting that in Table 5, rather than retaining the factors within the 3 different groups, these are regrouped under 1 uniform title – Migration Factors. The factors have been renamed as *Migration Factors* because they influence the increased use of mobile or SIM-enabled devices among businesses at different levels of adoption. These factors have been grouped into two categories – positive factors (colour-coded as green) and negative factors (colour-coded as red). From Table 5, it may be observed that the presence of positive migration factors is likely to facilitate a business’ migration from one stage to other; whereas, the presence of the negative migration factors is likely to cause the business to remain in their current level of adoption. This will be explained further in the next section.

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<sup>11</sup> Social commerce can be described as commerce activities mediated by social media (Curty & Zhang, 2011)

<sup>12</sup> <http://www.budde.com.au/Research/Nigeria-Mobile-Market-Insights-Statistics-and-Forecasts.html>

<sup>13</sup> <http://mobility.ng/nigerian-smartphone-market-figures-for-2012/>

<sup>14</sup> <http://mobility.ng/quick-facts/>

STAGE	CHARACTERISTICS	MIGRATION	MIGRATION FACTORS	STAGE	CHARACTERISTICS
1 n = 2	<ul style="list-style-type: none"> <li>• Mobile phone SMS or Call for business related communication</li> <li>• SMS &amp; Verbal product enquiry</li> <li>• SMS &amp; Verbal product reservation</li> <li>• SMS based advertisement</li> <li>• <i>Cash &amp; Cheque payment</i></li> <li>• <i>Bank deposit with SMS Alert</i></li> <li>• Physical Transactions with SMS or Verbal Confirmation**</li> <li>• No website</li> <li>• No use of Internet</li> </ul> <ul style="list-style-type: none"> <li>• Calculate transaction</li> <li>• 1 of 3 use email &amp; Facebook</li> <li>• Word of mouth</li> <li>• Product display</li> <li>• Alarm</li> <li>• Check time</li> <li>• Sale of recharge card</li> </ul>	Stage 1-2	<ul style="list-style-type: none"> <li>• Availability of Internet access</li> <li>• High internet connectivity</li> <li>• Availability and affordability of Device Technology</li> <li>• Effectiveness</li> <li>• Perceived Usefulness</li> <li>• Technology Popularity / Technology Cluster</li> <li>• Keep up with trend / Social Influence</li> <li>• Increased popularity</li> <li>• Customer acceptance</li> <li>• In vogue, general acceptance</li> <li>• Perceived Value</li> <li>• Convenience</li> <li>• Suitability “appropriate” for business</li> <li>• Regulatory Policy - Cashless Policy</li> <li>• Profitability</li> <li>• Limited Awareness of technology</li> <li>• Limited Appreciation of technology</li> <li>• High business cost</li> <li>• Need for Training and Guidance</li> <li>• High Transaction Cost</li> <li>• Supplier reluctance to accept virtual payment</li> <li>• Lack of Trust</li> </ul>	2 n = 6	<ul style="list-style-type: none"> <li>• Use of mobile phones for internet communication (email, social media)</li> <li>• Use of mobile phones for social media advertisement</li> <li>• <i>Bank wire transfer</i></li> <li>• No website</li> <li>• (SMS driven transactions)**</li> </ul> <ul style="list-style-type: none"> <li>• Internet Research</li> <li>• Vehicle publicity</li> <li>• Media advert – TV, Radio, Billboard, newspaper, bulk SMS</li> </ul> <p>** Additional characteristic added by Researcher</p>

<p>2 n = 6</p>	<ul style="list-style-type: none"> <li>• Use of mobile phones for internet communication (email, social media)</li> <li>• Use of mobile phones for social media advertisement</li> <li>• No web presence (website)</li> <li>• Mobile transfer for payment</li> <li>• Bank wire transfer</li>   <li>• Internet Research</li> <li>• Vehicle publicity</li> <li>• Media advert – TV, Radio, Billboard, newspaper, bulk SMS</li> </ul>	<p>Stage 2-3</p>	<ul style="list-style-type: none"> <li>• Effectiveness (scope / coverage / reach)</li> <li>• Global Trend / Social Influence / Culture</li> <li>• Customer awareness</li> <li>• Customer acceptance</li> <li>• Positive Impact on business</li> <li>• Effective Security Feature</li> <li>• Personal Innovativeness</li> <li>• Access to Orientation, training and support</li> <li>• Commitment</li> <li>• Capability and Trainability</li> <li>• High Cost of Technology</li> <li>• Security fears</li> </ul>	<p>3 n = 3</p>	<ul style="list-style-type: none"> <li>• Generate mailing list for advertisement and information dissemination</li> <li>• Website</li> <li>• Product / service advertisement on website</li> <li>• Contact Us form for customer information gathering</li> <li>• Customer Information analysis / report</li>   <li>• Internet banking</li> <li>• Advertisement via TV, radio, website, pamphlet, flyers, signposts</li> <li>• Social Networking</li> </ul>
<p>3 n = 3</p>	<ul style="list-style-type: none"> <li>• Generate mailing list (e.g. via Contact Us form) for advertisement and information dissemination</li> <li>• Website</li> <li>• Product / service advertisement on website</li> <li>• Customer information gathering and storage</li> <li>• Customer Information analysis / report</li> </ul>	<p>Stage 3-4</p>	<ul style="list-style-type: none"> <li>• Meet International standards / Social Norm</li> <li>• Presence of Trust / Confidence</li> <li>• Access to credit facility for customers</li> <li>• Culture – natural emphasis on personal relationships</li> <li>• Increase trust</li> <li>• Personal Innovativeness</li> <li>• Profitability</li> <li>• Positive Impact on business</li> <li>• Positive change in public Orientation**</li> <li>• Regulatory Policy - Cashless Policy**</li> </ul>	<p>4 n = 1</p>	<ul style="list-style-type: none"> <li>• Electronic / Card payment</li> <li>• Interactive website</li> <li>• Online reservation</li> <li>• Order placing &amp; tracking</li> <li>• Design of mobile app for business</li>   <li>• Mobile tracking of website and orders</li> <li>• Sending of daily reports</li>   <li>** Additional factors added by Researcher</li> </ul>

	<ul style="list-style-type: none"> <li>• Internet banking</li> <li>• Advertisement via TV, radio, website, pamphlet, flyers, signposts</li> <li>• Social Networking</li> </ul>		<ul style="list-style-type: none"> <li>• Ease of Use</li> <li>• Presence of Training</li> <li>• Relevance to business type / Suitability</li> <li>• Perceived Security risks</li> <li>• Low level of technology literacy of consumers</li> </ul>		
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***N.B:*** Blue code represents additional characteristics identified from interviews; Green code represents positive factors; Red code represents negative factors

*Table 5: Summary of m-Commerce adoption Characteristics and Migration Factors*



### 5.6.2 Migration factors for STAGE 1-2

The study response showed that certain positive factors such as Availability of Internet access; High internet connectivity; Availability and affordability of Device Technology would support a move from stage 1-2 in the spectrum of m-Commerce adoption in Nigeria. These factors reflect the need to have the appropriate platform required for the conduct of m-Commerce. Without the presence of affordable mobile devices that can connect to the internet (e.g. smart phones), and the presence of quality internet access through such devices, the conduct of internet based m-Commerce is almost impossible. Dholakia & Kshetri (2005), in their study, highlighted the fact that the benefits of m-Commerce can only be achieved in developing countries when mobile phones are available at affordable prices. Therefore, it is not enough to have internet enabled mobile phones or smartphones on the market, these mobile phones need to be within the financial reach of the population. On the other hand, it is equally important to ensure that the internet access required to conduct certain m-Commerce activities like transfer of data or information is also reachable – available and affordable. Taking a similar stance, Xin, 2009b indicated that the full potential of mobile phones as ubiquitous devices can only be realised through the presence of enabling technologies such as exchanging and communicating wireless information. In his opinion, the availability of technologies including high speed networks, is vital to the success of m-Commerce (ibid). In support of the importance of making internet access available, the Special Rapporteur of the United Nations, Frank La Rue stated that internet access is a human right (United Nations, 2011). If this is enforced in developing countries like Nigeria, the presence of these factors will help achieve stage 2 characteristics such as the use of mobile phones for internet communication (email, social media).

Other factors that can support a move from stage 1 to stage 2 include Effectiveness, Perceived Usefulness, Perceived Value and Suitability for business. These factors reflect the reality that users' perception of technology can influence their decision to adopt the technology. Consequently, although the use of m-Commerce might proffer numerous benefits to businesses, if the businesses are unable to foresee or identify these benefits, the likelihood of them adopting m-Commerce is slim. Other studies have found similar trends. In a study to understand the factors that drive m-Commerce, Wu & Wang (2005) observed that Perceived Usefulness and Perceived Ease of Use had indirect influence on actual usage through behavioural intention to use. However, in a study conducted by Chong (2013), it was observed that perceived value is a significant factor that influences m-Commerce adoption. Taking this stance a step further, a study conducted by Büyüközkan (2009) observed that perceived value affects m-Commerce customer loyalty. Similarly, previous studies such as Zarpou et al. (2012) and Wei et al. (2009) concluded that perceived usefulness plays a significant role in users' decision to adopt m-Commerce. Although

a study conducted by Duane, O'Reilly, & Andreev (2014) reported that perceived usefulness plays a less important role in the decision to adopt m-Commerce, the authors observed that perceived usefulness still has influence over the decision to adopt m-Commerce. This means that the decision to try out or keeping using m-Commerce is largely dependent on the users' perception of value and usefulness. These factors will also influence other factors like Effectiveness and Suitability for business. While it may be argued that Effectiveness and Suitability for Business are objective factors, their impact on the decision to adopt may be influenced by the users' perception. Therefore, given that previous studies (Xiang et al., 2008) have found that perceived value and perceived usefulness influences personal innovativeness; it may be reasonably argued that these factors will also influence the users' ability to identify effective ways of adopting m-Commerce to suit their business. From the interviews, businesses in Stages 1 and 2 expressed concerns about the impact of increased use of m-Commerce on widening their customer reach; and whether this decision would be appropriate for the kind of business transactions they conduct. These concerns reflect the presence of factors such as Effectiveness and Suitability for Business. Nonetheless, the reality that other factors can influence the business' willingness or ability to advance in their use of m-Commerce cannot be overlooked. These factors include customer acceptance, social influence, increased popularity, convenience, profitability and regulatory policy.

In informal business parlance, it is often reckoned that the customers are *always* right; as such, businesses often place the customers' interest and perspective at the centre of most decisions. In the same vein, businesses seeking to advance in their use of m-Commerce from stage 1 to stage 2 will find that customer acceptance is a factor that will influence that move. Its role in shaping m-Commerce adoption decisions has resulted in several studies being conducted on the factors that influence consumer acceptance (Malik, Kumra, & Srivastava, 2013; Shin, 2009; Fan et al., 2005). Nevertheless, beyond customer acceptance, social influence and increased popularity are other factors that can influence a business' increased use of m-Commerce. Quite often, users within the Nigerian context adopt new technologies as a way of identifying with a social class. Segun Martins, a Nigerian technology researcher and blogger echoed that in Nigeria, status is "a big deal". As a result, current trends indicate that whether or not one makes use of its functional capabilities, it is "enough to be seen with a smartphone"<sup>15</sup>. Interestingly, this attitude is reflected within Nigerian businesses. During the interviews conducted in this study, 4 of the 8 businesses that commented on reasons behind their adoption of technology made reference to the need to "keep up with the trend". In fact, one of the respondents indicated that it was necessary to have such technology because "it is odd not to have". Another respondent said "if it's in vogue, I can

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<sup>15</sup> The Martins Blog accessed on 14/11/2014 available at <http://martins.com.ng/?p=36>

agree to it”. Nonetheless, it is evident that despite these subtle cultural influences, businesses still pay attention to the impact of their decisions on profitability and convenience. Businesses therefore, in considering whether or not to adopt increasing levels of m-Commerce would assess the impact of such decisions on potential profits and benefits. This is also suggested in previous studies (Boateng et al., 2013; Isiguzo, 2010; Balasubraman et al., 2002).

Another factor that was identified to have an impact on the progression of m-Commerce adoption by micro and small businesses is the presence of government policies. Previous authors have observed similar trends. In their article, Sinha (2005) reported that government policy decisions were instrumental in shaping the phenomenal growth of mobile adoption in Uganda. Similarly, a report conducted by Pyramid Research in 2010 revealed that the introduction of a new telecom policy commenced the full liberalization of the telecommunication industry in Nigeria (Isiguzo, 2010). Since 2000, the introduction of government policy has contributed towards the growth of telecommunication industry in Nigeria. Most recently, the introduction of the regulatory Cashless Policy to reduce Nigeria’s dependence on physical cash has heralded observable growth in the conduct of virtual commerce. From the interviews conducted in this study, 4 of the 6 businesses in Stage 2 alluded to the introduction of the Cashless Policy as a motivation for their decision to adopt virtual or technology enabled alternatives to manual / physical business transaction, e.g., mobile transfer, POS, etc. This reflects the fact that the presence of government policies plays a considerable role in influencing the adoption of m-Commerce. Consequently, several authors have recommended the active involvement of government bodies through introduction and enforcement of relevant policies as an important factor needed to enhance the adoption of m-Commerce in different countries (Saidi, 2010; Boateng et al., 2013; Arvidsson, 2014).

However, the presence of factors such as Limited Awareness of technology; Limited Appreciation of technology; Need for Training and Guidance are negative migration factors that can impede further adoption of m-Commerce. This was reflected in the responses provided during some of the interviews, particularly from Stage 1 business owners/managers. Asked about other ways they can leverage on the use of mobile phones to support their business, apart from what they currently do – making calls, use as a time piece, sending text messages and selling top up vouchers – one of the respondents said there is “no other way” they can use mobile phones in their business. Clearly, for such business owner/manager, the first step towards advancing their adoption of m-Commerce is orientation and education. In a study conducted by Fong & Yan (2008), it was observed that a quarter of the respondents had *no clue* about the role of mobile phones as payment platforms. Although it may be argued that the number of people or businesses in this category are relatively few, this population cannot be overlooked.

Other factors that can negatively influence the progression of Stage 1 businesses in their adoption of m-Commerce include Supplier Reluctance to Accept Virtual Payment and Lack of Trust. During the interviews, one of the businesses noted the attitude / response of suppliers to virtual payment is a major factor in their decision to adopt this method of payment. In expressing this concern, this stage 1 business indicated that “suppliers want their money in cash so how will [they] pay if [their] money is in the air?” This preference reflects the “lack of feel-and-touch” associated with online / virtual transactions (Efendioglu, Yip, & Murray, 2005). While this might be considered a genuine concern owing to the presence of fraudulent activities within the business industry, this can also be a reflection of the fact that there is limited trust. The owner of the Stage 1 business in focus further expressed concern that risk is involved in providing such service to their customers by stating that “who knows if [he supplies] this product that the customer will keep to their word?” However, it is worth pointing out that although a supplier/business’s perceived suspicion or distrust of virtual payment does not directly undermine its credibility, the supplier/business’s lack of trust will inform their decision to embrace such payment methods. This seems to explain why businesses in this stage rely heavily on cash transactions.

High Business Cost and High Transaction Cost are other factors that can negatively influence the migration of businesses from Stage 1 to Stage 2 on the m-Commerce adoption spectrum. From the interviews, businesses in Stage 1 indicated that they rely on the use of SMS and calls to support different parts of their business such as product enquiry, product reservation, advertisement, etc. Although a potential exists to leverage on the use of internet connection to broaden their customer reach and increase effectiveness, as well as efficiency within the business, these businesses are still operating without taking advantage of potential benefits associated with the presence of internet access. Different factors might be responsible for this; one such factor is cost, as a study by Mallat (2007) revealed that cost has a significant impact on mobile payment adoption. During the interview, one of the Stage 1 businesses indicated that the transaction charges associated with SMS driven mobile payments has been a deterrent in their decision to offer such payment options to customers. In addition, the cost of subscribing to data bundles in order to ensure stable / consistent internet can also be a deterrent for businesses at this stage. In fact, one of the businesses noted that one reason they are not advancing in their use of mobile phones is because “the business is not that big”. While this might be a reflection of limited understanding / literacy, it can also be a reflection of the reality that additional cost through the use of internet may be perceived as luxurious or unnecessary. This is particularly so because data bundles are still relatively expensive in Nigeria; hence, the dynamics of opportunity cost often takes effect in the face of other pressing or more important needs.

### 5.6.3 Migration factors for STAGE 2-3

Having taken a closer look at the migration factors that can influence the movement from Stage 1 to Stage 2 of the m-Commerce adoption continuum, this section turns the spotlight on the factors that can further influence business' adoption of m-Commerce from Stage 2 to Stage 3. One factor that has reoccurred in this phase is the impact of social and global influence on level of adoption. This may be attributed to the ostentatious culture present in Nigeria where a major motivation behind a decision could be to identify with a social class or an on-going trend (This is discussed further in section 7.5.6 of this thesis). During the interview, half of the businesses in Stage 2 alluded to the fact that one reason behind their adoption of some form of m-Commerce is that they want to "follow trend", "keep up with global trend" or there is "increased popularity". Although adopting new technology for the purpose of keeping up with global trends may be considered trivial, it may be argued that this culture affords the open minded disposition and flexibility required to keep up with advancements in technological innovations. Given that flexibility is one key feature of m-Commerce (Zhao & Feng, 2009; Chan, 2013), the presence of this factor can smooth out possible rigidity or resistance that may confront the introduction of m-Commerce. More so, this culture relates to other factors such as increase in Customer Awareness and Customer Acceptance. As more people adopt m-Commerce, the technology gains popularity and acceptance which can influence businesses' decision to embrace additional aspects of m-Commerce because businesses tend to align with products / services that are favourable among customers. Within the body of literature, Customer Awareness has been identified as a key success factor for m-Commerce adoption (Alsultanny, 2012; Persaud & Azhar, 2012; Chong, 2013a; Watson, McCarthy, & Rowley, 2013).

Currently, there seems to be less motivation for businesses to favour m-Commerce adoption when their customers are yet to embrace it. During one of the interviews conducted, a Stage 2 business manager noted that one of the barriers to advancing their m-Commerce adoption is because "people are not enlightened about it". This reflects a gap in the awareness of m-Commerce activities within the target population of customers. Therefore, this barrier needs to be overcome among customers because their acceptance of a particular technology will impact on the businesses' decision to roll out such technological feature/alternative. For instance, an investigation of SMS Marketing conducted in Europe discovered that the success measures of SMS Marketing relies on Consumer Attention, Consumer Behaviour and Cost Ratio (Dickinger et al., 2004). From their findings, it may be inferred that the adoption of m-Commerce by businesses through SMS Marketing is dependent on the consumer's acceptance of the technology. In the same vein, customer acceptance is likely to affect business' decision to advance in their adoption of m-Commerce.

Other factors that can influence the progression of Stage 2 businesses to Stage 3 include Effectiveness (scope / coverage / reach), Effective Security Feature, and Positive Impact on business. Although external factors can influence a business' decision in favour of m-Commerce adoption, the interviewed businesses reflected the fact that businesses often analyse the impact of potential decisions on the business. This includes assessing the effectiveness of the technology adoption in reaching their customers, the security of transactions or information and whether or not that decision would have an overall positive impact on the business. Security concerns has been one of the central themes in the discussion on m-Commerce adoption because this is one key factor that influences m-Commerce adoption (Vasileiadis, 2014). Therefore, several authors have suggested the need to address issues relating to security in order to positively influence m-Commerce adoption (Islam, 2014).

Personal Innovativeness, Commitment, Access to Orientation, training & support, and Capability & Trainability are among other factors that can influence m-Commerce adoption within this phase. From the literature, personal innovativeness has been shown to have a positive impact on users' perception and intention to adopt information technology (Lu et al., 2005; Lu, 2014). In the same vein, business owners or managers who have this trait are more likely to have a positive disposition towards increased m-Commerce adoption and possibly seek further ways of optimising their current use of mobile telephony than business owners or managers who do not possess this quality. However, where this quality / trait is not harnessed, business owners or managers may be awakened to the potential benefits of increased use of mobile telephony within their business through the use of training and support. One respondent commented that "if [they] find [the technology] workable, [they] can use it" which reflects a willingness / readiness to learn.

Dholakia & Kshetri (2005), in their paper recommended the use of training to enhance the adoption of mobile commerce among businesses and individuals. From the interviews, the businesses posed a favourable response to the adoption of m-Commerce with the presence of necessary support and training. The only business in Stage 4 attested to the fact that the training and support they received made a clear difference in their current adoption of m-Commerce. Nonetheless, each business owner or manager would have to take responsibility for ensuring the success of their adoption by providing the level of Commitment that is required. This is because commitment has been shown to have a positive influence on long-term usage intentions after the adoption phase (Jin, Yoon, & Ji, 2013). It can therefore be observed that personal qualities can influence the swing of m-Commerce adoption among businesses. One of the Stage 2 business owners highlighted that it is important to consider the capability and trainability of the members of staff before deciding to incorporate additional mobile technology within the business. However, the respondent also extended this concern to government officials and third party

businesses who interact with the business for different reasons. With their current level of adoption, they reported having issues with explaining functional processes to tax officials and third party businesses due to low technological expertise. Therefore, they expressed concern on the human implications of further adoption plans and strategies.

Some other factors, albeit negative, that can influence m-Commerce adoption include High Cost of Technology and Security Fears. These issues have been discussed in other parts of this section, nonetheless, their reoccurrence may be interpreted as a reflection of significance, particularly as it relates to the issue of security. One reason for this could be because security is usually a main concern with new technology (Li et al., 2010); hence, its reoccurrence in different levels of adoption. In this phase, responding to considerations for further use of mobile telephony and m-Commerce, half of the Stage 2 businesses alluded to the fact that security and trust is a major concern. One respondent captured their concern through a warning on the need to “be careful of fraudsters”; while another respondent mentioned security issues in relation to trust and resolution of transaction errors. Although the presence of personal trust in a given technology, particularly with regards to security will significantly affect the adoption of such technology (Chiemeke & Ewwiekpaefe, 2011), businesses are understandably concerned about the presence of fraudulent activities on the web. Reasons for this concern include potential damage to the integrity of the business which can impact on their level of customer patronage and loyalty. Furthermore, cost is another factor that can negatively impact on advancing technology adoption from Stage 2 to 3. This is because, although the cost of obtaining certain m-Commerce platforms, e.g. smartphones, is one-off and becoming more reachable, concerns have been drawn to recurring costs of maintaining such platforms. Maintenance costs such as service charge, internet subscriptions, etc. may become a deterrent in the decision to advance in the uptake of m-Commerce.

#### 5.6.4 Migration factors for STAGE 3-4

The last set of migration factors that can influence business adoption of m-Commerce amongst Nigerian businesses are the migration factors for Stage 3 to 4. However, some of the factors are similar to factors in other stages of the migration but the difference is the degree or extent to which the presence of such factors influences the adoption. In other cases, the focus is on the significance of the factors at that stage rather than just presence or absence. An example of this is reflected in the concept of trust. Trust has been identified in literature as a factor that influences m-Commerce adoption (Wei et al., 2009) and this is one factor that has reoccurred in different stages of migration. However, the significance of trust in stage 4 is likely to differ from its significance in stage 1 because of the activities or characteristics within those stages.

An individual, for instance, may not necessarily trust a Stage 1 business but may be willing to take the risk of transacting with that business because the transactions are conducted physically – you see the products before you pay. Therefore, the business is happy to release the product because they can see the money and the customer is happy to release their money because they can see the product. However, trust becomes a more significant factor if that same individual is to relate with a Stage 4 business because there is a higher level of trust required at this stage. First, they have to trust that the product they are paying for is exactly the same as it appears on the website; they have to trust that the money will successfully reach the supplier; they have to trust that the supplier will deliver the product; they have to trust that the product will arrive in good condition and in good time, etc. Similarly, businesses in Stage 1 and Stage 4 will have different responses to the issue of trust. While businesses in Stage 1 might provide customers the opportunity to assess their products under their supervision within the store, Stage 4 businesses have to do much more in terms of gaining customers' trust. This includes adhering to perceived ethical performance (Yang, Chandlrees, Lin, & Chao, 2009) such as ensuring more transparency on the website by providing additional information like contact mobile phones, physical addresses, customer review, etc. Also, Nigerian businesses in Stage 4 have to provide unique services that will help increase customer trust e.g. Pay on Delivery.

Another factor that has reoccurred in this stage is the impact of society, culture and trends on advanced m-Commerce adoption. Just like trust, these factors have different levels of impact / significance on the different stages of adoption. One possible reason for this may be attributed to an observation that the levels of risk, commitment or considerations at the different stages of adoption is likely to differ. For instance, businesses in Stage 2 might choose to get involved in social media by creating accounts on one or more social media platforms because other businesses are doing same. However, the decision to advance to Stage 4 might require businesses giving considerations to other factors before engaging in what appears to be an on-going trend. One such factor that might be considered relates to cost implications of supporting online platforms. More so, at this stage, the cultural emphasis on personal relationships in business within this region becomes more pronounced. Existing literature has identified absence of personal relationship as a barrier to e-Commerce, and by extension, m-Commerce adoption in developing countries (Kshetri, 2007; Efendioglu et al, 2005). Therefore, businesses have to ensure they incorporate additional mechanisms in order to enhance relationships with their customers in addition to having the online presence. A number of mechanisms for addressing this issue includes the use of Pay on Delivery service, campaigns, celebrity endorsement, etc. (These mechanisms are discussed in detail in section 7.5.6 of this thesis).



Profitability, Positive impact on the business and Relevance / Suitability to business type are factors that have also reoccurred in this stage of adoption and are reflective of its importance in any given business decision. Respondents at this level of adoption expressed that one motivation for their technology adoption relates to the impact such decision will have on the business. Understandably, businesses would be less willing to adopt to a particular technology if such technology is assessed to have little or no positive impact on the business. In the same vein, businesses owners / managers will be less motivated to favour the adoption of technology that is considered to be less suitable or relevant to their business. For instance, where it is observed that customers are not likely to make use of a particular technology e.g. mobile apps, businesses will be less inclined to invest in such technology. Conversely, an increasing demand from suppliers or consumers for a particular technology will likely motivate a business decision to adopt that technology. This is largely because their ability to fulfil such demands can influence customer satisfaction, retention and loyalty. Mohr (2013) noted that changes in environmental factors such as clientele needs and demand can influence an organisation's level of innovation. Similarly, the presence of consumer demand for additional m-Commerce technology is likely to influence business decision to adopt such technology.

Positive change in public orientation and Ease of Use are also factors that can influence m-Commerce adoption at this stage. Existing literature found a relationship between Perceived Ease of Use and behavioural intention to adopt (Nysveen et al., 2005; Lu et al., 2005). However, it may be observed that both factors – Positive change in public orientation and Ease of Use – relate to general perceptions about m-Commerce. Although these perceptions tend to be subjective in nature, an awareness of the presence of these factors can lead to business decisions or actions that can help alleviate or mitigate the impact of these factors on m-Commerce adoption. For instance, irrespective of existing impressions or perceptions about m-Commerce, the use of celebrity endorsement, testimonials from existing customers, positive word of mouth, etc. can positively impact on how m-Commerce is perceived and received.

Internal factors such as Personal Innovativeness and Presence of Training were also identified at this stage of adoption. Although personal innovativeness was identified at an earlier stage of adoption, this factors has been identified in recent research conducted on more sophisticated levels of m-Commerce which are reflective of this stage of adoption. One such research is the study conducted by Tan & Sie (2015) where personal innovativeness in information technology was found to be a strong predictor in explaining product aesthetics and consumer's self-connection to a brand. Also, Lu (2014) suggested that m-Commerce providers need to pay adequate attention to personal innovativeness because it affects acceptance and adoption of new services and features. Therefore, at this level of adoption, it is important for this factor to be

present among users, as well as owners or managers of business enterprises. For instance, the only Stage 4 business that was interviewed reported that their inclusion of technology was part of their business plan. Therefore, members of staff were adequately trained and the technology was already in place before the store was opened to the public. This shows that the owners of the business were forward-thinking and proactive in their adoption of m-Commerce. However, by seeking adequate training, this business has shown that the presence of personal innovativeness will require other factors e.g. presence of training to be effective. This is probably why training is featured among the factors that influence implementation of enterprise mobility (Wang & Xu, 2012).

One of the factors that emerged from the interviews is the provision of credit card facilities to customers which is also a reflection of the innovativeness, given the environmental and cultural dynamics of this region. Although this factor has not been effectively captured within the body of literature, similar practices have been adopted by some large scale businesses in developed countries e.g. Argos. From the interview, it was gathered that the business is currently making plans to provide credit card facilities that will be customised for the business. Customers that have this card can transfer specific amounts into the cards and enter these details on the business' website. Although this is not a conventional credit card facility that allows customers to buy products on credit, the provision of this card is likely to help increase customer trust in the business and make customers more willing to embrace online payments since there is less risk being taken. For instance, if the card details get compromised, the customer may not need to worry about money being taken from their bank accounts because the only money they might forfeit is any amount left on the card.

The influence of Regulatory / Government Policies was also identified as a factor that influence m-Commerce adoption at this stage. In a review of a special issue on m-Commerce conducted by Dholakia & Dholakia (2004), it was observed that national level policies were responsible for varying levels of mobile access across the globe at the time. Nonetheless, national / government policies are still being observed to influence levels of m-Commerce adoption in various countries. For instance, Sinha (2005) highlighted differences in government policies as one of the reasons for varying levels of mobile telephony observed in most regions within Asia and Sub-Saharan Africa. Similarly, a study on Malawi's adoption of m-Commerce revealed that the absence of appropriate regulatory policies is posing a challenge to m-Commerce implementation within the country (Saidi, 2010). From the interviews, 4 respondents in Stage 2 commented that the Cashless Policy that was introduced by the Central Bank of Nigeria was one of the reasons why they have taken up the use of POS within the business. Although POS was not captured within the spectrum of m-Commerce adoption via SIM-enabled devices, this factor was also captured at this stage of

adoption because it relates to m-Commerce activities conducted via SIM-enabled devices. Nonetheless, 1 of the 3 businesses in Stage 3 and the business in Stage 4 alluded to the fact that the introduction of the Cashless Policy influenced their adoption of m-Commerce.

Other factors that were identified at this stage were Perceived security risks and Low level of technology literacy among customers. Although these factors were also identified by businesses at other stages of migration, their recurrence may be interpreted as a concern that affects m-Commerce adoption at different levels of adoption. This is probably because issues around security are usually a main concern with new technology (Li et al., 2010); therefore, for every new feature, new service or new technology, security will always come up as an issue that needs to be addressed. In addition, the issue of low technology literacy among customers is another issue that often accompanies the introduction of new technology related features, services or devices. Existing research on various countries has highlighted the issue of literacy as one factor that influences m-Commerce adoption (Saidi, 2010; Boateng et al., 2013).

## **5.7 Chapter Conclusion**

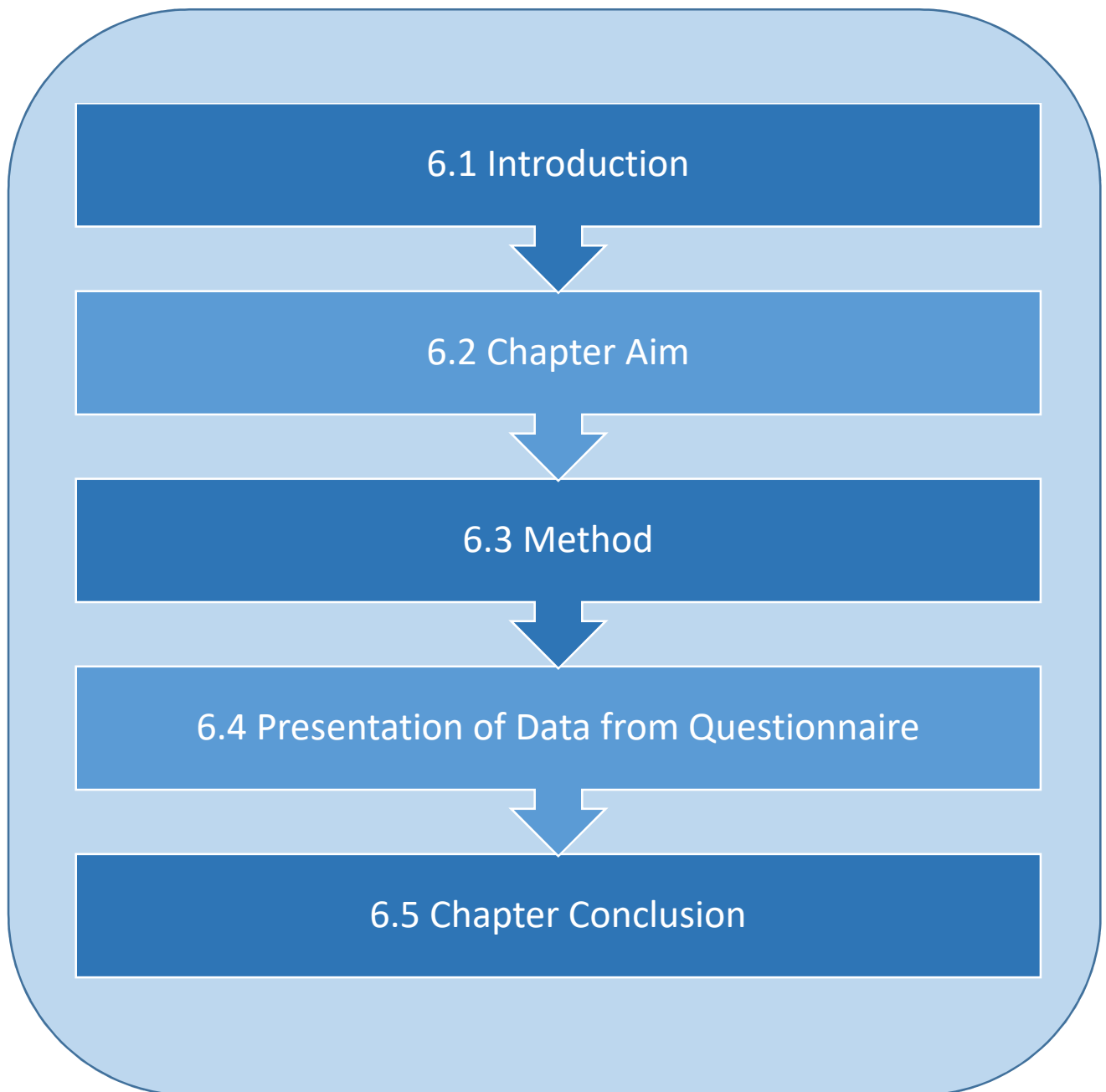
This section focused on presenting and analysing results from the exploratory study of factors that influence m-Commerce adoption among businesses in a developing country. From the interviews, adoption factors and business characteristics that were identified were themed into factors and characteristics that had previously been identified from literature. However, new factors and characteristics that emerged from the interviews were themed to follow the naming convention of previously identified factors and characteristics. Model B was found to be more representative of the adoption obtainable among small and micro businesses in the target population. This is because the interviewed businesses were represented in all stages of the model; that is, all stages of the model had at least one business within that stage.

From the distribution of businesses across the stages, it is worth noting that despite having half of the Interviewed Businesses at Stage 2, it is somewhat encouraging to see that Stage 3 has the second highest number of businesses. This shows that although a good number of micro and small wholesale/retail businesses in Nigeria adopt technology passively, there exist some business owners/managers who are going beyond fashionable use of technology to leverage on the possibilities available through the internet to further advance their business. These businesses owners/managers have come to understand that the use of technology can have a positive impact on their business and have become more appreciative of technology. However, there is the nagging concern about online security, system/network failure and the need to gain the trust of

customers and suppliers. It was also apparent that Nigeria is a society that places premium on personal relationship in business, hence businesses that intend to transact online need to adopt various mechanisms to build customer relationship and gain the confidence of their customers. Also, there is the underlying problem of satisfying the demands or expectations of customers and suppliers in a bid to advance the business' adoption of m-Commerce. As indicated by one of the respondents, providing a platform for online sales means that they have virtual cash that needs to be converted to physical cash when transacting with suppliers. This represents one of the challenges confronting increased m-Commerce adoption that was identified from this exploratory study.

Although factors such as trust, cultural and society influence, profitability, positive impact on the business, relevance / suitability to business type, etc. reoccurred in different stages of the adoption spectrum, it is worth noting that these factors tend to have varying levels of importance and impact on the migration process. Therefore, such repetition is not unexpected. However, it may be observed that not all these factors will be critical to the migration of businesses from one level of adoption to the next. Hence, more research needs to be conducted with a wider sample of micro and small businesses in order to identify some of the factors that are essential or important to the migration process. The next phase of data collection will seek to address this.

## OVERVIEW OF CHAPTER SIX



## CHAPTER 6

### STUDY OF M-COMMERCE ADOPTION MODEL THROUGH SURVEYS

#### **6.1 Introduction**

In Chapters 4 and 5, a model that represents m-Commerce adoption amongst micro and small businesses in Nigeria was developed and tested through a series of interviews with owners or managers of some micro or small businesses in Nigeria. After the interviews, a table consisting of factors that influence businesses' migration from one stage of m-Commerce adoption to another, as well as the characteristics of businesses within each stage was created. These migration factors and business characteristics were inclusive of new factors and characteristics that emerged from the interviews, in addition to factors and characteristics that were previously identified from literature. However, given the small sample of businesses that were included in the exploratory study, and the non-generalizable nature of interviews, these findings may not be reflective of the wider population of businesses in the region. More so, the long list of factors within each stage means that only a few of those factors are likely to significantly influence the migration of businesses across the different stages. Therefore, a survey was conducted on a wider sample of micro and small businesses within different parts of Nigeria.

The aim of the survey was to identify the factors that most of the surveyed businesses agree on, because these factors are more likely to influence the migration of most businesses than factors that only a few of the surveyed businesses select. Due to the nature of the data collected from the survey, the factors were identified descriptively because the categorical statistical tests that were run on the data did not provide helpful insight. Further information about this is attached in Appendix 7. Hence, this chapter seeks to descriptively present the data that was collected from the surveys. The implications of the findings from the data will be discussed in the next chapter.

#### **6.2 Chapter Aim**

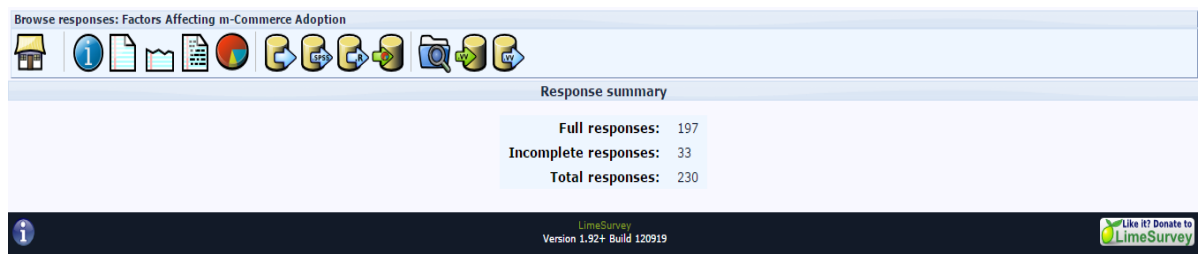
The aim of this chapter is to describe the data that was collected through a survey of micro and small businesses in Nigeria. The results will be discussed in chapter seven.

### 6.3 Method

The survey was conducted through the use of a questionnaire that was designed after the exploratory study. A copy of the questionnaire is attached as Appendix 4. Further details of the step by step process involved in the conduct of the survey is documented in chapter 3.

### 6.4 Presentation of Data from Questionnaire

A total of  $n = 230$  businesses participated in the survey. However,  $n = 33$  responses were incomplete while the remaining  $n = 197$  responses were complete (Figure 7). Uncompleted responses will be excluded from data analysis in order to prevent inconsistencies that might arise.



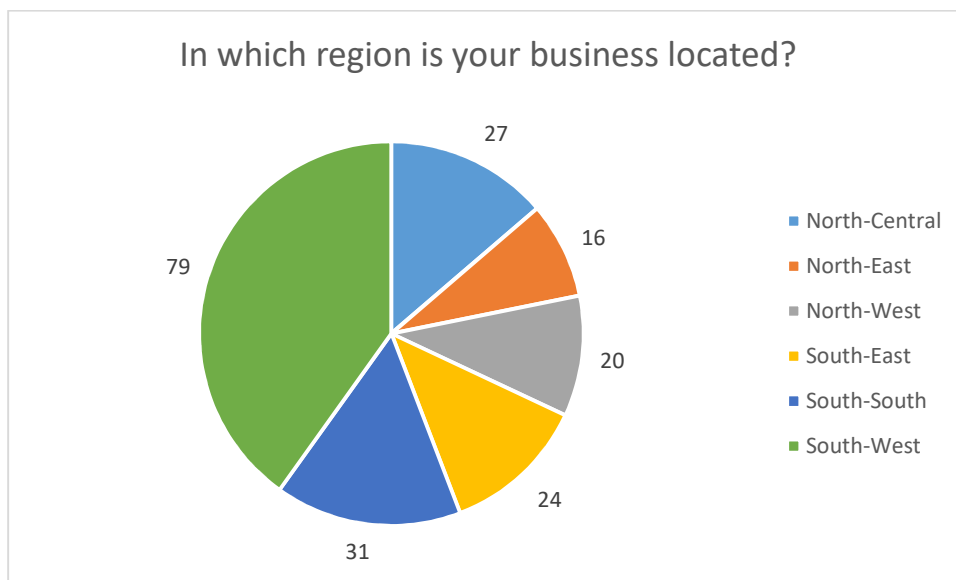
*Figure 7: Total number of responses from the survey*

#### 6.4.1 Demographics

Given that the study sought to capture data from the 6 geo-political regions of Nigeria in order to ensure that businesses from each region is included in the data, the questionnaire was sent to businesses in at least  $n = 1$  state within each region. While it is encouraging to see that this objective was achieved to some extent as responses were collected from all regions, it may be observed from Figure 8 that most responses were from the South-West (79 responses) and the North-East had the least representation with only 16 responses. One reason for this trend may be attributed to the fact that Lagos, a South-Western city, is considered the industrial capital of Nigeria (NBS, 2015) and the most populous city in Africa (WPR, 2016; Campbell, 2012). The presence of numerous businesses including multi-national companies within this state lends credence to this fact. Also, the choice of Lagos as a pilot city for the introduction of new technology and other initiatives by indigenous and international companies reflects the fact that Lagos is a key player in the economic situation of Nigeria. Also, given the fact that Lagos has been used as a case study for several studies on Nigeria, businesses within this state are familiar with the concept of surveys, unlike many other cities in Nigeria with far less exposure. The impact

of this trend was also experienced during the first phase of data collection for this study. When businesses in other regions were contacted, in addition to the language barrier that was experienced in the North, many of the businesses in this region were difficult to reach and most of them declined granting the interview. However, there was a sharp contrast when businesses in the South were contacted. Some of them were happy to grant the interview immediately and some even requested to have summary of the result at the end of the research.

Another reason for the sharp contrast between the aggregate responses from the North versus the South is the on-going security unrest in the North. During the interviews with businesses in the North, direct comments were made about the fact that the security risks posed by the infamous Boko-Haram group (CNN, 2016; Chothia, 2015; Onuoha, 2012) has discouraged many business owners who have relocated to other parts of Nigeria. Also, in addition to reducing the rate of business investments within the North, the activities of the group has destroyed many businesses. Consequently, the number of businesses within the region have reduced, compared to the South (Caulderwood, 2014), while businesses that are still in existence are forced to operate with limited publicity. Therefore, reaching businesses within the Northern region is challenging. Also, these businesses tend to be wary of relating with individuals they do not have a personal relationship with. Therefore, responses from those regions were solicited through the help of family and friends, who have limited contacts within those regions.



*Figure 8: Geo-political region of surveyed businesses*

To further understand each business, respondents were asked questions around the age of the company, the industrial sector the company falls under, category, nature and number of employees. From the responses, businesses that have been in operation for a period of 1 to 5 years



had the highest count of 72 (36.55%) with businesses in operation for 6 – 10 years having the second highest count of 60 (30.46%). Table 6 presents details of responses on demographics. Nonetheless, it's worth mentioning that under the Business Sector, responses from the 65 Comments included 24 Grocery Stores (Supermarkets), 16 General Merchants and 10 Fashion Houses (Boutiques). Other sectors were mostly not specified. Similarly, under the question on Business Category, the "Other" section included 12 businesses that engage in both Wholesale and Retail while the remaining businesses did not include comments after ticking the "Others" field. This same trend was observed in the "Others" section for Business Type and Number of Employees as most respondents did not provide further information after ticking the "Others" field.

In line with the definition of micro and small businesses by SMEDAN and NBS, it may be observed that 174 (88.32%) of the businesses that participated in the survey are micro businesses because they have between 1 – 9 employees. It can also be observed from the responses that 172 (87.31%) of the businesses are operated by sole-traders. In addition to questions about the demographics of the business, respondents were also asked questions about their age range and educational qualification. From the responses, it may be observed that 116 of the respondents are graduates (58.88%); while 121 (61.42%) of the respondents are between the age of 26 to 45 years.

<b>BUSINESS DEMOGRAPHICS (n=197)</b>		
	<b>Count</b>	<b>Percentage</b>
<b>BUSINESS AGE (Years)</b>		
Below 1 year	17	8.63%
1 - 5 years	72	36.55%
6 - 10 years	60	30.46%
11 - 15 years	24	12.18%
16 - 20 years	15	7.61%
21 - 25 years	3	1.52%
<b>BUSINESS SECTOR</b>		
Agriculture	31	15.74%
Health	42	21.32%
Engineering	23	11.68%
Technology	30	15.23%
Others	71	36.04%
Comments	65	32.99%
<b>BUSINESS CATEGORY</b>		
Wholesaler	48	24.37%
Retailer	132	67.01%
Other	17	8.63%
<b>BUSINESS TYPE</b>		
Sole-trader	172	87.31%
Partnership	24	12.18%
Other	4	2.03%
<b>BUSINESS EMPLOYEES</b>		
1 - 9	174	88.32%
10 - 49	15	7.61%
Other	8	4.06%
<b>RESPONDENT'S AGE</b>		
Below 16	1	0.51%
16 - 25	18	9.14%
26 - 45	121	61.42%
46 - 55	42	21.32%
56 - 65	11	5.58%
Above 65	4	2.03%
<b>RESPONDENT'S EDUCATIONAL QUALIFICATION</b>		
No qualification (A1)	6	3.05%
Primary (A2)	13	6.60%
Secondary (A3)	42	21.32%
Graduate (A4)	116	58.88%
Post-Graduate (A5)	20	10.15%

*Table 6: Business Demographics*

### 6.4.2 Business Mobile Phone Activities

The second part of the questionnaire focused on asking questions about the mobile phone activities the businesses are currently engaging in. The activities seek to provide insight on the businesses' current stage of m-Commerce adoption. From Table 7, it may be observed that the use of mobile phone for business related calls is most paramount in this stage as 188 (95.43%) of the respondents ticked this activity. The second most popular activity is the use of mobile phones to make enquires about products through text messages or phone calls. 154 (78.17%) of the respondents ticked this activity. The least popular activity is the use of mobile phones to sell PIN codes / numbers. For this activity, only 27 (13.71%) of the respondents still engage in this activity. Therefore, this activity will be removed from the list of m-Commerce activities that characterise businesses in Stage 1 of the Adoption Model.

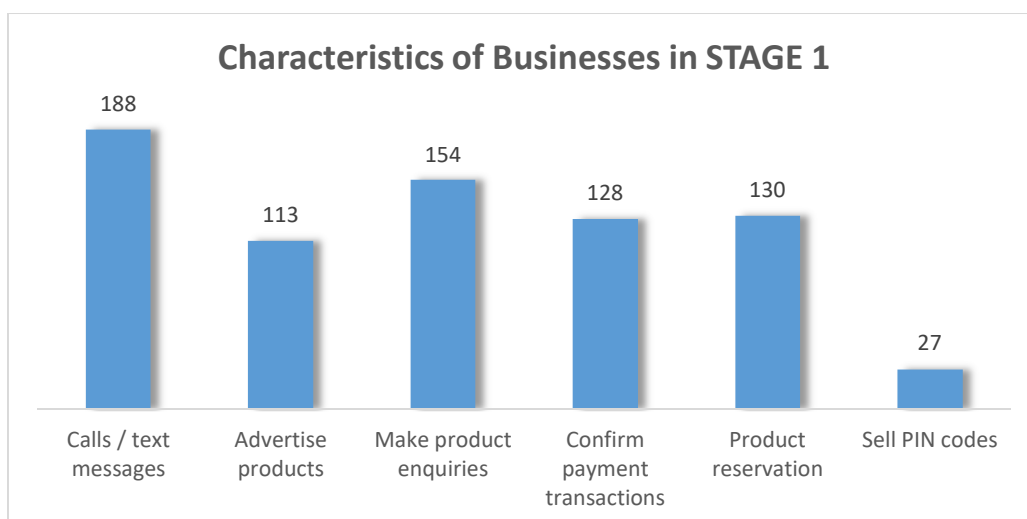
<b>Field summary for Section A</b>		
<b>Section A: The business uses mobile phone as follows (Tick all options that apply to your business)</b>		
<b>Answer</b>	<b>Count</b>	<b>Percentage</b>
To make business related calls or send text messages (SQ001)	188	95.43%
To advertise products through phone calls or text message (SQ002)	113	57.36%
To make enquiries about products through phone calls or text message (SQ003)	154	78.17%
To confirm payment transactions via phone call or text message (SQ004)	128	64.97%
To receive calls or text messages about product reservation (SQ005)	130	65.99%
To sell PIN codes / numbers e.g. top-up PIN, exam registration PIN, etc. (SQ006)	27	13.71%
Other	0	0.00%

*Table 7: Business Mobile Activities A*

Figure 9 presents a graphical summary of the characteristics of businesses in Stage 1. Although this might not be an extensive list, as different businesses might utilise their mobile devices as they deem fit, from the figure, it may be observed that the top 3 most popular characteristics within this stage are:

- ✓ The use of mobile phones to make business related calls or text messages
- ✓ The use of mobile phones to make product enquiries
- ✓ The use of mobile phones to receive product reservation

Given that these three characteristics were selected by over 65% of the respondents, it is likely that most businesses at this stage of m-Commerce adoption will display these characteristics.



*Figure 9: Characteristics of Business in Stage 1*

The next stage of adoption is captured through the options that respondents were asked to tick in Section B. From the responses, it is apparent that the use of mobile phones to access the internet is the most popular activity in this stage as 104 (71.23%) of the respondents ticked this activity. The most popular activities of this stage are the use of internet to locate relevant information for the business (90 respondents; 61.64%) and to communicate via email, social media etc. (87 respondents; 59.59%). Although the least popular activities of this stage – paying suppliers through SMS or mobile money and advertising the business on social media – were ticked by 61 and 63 respondents, these activities will be retained as part of the characteristics that define businesses in this stage. This is because these activities were ticked by more than half of the 104 businesses that identified with at least one activity in this stage.

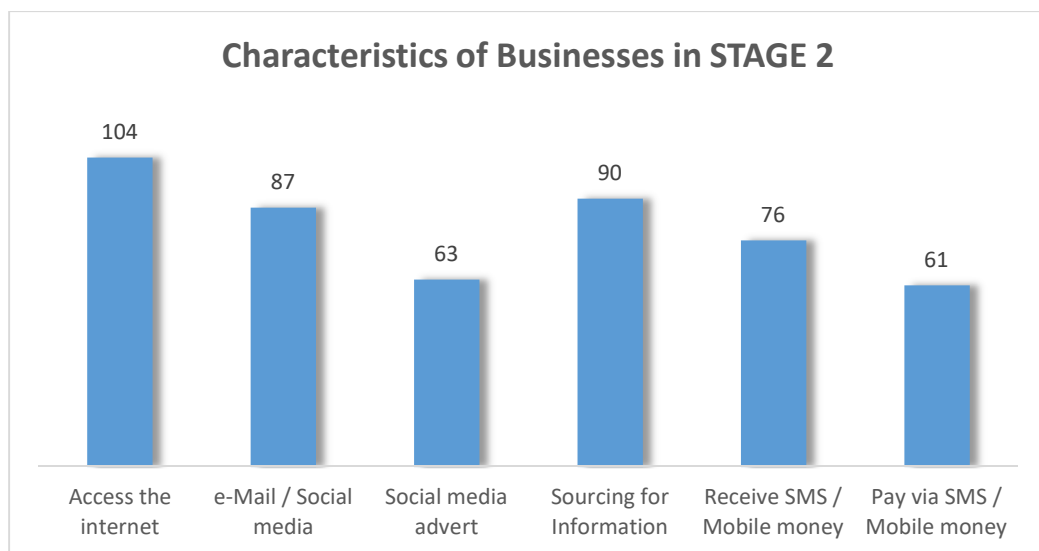
Field summary for Section B		
Section B: The business uses mobile phone as follows (Tick all options that apply to your business)		
Answer	Count	Percentage
To access the internet (SQ001)	104	71.23%
To communicate through email, social media (e.g., Facebook, twitter), etc. (SQ002)	87	59.59%
To advertise the business on social media (e.g., Facebook, twitter, etc.) (SQ003)	63	43.15%
To look for relevant information for the business on the internet (SQ004)	90	61.64%
To receive payments from customers through SMS or mobile money e.g. Afripay (SQ005)	76	52.05%
To make payments to suppliers through SMS or mobile money e.g. Afripay (SQ006)	61	41.78%
Other	1	0.68%

*Table 8: Business Mobile Activities B*

Figure 10 provides a graphical summary of the characteristics of businesses in Stage 2. Again, this may not be considered as an extensive list of attributes; nonetheless, businesses within this stage are likely to exhibit one or more of the characteristics listed in Table 8. However, the top 3 most popular characteristics that may be observed within this phase are:

- ✓ The use of mobile phones to access the internet
- ✓ The use of mobile phones to search for relevant information
- ✓ The use of mobile phones to communicate via social media or e-mail.

Given that these characteristics were respectively selected by approximately 71%, 62% and 60% of the 146 respondents that ticked at least one characteristic within stage 2, it may be expected that most businesses at this stage of m-Commerce adoption will exhibit these three characteristics.



*Figure 10: Characteristics of Business in Stage 2*

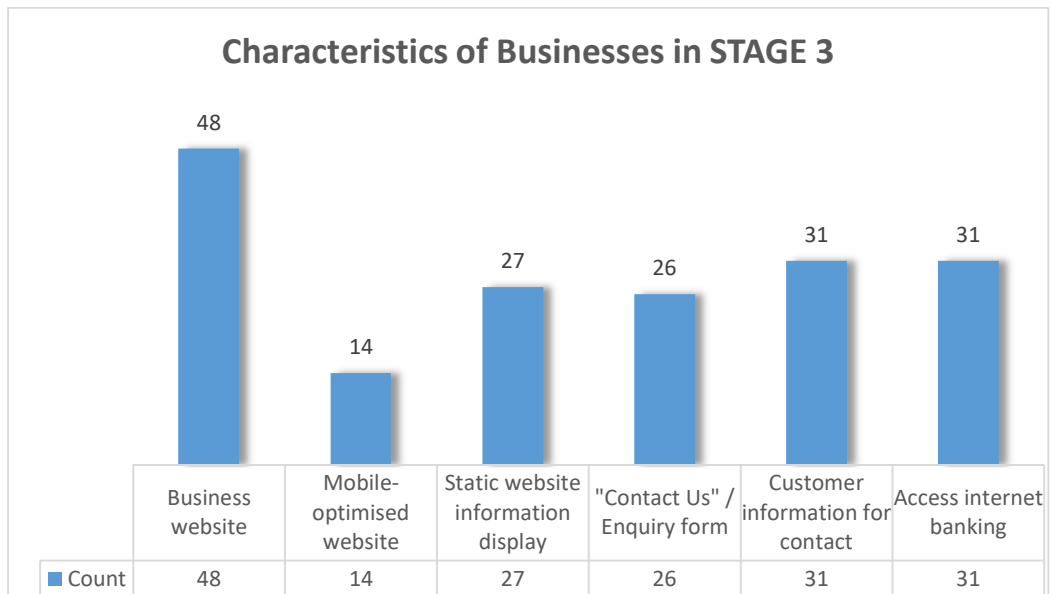
Table 9 presents the m-Commerce activities that were ticked by the respondents to characterise businesses in Stage 3 of the Adoption Model. The most distinct characteristic of this stage is the possession of a business website as this was ticked by 48 (62.34%) of the total respondents of the survey. The next most popular activity of this stage is the collection of information to contact customers (31; 40.26%) and the use of mobile phone to access internet banking (31 respondents; 40.26%). The least popular activity in this stage is the possession of mobile-optimised website (14 respondents; 18.18%).

Field summary for Section C		
Section C: Which of the following applies to your business (Tick all options that apply)		
Answer	Count	Percentage
The business has a website (SQ001)	48	62.34%
The business' website has a slightly different appearance on mobile phones (SQ002)	14	18.18%
The website displays information about products that the business sells (SQ003)	27	35.06%
The website has a "Contact Us" or enquiry form (SQ004)	26	33.77%
The business uses the information they get from the form to contact customers (SQ005)	31	40.26%
The business makes use of mobile phone to access internet banking (SQ006)	31	40.26%
Other	2	2.60%

*Table 9: Business Mobile Activities C*

Figure 11 provides a graphical presentation of the characteristics of business in Stage 3 of the m-Commerce adoption spectrum. While it has been observed that different businesses engage in different combinations of these characteristics, from the graph, it has also been observed that top 3 most popular characteristics of businesses at this stage are:

- ✓ The presence of a business website
- ✓ The use of mobile phones to access internet banking
- ✓ The use of customer information for contact purposes



*Figure 11: Characteristics of Business in Stage 3*

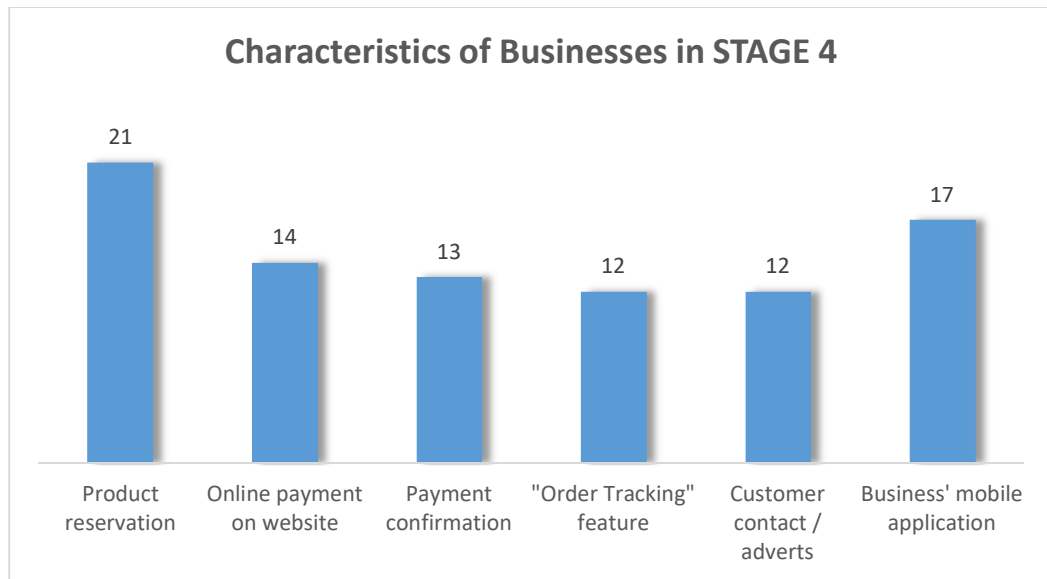
The last set of characteristics for the adoption model is represented by options provided in Section D. Popular activities in this stage include the option for customers to reserve products on the business website (21 respondents; 60.00%); the presence of a mobile app for customers to download (17 respondents; 48.57%) and online payment for products through the website (14 respondents; 40.00%). One of the least popular characteristic of this stage is the Order Tracking feature of websites with only 12 respondents (34.29%) ticking this option. Nonetheless, this characteristic will be retained as it may be considered an integral feature of most fully functional websites.

<b>Field summary for Section D</b>		
<b>Section D: Which of the following applies to your business (Tick all options that apply)</b>		
<b>Answer</b>	<b>Count</b>	<b>Percentage</b>
Customers can use their mobile phone to reserve products on the business' website (SQ001)	21	60.00%
Customers can pay for products on the website using PayPal, bank card or other payment cards (SQ002)	14	40.00%
After payment, confirmation is sent to the Customer and to the business (SQ003)	13	37.14%
The website has an "Order Tracking" feature to help customers track the products they have bought (SQ004)	12	34.29%
The business makes use of customers' information to contact customers or send adverts to them (SQ005)	12	34.29%
The business has a mobile application that customers can download (SQ006)	17	48.57%
Other	1	2.86%

*Table 10: Business Mobile Activities D*

Figure 12 presents a graphical illustration of the characteristics of businesses that are currently in Stage 4 of the m-Commerce adoption continuum. From the graph, it may be observed that the top 3 most popular characteristics of businesses at this stage of adoption are:

- ✓ The ability for customers to reserve products on the business website
- ✓ The availability of mobile application for the business
- ✓ The ability for customers to pay for products through the business website

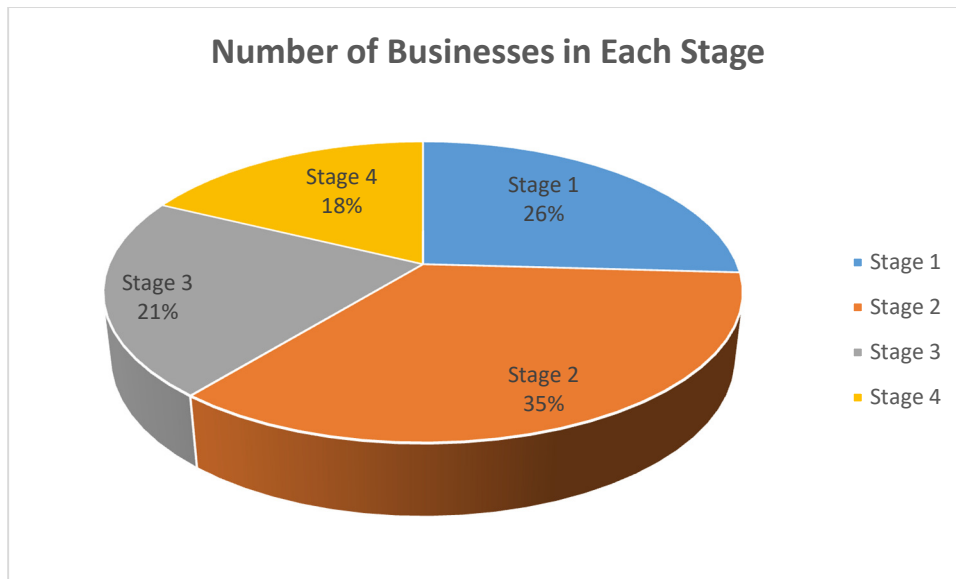


*Figure 12: Characteristics of Businesses in Stage 4*

From the responses in all the sections, it may be observed that there was a decline in the percentage figures associated with the most popular activity within each stage, from Section A (95%) to Section D (60%). Given that it might be difficult to identify the number of businesses within each stage of adoption from the tables and figures presented in this section, the businesses were identified in their respective stages through the use of Excel worksheet. The exported data was colour-coded in order to classify the businesses based on their responses. A copy of the exported data is attached as Appendix 8. From the appendix, it may be observed that businesses that ticked at least one characteristic in any given stage were considered to be in that stage. This is because businesses are not expected to fit perfectly into any given stage due to the influence of internal and external factors that contribute towards their adoption. Therefore, rather than having an option for businesses to tick a certain number of characteristics within any given stage before they may be classified into that stage, businesses were placed into particular stages if they ticked at least one characteristic in that stage (Section A to D of the questionnaire). Therefore, based on this criterion, the total number of businesses within each stage is as follows:

- ❖ Number of businesses in Stage 1 = 51
- ❖ Number of businesses in Stage 2 = 69
- ❖ Number of businesses in Stage 3 = 42
- ❖ Number of businesses in Stage 4 = 35





*Figure 13: Number of Businesses within Each Stage*

From Figure 13, it may be observed that Stage 2 has the highest number of businesses (n=69, 35%), followed by Stage 1 (n=51, 26%) and then Stage 3 (n=42, 21%). Stage 4 (n=35, 18%) is the least represented category in the sample data.

#### 6.4.3 Reasons / Factors that Influenced Business Mobile Phone Activities

Given that the aim of this study is to identify the factors that influence m-Commerce adoption among micro and small businesses in a developing economy, it became apparent that grouping the businesses into stages was an important precursor to achieving this aim. This is because it may be assumed that different businesses will be influenced by different factors at different stages of adoption. As a result, the questionnaire was designed such that after businesses identified their current m-Commerce activities in Part 2, which helped to classify them into different stages of adoption, these businesses then went on to identify the factors that influenced their current level of adoption. However, the factors were divided into positive (facilitators) and negative (barriers) factors. These positive factors may be viewed as actual factors that influenced their current adoption while the negative factors may be viewed as perceived factors that might hinder further adoption of m-Commerce. Nonetheless, these negative factors can also be viewed as real problems or challenges that are currently confronting businesses at those different stages. Within the questionnaire, positive factors were listed under part (a) while negative factors were listed under part (b). For instance, question 1a relates to positive factors (facilitators) that encouraged their current level of adoption, while question 1b relates to negative factors (barriers) that prevented or still prevents their increased adoption of m-Commerce. Therefore, for each set of

characteristics, businesses were asked to answer corresponding questions regarding factors e.g. businesses that ticked only activities in Stage 1 answered questions 1a and 1b while businesses that ticked activities in Stage 1 and 2 answered questions 1a, 1b, 2a and 2b. Results from the survey are presented below according to the different stages.

#### *6.4.3.1 Stage 1 Factors: Facilitators*

Table 11 provides a breakdown of responses for the positive factors that influence adoption in Stage 1. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

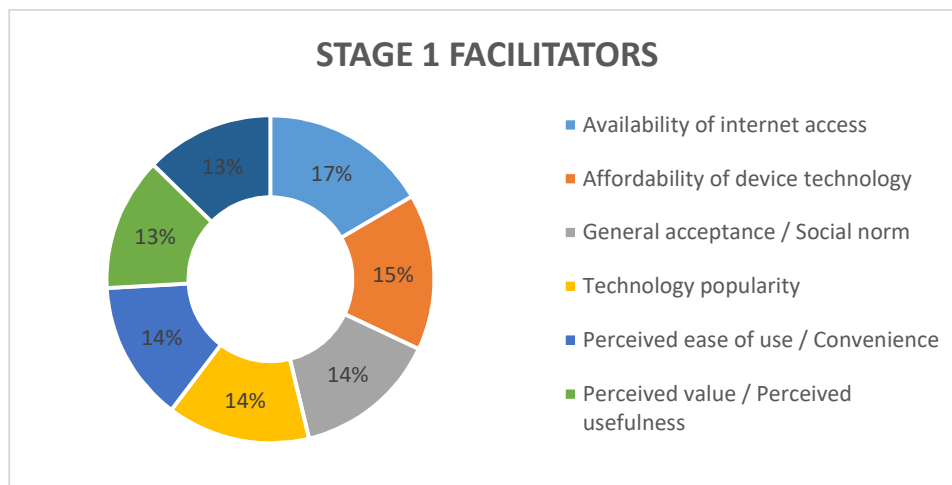
<b>1a. Tick all the reasons that can encourage you to use mobile phones in your business</b>				
	Disagree	Not sure	Agree	Count
Access to Internet connection on my mobile phone	11	11	175	197
Affordable mobile phones that can support Internet activities (e.g. smartphones)	15	19	163	197
Investing in smartphone will provide features that brings benefit to the business	16	42	139	197
Smartphones are popular	19	29	149	197
People are engaging in internet activities	15	32	150	197
Smartphones are easy to operate	24	39	134	197
Engaging in internet activity is easy	20	31	146	197

*Table 11: Stage 1 Factors - Facilitators*

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Availability of internet access (88.83% agree)
- Option 2: Affordability of device technology (82.74% agree)
- Option 3: Perceived value / Perceived usefulness (70.56% agree)
- Option 4: Technology popularity (75.63% agree)
- Option 5: General acceptance / Social norm (76.14% agree)
- Option 6: Perceived ease of use (68.02% agree)
- Option 7: Perceived ease of use / Convenience (74.11% agree)

Figure 14 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.



*Figure 14: Stage 1 Facilitators in descending order*

#### 6.4.3.2 Stage 1 Factors: Barriers

Table 12 provides a breakdown of responses for the negative factors that influence adoption in Stage 1. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

<b>1b. Tick all the reasons that can prevent you from using mobile phones in your business</b>				
	Disagree	Not sure	Agree	Count
People have limited confidence in the security of SMS payment or mobile money transfers	36	61	100	197
Absence of training needed to make SMS payment or mobile money transfers	38	72	87	197
High transaction charges related to SMS payment or mobile money transfers	70	49	78	197
Suppliers do not like to use SMS payment or mobile money transfers e.g. Afripay	47	68	82	197
Customers do not like to SMS payment or mobile money transfers e.g. Afripay	51	67	79	197

*Table 12: Stage 1 Factors - Barriers*

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Security fears (50.76% agree)
- Option 2: Limited training (44.16% agree)
- Option 3: High transaction cost (39.59% agree)
- Option 4: Supplier reluctance (41.62%)
- Option 5: Customer reluctance (40.10% agree)

Figure 15 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.

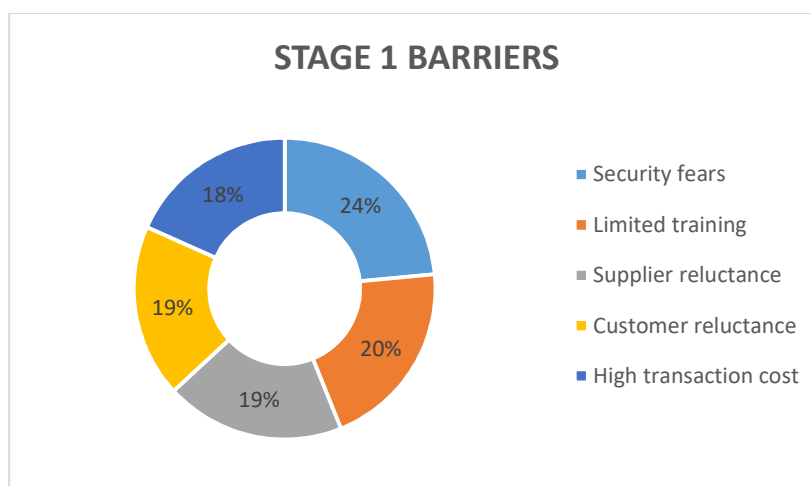


Figure 15: Stage 1 Barriers in descending order

#### 6.4.3.3 Stage 2 Factors: Facilitators

Table 13 provides a breakdown of responses for the positive factors that influence adoption in Stage 2. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

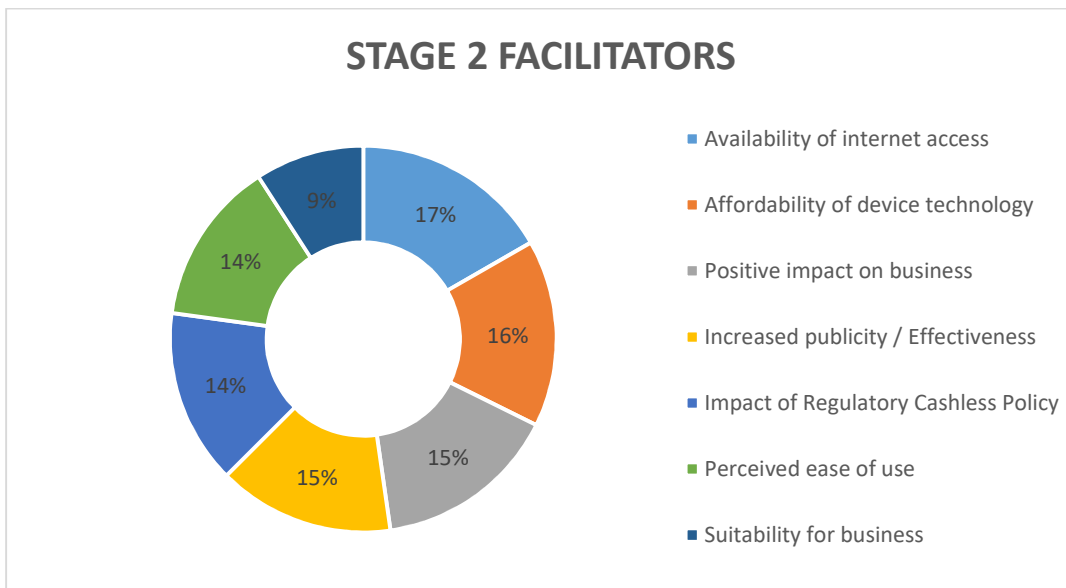
<b>2a. Tick all the factors (reasons) that encouraged your business to engage in the activities you ticked previously</b>				
	Disagree	Not sure	Agree	Count
Access to Internet connection on my mobile phone	5	5	130	140
Affordable mobile phones that support internet activities e.g. Facebook, Twitter, Instagram	3	15	122	140
People agree that the business should engage in SMS payment or mobile money transfers	16	53	71	140
People consider internet activities to be easy	7	26	107	140
The business achieved benefits by engaging in internet activities	5	15	120	140
Engaging in internet activities helped create awareness for the business	7	18	115	140
Government's Cashless Policy encourage SMS payment or mobile money transfers	6	20	114	140

Table 13: Stage 2 Factors - Facilitators

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Availability of internet access (92.86% agree)
- Option 2: Affordability of device technology (87.14% agree)
- Option 3: Suitability for business (50.71% agree)
- Option 4: Perceived ease of use (76.43% agree)
- Option 5: Positive impact on business (85.71% agree)
- Option 6: Increased publicity (82.14% agree)
- Option 7: Impact of Regulatory Cashless Policy (81.43% agree)

Figure 16 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.



*Figure 16: Stage 2 facilitators in descending order*

#### *6.4.3.4 Stage 2 Factors: Barriers*

Table 14 provides a breakdown of responses for the negative factors that influence adoption in Stage 2. From the table, it may be observed that for all options that were provided, “Agree” had

the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

<b>2b. Tick all factors (reasons) that have been barriers or challenges to your business' increased use of mobile phones and internet activities</b>				
	Disagree	Not sure	Agree	Count
Business activities conducted through the internet is not popular among customers and suppliers	45	44	51	140
Employees have limited training to help them engage in internet activities	30	53	57	140
High transaction charges related to SMS payment or mobile money transfers e.g. Afripay	45	28	67	140
People have limited confidence in the security of SMS payment or mobile money transfers	21	42	77	140
Suppliers do not like to use SMS payment or mobile money transfers	35	49	56	140
Customers do not like to use SMS payment or mobile money transfers	37	52	51	140
Perceived benefit of SMS payment or mobile money transfers is low	26	47	67	140

*Table 14: Stage 2 Factors - Barriers*

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Limited awareness (36.43% agree)
- Option 2: Limited training (40.71% agree)
- Option 3: High transaction charge (47.86% agree)
- Option 4: Lack of trust (55.00% agree)
- Option 5: Supplier reluctance (40.00% agree)
- Option 6: Customer reluctance (36.43% agree)
- Option 7: Perceived value (47.86% agree)

Figure 17 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.

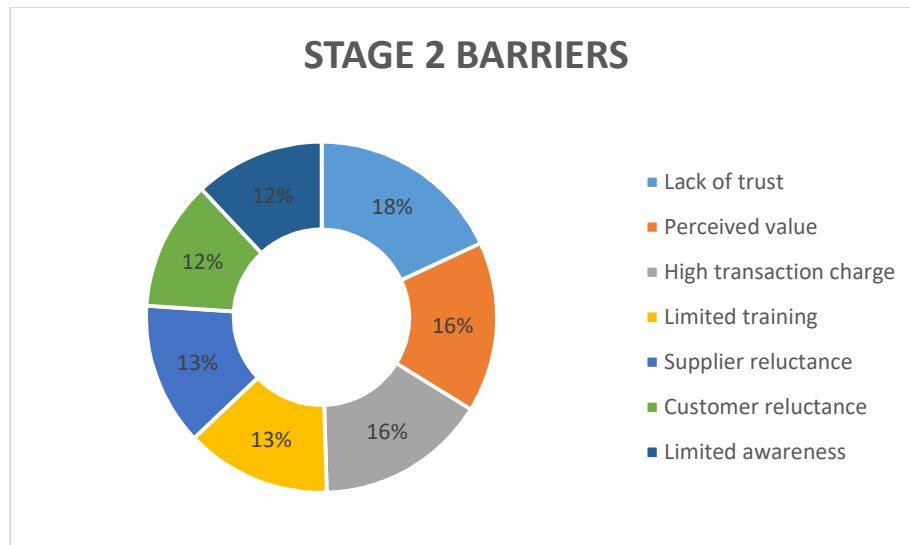


Figure 17: Stage 2 barriers in descending order

#### 6.4.3.5 Stage 3 Factors: Facilitators

Table 14 provides a breakdown of responses for the positive factors that influence adoption in Stage 3. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

<b>3a. Tick all the factors (reasons) below that encouraged your business to engage in the activities you ticked previously</b>				
	Disagree	Not sure	Agree	Count
Mobile phone provided opportunities for the business to reach new and existing customers	3	3	76	82
Using Mobile phone has provided benefits to the business	3	1	78	82
The business owner or manager has personal interest in technology innovations	5	12	65	82
The business owner or manager wants to keep up with Global Trend or societal change	2	10	70	82

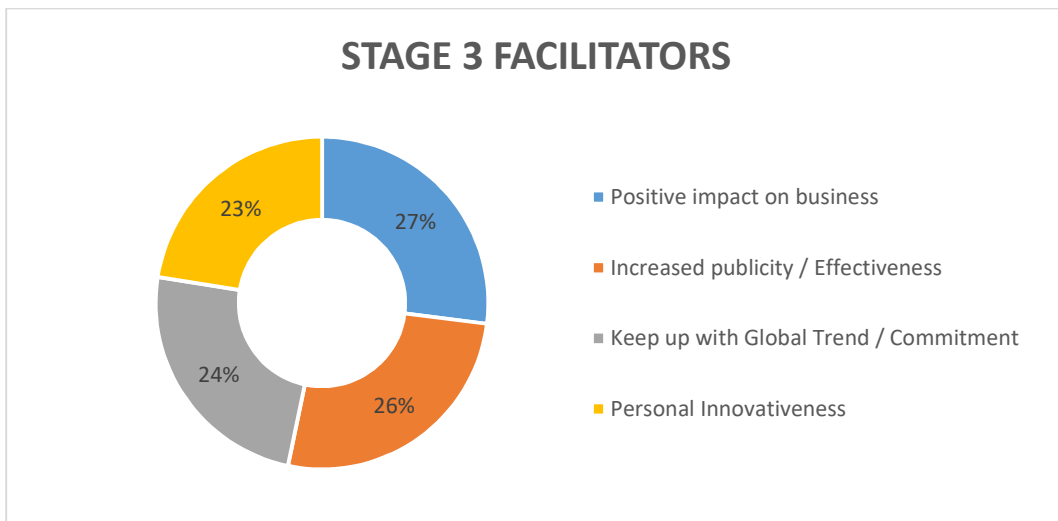
Table 15: Stage 3 Factors - Facilitators



However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Increased publicity / Effectiveness (92.68% agree)
- Option 2: Positive impact on business (95.12% agree)
- Option 3: Personal Innovativeness (79.27% agree)
- Option 4: Keep up with Global Trend / Commitment (85.37% agree)

Figure 18 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.



*Figure 18: Stage 3 facilitators in descending order*

#### *6.4.3.6 Stage 3 Factors: Barriers*

Table 16 provides a breakdown of responses for the negative factors that influence adoption in Stage 3. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

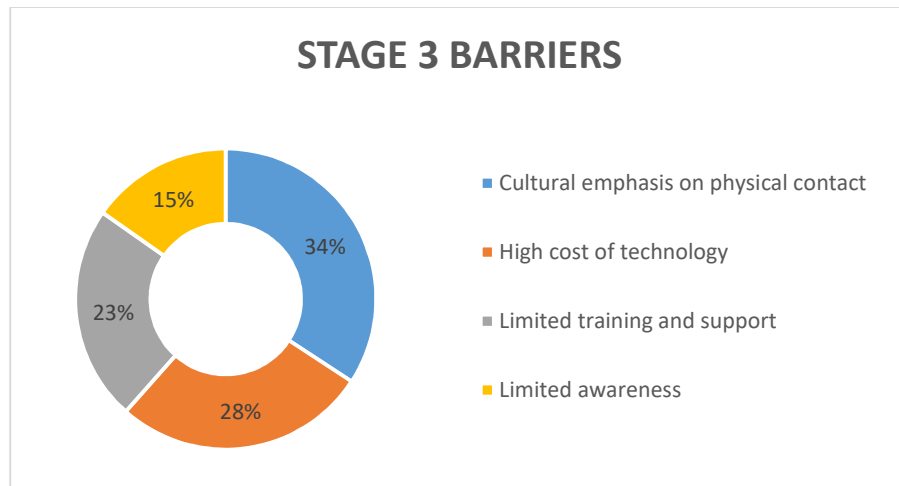
<b>3b. Tick all the factors (reasons) that have been barriers or challenges to your business' increased use of mobile phones and internet activities</b>				
	Disagree	Not sure	Agree	Count
High cost related to design, deployment (domain name registration & hosting) and maintenance of the website	13	17	52	82
Limited support for employees to continue to maintain the website after its design and deployment	9	29	44	82
Customers are not aware of the business website	24	29	29	82
Customers prefer to make physical contact with the business rather than through the website	4	13	65	82

*Table 16: Stage 3 Factors - Barriers*

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: High cost of technology (63.41% agree)
- Option 2: Limited training and support (53.66% agree)
- Option 3: Limited awareness (35.37% agree)
- Option 4: Cultural emphasis on physical contact (79.27% agree)

Figure 19 presents a pictorial version of the factors in descending order from the factor with the highest percentage proportion for “Agree”.



*Figure 19: Stage 3 barriers in descending order*

#### 6.4.3.7 Stage 4 Factors: Facilitators

Table 17 provides a breakdown of responses for the positive factors that influence adoption in Stage 4. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

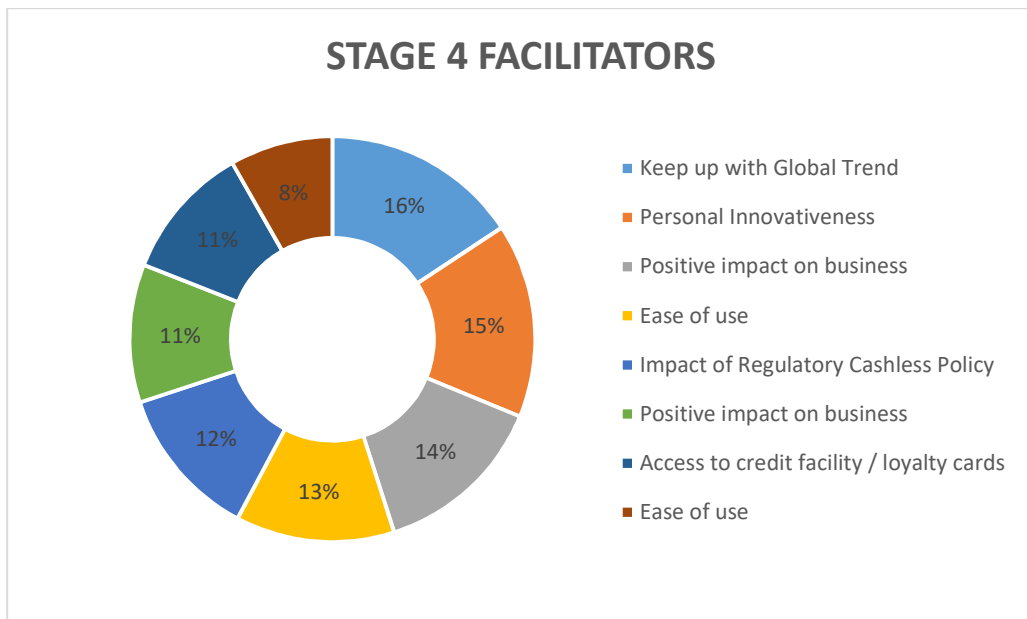
<b>4a. Tick all the factors (reasons) below that encouraged your business to engage in the activities you ticked previously</b>				
	Disagree	Not sure	Agree	Count
The Business offers credit or bonus points to customers through loyalty or credit cards	22	10	46	78
The business owner or manager has personal interest in technology innovations	6	6	66	78
The business owner or manager wants to keep up with Global Trend or societal change	5	6	67	78
Online payment on the website has provided benefits to the business	11	20	47	78
Customers find it easy to shop on the website rather than physically visit the store	16	27	35	78
Government's Cashless Policy encourage business transactions on the website	5	21	52	78
The mobile app of the business has provided benefits to the business	7	12	59	78
Customers find it easy to use the mobile app of the business rather than visit the website	8	16	54	78

*Table 17: Stage 4 Factors - Facilitators*

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Access to credit facility / loyalty cards (58.97% agree)
- Option 2: Personal Innovativeness (84.62% agree)
- Option 3: Keep up with Global Trend (85.90% agree)
- Option 4: Positive impact on business (60.26% agree)
- Option 5: Ease of use (44.87% agree)
- Option 6: Impact of Regulatory Cashless Policy (66.67% agree)
- Option 7: Positive impact on business (75.64% agree)
- Option 8: Ease of use (69.23% agree)

Figure 20 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.



*Figure 20: Stage 4 facilitators in descending order*

#### *6.4.3.8 Stage 4 Factors: Barriers*

Table 18 provides a breakdown of responses for the negative factors that influence adoption in Stage 4. From the table, it may be observed that for all options that were provided, “Agree” had the highest number of ticks. This shows that most respondents agreed to the presence or influence of those factors.

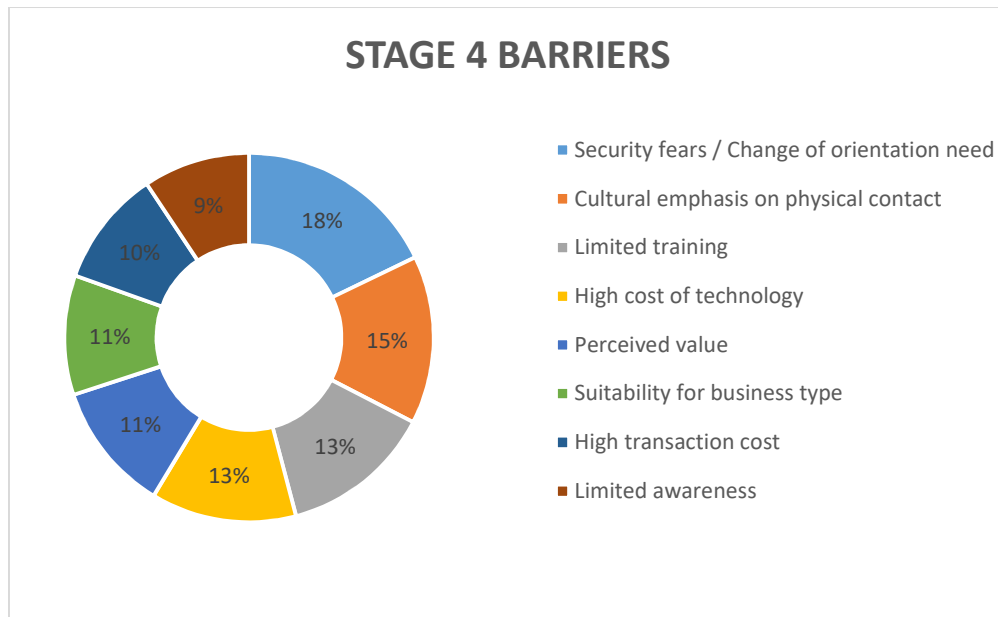
<b>4b. Tick all the factors (reasons) that have been barriers or challenges to your business' increased use of mobile phone and internet activities?</b>				
	Disagree	Not sure	Agree	Count
Online shopping is not popular among customers and suppliers	24	21	33	78
People have fear of security risks or fraud when transactions are completed through online stores	5	10	63	78
Perceived benefits of online stores is low	14	24	40	78
The culture prefers physical relationships rather than online interaction with the business	11	15	52	78
Employees have limited training to be able to maintain the online store, order processing and delivery	10	21	47	78
High cost related to transaction charges	20	22	36	78
Online store is not suitable for the type of business	26	15	37	78
High cost related to the design of the mobile app	7	26	45	78

*Table 18: Stage 4 Factors - Barriers*

However, in order to place these options in perspective of factors, these options will be decoded into their respective factors:

- Option 1: Limited awareness (42.31% agree)
- Option 2: Security fears (80.77% agree)
- Option 3: Perceived value (51.28% agree)
- Option 4: Cultural emphasis on physical contact (66.67% agree)
- Option 5: Limited training (60.26% agree)
- Option 6: High transaction cost (46.15% agree)
- Option 7: Suitability for business type (47.44% agree)
- Option 8: High cost of technology (57.69% agree)

Figure 21 presents a pictorial version of the factors in descending order from the factors with the highest percentage proportion for “Agree”.



*Figure 21: Stage 4 barriers in descending order*

#### 6.4.4 Comparison of Factors identified by Current Adopters vs. Past Adopters

Having presented the different facilitators and barriers that influence the migration of businesses from one stage of m-Commerce adoption to the next, this section seeks to provide further insight into the data by distinguishing the responses of current adopters of each stage, from the responses of adopters who have advanced beyond the respective stages. Therefore, a comparison of responses from businesses that are presently within the respective stages (current adopters), will be made against the responses of businesses that were once in the respective stages but have advanced to other stages (past adopters). This is because for each set of factors, respondents were required to identify the factors that influenced their migration to particular stages; therefore, whether or not they are still within a particular stage or have moved beyond that particular stage, they had to highlight the factors that influenced their adoption at the different stages they have attained. For instance, Stage 2 businesses were asked to identify factors that influenced their uptake of Stage 1 and Stage 2 activities by answering questions 1a, 1b, 2a and 2b. As such, businesses at every given stage had to reflect on factors that influenced their migration to different stages of adoption relevant to the characteristics they ticked in Part 2. Therefore, in order to further understand the factors presented in Section 6.4.3, the factors ticked by current adopters will be compared to the factors ticked by past adopters as this might provide a different perspective or further insight into the importance or relevance of those factors, given current socio-economic, environmental and technological trends.

#### 6.4.4.1 Responses from Current Adopters in Stage 1

Tables 19 and 20 presents a summary of the factors that businesses within stage 1 identified as facilitators or barriers that influenced their current level of m-Commerce adoption. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 51 of the 197 businesses that provided complete responses are classified as stage 1 businesses because they currently engage in m-Commerce activities related to stage 1 of the adoption spectrum. This figure was obtained by color-coding the businesses that only ticked activities related to stage 1 as white (see Appendix 8). Responses related to stage 1 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 19 and 20. A summary of stage 1 data is attached as Appendix 8.2.

Stage 1 Facilitators	Disagree	Not sure	Agree	Total	Percent
Availability of internet access	6	9	36	51	70.59%
Perceived value / Perceived usefulness	8	12	31	51	60.78%
Affordability of device technology	9	12	30	51	58.82%
General acceptance / Social norm	5	17	29	51	56.86%
Technology popularity	7	17	27	51	52.94%
Perceived ease of use	9	15	27	51	52.94%
Perceived ease of use / Convenience	9	17	25	51	49.02%

*Table 19: Stage 1 Facilitators - Current Adopters*

Stage 1 Barriers	Disagree	Not sure	Agree	Total	Percent
Security fears	10	20	21	51	41.18%
<i>Limited training</i>	<i>10</i>	<i>22</i>	<i>19</i>	<i>51</i>	<i>37.25%</i>
<i>Supplier reluctance</i>	<i>12</i>	<i>22</i>	<i>17</i>	<i>51</i>	<i>33.33%</i>
<i>High transaction cost</i>	<i>22</i>	<i>13</i>	<i>16</i>	<i>51</i>	<i>31.37%</i>
<i>Customer reluctance</i>	<i>15</i>	<i>21</i>	<i>15</i>	<i>51</i>	<i>29.41%</i>

*Table 20: Stage 1 Barriers - Current Adopters*

From the tables above, it may be observed that more than 50% of the respondents in Stage 1 attested to the influence of all the facilitators. However, with respect to the barriers, Security fears was the only factor where the number of respondents that ticked “Agree” were more than the number of respondents that ticked “Not sure” or “Disagree”. As a result, the other factors that have been italicised will be dropped from the final list of factors that influence the conduct of activities related to Stage 1. This is because the “Not sure” and “Disagree” responses might be

indications that these factors are less likely to impact on the adoption of Stage 1 related m-Commerce activities. The values in the Percent column for the factors presented in both tables reflect the percentage of respondents who ticked the Agree option for each respective factor.

#### 6.4.4.2 Responses from Past Adopters in Stage 1

Tables 21 and 22 presents a summary of the factors that businesses above stage 1 identified as facilitators or barriers that influenced their level of m-Commerce adoption in Stage 1. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 146 of the 197 businesses that provided complete responses have advanced beyond stage 1 of the m-Commerce adoption spectrum. This includes businesses that are currently in stages 2, 3 and 4 of the adoption continuum. A combination of responses related to stages 2, 3 and 4 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 21 and 22. A summary of this data is attached as Appendix 8.6.

Stage 1 Facilitators	Disagree	Not sure	Agree	Total	Percent
Availability of internet access	5	2	139	146	95.21%
Affordability of device technology	6	7	133	146	91.10%
Technology popularity	12	12	122	146	83.56%
General acceptance / Social norm	10	15	121	146	82.88%
Perceived ease of use / Convenience	11	14	121	146	82.88%
Perceived value / Perceived usefulness	8	30	108	146	73.97%
Perceived ease of use	15	24	107	146	73.29%

*Table 21: Stage 1 Facilitators - Past Adopters*

Stage 1 Barriers	Disagree	Not sure	Agree	Total	Percent
Security fears	26	41	79	146	54.11%
Limited training	28	50	68	146	46.58%
Supplier reluctance	35	46	65	146	44.52%
Customer reluctance	36	46	64	146	43.84%
High transaction cost	48	36	62	146	42.47%

*Table 22: Stage 1 Barriers - Past Adopters*

From the above tables, it may be observed that there is a contrast between the factors identified by current adopters of m-Commerce in Stage 1 and factors identified by past adopters of stage 1. Also, although more than 50% of the 146 past adopters (businesses in subsequent stages) ticked “Agree” to all the facilitators, it may be observed that the order of importance as indicated by the percentage varied from the order indicated by current adopters. For instance, although both



current and past adopters indicated that Access to internet is the most popular facilitator, the next most popular facilitator indicated by both groups deferred as Perceived value and Affordability of device technology respectively. Nonetheless, in both cases, Perceived ease of use ranked as one of the least popular facilitators which might be an indication that the influence of this factor on the adoption of m-Commerce in Stage 1 is declining for different reasons, some of which will be discussed in chapter 7.

On the other hand, with respect to the barriers, there was a sharp contrast between the responses of the current versus past adopters. While most past adopters responded in favour of all the factors because the number of ticks for Agree had the highest count for each factor, Security fears was the only barrier that had the highest number of ticks for “Agree” by current adopters. Possible reasons for this contrast will be discussed in the next chapter. However, considering that responses of current adopters at this stage is more reflective of current trends, Security fears is the only barrier that will be included in the compiled list of migration factors.

#### *6.4.4.3 Responses from Current Adopters in Stage 2*

Tables 23 and 24 presents a summary of the factors that businesses within stage 1 identified as facilitators or barriers that influenced their current level of m-Commerce adoption. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 69 of the 197 businesses that provided complete responses are classified as stage 2 businesses because they engage in m-Commerce activities related to stages 1 and 2 of the adoption spectrum. This figure was obtained by color-coding the businesses that ticked activities related to stages 1 and 2 as peach (see Appendix 8). Responses related to stage 2 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 23 and 24. A summary of stage 2 data is attached as Appendix 8.3.

Stage 2 Facilitators	Disagree	Not sure	Agree	Total	Percent
Availability of internet access	1	4	64	69	92.75%
Positive impact on business	3	8	58	69	84.06%
Affordability of device technology	1	12	56	69	81.16%
Impact of Regulatory Cashless Policy	4	12	53	69	76.81%
Increased publicity / Effectiveness	3	14	52	69	75.36%
Perceived ease of use	4	17	48	69	69.57%
Suitability for business	9	26	34	69	49.28%

*Table 23: Stage 2 Facilitators - Current Adopters*

Stage 2 Barriers	Disagree	Not sure	Agree	Total	Percent
Lack of trust	14	21	34	69	49.28%
Supplier reluctance	13	27	29	69	42.03%
Perceived value	16	26	27	69	39.13%
<i>High transaction charge</i>	<b>33</b>	<b>11</b>	25	69	36.23%
<i>Customer reluctance</i>	15	<b>32</b>	22	69	31.88%
<i>Limited awareness</i>	21	<b>26</b>	22	69	31.88%
<i>Limited training</i>	17	<b>33</b>	19	69	27.54%

*Table 24: Stage 2 Barriers - Current Adopters*

From Table 23, it may be observed that more than 50% of the current Stage 2 adopters attested to the influence of all the facilitators except Suitability for business that had an “Agree” count from less than 50% (that is, 49.28%) of the 69 respondents in Stage 2. However, with respect to the barriers, it may be observed that only 3 factors - Lack of trust, Supplier reluctance and Perceived value - had the highest count for “Agree”; while “Disagree” or “Not sure” had the highest count for the remaining 4 factors. This could be an indication that these 4 factors are less likely to impact on the adoption of m-Commerce activities related to Stage 2 due to reasons that will be highlighted in chapter 7. As a result, these 4 factors that have been italicised will be dropped from the final list of factors that influence the conduct of activities related to Stage 2. The values in the Percent column for the factors presented in both tables reflect the percentage of respondents who ticked the Agree option for each respective factor.

#### *6.4.4.4 Responses from Past Adopters in Stage 2*

Tables 25 and 26 presents a summary of the factors that businesses within stage 2 identified as facilitators or barriers that influenced their current level of m-Commerce adoption. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 77 of the 197 businesses that provided complete responses have advanced beyond stage 2 of the m-Commerce adoption spectrum. This includes businesses that are currently in stages 3 and 4 of the adoption continuum. A combination of responses related to stages 3 and 4 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 25 and 26. A summary of this data is attached as Appendix 8.7.

Stage 2 Facilitators	Disagree	Not sure	Blank	Agree	Total	Percent
Availability of internet access	4	1	6	66	77	85.71%
Affordability of device technology	2	3	6	66	77	85.71%
Increased publicity / Effectiveness	4	4	6	63	77	81.82%
Positive impact on business	2	7	6	62	77	80.52%
Impact of Regulatory Cashless Policy	2	8	6	61	77	79.22%
Perceived ease of use	3	9	6	59	77	76.62%
Suitability for business	7	27	6	37	77	48.05%

*Table 25: Stage 2 Facilitators - Past Adopters*

Stage 2 Barriers	Disagree	Not sure	Blank	Agree	Total	Percent
Lack of trust	7	21	6	43	77	55.84%
High transaction charge	12	17	6	42	77	54.55%
Perceived value	10	21	6	40	77	51.95%
Limited training	13	20	6	38	77	49.35%
Limited awareness	24	18	6	29	77	37.66%
Customer reluctance	22	20	6	29	77	37.66%
Supplier reluctance	22	22	6	27	77	35.06%

*Table 26: Stage 2 Barriers - Past Adopters*

From the above tables, it may be observed that there is a contrast between the factors identified by current adopters of m-Commerce in Stage 2 and factors identified by past adopters of stage 2. Also, although more than 50% of the 77 past adopters (businesses in subsequent stages) ticked “Agree” to all the facilitators except Suitability for business, it may be observed that the order of importance as indicated by the percentage varied from the order indicated by current adopters. For instance, although both current and past adopters indicated that Access to internet is the most popular facilitator, the next most popular facilitator indicated by both groups deferred as Positive impact on business and Affordability of device technology respectively. Nonetheless, in both cases, Perceived ease of use and Suitability for business ranked as the least popular facilitators which might be an indication that the influence of these factors on the adoption of m-Commerce in Stage 2 is declining for different reasons which will be highlighted in the next chapter.

On the other hand, with respect to the barriers, there was also a contrast between the responses of the current versus past adopters. While most past adopters responded in favour of all the factors because the number of ticks for Agree had the highest count for each factor, “Disagree” and “Not sure” had the highest number of “Agree” ticks for 4 out of the 7 barriers that the current adopters responded to. However, considering that responses of current adopters at this stage is more reflective of current trends for different reasons which will be highlighted in the next chapter, Lack of trust, Supplier reluctance and Perceived value are the only barriers that will be included in the compiled list of migration factors.

#### 6.4.4.5 Responses from Current Adopters in Stage 3

Tables 27 and 28 presents a summary of the factors that businesses within stage 3 identified as facilitators or barriers that influenced their current level of m-Commerce adoption. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 42 of the 197 businesses that provided complete responses are classified as stage 3 businesses because they currently engage in m-Commerce activities related to stages 1, 2 and 3 of the adoption spectrum. This figure was obtained by color-coding the businesses that ticked activities related to stages 1, 2 and 3 as yellow (see Appendix 8). Responses related to stage 3 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 27 and 28. A summary of stage 3 data is attached as Appendix 8.4.

Stage 3 Facilitators	Disagree	Not sure	Agree	Total	Percent
Increased publicity / Effectiveness	0	0	42	42	100.00%
Positive impact on business	1	0	41	42	97.62%
Keep up with Global Trend / Commitment	1	4	37	42	88.10%
Personal Innovativeness	3	9	30	42	71.43%

*Table 27: Stage 3 Facilitators - Current Adopters*

Stage 3 Barriers	Disagree	Not sure	Agree	Total	Percent
Cultural emphasis on physical contact	0	8	34	42	80.95%
High cost of technology	8	10	24	42	57.14%
Limited training and support	3	18	21	42	50.00%
<i>Limited awareness</i>	<i>10</i>	<i>17</i>	<i>15</i>	<i>42</i>	<i>35.71%</i>

*Table 28: Stage 3 Barriers - Current Adopters*

From the tables above, it may be observed that more than 50% of the respondents in Stage 3 attested to the influence of all the facilitators on migration to Stage 3 of the m-Commerce adoption continuum. However, with respect to the barriers, it may be observed that Limited awareness is the only factor that had the highest percentage for “Not sure”. This could be an indication that Limited awareness is less likely to have significant impact on the adoption of m-Commerce activities related to Stage 3. As a result, this factor that has been italicised will be dropped from the final list of factors that influence the conduct of activities related to Stage 3. The values in the Percent column for the factors presented in both tables reflect the percentage of respondents who ticked the Agree option for each respective factor.

#### 6.4.4.6 Responses from Past Adopters in Stage 3

Tables 29 and 30 presents a summary of the factors that businesses within stage 3 identified as facilitators or barriers that influenced their current level of m-Commerce adoption. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 35 of the 197 businesses that provided complete responses have advanced beyond stage 3 of the m-Commerce adoption spectrum. This includes businesses that are currently in stage 4 of the adoption continuum. Responses related to stage 4 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 29 and 30. A summary of this data is attached as Appendix 8.8.

Stage 3 Facilitators	Disagree	Not sure	Blank	Agree	Total	Percent
Positive impact on business	2	1	3	29	35	82.86%
Personal Innovativeness	2	3	3	27	35	77.14%
Increased publicity / Effectiveness	3	3	3	26	35	74.29%
Global Trend / Commitment	1	6	3	25	35	71.43%

*Table 29: Stage 3 Facilitators - Past Adopters*

Stage 3 Barriers	Disagree	Not sure	Blank	Agree	Total	Percent
Emphasis on physical contact	3	4	3	25	35	71.43%
High cost of technology	4	5	3	23	35	65.71%
Limited training and support	6	6	3	20	35	57.14%
Limited awareness	10	12	3	10	35	28.57%

*Table 30: Stage 3 Barriers - Past Adopters*

From the above tables, it may be observed that although the facilitators identified by both current and past adopters of m-Commerce in Stage 3 are similar, there is a contrast in the sequence of the facilitators identified by current vs. past adopters. For instance, while Increased popularity ranked as the most popular facilitator identified by current adopters, Positive impact on business was identified as the most popular facilitator identified by past adopters. However, with respect to the barriers, a noticeable similarity may be observed regarding the sequence of the factors. In both cases, Limited awareness was the only factor with the highest number of ticks for “Not sure”. Also, the most popular barriers declined from Cultural emphasis on physical contact to High cost of technology and then Limited training and support.

#### 6.4.4.7 Responses from Current Adopters in Stage 4

Tables 31 and 32 presents a summary of the factors that businesses within stage 4 identified as facilitators or barriers that influenced their current level of m-Commerce adoption. The factors have been listed in descending order – from the factors with the highest percentage of “Agree” to factors with the least percentage of “Agree”. It may be observed from both tables that a total of 35 of the 197 businesses that provided complete responses are classified as stage 4 businesses because they currently engage in m-Commerce activities related to stages 1, 2, 3 and 4 of the adoption spectrum. This figure was obtained by color-coding the businesses that ticked activities related to stages 1, 2, 3 and 4 as green (see Appendix 8). Responses related to stage 4 businesses were exported into a separate Excel sheet which was then used to extract and calculate information provided in Tables 31 and 32. A summary of stage 4 data is attached as Appendix 8.5.

Stage 4 Facilitators	Disagree	Not sure	Agree	Total	Percent
Personal Innovativeness	1	2	32	35	91.43%
Keep up with Global Trend	2	2	31	35	88.57%
Positive impact on business	3	4	28	35	80.00%
Positive impact on business	2	5	28	35	80.00%
Impact of Regulatory Cashless Policy	1	9	25	35	71.43%
Ease of use	3	9	23	35	65.71%
Ease of use	4	9	22	35	62.86%
Access to credit facility / loyalty cards	8	7	20	35	57.14%

*Table 31: Stage 4 Facilitators - Current Adopters*

Stage 4 Barriers	Disagree	Not sure	Agree	Total	Percent
Security fears / Change of orientation need	4	3	28	35	80.00%
Cultural emphasis on physical contact	5	6	24	35	68.57%
Limited training	4	8	23	35	65.71%
Perceived value	9	4	22	35	62.86%
High cost of technology	5	12	18	35	51.43%
Limited awareness	11	8	16	35	45.71%
High transaction cost	12	10	13	35	37.14%
<i>Suitability for business type</i>	<b>18</b>	6	11	35	31.43%

*Table 32: Stage 4 Barriers - Current Adopters*

From the tables above, it may be observed that more than 50% of the respondents in Stage 4 attested to the influence of all the facilitators on migration to Stage 4 of the m-Commerce adoption continuum. However, with respect to the barriers, it may be observed that Suitability for business

type is the only factor that had the highest number of ticks for “Disagree”. This could be an indication that Suitability for business type is less likely to impact on the adoption of m-Commerce activities related to Stage 4. As a result, this factor that has been italicised will be dropped from the final list of factors that influence the conduct of activities related to Stage 4. The values in the Percent column for the factors presented in both tables reflect the percentage of respondents who ticked the Agree option for each respective factor.

#### 6.4.5 Compilation of Migration Factors for Stages 1 - 4

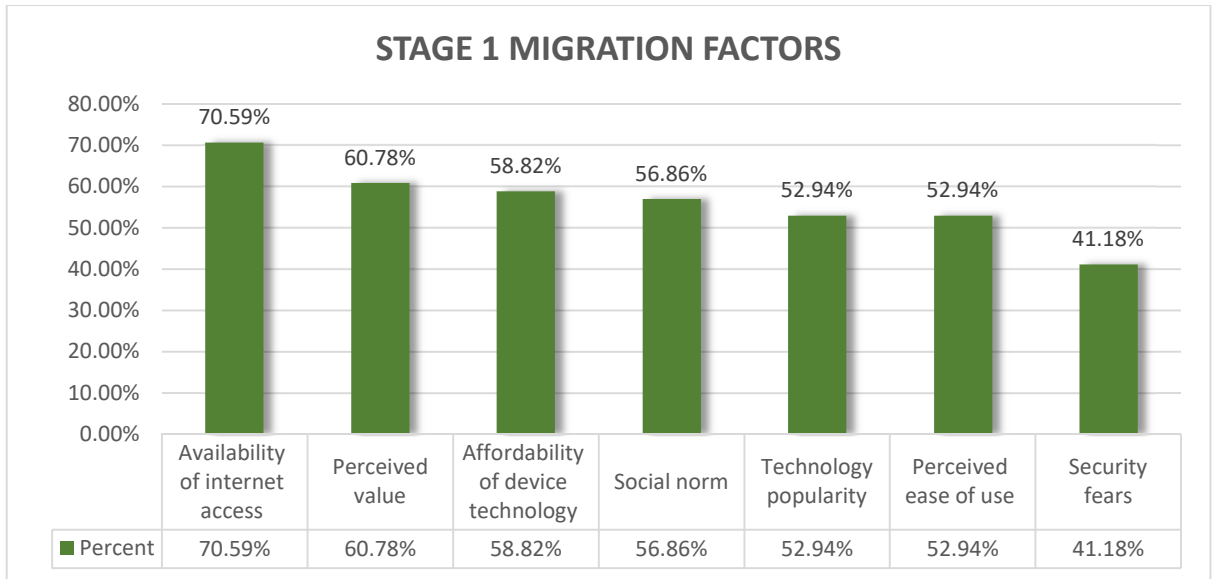
In the previous section, the list of facilitators and barriers have been thinned based on the responses of current adopters within the given stage. This is because the response of current adopters provides a more recent indication of relevant factors, taking into considering current socio-economic, technological and other external or environmental trends within the country. Therefore, this section seeks to provide a summary of the migration factors for each stage. Given that facilitators and barriers are all factors, the summary presents relevant facilitators and barriers as migration factors for each stage.

##### *6.4.5.1 Migration Factors to Stage 1*

The factors that influence the adoption of Stage 1 related activities are as follows:

- Availability of internet access
- Perceived value
- Affordability of device technology
- Social norm
- Technology popularity
- Perceived ease of use
- Security fears

A summary of these factors is shown in a graph contained in Figure 22.



*Figure 22: Stage 1 Migration Factors*

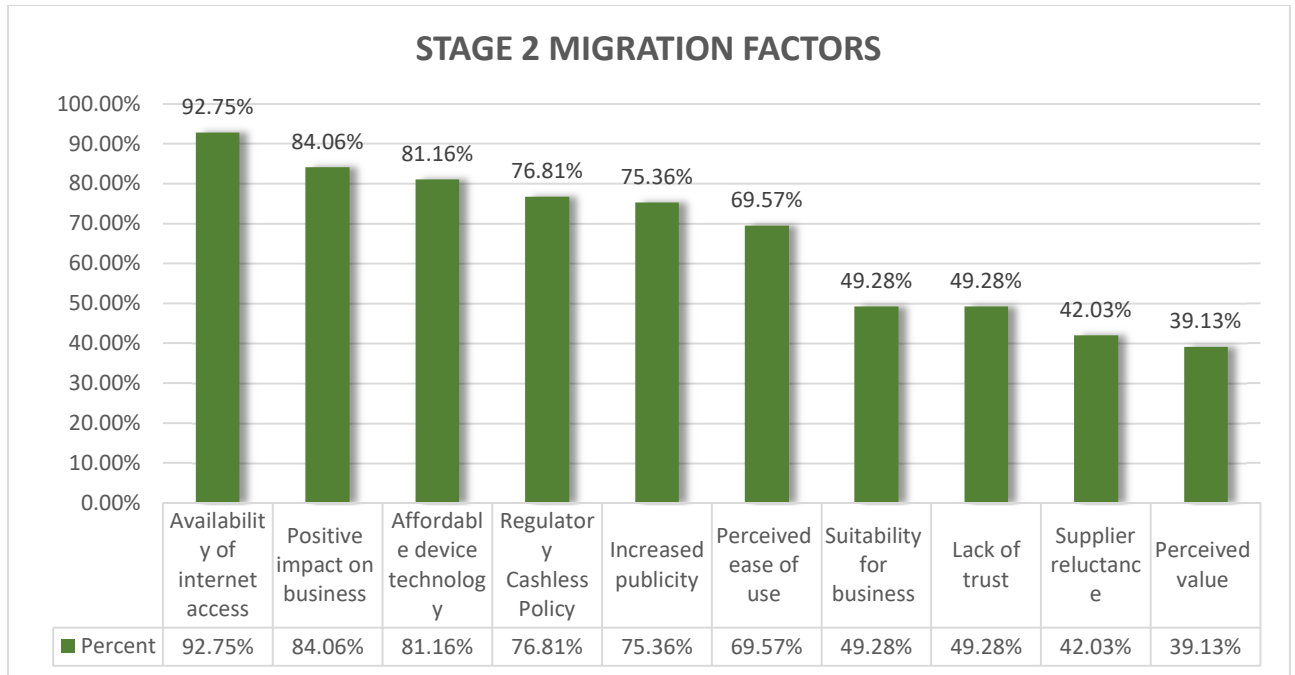
#### *6.4.5.2 Migration Factors to Stage 2*

The factors that influence the adoption of Stage 2 related activities are as follows:

- Availability of internet access
- Positive impact on business
- Affordable device technology
- Regulatory Cashless Policy
- Increased publicity
- Perceived ease of use
- Suitability for business
- Lack of trust
- Supplier reluctance
- Perceived value



A summary of these factors is shown in a graph contained in Figure 23.



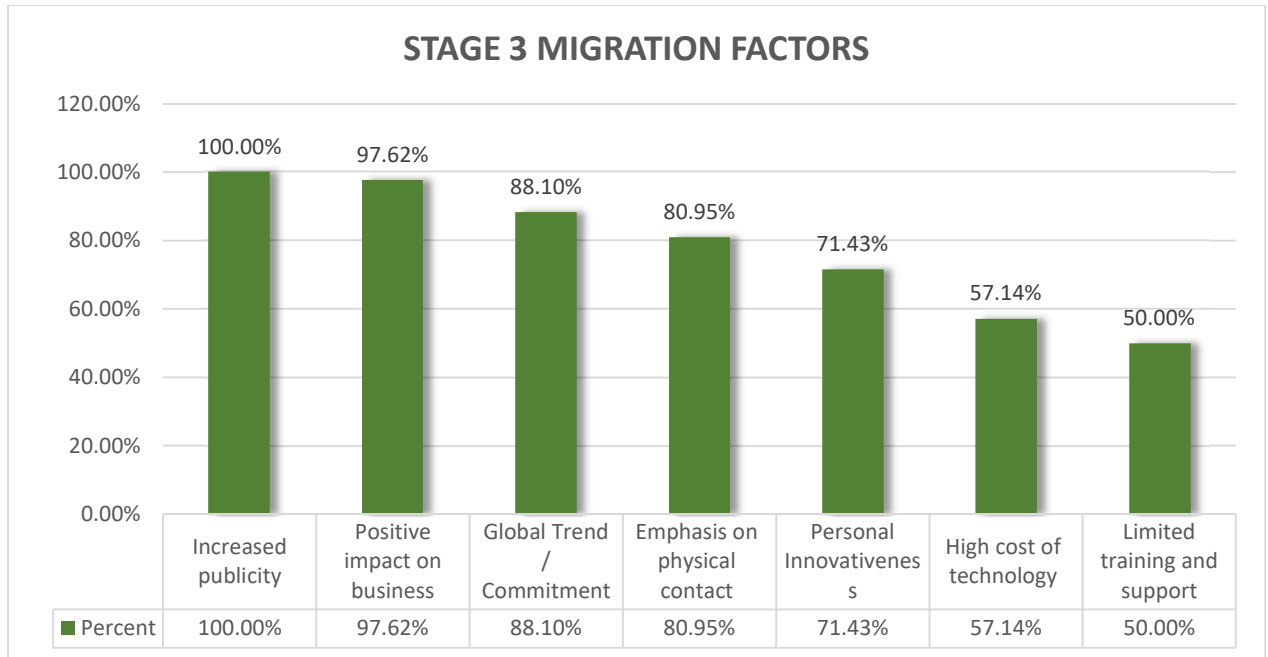
*Figure 23: Stage 2 Migration Factors*

#### *6.4.5.3 Migration Factors to Stage 3*

The factors that influence the adoption of Stage 3 related activities are as follows:

- Increased publicity
- Positive impact on business
- Global Trend / Commitment
- Emphasis on physical contact
- Personal Innovativeness
- High cost of technology
- Limited training and support

A summary of these factors is shown in a graph contained in Figure 24.



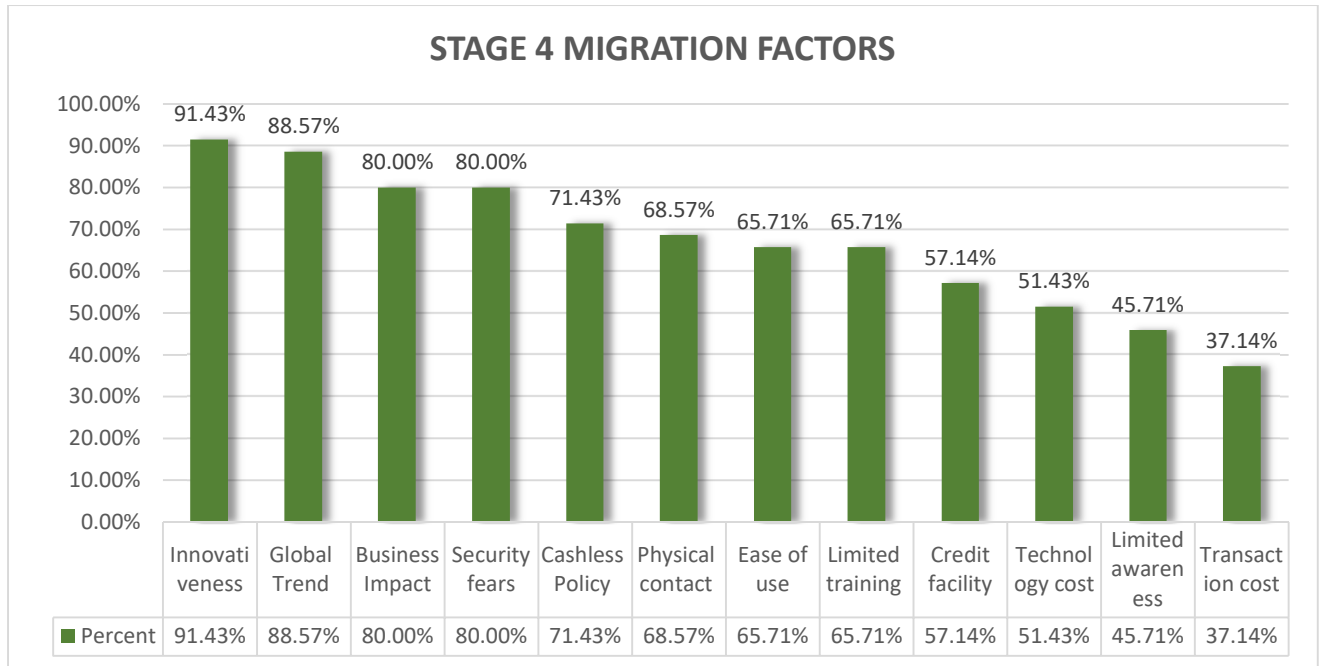
*Figure 24: Stage 3 Migration Factors*

#### *6.4.5.4 Migration Factors to Stage 4*

The factors that influence the adoption of Stage 4 related activities are as follows:

- Personal Innovativeness
- Keep up with Global Trend
- Positive impact on business
- Security fears
- Regulatory Cashless Policy
- Emphasis on physical contact
- Ease of use
- Limited training
- Credit facility / loyalty cards
- High cost of technology
- Limited awareness
- High transaction cost

A summary of these factors is shown in a graph contained in Figure 25.



*Figure 25: Stage 4 Migration Factors*

#### 6.4.6 Classification of Migration Factors based on level of Impact

In order to provide further insight into the data, the factors were divided according to their levels of impact. This was achieved through the use of the formula below:

$$\text{Class Interval} = \frac{\text{Highest Value} - \text{Lowest Value}}{\text{number of classes you want to have}}$$

*Figure 26: Determining class interval (Wyzant, 2016<sup>16</sup>)*

This formula is often used in statistics to determine the class interval of a frequency distribution. In 1926, Herbert Sturges presented a formula that may be used in choosing a class interval. For a single statistical series of range  $R$  with  $N$  items, he suggested the use of the formula (Sturges, 1926):

$$C = \frac{R}{1 + 3.322 \log N}$$

Since then, this formula has formed the basis for the calculation of frequency distribution and is commonly used in statistical packages (Scott, 2012). It has also been adopted in several statistical books, articles, lectures and online teaching resources that covered the topic of frequency distribution such as Morris & Langari (2016); De Muth (2014); Hoshmand (1998); Bluman (1998). Although some authors have identified some limitations of Sturges' rule such as "oversmoothing" data and not being ideal for samples greater than 200 (Stopher, 2012; Rizzo, 2008), Sturges' rule is still being widely used (Lohaka, 2007), perhaps because for samples less than 200, it produces reasonable histogram (Sebastiao, Gama, Rodrigues & Bernades, 2008).

Nonetheless, this formula has not been used in this study because the intended number of classes is already known. Therefore, considering that Sturges' rule seeks to identify the number of classes, as well as the intervals of the classes, that formula will not be used. Instead, a derivative of his formula as shown in Figure 26 will be used because in the case of this study's data, only 3 classes are needed in order to distribute the data into high, mid and low. The formula presented in Figure 26 has also been used by statisticians and statistical instructors when covering the topic

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<sup>16</sup> Formula obtained from [https://www.wyzant.com/resources/lessons/math/statistics\\_and\\_probability/introduction/data](https://www.wyzant.com/resources/lessons/math/statistics_and_probability/introduction/data)

of frequency distribution or class interval e.g. Cruz (2014); Berondo (2012); Wegner, (2007); Hearne & Luczak (2005); Kenett (2000), etc.

Therefore, using the formula presented in Figure 26, the highest value was 100.00% (that is, the factor that had the highest percentage when all the factors were put together in a list) and the lowest value was 37.14% (that is, the factor that had the lowest percentage when all the factors were put together in a list). Since the number of classes was intended to be 3, the result of subtracting the lowest value from the highest value was divided by 3. This resulted in a value of 20.95 which was then used to group the factors. A table containing a summary of this calculation is attached as Appendix 9. Table 33 presents the factors within their respective levels of impact from high to low.

It may be observed from the table that factors presented were uniquely selected in order to avoid repeating factors which could become confusing. For instance, Increased publicity had a figure of 100% in stage 3 but had a figure of 75.36% in stage 2. This means that Increased publicity would appear under High impact and Mid impact which may become confusing to the reader and confusing to interpret. Therefore, where a factor appeared in more than one stage, the higher figure for that factor was placed within its respective category. In the example of Increased publicity, since the higher figure is 100%, this factor was placed under the High impact category. This process of removing repetitive factors was necessary in order to ensure that each individual factor had a distinct category.

<b>SIGNIFICANCE / IMPACT OF MIGRATION FACTORS</b>					
<b>High impact factors</b>		<b>Mid impact factors</b>		<b>Low impact factors</b>	
Increased publicity	100.00%	Regulatory Cashless Policy	76.81%	Credit facility / loyalty cards	57.14%
Positive impact on business	97.62%	Perceived ease of use	69.57%	Social norm	56.86%
Availability of internet access	92.75%	Ease of use	65.71%	Technology popularity	52.94%
Personal Innovativeness	91.43%	Limited training	65.71%	Suitability for business	49.28%
Keep up with Global Trend	88.57%	Perceived value	60.78%	Lack of trust	49.28%
Positive impact on business	84.06%			Limited awareness	45.71%
Affordable device technology	81.16%			Supplier reluctance	42.03%
Emphasis on physical contact	80.95%			High transaction cost	37.14%
Positive impact on business	80.00%				
Security fears	80.00%				

*Table 33: Classification of Migration Factors based on level of Impact*

#### 6.4.6 Summary of Global Factors

Within the context of this research, global factors refer to factors that re-occurred in more than one stage. Table 34 presents a summary of the 11 factors that reoccurred in more than 2 stages within this study. These factors reflect some level of popularity or impact these factors might have on m-Commerce adoption among micro and small businesses in Nigeria irrespective of their stage of adoption.

<b>GLOBAL MIGRATION FACTORS</b>		
List of factors that appeared in more than 2 stages		
Availability of internet access	Regulatory Cashless Policy	Personal Innovativeness
Perceived value	Increased publicity	Perceived ease of use
Affordability of device technology	Keep up with Global Trend	Positive impact on business
Security fears	Emphasis on physical contact	

*Table 34: Global Migration Factors*

#### 6.4.7 Comparison of factors identified from literature, Interview and Survey

Table 35 provides a summary of the factors identified from literature, interview and the surveys within each stage of adoption. From the table, it may be observed that differences exist between the factors identified from each source. In all stages, it may be observed that there was a decline in the number of factors identified from literature versus factors identified from the survey. Also, just as some factors identified from literature are similar to some factors identified from the surveys, some literature factors were also similar to some current factors. Although no factor was consistently identified from literature, interviews and surveys within each stage, there are some factors that were identified from all three sources, albeit at different stages. These factors include trust, security, regulatory policy, culture / social influence, cost, awareness, suitability / product fit and innovativeness.

### Differences between Factors identified from Literature, Interview and Surveys (Current Factors)

Stage	Factors from Literature	Factors from Interview	Current Factors
<b>STAGE 1</b>	Awareness / Appreciation of m-Commerce	Limited Awareness of technology	Availability of internet access
	Content & Product Fit	Limited Appreciation of technology	Perceived value
	Consumer Innovativeness	High business cost	Affordability of device technology
	Perceived cost	Need for Training and Guidance	Social norm
	Low Literacy	High Transaction Cost	Technology popularity
	Service costs	Supplier reluctance to accept virtual payment	Perceived ease of use
	Device Technology	Lack of Trust	Security fears
	Social Influence		
<b>STAGE 2</b>	Commitment	Availability of Internet access	Availability of internet access
	Personal Innovativeness	High internet connectivity	Positive impact on business
	Resource investment	Availability / affordability of Device Technology	Affordable device technology
	User satisfaction	Effectiveness	Regulatory Cashless Policy
	Personal Innovativeness	Perceived Usefulness	Increased publicity
	Perceived Usefulness	Technology Popularity / Technology Cluster	Perceived ease of use
	Facilitating Conditions	Keep up with trend / Social Influence	Suitability for business
	Perceived Enjoyment	Increased popularity	Lack of trust
	Connection speed	Customer acceptance	Supplier reluctance
	Perceived credibility	In vogue, general acceptance	Perceived value
	Design aesthetics	Perceived Value	
	Hardware and Handsets	Convenience	
	Social Influence	Suitability “appropriate” for business	
Culture	Regulatory Policy - Cashless Policy		



		Profitability	
		High Cost of Technology	
		Security fears	
<b>STAGE 3</b>	Reliance on cash payment	Effectiveness (scope / coverage / reach)	Increased publicity
	Media cost	Global Trend / Social Influence / Culture	Positive impact on business
	Capital Investment	Customer awareness	Global Trend / Commitment
	Readiness	Customer acceptance	Emphasis on physical contact
	Personalization	Positive Impact on business	Personal Innovativeness
	Customer Control	Effective Security Feature	High cost of technology
	Peer Influence (WoM)	Personal Innovativeness	Limited training and support
	Past Adoption Behaviour	Access to Orientation, training and support	
	Trust in services	Commitment	
	Relative Advantage	Capability and Trainability	
	Content Quality	Perceived Security risks	
	Transmission Process	Low level of technology literacy of consumers	
	Technology Cluster		
	Network Infrastructure		
	Integrity of Transactions		
Security			
Social Norm			
Lack of Technical Expertise (Policy Makers)			
<b>STAGE 4</b>	Privacy	Meet International standards / Social Norm	Personal Innovativeness
	Risk Taking Ability / Drive	Regulatory Policy - Cashless Policy	Keep up with Global Trend
	Perceived risk	Presence of Trust / Confidence	Positive impact on business
	Compatibility	Access to credit facility for customers	Security fears / Change of orientation need

	Perceived Value	Cultural emphasis on personal relationships	Impact of Regulatory Cashless Policy
	Perceived self-efficacy	Positive change in public Orientation	Cultural emphasis on physical contact
	Observability (Visibility)	Increase trust	Ease of use
	Regulatory Policy	Personal Innovativeness	Limited training
		Positive Impact on business	Access to credit facility / loyalty cards
		Profitability	High cost of technology
		Ease of Use	Limited awareness
		Presence of Training	High transaction cost
		Relevance to business type / Suitability	

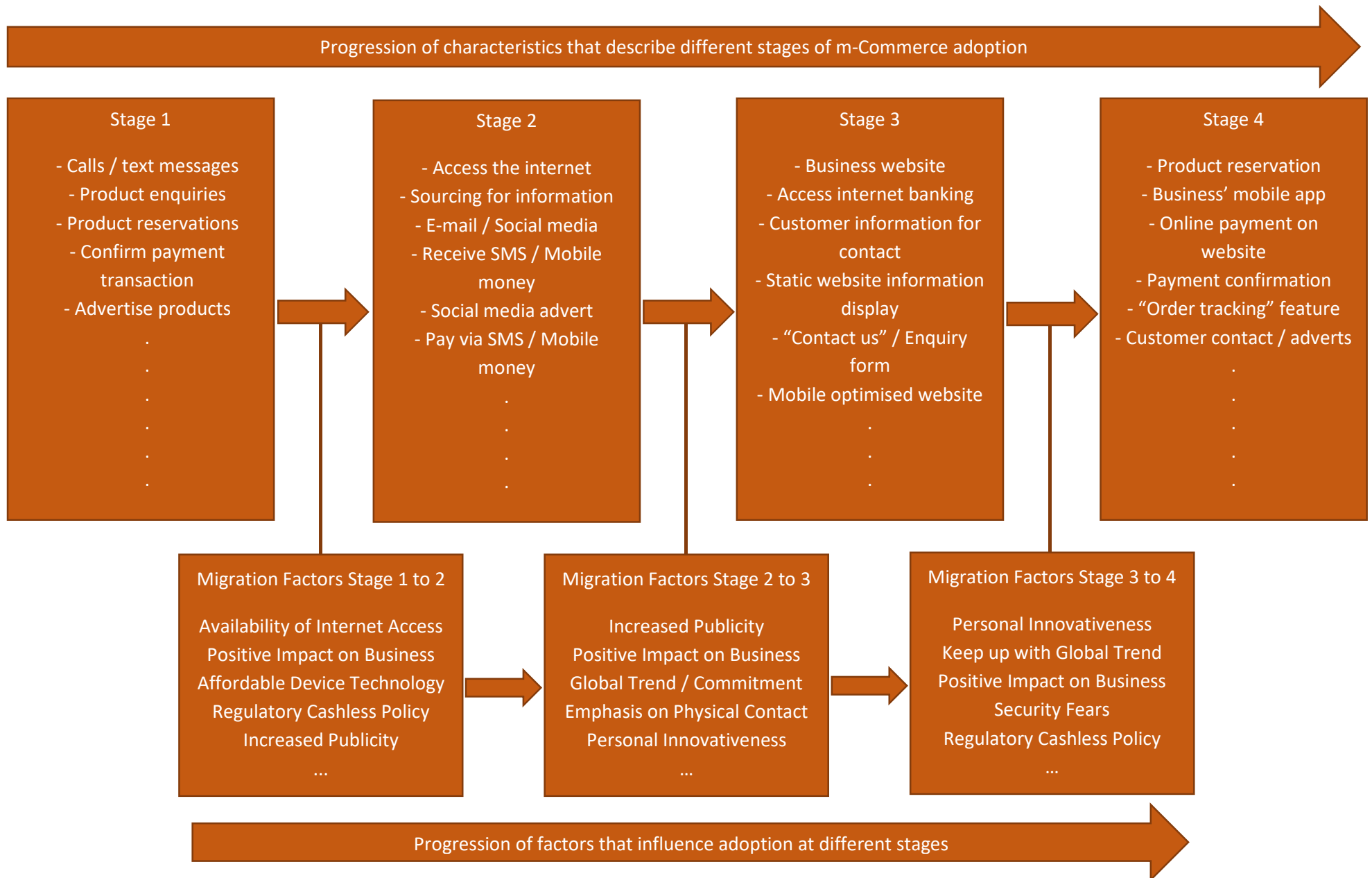
*Table 35: Differences between Factors identified from Literature, Interview and Surveys*

## **6.5 Presentation of Model C**

Following the design of Model B in chapter 5, it was necessary to further test the model on a wider sample of the target population through the use of survey. Within this chapter, the results of the survey were presented. From the results, an updated version of Model B was designed which captures information gathered from the survey results. Although Model B was found to be more representative of adoption trends by micro and small businesses in Nigeria, Model C presents a more accurate picture of the characteristics and factors that influence m-Commerce adoption by this target population across the different stages. Based on the data presented in section 6.4.2, the characteristics of the businesses within the four stages of the model was populated. Similarly, data presented in section 6.4.5 was used to populate the top 5 migration factors that are captured within the model. Hence, Model C can be considered as the tested model of m-Commerce adoption by micro and small businesses in Nigeria. Therefore, being the final model of this study, from this point forward, the use of the term “the model” shall be interpreted as Model C, unless otherwise specified.

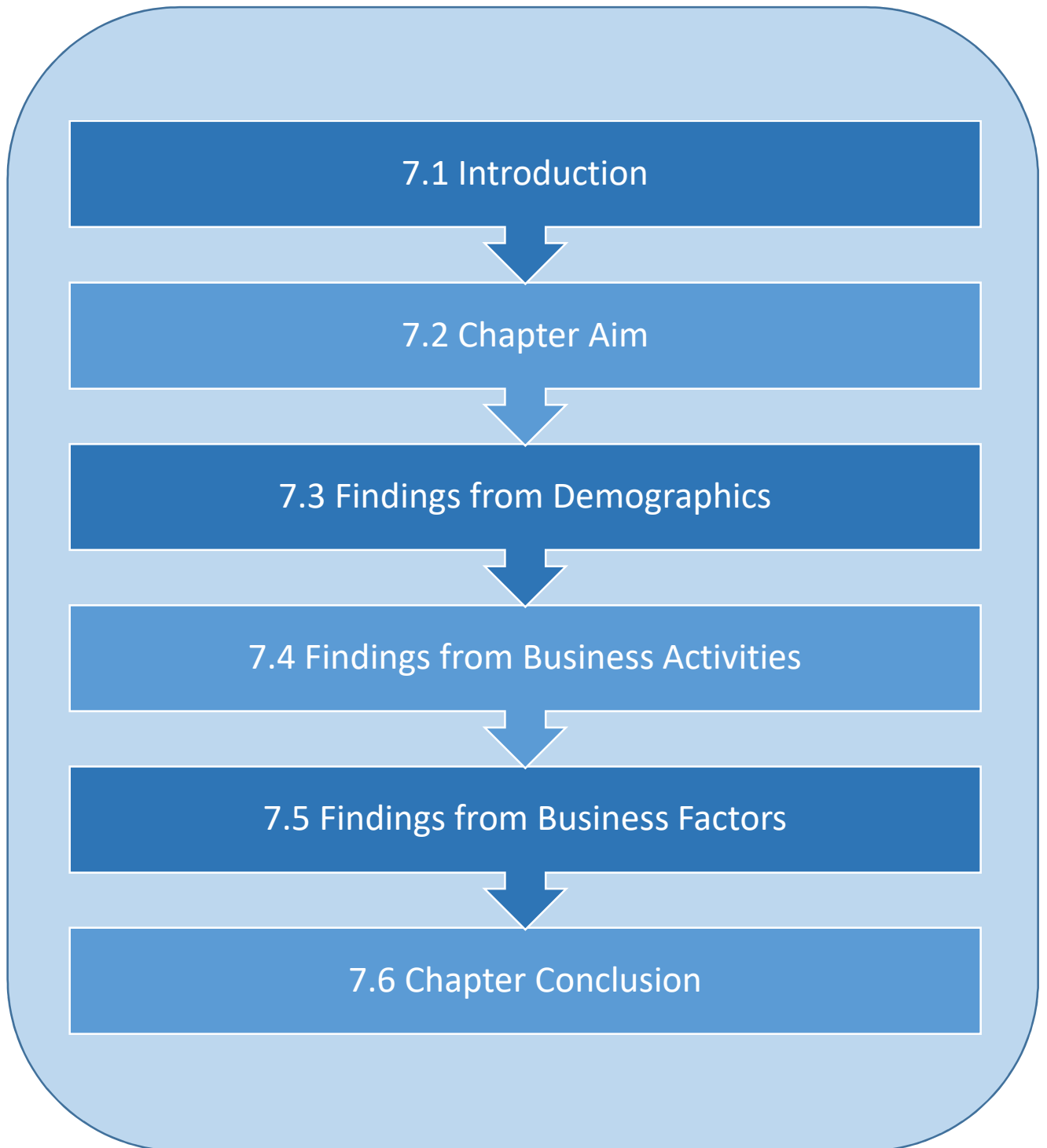
## **6.6 Chapter Conclusion**

This chapter sought to present results of the survey that was conducted on 230 micro and small businesses in different parts of Nigeria. Although only 197 responses were completely filled, responses were presented in order to identify the factors that most of the surveyed businesses agree on. This is because these factors are more likely to influence the migration of most businesses than factors that only a few of the interviewed businesses suggested. Therefore, the chapter only sought to present the data through the use of tables and figures without any explanations or discussions of possible implications. Nonetheless, summary of findings in this chapter will be used to inform the discussion in the next chapter.



*Figure 27: Model C - The Tested Model of m-Commerce Adoption by Micro and Small Businesses in Nigeria*

# OVERVIEW OF CHAPTER SEVEN



# CHAPTER 7

## DISCUSSION OF FINDINGS FROM SURVEY

### **7.1 Introduction**

The previous chapter provided descriptive insight into the data that was collected through the survey. Considering that the data was categorical in nature, the most effective way to analyse the data is by placing results into different groups in order to observe different trends or patterns (Peters, 2015). Also, categorical data may be analysed through the use of tests such as chi-square, chi-square goodness-of-fit, Fisher's exact test, etc. (UCLA: Statistical Consulting Group, 2014). However, due to the nature of responses, it was most beneficial to descriptively analyse the data as this provided richer insight to the data than other categorical tests. Further explanation is provided in Appendix 7. Therefore, through the use of Microsoft Excel, various relative frequency statistics were conducted and presented in various tables and graphs. However, possible meaning, interpretation or implications of the results were not discussed in that chapter. As such, this chapter will systematically go through the data presented in the previous chapter in order to discuss the findings within the context of the research.

### **7.2 Chapter Aim**

This chapter seeks to discuss possible meaning and interpretation of data collected through the survey.

### **7.3 Findings from Demographics**

The data collected from the survey was divided into three parts. The first part sought to collect information about the businesses and their respective respondents in order to identify possible trends in the businesses and respondents that took part in the study. From the responses, 2 major trends may be observed. The first trend borders around the presence of a technology age of businesses and the second trend borders around the seemingly high value placed on education within the Nigerian environment. These trends will be discussed in details in the following sub-sections.

### 7.3.1 Technology Age

From the demographics, it may be observed that most businesses were between 1 – 5 years old (Table 6). Also, Stage 2 that involves the use of internet technology had the highest number of businesses (Appendix 8.1). This shows that although most of these businesses are young, they have moved beyond minimal use of mobile phones for business related calls and text messages to the use of internet technologies to support their business. While this trend may be attributed to the fact that most of the respondents were between the age of 26 and 45 years (Table 6) and are arguably more open to increased use of technology, this trend can also be attributed to the timing of the business setup. This is because between 2011 and 2015, Nigeria experienced rapid growth in her uptake of mobile telephony from 68.49% to 107.87% (NCC, 2016). More so, the number of internet subscription has continued to steadily rise from 27.69 million in November 2012 to 97.03 million in December 2015 (ibid). Therefore, considering that most of these businesses were set up at a period when Nigeria was experiencing a boom in the uptake of mobile telephones and internet subscriptions, their trend of mobile phone usage within the business could have been influenced by the growth within the mobile phone industry. Therefore, these businesses may be said to have benefitted from being set up during a favourable technology age in Nigeria.

Furthermore, like in most parts of the world, the use of social media has gained popularity in Nigeria over the last 5 to 6 years and is starting to play a vital role in Nigeria (Reid, 2015) as more individuals, including celebrities and government officials have become accustomed to using social media to communicate. Therefore, businesses set up during the period of this transformation are likely to engage in the use of social media within their business. This is because, businesses have become increasingly aware of the potential benefits of using social media to relate with existing customers while seeking the attention and interest of new customers (Saleh, 2014; Meuter, McCabe, & Curran, 2013; Park, Rodgers, & Stemmler, 2011). As a result, it is no surprise that these businesses are operating a model that aligns with the technology age in which they were set up.

A study conducted in the late 1990s reported that while the use of internet in businesses was on the rise at that time, information technology managers struggled to evaluate its benefit within the organisation (Feher & Towell, 1997). Perhaps businesses that operated during that time had limited incentives to adopt the use of internet within their business as most social media platforms were not present at the time, changes in technological advancement has also impacted on businesses' decision and interaction with the internet. Recent studies that researched on the effectiveness or benefits of using Facebook to get the attention of a target audience for different purposes returned mostly positive results (Kapp, Peters, & Oliver, 2013; Park, Rodgers, & Stemmler, 2011). Therefore, it is not surprising to observe an increased popularity of the use of internet, particularly social media among businesses today.

### 7.3.2 Emphasis / Value of Education

From the data presented on the demographics, it may be observed that the highest occurrence of businesses in the survey are those operated by retailers and sole-traders (Table 6). Given this trend, one might expect to see a high number of respondents with limited educational qualification. However, it may be observed that a significant proportion of respondents are graduates. This is because, unlike some other countries like UK where more emphasis is placed on skills than on certificates, Nigerians tend to place more emphasis on certificates, even though the Nigerian educational system has suffered a number of setbacks such as corruption, poor legislation, strike actions, etc. (Lawal, 2013). As such, irrespective of the vocation or career path an individual might choose, they are usually advised to get a university education first except in situations where funds are limited to support such decisions. Interestingly, even when funds are limited to support the acquisition of educational qualifications, there are many people in Nigeria who get into different trades or businesses as a means towards attaining an educational qualification. The story of Ayodele Daniel Dada who recently graduated with all As from the University of Lagos despite having to struggle and work in order to sponsor himself (Adebayo, 2016; Adeleye, 2016; Adesulu, 2016), reflects the situation of many Nigerians who strive to obtain a degree in spite of difficult circumstances. Another story that illustrates the emphasis of Nigerians on education is that of Jumoke Orisaguna who recently gained popularity as the bread seller cum top model (Busari, 2016). Although she has been made the ambassador of different brands (Johnson, 2016) and was even offered a new apartment by a Luxury Real Estate Company (BellaNaija, 2016), one of the priorities of her sponsors was to send her back to the classroom (Kolade, 2016) which was also echoed by several Nigerians who suggested that “without education, she will not go far” (Apphiaanna, 2016). This portrays a difference in the culture and perception of Nigerians towards educational qualification compared to some other countries like UK.

Figures released by the Office of National Statistics showed that in 2015, there were 26.31 million employees in the UK but only 4.47 million were self-employed (Office for National Statistics, 2015). This reflects a trend where only about 17% of the working population are self-employed in the UK. Although the report did not state the number of graduates who are self-employed, statistics from a separate report released in 2013 may be used to provide an indication of the trend of self-employed graduates in the UK. In the 2013 report, it was found that only 38% of the people in the UK were graduates (Office for National Statistics, 2013). While an update to this figure might reflect an increase in the number of graduates in the UK, the current trends suggests that more graduates are taking up graduate positions rather than being self-employed which is a contrast to the current picture in Nigeria.



Given the current levels of unemployment within the country, many Nigerian graduates are choosing to be self-employed rather than seeking graduate positions or “conventional salaried employment” (Adesulu, 2015). The General Overseer of RCCG<sup>17</sup> (Pastor Enoch A. Adeboye), “one of Africa's largest and most influential Christian movements” (Margolis, 2016) recently echoed the popular advice to young people in Nigeria by encouraging them to “learn a trade and engage in entrepreneurship instead of waiting for the government to provide jobs” (Ugwuanyi, 2016; Nwodo, 2016). However, while it might seem logical to invest in business opportunities rather than in education since many graduates end up as business owners, it may be argued that the process of getting a formal education contributes towards developing young minds and creating exposures that impacts on various aspects of life and industry.

Although Onu et al. (2012) found that Nigeria operates an educational system that leans towards the development of the left-brain for critical thinking at the expense of the development of the right brain for creativity; it may be argued that various aspects of the educational system creates exposures and experiences that could contribute towards the development of creativity which is needed in business. For instance, in recent times, many self-employed graduates have moved beyond conventional use of Facebook and Twitter to identify other creative ways of supporting or promoting their business. One such avenue is through the creation of short comedy skits with an advert at the end of the video which is intended to increase the reach of the advert as the video becomes viral. Some business owners are also making use of BBM (Blackberry Messenger) channels as a platform to market their business or advertise other businesses at an agreed cost. Considering that new trends often become popular within student communities, students then get exposure, and ideas that they may not have got otherwise. More so, within university communities, various societies and institutions organise career events that inspire and motivate students towards identifying various ways to effectively utilise the resources they have to create wealth. As such, it is no surprise that most of the businesses in the survey are owned or managed by graduates, retailers and sole-traders and are mostly within Stage 2 of the m-Commerce adoption spectrum.

Although it is encouraging to see that most of the businesses are currently in Stage 2 of the m-Commerce adoption spectrum, a different pattern of adoption might be observed if a similar study is to be conducted on small businesses within a developed country like UK. This is because developed countries tend to be considered as early adopters of technology while developing countries are considered as late adopters of technology (Datta, 2011). As such, conducting a study on the pattern of m-Commerce adoption among small businesses in developed countries is likely to present a different pattern of increased levels of adoption among the businesses compared to the

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<sup>17</sup> RCCG means Redeemed Christian Church of God

pattern observed in this study. For instance, a study conducted in 2002 on the level of e-Commerce adoption among small and medium businesses in UK found that the number of businesses within each stage increased from stage 1 to stage 4; that is, of the businesses that took part in the study, stage 4 had the highest number of businesses (Daniel, Wilson, & Myers, 2002). Although the study focused on e-Commerce adoption, the fact that the level of adoption increased from the lowest to the highest, and stage 4 that had the highest count of businesses includes activities such as online payment capabilities through the website, it is clear that the pattern of adoption of technology varies between developed and developing countries.

## **7.4 Findings from Business Activities**

Following the stage model, businesses were given the opportunity to identify various m-Commerce activities they engage in. Through the activities they identified, these businesses were classed into particular stages. As such, the highest stage where they ticked at least one activity reflected the stage they are currently migrating to. For instance, if a business ticks 4 activities in stage 1 and ticks 2 activities in stage 2, through this response, such business was placed into stage 2 because that is the highest stage that includes activities they currently engage in. However, from the results presented in the previous chapter, some trends may be observed which will be discussed in the following sections.

### **7.4.1 Stage Migration vs. Stage Outgrowth**

From the data on the activities that businesses engage in, it may be observed that the most popular activity that was ticked by all the respondents is utilising mobile devices to make business related calls and send text messages (Table 7). Given that this activity was ticked by about 95% of all the respondents in the study, it may be inferred that for most of the businesses, irrespective of their current level of adoption, they still engage in at least one activity in stage 1. This might also be the case for subsequent stages. For instance, a stage 3 business is likely to engage in stage 2 activities such as using their mobile devices to access the internet. Similarly, a stage 4 business might engage in stage 3 activities such as having a website or accessing internet banking. This then means that the pattern of migration from one stage to another does not reflect an outgrowth of previous stages; rather, businesses tend to increase their m-Commerce adoption activities or progress to more effective ways of conducting activities that aligns with previous stages of adoption.

The trend observed among the businesses in this study is similar to the e-Commerce stage model developed by Rao et al., 2003. From their study, they indicated that at later stages of adoption, model cost, technological demands and complexity increases. This shows that the stages evolve in terms of complexity, cost and demands, rather than changing completely. Furthermore, they suggested that although their model appears sequential, companies can leapfrog earlier stages in order to accelerate their development process. Nonetheless, it is expected that issues relating to previous stages must have been addressed. This reflects an update to the study conducted by Daniel, Wilson & Myers (2002) where it was concluded that SMEs adopt e-Commerce in a series of sequential stages from Developers to Communicators to Web Presence to Transactors. However, in both studies, it may be observed that although the stage model of e-Commerce adoption is progressive, businesses do not outgrow previous stages because they are expected to still conduct some activities that relate to previous stages. For instance, businesses at the second stage are likely to still have content on their websites and also make use of e-mails. Similarly, businesses in stage 3 are still likely to have profiles, order placing features as well as cookies even though they now have payment facilities. This is similar to the m-Commerce adoption trend observed among micro and small businesses that took part in this study and might also be the trend of most micro and small businesses seeking to adopt m-Commerce within a developing country like Nigeria.

During the interview that was conducted in phase 1 of this study for instance, the only stage 4 business that was interviewed alluded to the fact that when orders come through the website, they still have to make certain calls to different arms or departments of their business in order to ensure that the order is fulfilled. As an example, the independent transport company would need to be alerted of a new job via telephone. Also, during the interviews some of the stage 2 and 3 businesses mentioned that they usually make use of their mobile phones to advertise products. This was particularly prominent for businesses in the Northern areas of Nigeria experiencing civil unrest. Considering that some businesses have been left with no option other than to operate incognito, the use of mobile phones to make calls and send text messages is a vital part of their business operations. Furthermore, some other businesses attested to the fact that they often use their mobile phones to celebrate with customers as this is perceived to have a positive impact on the business. These practices lend credence to the possibility that as businesses advance in their adoption on m-Commerce, they do not necessarily outgrow activities that relate to previous stages of adoption, rather they increase existing functionalities.

This is also similar to the developmental pattern of e-Commerce evolution that was defined by Molla, 2005. In his description of the different levels of e-Commerce adoption, a progressive pattern of evolution may be observed from the first level to the last. In his description, businesses progress from having a static website for information dissemination in Stage 1; to having an

interactive website for information exchange in Stage 2; to having a transactional website for purchases and customer service in Stage 3; and then having a website that is integrated with suppliers, customers, bank office systems etc. in Stage 4. From this description, it may be observed that businesses do not outgrow previous stages. For instance, a stage 2 business is still able to disseminate information through the website although there is the option of a 2-way communication. Similarly, a stage 3 business is still likely to provide search features and the option of making enquiries or placing orders even though customers can now pay for their products on the website.

#### 7.4.2 The Rise of Mobile Money

Mobile money has been defined as the provision of financial services such as payments (e.g. peer-to-peer transfers), banking (e.g. account balance enquiries) and finance (e.g. insurance products) through a mobile device (Donovan, 2012). From the study, it may be observed that more than half of the respondents who answered questions relating to Stage 2 identified mobile money as one of the means through which they receive payments within their business (Table 8). This reflects a growing appreciation of the use of mobile money as a means of payment rather than relying on cash transactions. Previous studies indicated that one of the factors that influence m-Commerce adoption in developing countries is the heavy reliance on cash (Saidi, 2010). However, from these figures, it is clear that there is a growing shift from reliance on cash payment to adoption of virtual methods of payment. One of the reasons for this trend may be attributed to the Nigerian government's effort towards making Nigeria a cashless economy.

In 2012, the cashless policy was introduced as a way of reducing the amount of physical cash circulating within the economy (Central Bank of Nigeria, 2012)<sup>18</sup>. As a result of this policy, CBN's 2014 half year report on the economy, shows that the amount of currency in circulation fell by 15.7 per cent in 2014 and 12.6 per cent in 2013 (CBN, 2014). This shows that the policy has been effective in reducing the amount of cash in circulation. Consequently, there appears to be an increasing interest in other methods of payment in order to avoid paying the cash handling charges associated with cash transactions that exceed the set limit. Insightfully, during the interviews conducted for this study, some of the businesses alluded to the fact that the cashless policy is a factor that has influenced their considerations of virtual means of payment such as mobile transfers. Although the number of businesses that make payments through the use of mobile money is not as high as the number of businesses that receive mobile money payment, the survey figures are

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<sup>18</sup> CBN (online) <http://www.cenbank.org/cashless/> Accessed on 21/03/2016

reflective of the fact that mobile money is becoming a popular means of handling payments among micro and small businesses in Nigeria.

#### 7.4.3 Limited Use of Websites

From the survey statistics presented in the previous chapter, it may be observed that only about 25% of the 197 businesses has a website (Table 9). This shows that although Nigerian businesses are gradually embracing technology and advancing in their use of internet facilities to support their business in some way, micro and small businesses in the country are yet to embrace the use of websites to support their business. Surprisingly, of the 48 businesses that have a website, only 21 businesses provide the option of product reservation through the website and only 14 of those websites have payment options. This reflects a very low uptake or utilisation of websites among this group of businesses. This could also support the stance that micro and small businesses in developing countries like Nigeria tend to align with an m-Commerce related business model than with an e-Commerce related model. Therefore, prospective micro or small business owners in Nigeria might find it more beneficial to adopt an m-Commerce related business model than an e-Commerce model. One reason for the observed trend of limited use of websites by micro and small businesses could be the size of the business.

A meta-analysis of information technology implementation in small businesses found that size is an important determinant for the adoption of computer-mediated communications technologies (Premkumar, 2003). This is because larger organisations have more resources and expertise that could support the implementation of information technology within the business (ibid). A similar study conducted by Bruque & Moyano (2007) also found that size was an organisational factor that influenced the adoption of information technology by family and cooperative firms. Although these studies were not limited to the adoption of any particular technological concept such as e-Commerce or m-Commerce, the findings suggest that organisational size can influence the adoption of any given technology due to a limitation in the resources at their disposal, compared to larger firms. Within the context of this study, the resources required to develop, maintain and support the use of a website within the business could be a deterrent for these micro and small businesses. As such, having a website might be considered as a can-have or nice-to-have option rather than a must-have or important aspect of their business.

In addition, most micro or small businesses tend to gain exposure and popularity within the local community where they are set up. As such, a significant proportion of their customer base tends to consist of local residents who walk into the store to purchase their desired item. Hence, besides the

fact that purchasing goods in store is probably within walking distance of these local residents; over time, they tend to build relationships with the store owners, managers or attendants such that shopping in store provides unique experiences that are usually absent or minimal in online shopping experiences. Consequently, these businesses have less inclination to set up websites because it is perceived to deliver less benefit to the business.

Another possible reason for this trend may be attributed to the influence of the Nigerian customer. Considering the popular allusion that “the customer is king”, businesses often tend to place their customers at the centre of their considerations and decisions. As a result, the perception, opinion or acceptance of new and existing customers is valuable to any given business venture. Therefore, irrespective of what other businesses might be doing, if a business observes a particular pattern among their customers, they are more likely to be influenced by that pattern than by any trend observed in other businesses unless such trends may be adapted within their business context. In the same vein, the peculiarities of the Nigerian customer is likely to influence Nigerian businesses than innovations being adopted by similar businesses across the world, unless such innovations may be aligned with the peculiarities of the Nigerian customer. As such, prospective micro or small business owners / entrepreneurs should be aware of such peculiarities in order to avoid investing in a course of action that might yield marginal returns. For instance, in developed countries, it might be expected that having a website is part of the process of setting up a business; perhaps because the environment is largely influenced by high level of technological adoption. However, in developing countries like Nigeria, it is not uncommon to see businesses thrive without owning a website, which reflects one of the peculiarities of the typical Nigerian customer – preference for see and feel approach to the conduct of commercial activities than engaging in virtual methods of conducting commercial activities.

Another observable peculiarity of the Nigerian customer lies in the fact that they tend to be sceptical or less trusting of virtual conduct of commercial activities (Akintola, Akinyede, & Agbonifo, 2011; Obe & Balogun, 2007). One reason for this may be attributed to a natural resistance to change or less willingness to take risks as a result of negative word of mouth, which often creates negative perception about the conduct of virtual commerce. Furthermore, the current shopping pattern of the typical customer can also be a reason for their limited use of websites. Micro and small businesses tend to attract shoppers in store for different reasons. For instance, there are some customers who have limited access to internet and would rather shop in store than use up their mobile phones’ browsing data to shop online. However, there are also customers who might be able to afford buying as much browsing data bundle as they want but might have domestic staff who are responsible for purchasing items from such micro or small businesses. In addition, there might also be customers who can afford as much browsing data to visit as many websites as they might want but are already

accustomed to shopping in store or might find it more convenient to shop in store. This current trend of the Nigerian customer to shop in store rather than online often means less motivation for these businesses to create websites as they might currently not be able to attract as many customers online as in store. Nonetheless, the fact that some businesses are setting up websites shows a potential for micro and small businesses to eventually get accustomed to creating websites as this becomes more popularly accepted by the Nigerian customer in future.

#### 7.4.4 Increasing Popularity of Mobile Application

Having observed a trend of limited use of websites, it is interesting to observe a different trend in the adoption of mobile applications among the surveyed micro and small businesses. Although only 17 of the 35 Stage 4 businesses indicated that they have mobile apps, it is fascinating to see this as the second most popular characteristic of the Stage 4 businesses (Table 10). While it might be difficult to emphatically state the reasons why businesses in this stage are investing more in mobile apps than in getting fully functional websites, this trend could be a reflection of the unique pattern of m-Commerce in a developing country like Nigeria.

Considering the increasing level of mobile phone uptake in Nigeria from one year to the next (NCC, 2015), businesses are beginning to adopt innovative ways of reaching, attracting and interacting with customers through mobile platforms. Some businesses are leveraging existing mobile apps to support their business. For instance, given that Whatsapp is one of the most popular apps being used in Nigeria (Cyberwaver, 2015; Idowu, 2014), it is gradually becoming popular for businesses to have Whatsapp installed on their business line in order to provide a means for customers to contact them. In recent times, in addition to advertising their Facebook, Instagram and Twitter accounts, some micro and small businesses also advertise numbers for their Whatsapp account (See Appendix 10). Also, Blackberry Messenger (BBM) is another mobile app on Android Playstore that is being leveraged by micro and small businesses to interact with new and existing customers. One popular way that micro and small businesses are using BBM to support their business is through the use of BBM channels. Some entrepreneurs create BBM channels where they post different content and also advertise their goods (See Appendix 10.2). Some businesses also make use of BBM channels with large followers to advertise their business or particular products they have in stock (See Appendix 10.2).

However, some businesses are taking their use of mobile apps to a different level by creating an app for their business. Through this app, customers can relate with the business and access various features that are similar to those obtainable on a website. Although the number of businesses

creating their own apps is low, compared to the number of businesses that are leveraging on existing mobile apps, the fact that the creation of mobile apps is the second most popular characteristic of Stage 4 businesses suggests that there is a potential for mobile apps for micro and small businesses to become more popular in the future.

## **7.5 Findings from Business Factors**

Having considered some of the findings from the business activities, this section will focus on some findings from the business factors. These findings have been split into various categories. First, factors that will be removed because most current adopters ticked “Disagree”, and as such, did not agree to the influence of these factors at the different stages will be discussed. Then, factors to be retained within each stage will also be discussed. However, considering that some factors occurred in more than one stage, the factors will be discussed individually, rather than discussing them on a stage by stage basis. In addition, a discussion around the difference between current factors and factors identified from literature will be presented, as well as discussion around the level of impact of each factor. However, before the conclusion, unique factors that influence m-Commerce adoption in the target population will be discussed.

### **7.5.1 Current vs. Past Adopters: Factors to be Excluded from the Different Stages**

At all stages of adoption, it may be observed that there were differences between the factors identified by current and past adopters (Tables 19 to 30). These differences could be a reflection of changing conditions. For instance, the uptake of smartphones are becoming increasingly popular; therefore, in the past where internet access was largely limited to cyber cafes and a select few, the increasing penetration of smartphones and competitive bundle offers has made the internet more accessible. Therefore, in order to further understand these differing opinions, factors to be removed from each stage, based on the report of current adopters will be discussed. It is worth noting that for all the factors that are to be removed, less than 50% of past adopters in each stage agreed to the influence of these factors on their adoption at those stages. Again, this could be an indication that the influence of the changing environment has gradually limited the impact of those factors to a point where they may be safely considered non-significant.



### *7.5.1.1 Limited Training*

Limited training is one of the factors to be removed from the list of factors that influence m-Commerce adoption in stage 1 and stage 2. This is because in both stages, most of the current adopters were not sure of its impact on their adoption (Tables 20 and 24 respectively), which might be an indication that this factor had little or no impact on their adoption. Although the responses of current adopters is in contrast with the responses of past adopters (Tables 22 and 24 respectively), possible explanations for this trend may be associated with the increasing penetration of smartphones within the country (Ajanaku, 2015; Ekpeke, 2015); the nature / complexity of activities that characterise stages 1 and 2; and the level of education among the respondents. One reason why increased adoption of smartphones may be an explanation for this trend might be because an increase in the popularity or adoption of a particular technology is likely to result in an increased proficiency in the use of that technology. Therefore, as more people embrace the use of smartphones and other mobile devices, they become proficient in their use of mobile phones and also become aware of different ways they can use their mobile phones. As a result, the need for training on how to conduct m-Commerce activities related to stages 1 and 2 becomes limited. For instance, stage 1 activities relate mostly to the use of voice call and text message features of mobile phones to conduct m-Commerce (Figure 9). While most adopters of mobile phones are likely to be familiar with these features, their additional use for product reservation, product enquiries and payment confirmation might become evident with more use of the mobile phones or interaction with other businesses that conduct these activities.

Similarly, when it comes to stage 2 activities, the impact of increased adoption and consequent popularity becomes more prominent as these are activities that require more information and more conscious decisions need to be made. Therefore, as more people and businesses engage in these activities, it increases awareness and proficiency in more advanced use of mobile phone features in order to engage in these activities. As a result, the need to train people on how to engage in these activities becomes limited. More so, considering the educational level of the participants (Table 6), navigating through these mobile phone features or engaging in these activities might be a self-explanatory process which again means limited need for training. For instance, for most of the respondents, surfing the internet, accessing Facebook or transferring funds through text messages are activities they are already familiar with, therefore transferring this skill within the context of their business should not require additional training.

From the foregoing, while it might seem obvious that little or no training is required to engage in the activities that characterise stages 1 and 2 of the m-Commerce adoption spectrum, the fact that this factor will be dropped based on the response of current adopters aligns with literature. According to Zhang et al., (2002), the focus of m-Commerce should be on delivering simple, time-

sensitive and compelling applications that do not require lots of training. Therefore, within the context of these first 2 stages, engaging in these activities aligns with this recommendation because they are simple and do not require lots of training to adopt. Furthermore, although the number of past adopters that agreed that limited training was a factor that influenced their adoption was higher than the number of past adopters that ticked the Disagree or Not Sure option, it is worth noting that the percentage of respondents that ticked the Agree option was less than 50% (Tables 20 and 24). This could also be an indication that this factor had minimal impact even among past adopters of stage 1 and stage 2.

#### *7.5.1.2 Customer Reluctance*

From literature, customer acceptance has been identified as a factor that influences m-Commerce adoption (Watson et al., 2013; Amin, Amin, & Patel, 2011; Shin, 2009; Luarn & Lin, 2005). However, from the responses of current adopters of m-Commerce in stage 1 and stage 2, it appears that customer acceptance has limited impact on the adoption of m-Commerce activities related to stages 1 and 2 of the adoption continuum. This is because, most of the current adopters of these stages indicated that they were not sure of the impact of customer acceptance of m-Commerce on their decision to adopt m-Commerce (Tables 20 and 24). Just as supplier reluctance / acceptance was found to have limited impact on businesses' decision to adopt m-Commerce at these stages, it may be argued that customer reluctance / acceptance also has limited impact on businesses' decision to adopt m-Commerce at these stages due to the nature of activities that are conducted at these stages.

Within the Nigerian context, given the emphasis on personal relationships in business transactions, it is not unusual for businesses to call or send courtesy messages to their customers during different occasions like birthdays, weddings, graduations, loss of a loved one, etc. Sometimes, these businesses might even call or send text messages just to show that the business is not only interested in financial gains from the customer but truly cares about them and their family. Although this could be a market strategy, the fact still remains that within the Nigerian culture, businesses tend to have more freedom to contact their customers unlike some other cultures where this might be considered intrusive. As such, businesses do not necessarily have to seek consent in order to contact their customers, particularly when it's for a business related discussion that could even benefit the customer such as discounts and promos. Furthermore, from the responses, 66% of the businesses indicated that they use their mobile phones to receive product reservation through calls / text messages (Table 7). In this case, the business will be excited to receive such calls / messages. Therefore, it's not surprising to see that most current adopters of stage 1 and 2 activities did not

seem to recognise the significance of customer reluctance on their decision to adopt these m-Commerce activities.

While it may be argued that an effective conduct or adoption of most stage 2 characteristics requires the acceptance of customers, it is not surprising to that this factor has limited impact on the adoption of these stage 2 activities. One reason for this may be attributed to the fact that these activities are already popular among current and potential customers. As such, since this factor, which would have been a deterrent to the adoption of stage 2 m-Commerce activities by businesses has been overcome, it is then logical that this factor be dropped from the list of factors that influences m-Commerce adoption at this stage. Furthermore, beyond the testimony of current stage 2 adopters, from the survey, it may be observed that the percentage of mobile money transactions received by businesses (52.05%) is higher than the percentage of mobile money transactions that is initiated by the business (41.78%) (Table 8). Also, the use of social media in Nigeria continues to increase as evidenced by 13.6 million active social media accounts in 2015 to 15.0 million active social media accounts in 2016 (WeAreSocial, 2015<sup>19</sup>; WeAreSocial, 2016<sup>20</sup>) These figures lend credence to the fact that customers are already embracing the various stage 2 activities; thus, businesses cannot claim that their level of m-Commerce adoption at these stages is influenced by a resistance or reluctance of customers to accept these activities.

### 7.5.2 Current vs. Past Adopters: Factors to be Excluded from Some Stages

In the previous section, factors that will be completely dropped from the list of factors that influence m-Commerce adoption were discussed. However, there are some other factors that will be dropped from some stages but yet retained in other stages. These are the factors that will be discussed in this section. The first factor to be discussed is high transaction cost / charge which was dropped in stages 1 and 2 but will be retained in stage 4. The next factor is supplier reluctance which was dropped in stage 1, but will be retained in stage 2. The third factor is limited awareness which was dropped in stages 2 and 3 but will be retained in stage 4. The last factor to be discussed is suitability for business which was dropped in stage 4 but will be retained in stage 2. Although these factors are to be removed from some stages but included in other stages, it is not unexpected to observe this trend due to differences in the interaction of factors and activities within each stage.

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<sup>19</sup> <http://wearesocial.com/uk/special-reports/digital-social-mobile-worldwide-2015>

<sup>20</sup> <http://wearesocial.com/uk/special-reports/digital-in-2016>

### *7.5.2.1 High Transaction Cost / Charge*

High transaction cost refers to the cost of engaging in m-Commerce. 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, based on the responses of current adopters of m-Commerce, this factor will be dropped as a factor that influences m-Commerce adoption in stage 1 and stage 2 of the adoption continuum. This is because, the percentage of current adopters that disagreed to this factor having an influence on their adoption was higher than the percentage of current adopters who ticked the Not Sure or Agree options (Tables 20 and 24). Although the responses of current adopters is in contrast with the responses of past adopters (Tables 22 and 26), it is clear that this factor had a less significant impact on the m-Commerce adoption of current adopters in stages 1 and 2. One reason for this trend may be attributed to the increasing level of competition that may 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 stage 1 activities such as confirming payment, making product enquiry, reservation or advertisement through calls or text messages has become relatively cheaper.

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 stage 2 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 (NCC, 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<sup>21</sup> (MMOs) (CBN, 2015). One of such guidelines restricts the deduction of transaction charges from customers' airtime (top up balance) and also restricts the application of

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<sup>21</sup> Mobile Money Operators refers to businesses that are licensed by the Central Bank of Nigeria (CBN) to provide mobile money platforms and services in Nigeria

transaction charges on settlement accounts for customers of these Mobile Money Operators (ibid). Therefore, it is not surprising to see that most current adopters did not identify transaction charge as a factor that influence their m-Commerce adoption. As a result, it is logical that this factor be dropped from the list of factors that influence m-Commerce adoption at stages 1 and 2 of the adoption spectrum.

However, cost was highlighted by current stage 4 adopters as one of the barriers that is influencing their increased adoption of m-Commerce (Table 32). Although the percentage of current adopters who concurred to the impact of this factor is minimal (about 37% of current stage 4 adopters), this factor will still be included as a barrier to m-Commerce adoption at stage 4. This is largely because the cost implications associated with adopting m-Commerce in stages 1 and 2, as compared to the cost implications of adopting m-Commerce in stage 4, are considerably different. While in stages 1 and 2, access to mobile phones, internet data and charges for mobile money transfer might constitute the bulk of financial implications or considerations, in stage 4, businesses have to also consider other costs such as the cost of building and maintaining the online platform as well as transaction charges that might be incurred from integrating a payment platform such as PayPal charges, bank charges, etc. Also, businesses 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). Businesses that might consider migrating to more advanced stages of adoption such as location based advertisements, offering loyalty reward schemes, NFC<sup>22</sup> etc. are likely to encounter further cost implications (Ondrus & Pigneur, 2007). Therefore, although transaction cost will be excluded from the factor list for stages 1 and 2, cost implication remains a factor that influences the adoption of m-Commerce in stage 4; hence, it will be included in the factor list for stage 4.

#### *7.5.2.2 Supplier Reluctance*

The possible impact of suppliers’ response or acceptance of m-Commerce on stage 1 businesses’ decision to adopt m-Commerce was picked up from the interviews conducted for this study, when concerns were raised by a stage 1 business about accepting virtual payments from their customers. The reason for this concern was that their suppliers usually demand cash payments, therefore, if they offered customers the option of paying virtually for their goods, they might have problems paying their suppliers because their money “is in the air”. However, from the respondents of current adopters of stage 1, it may be inferred that this factor did not have a significant impact on their

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<sup>22</sup> NFC has previously been defined in Section 2.6.

decision to adopt m-Commerce. This is because most of the current adopters of stage 1 indicated that they were not sure about the impact of supplier acceptance or reluctance to accept the use of m-Commerce.

One reason for this could be because the nature of activities that characterise this stage of adoption may not be influenced by suppliers' stance on m-Commerce adoption. For instance, whether or not their suppliers are favourably disposed to adopt m-Commerce will have little or no impact on businesses' decision to make business related calls or send business related text messages. Unlike some cultures / countries where calls or text messages may be considered intrusive, within the Nigerian context, this is a norm. This is largely due to natural inclination towards building and maintaining healthy personal relationships in such regions as this tends to have positive impact on business activities (Kshetri, 2007; Efendioglu et al., 2005). As such, businesses do not need to seek consent in order to contact their suppliers as a sign of courtesy or for business related discussions. From the responses, 78% of the businesses indicated that they make use of their mobile phones for product enquiries (Table 7). In this case, suppliers will be excited to receive calls or text messages from these businesses as such calls could climax in orders being placed. This aligns with a report from Pyramid Research that found that mobile phones are helping to connect markets and suppliers in both developed and emerging economies (Isiguzo, 2010). Therefore, it is logical that supplier reluctance should be dropped as a factor that influences m-Commerce adoption at stage 1 of the adoption spectrum.

However, in stage 2, about 42% of current adopters indicated that supplier reluctance was one of the barriers influencing their increased adoption of m-Commerce. Although this percentage does not reflect the stance of half of the responding businesses, the percentage of current stage 2 adopters who highlighted this factor are more than the percentage that chose the Disagree or Not sure options (Table 24). This shows that it is worth including this factor in the list of barriers to m-Commerce adoption associated with stage 2. More so, the responses are not alien to findings of previous studies. A study conducted by Boateng et al., (2013) revealed that the m-Commerce benefits obtained by market women tend to be partly influenced by trading partners. Although these trading partners might refer to similar businesses, it could also refer to suppliers. Therefore, considering that suppliers can potentially impact on the m-Commerce benefits obtained by businesses, it is within reason to safely assume that suppliers can also influence m-Commerce adoption which is probably why more stage 2 businesses agreed that supplier reluctance can influence their uptake of m-Commerce. As a result, although supplier reluctance will be dropped from the factors list for stage 1 (Table 20), it will be included as a factor that influences m-Commerce adoption in stage 2 (Table 24).

### 7.5.2.3 Limited Awareness

Within the body of literature, Customer Awareness has been identified as a key success factor for m-Commerce adoption (Alsultanny, 2012; Persaud & Azhar, 2012; Chong, 2013a; Watson, McCarthy, & Rowley, 2013). Therefore, if businesses are to take up certain m-Commerce activities, it is important that they consider the popularity of such activities among existing or potential customers. As such, various studies have recommended that stakeholders including developers and businesses should carry out campaigns that will ensure an increase in the awareness of the ease of use and benefits of m-Commerce (Chong, 2013a; Teo, Tan, Ooi, Hew, & Yew, 2015). However, the responses of current adopters of stage 2 and stage 3 seem to suggest a different trend (Tables 24 and 28 respectively). This is because, it may be observed that most of the respondents indicated that they were not sure of the impact of limited awareness on their decision to adopt m-Commerce activities at their respective stages. Therefore, this response could be a suggestion that limited awareness had little or no impact on their adoption.

One reason for this could be because m-Commerce related activities at these stages have become increasingly popular. Therefore, businesses do not need to contend with creating awareness of such activities in order to reach existing or potential customers. For instance, in stage 2, accessing the internet or engaging in social media activities has become popular in Nigeria, even among celebrities and public figures (SocialBakers, 2016<sup>2324</sup>). Therefore, it is not surprising that current adopters of m-Commerce at this stage did not identify limited awareness as a significant factor that influenced their adoption. Similarly, stage 3 activities are gaining popularity in Nigeria. A study conducted by Agwu & Carter (2014) on mobile phone banking in Nigeria found that most customers perceive mobile banking as being secure and are comfortable with the conduct of mobile banking. In fact, the study predicted that with the right systems in place, in the nearest future, mobile phones will be the most preferred and convenient device for conducting banking transactions in Nigeria. This portrays a trend in Nigeria where limited awareness cannot be said to be a factor that significantly affects m-Commerce adoption at stages 2 and 3 of the adoption spectrum because the m-Commerce activities related to those continues to soar in popularity.

However, limited awareness was flagged as a barrier that influences m-Commerce adoption in stage 4 (Table 32). Nearly half (about 46%) of the current adopters of this stage indicated that limited awareness is a barrier to their increased adoption of m-Commerce. This is not surprising because, considering the nature of activities related to stage 4, there might be a need to raise awareness

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<sup>23</sup> Twitter Statistics for Nigeria accessed on 19/04/2016  
<http://www.socialbakers.com/statistics/twitter/profiles/nigeria/>

<sup>24</sup> Facebook Statistics for Nigeria accessed on 19/04/2016  
<http://www.socialbakers.com/statistics/facebook/pages/total/nigeria/>

amongst potential customers since the popularity of these activities are only beginning to gain momentum. Take the use of mobile application for instance. For every company that creates a mobile application, lots of awareness has to be raised in order to signpost customers to the app. This is because, while customers might be familiar with the use of different apps, they are not likely to be aware that a particular business has an app unless the business creates awareness of their app among their customers. Similar principles also applies to the business' website; if customers are not aware of the existence of that website, they simply won't visit it and this may become a barrier to the business. In the same vein, businesses that intend to advance their uptake of m-Commerce through the introduction of more advanced trends such as QR codes, NFC, etc. will need to create awareness. This is in line with previous research findings. For instance, Watson et al. (2013) found that limited awareness of the benefits of QR codes leads to non-use of QR codes. Similarly, Tan, Ooi, Chong, & Hew (2014) indicated that despite the potential benefits that NFC presents, the use of mobile credit cards are still not widespread. Although the study focused on a number of other factors, limited awareness might be one of the factors that is limiting its widespread adoption. Therefore, in stage 4, limited awareness will be retained as a factor that influences m-Commerce adoption.

#### *7.5.2.4 Suitability for Business Type*

Suitability for business type is a factor that was highlighted during the interviews conducted for this study and was therefore added to the list of factors to be tested through the questionnaire. This factor was identified when a stage 3 business indicated that it was a concern in their consideration of further adoption of m-Commerce. Although a stage 2 business had indicated that this same factor was one of the motivations for their current level of adoption, this factor was included in the list of factors to be tested during the survey. This is because some businesses, like this stage 3 business, might perceive that advanced use of technology might not be suitable for the type of business they operate. For instance, a business that deals with farm products might feel that most of their market women customers might be less inclined to relate with them through the use of technology. Also, some grocery or local stores that tend to attract more customers in store might feel that increased adoption of m-Commerce beyond the regular use of calls, text message and social media might not be effective within their business.

However, it is interesting to see that the testimony of current adopters of m-Commerce activities with respect to stages 2 and 4<sup>25</sup> presented a different picture. From the responses, most of the stage

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<sup>25</sup> Suitability for Business Type was not picked up as a factor in stage 3, hence the comparison between stage 2 & 4



4 businesses disagreed that Suitability for business type was a factor that negatively influenced their current level of adoption (Table 32). On the other hand, most of the current adopters in stage 2 agreed that this factor had a positive influence on their current level of adoption (Table 23). From the responses of current adopters at both stages, it appears that “suitability for business type” is not a barrier; rather, it aligns more as a facilitator of m-Commerce adoption. This therefore reflects a contrast between perceived and actual factors: although some businesses opine that advanced adoption of m-Commerce might not fit within their business context, the responses of current adopters suggests that this stance is perhaps, a perceived, rather than an actual factor.

One reason why some businesses might feel that increased adoption of m-Commerce might not be suitable for their business might relate to concerns around the attitude of their customers or suppliers towards such technology. However, as has been established in sections 7.5.1.3 and 7.5.1.4, such businesses need to be aware that similar businesses are embracing increased use of m-Commerce because of increasing popularity. Moreover, they need not worry about the attitudes of their customers or suppliers towards increased use of technology because studies conducted on different aspects of m-Commerce adoption in Nigeria has revealed favourable disposition of customers (Agwu & Carter, 2014) and suppliers (Boateng et al., 2013) towards engaging in m-Commerce activities.

Although the study conducted by Boateng et al., (2013) revealed that the m-Commerce benefits obtained by market women tend to be partly influenced by trading partners, the study also reported that market women who innovatively adopted m-Commerce activities such as mobile services “stand to reform their market structural processes and become more economically empowered”. Therefore, businesses should not allow their consideration of suitability for business to become a hindrance to their ability to benefit from increased adoption of m-Commerce. More so, the testimony of current adopters should act as a motivation or inspiration that they can also effectively attain any level of m-Commerce adoption they desire within their business. Therefore, while suitability for business type will be dropped as a barrier to m-Commerce adoption in stage 4, it will be included as a facilitator to m-Commerce adoption in stage 2.

### 7.5.3 Current vs. Past Adopters: Factors to be Included in the Different Stages

The previous section focused on factors that are to be removed from the different stages of m-Commerce adoption based on the testimony of current adopters within those stages. This section is therefore, going to turn the spotlight on factors that will remain within each stage based on the testimony of current adopters. These factors include facilitators and barriers that were identified

within each stage. However, considering that some factors influence more than one stage, these facilitators and barriers will be discussed individually, rather than discussing them on a stage by stage basis. More so, it is worth noting that for the facilitators, at least 50% of the respondents agreed that those factors influenced their level of adoption at those stages. This suggests a high tendency for those factors to influence m-Commerce in those stages, given the current socio-economic climate of the country.

#### *7.5.3.1 Availability of internet access*

Internet access may be considered an important platform for the conduct of many m-Commerce activities, particularly activities related to stages 2, 3 and 4 (Figures 10 to 12). Therefore, it is no surprise to see that current adopters of stage 2 highlighted this option as one of the factors that influenced their current level of adoption. From the responses, about 93% of current adopters in stage 2 and 86% of past adopters of stage 2 chose this option (Tables 23 and 25 respectively). This is an indication that this factor is a significant facilitator that influences the adoption of m-Commerce activities related to stage 2. Although this factor was not listed as one of the factors that influence the adoption of stages 3 and 4, it may be assumed that in order to progress to more complex stages of adoption, issues related to previous stages should have been resolved or addressed, even if a business leapfrogs to later stages of adoption. This is similar to one of the assumptions behind the e-Commerce stage model that was developed by Rao et al. (2003). From their projection, they pointed that even though the model appeared sequential, companies can enter the adoption model at any stage, thereby leapfrogging earlier stages. However, they anticipated that in such cases, such companies would have addressed the issues related to the previous stages. In the same vein, availability of internet access is an important factor that determines the adoption of m-Commerce activities related to stage 2, 3 and 4. Although this factor was only highlighted in stage 2, it is expected that the continued presence of this factor is needed to ensure a progression or leapfrogging to subsequent stages.

Beyond the findings of this study, the role of internet access in the support of m-Commerce activities has been identified in literature. A study conducted by Chang, Chen, & Zhou (2009) identified the availability of internet access as one of the drivers of smart phones that enable the conduct of m-Commerce activities. Similarly, various studies have highlighted or corroborated the fact that increasing access to internet on mobile phones has enabled an increase in m-Commerce uptake (Liébana-Cabanillas, Sánchez-Fernández, & Muñoz-Leiva, 2014; Zhou, 2008; Wu & Wang, 2005). This shows that while it is possible to engage in m-Commerce through mobile access to some form of network, access to an internet connection still plays a vital role in the conduct of

certain aspects of m-Commerce. As such, availability of internet access is a factor that can influence the adoption of m-Commerce.

#### *7.5.3.2 Perceived value / Perceived Usefulness*

Perceived value and perceived usefulness are similar in the sense that they both reflect the users' opinion, stance or perspective on the benefits they hope to get from deciding in favour of a particular technology or activity. Although both factors are subjective, they play significant roles in influencing adoption decisions. Previous studies have pointed that perceived value is a significant predictor of customers' intention to adopt m-Commerce (Holmes, Byrne, & Rowley, 2014; Chong, 2013b) and also impacts on customer loyalty (Büyüközkan, 2009). Similarly, previous studies have identified perceived usefulness as a significant predictor of customer behavioural intention to adopt m-Commerce (Agrebi & Jallais, 2015; Shin, 2009).

From the survey responses, it may be observed that most respondents agreed that perceived value / perceived usefulness was a factor that influenced their current adoption. Whether it is acting as a barrier to prevent or limit the adoption of m-Commerce, or it is acting as a facilitator to increase or support the adoption of m-Commerce, it is clear from the responses that this factor plays a vital role in influencing m-Commerce adoption at the different stages. In stage 1, as a facilitator, about 61% of current adopters agreed that perceived value / usefulness influenced their current adoption (Table 19); in stage 2 and 4, as a barrier, about 39% and 63% of the businesses (Tables 24 and 32) respectively indicated that low perceived value or usefulness of certain m-Commerce activities among their customers has impacted on their current level of adoption. The reoccurrence of this factor at almost all stages is reflective of its ability to significantly impact on adoption decision in favour or against almost all m-Commerce activities.

This is also reflective of literature where studies that focused on different aspects of m-Commerce also found perceived value / usefulness as a factor that impacted on the adoption of such activities. For instance, perceived usefulness was identified as a determinant in customers' willingness to adopt the use of mobile shopping websites (Lu & Su, 2009), mobile wallets (Shin, 2009), NFC-enabled mobile credit card (Leong, Hew, Tan, & Ooi, 2013), mobile chat service (Herbjørn Nysveen, Pedersen, & Thorbjørnsen, 2005) and other mobile services (Zarmpou et al., 2012).

Although perceived value / perceived usefulness has been found to influence behavioural intention to adopt most m-Commerce related activities, it is worth noting that from literature, perceived usefulness does not have significant impact on location based services (Chong, 2013a; Chan, 2013).

While similar patterns might be observed if tested within the sample population of this study, it should be noted that this finding does not relate to any of the activities within the stage 1 to 4 of the adoption spectrum being used for this population (Figures 9 to 12). This is because micro and small businesses in Nigeria are yet to advance to more sophisticated m-Commerce activities such as location based services. Therefore, such services were excluded from the model that was developed for this group of businesses. As such, the general findings from literature on the impact of perceived value / usefulness on the decision to adopt most m-Commerce activities is reflective of the findings from the study that perceived value or perceived usefulness influences m-Commerce adoption at the different stages of the adoption continuum.

#### *7.5.3.3 Affordability of device technology*

Cost has been identified as a factor that influences m-Commerce adoption within different literature (Zhang, Zhu, & Liu, 2012; Choi, Seol, Lee, Cho, & Park, 2008; Manochehri & AlHinai, 2006). However, for the user or intending adopter, their varying definition or considerations of cost is likely to determine the level of impact this might have on their decision to adopt m-Commerce. For some users, considerations of cost might relate to transactions (San-Martín, López-Catalán, & Ramón-Jerónimo, 2013); for others, cost might relate to the device that supports such transactions; while for others, cost might relate to both device and transaction (Wu & Wang, 2005).

Although a study by Chong (2013) found that cost is not a predictor of m-Commerce adoption and suggested that emphasis should be placed on other factors of m-Commerce such as trust, quality of network, etc., the study acknowledge that users will be willing to pay for any m-Commerce service if they consider them useful or enjoyable. This buttresses the fact that the perception of customers is still an important factor that influences users' decisions. In this case, it may be argued that users are conducting some form of cost-benefit analysis in order to assess the returns accruable on their decision to invest in the conduct of m-Commerce. More so, the result from that study might be unique to the Chinese market because a similar study conducted on China and Malaysia found that cost was an important factor in Malaysian's decision to adopt m-Commerce (Chong, Chan, & Ooi, 2012). Therefore, in the light of many other studies that have found cost to be an important determinant of m-Commerce adoption, it is may be concluded that cost is a factor that influences m-Commerce adoption in most countries.

From the survey, respondents indicated that the affordability of device technology had a positive influence on their decision to adopt their current level of m-Commerce. In stage 1, where the minimum device technology needed is a feature phone, about 59% of current adopters agreed that

affordability of device technology had a positive influence on their current level of adoption (Table 19). Similarly, in stage 2 where the minimum device technology needed is a smartphone, about 81% of current adopters agreed to the influence of this factor on their adoption (Table 23). In addition to the fact that these figures are similar to the responses of 91% of past stage 1 adopters and 86% of past stage 2 adopters (Tables 23 and 25 respectively), these figures are also reflective of literature findings, as well as current trend of mobile phone uptake in Nigeria. Given the rising level of mobile phone penetration (NCC, 2015) and the increasing uptake of smartphones (The Nation, 2015<sup>26</sup>), getting a feature phone (and also a smartphone) has become more affordable and accessible to a wider population within the country. This in turn has encouraged or contributed towards the conduct of various m-Commerce activities, such as making or receiving business related calls / text messages, sending or receiving mobile money transfers, engaging in social media to promote business ventures, etc. As such, the results indicate that the affordability of device technology does influence the adoption of m-Commerce, particularly at stage 1 and 2 of the adoption continuum.

Although findings of research conducted by GSMA (2015) found that affordability is a concern for many Nigerians, particularly poorer Nigerians, it is worth noting that the concern being referred to includes the cost of obtaining the phone, as well as maintaining regular data access on the phone. This is similar to research that found that internet / broadband access is still unaffordable for many Nigerians (A4AI, 2014). While this might limit the adoption of internet based m-Commerce activities by customers, it is important to note that findings being reported within this study are reflective of business' perspective rather than customers' perspective. As such, some factors that might affect customers' decision to adopt m-Commerce such as design aesthetics (Cyr et al., 2006), etc., might not necessarily influence business' decision to adopt m-Commerce.

In addition, within the context of this study, most business owners / managers are less likely to fall within the category of "poorer Nigerians" being referred to in the GSMA report. This is because the use of mobile phones to support business activities is gradually being considered as a necessity or an integral part of the business, rather than a luxury as evidenced by the number of respondents that indicated that they use their mobile phones for business related calls or text messages (95% of survey respondents). Therefore, obtaining mobile phones for the business is likely to be factored into the start-up costs in situations where the prospective business owner does not already have one. As such, inability to afford the device technology, in this case, cell phones or smartphones, is less likely to be a concern for businesses. On the contrary, the survey responses suggest that the affordability of device technology had a positive impact on their adoption. As a result, considering

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<sup>26</sup> The Nation. (2015). Smartphone penetration in Nigeria hits 30%. Retrieved from <http://thenationonlineng.net/smartphone-penetration-in-nigeria-hits-30/>

that nine in ten Nigerians have a cell phone (Bell et al., 2015), businesses can still engage in m-Commerce activities related to stage 1 and 2 such as making business related calls or text messages and sending or receiving mobile money transfers.

#### *7.5.3.4 Social norm / Global Trend*

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 this study, some literature has highlighted the influence of society on adoption behaviour (Faqih & Jaradat, 2015; Lu, 2014; Hung & Chou, 2014). Therefore, it is no surprise that this factor has also been identified by current adopters of m-Commerce as a factor that influenced their current level of adoption within the different stages.

Within the Nigerian context, the tendency to follow local or global trends is a norm among many Nigerians. This may 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. As one 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 suggests that the natural inclination of many Nigerians towards having a social status can influence their decisions with respect to technology adoption. 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 about 57% of the current stage 1 adopters as a factor that influenced their adoption (Table 19). 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 messages, etc. Also, in stages 3

and 4, the impact of global trend was respectively identified by about 88% and 89% of current adopters as a factor that influenced their current level of adoption (Tables 27 and 31). This reflects 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 may be said to be positioning themselves to reap the benefits that m-Commerce adoption can provide their business.

#### *7.5.3.5 Technology popularity*

The impact of technology popularity is similar to the impact of social norm or global trend. Although different technologies provide the platform for the conduct of different m-Commerce activities, given that technology popularity was identified as a factor by current and past adopter of stage 1 (Tables 19 and 21), it may be implied that the technology being referred to at this point is the cell phone. This is because, the minimum technology required for the conduct of m-Commerce activities related to stage 1 of the adoption spectrum is a cell phone. Therefore, the popularity of cell phones in Nigeria may be considered as a factor that supports the conduct of stage 1 m-Commerce activities by these businesses. The findings of research conducted by Bell et al., (2015) revealed that cell phones are so popular in Nigeria that about nine in ten people have a cell phone. In addition, the report stated that texting is one of the most popular cell phone activity in Nigeria with about 80% of cell phone users making use of their phones to send text messages (ibid). Although the report stated that mobile money transfers are not as popular as texting, the findings of the report corroborates the survey responses because stage 1 activities mostly relate to the use of mobile phones for business related calls and text messages.

#### *7.5.2.6 Perceived ease of use*

Ease of use or Perceived ease of use is a factor that has received much attention within m-Commerce literature. While some studies found that perceived ease of use has an impact on adoption behaviour or intention to adopt m-Commerce (Faqih & Jaradat, 2015; Malik et al., 2013; Shin, 2009), some other studies found that perceived ease of use influences or is influenced by other factors (Zarpou et al., 2012; López-Nicolás et al. 2008; Luarn & Lin, 2005). Although many studies have found a relationship between perceived ease of use and m-Commerce adoption, a study

by Chong (2013) found that perceived ease of use had no significant relationship with m-Commerce adoption. Interestingly, Chong acknowledged that other studies found contrary results, but possible explanations for the result was attributed to time of research being more recent than previous studies and increased familiarity with the use of mobile phones (Chong, 2013). While it cannot be disputed that most users have become more familiar with the use of mobile phones, more recent studies on m-Commerce have found that ease of use or perceived ease of use still has an impact on m-Commerce adoption or the intention to adopt m-Commerce (Faqih & Jaradat, 2015; Duane et al., 2014). More so, a study conducted in the same year as the Chong (2013) found that ease of use is a driver to continued adoption of m-Commerce (Watson et al., 2013). Therefore, considering that m-Commerce include the conduct of different activities that range in complexity, popularity and technological platform, perceived ease of use is still likely to have an impact on m-Commerce adoption.

Furthermore, perceived ease of use relates to users' assessment or judgement of how much resource (e.g. time, effort, care, etc.) is needed to engage in a particular m-Commerce activity. Therefore, irrespective of how simple an m-Commerce system or activity might be, if users are not convinced of its simplicity, they are less likely to adopt such m-Commerce activity. Therefore, going by the popular cliché that the customer is king, customers' perception of the ease of using m-Commerce systems is an important consideration that can influence their adoption behaviour or intention to adopt m-Commerce. Similarly, business owners / managers that do not perceive the use of m-Commerce within their business as easy for themselves or their customers are less likely to adopt such m-Commerce systems or activities. Therefore, it is reasonable to see that this factor was identified as a facilitator of m-Commerce adoption. From the survey results, it may be observed that about 53% of current stage 1 adopters (Table 19), 73% of past stage 1 adopters (Table 21), 70% of current stage 2 adopters (Table 23), 77% of past stage 2 adopters (Table 25) and 66% of current stage 4 adopters (Table 31) all identified perceived ease of use as a factor that influenced their current level of adoption. This result lends credence to the fact that perceived ease of use can influence m-Commerce adoption at almost all stages of the adoption continuum.

#### *7.5.2.7 Security fears / Lack of 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. Although about 41% of current adopters of stage 1 indicated that security concern is a barrier to their increased adoption of m-Commerce (Table 19), this figure is significantly different from the 80% of current adopters of stage 4 that highlighted security concern as a barrier (Table 32). The fact that more respondents in stage 4 identified security concern as a factor might be reflective of the findings of Chan (2013)'s study because this stage involves the conduct of online transactions that require a higher level of trust from customers since their decision to engage in this activity has financial implications. This may also explain why only 40% of the 35 businesses in stage 4 provide the option of online payment through their website.

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 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.

#### *7.5.3.8 Positive impact on business / Increased Publicity*

In any given business venture, decisions are made with the intention of satisfying demand through effective use of resources that will ensure that the business is financially self-sufficient. This is in line with the popular economic / business concept of minimising cost and maximising profit (Whitin, 1955; Skogh, 1964; Beamon, 1998). Similarly, in the decision to adopt m-Commerce, businesses are likely to conduct a cost-benefit analysis, formally or informally, in order to assess the impact of their adoption decision on their business. Where some form of benefit may be identified, businesses become more disposed or favourably inclined to adopt the technology or engage in the activity.

From literature, m-Commerce has been found to have positive impacts on society, as well as on businesses (Ebibi et al., 2012; Clarke III, 1997; Isiguzo, 2010; Chen et al., 2011). Besides the ability to carry out certain tasks from anywhere, anytime (Xin, 2009b), the adoption of m-Commerce can offer benefits such as flexibility (Bouwman et al., 2007), more productivity and efficiency (Liébana-Cabanillas et al., 2014), improved reputation and decision making (Boadi et al., 2007), reduced cost and increased income (Jianping, 2011), etc. Today, through the adoption of m-Commerce, businesses are able to access or provide services such as mobile reservation of flight or train tickets, mobile payment, access to mobile e-mail, wireless alerting service, etc. (Bouwman et al., 2007). In Nigeria, revenues through m-Commerce has 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).

Although Agwu & Carter (2014) reported that Nigerian customers are still sceptical about the benefits of adopting mobile financial services, Boateng et al. (2013) found that businesses can obtain different levels of benefits from m-Commerce adoption depending on other factors such as affordability, accessibility, usage perceptions and behaviour, etc. This suggests that, in addition to tangible benefits like increased income, businesses can obtain intangible benefits such as savings on operational cost and increased visibility (Omonedo & Bocij, 2014). Notwithstanding, although businesses can obtain tangible and intangible benefits from the adoption of m-Commerce, the amount of benefits to be obtained may be optimised when other factors are carefully taken into consideration such as reason / aim of adoption, relevant activities that will benefit from m-Commerce adoption, type of business, etc. (Picoto, Bélanger, & Palma-dos-Reis, 2013). Therefore, it is evident that the adoption of m-Commerce provides some form of benefit to the businesses which explains why high number of respondents within each stage attested to the influence of this factor on their current level of adoption (84% of current stage 2 adopters, 98% of current stage 3 adopters and 80% of current stage 4 adopters).

In addition to other positive impacts being obtained from the adoption of m-Commerce, one benefit of m-Commerce adoption that was identified from this study is increased publicity. 75% of current stage 2 adopters (Table 23), 82% of past stage 2 adopters (Table 25), 100% of current stage 3 adopters (Table 27) and 83% of past stage 3 adopters (Table 29) indicated that the increased publicity their business received as a result of m-Commerce adoption is a motivation for their current level of adoption. Considering the nature of m-Commerce activities that are conducted in stages 2 and 3, presence on various online platforms provides opportunities to spread word about the business beyond the owner or manager's circle of friends. For instance, through the creation of websites, BBM channels, Facebook, Instagram or Twitter accounts, etc. businesses are able to expand their reach to a wider network which further increases the popularity of the business. Today, having online exposure is considered an important part of setting up businesses because of the benefit of increased publicity. This benefit may be attributed to the value of social word of mouth which has been found to be an effective tool in increasing consumer trust in new products and services (Hajli, Lin, Featherman, & Wang, 2014).

#### *7.5.3.9 Impact of Regulatory Cashless Policy*

In 2012, the Central Bank of Nigeria introduced a policy that was aimed at reducing the amount of cash circulating within the economy (Central Bank of Nigeria, 2012). This policy is called the Cashless Policy (ibid). As a result of this policy, individuals and businesses have been forced to embrace alternative options to cash transfers in order to avoid paying charges associated with non-compliance to the policy. Since the introduction of the policy, the Nigerian economy has reaped benefits such as reduction in cash related robbery / corruption, attraction of more foreign investment, increased employment, etc. (Muyiwa, Tunmibi, & John-Dewole, 2013). The policy has also driven an increase in virtual methods of payments. Currently, the value of mobile money transactions in Nigeria rose to N40billion monthly while the number of POS terminals has risen from 5000 in 2012 to over 132,000 in 2016 (Ekeghe, 2016). Apparently, the policy has supported the adoption of m-Commerce, particularly through the use of mobile money transfer.

However, a symbiotic relationship may be observed between the policy and the adoption of m-Commerce. Just as the policy has promoted the adoption of m-Commerce, the adoption of m-Commerce has also facilitated the fulfilment of the government's aim of moving Nigeria towards a cashless economy. This is similar to the situation that was observed in Malawi where the adoption of m-Commerce helped promote the central bank's strategy of moving the country towards becoming a cashless society (Saidi, 2010). Clearly, businesses have also been steered towards m-Commerce adoption as a result of the cashless policy. This is also reflected in this study as about 77% of current stage 2 adopters (Table 23), 79% of past stage 2 adopters (Table 25) and 71% of current stage 4 adopters (Table 31) indicated that the introduction of the cashless policy influenced their decision to adopt m-Commerce.

#### *7.5.3.10 Culture's Emphasis on physical contact*

Within the body of m-Commerce literature, culture has been identified by several authors as one of the factors that influence m-Commerce adoption (Boateng et al., 2013; Dholakia & Kshetri, 2009; Boadi et al., 2007; Haaris, Rettie, & Kwan, 2005). This is because cultures differ; and these differences contribute towards shaping people's perceptions, attitudes, preferences, beliefs, etc. which in turn influences their behaviour or response towards various issues, including technology adoption. For instance, Xin (2009a) revealed that unique Japanese cultures were amongst other factors that contributed to the tremendous success recorded by NTT DoCoMo and the iMode; adding that the success of the DoCoMo is unique and cannot be replicated by others. Similarly, Zhang, Zhu, & Liu, (2012) in their study, found that culture has moderating effect on the adoption

of m-Commerce which explains discrepancies in adoption trends. This highlights the fact that within different regions, unique cultural factors can influence the adoption of technologies such as m-Commerce. Therefore, an understanding of such cultural factors can influence or guide businesses' decisions to adopt m-Commerce.

In developing countries like Nigeria, developing good personal relationships with customers is vital to establishing trustworthy business connections. This is because, as Lawrence & Tar (2010) noted, in developing countries, "trust is established and reinforced through family association, repeated personal contact and interaction". Hence, the more familiar and aware consumers are of particular businesses and products, the more likely they are to engage in commercial activities with such businesses. As a result, consumers are able to develop their trust in those businesses; and this in turn can influence their decision to relate with the business through other channels or platforms such as m-Commerce. This reflects Chiemeké & Ewuekpae (2011)'s stance that the presence of personal trust in a given technology, particularly with regards to security will significantly affect consumers' adoption of such technology.

Practically speaking, consumers in developed countries are not afraid to buy goods from countries far away from theirs. An individual in UK, for instance, can order an item from a supplier in China without entertaining any anxiety about whether or not they will get their product. This is largely because of legal protection or money back guarantees that are currently in place, which helps develop a culture of trust in virtual conduct of commercial activities. However, developing countries like Nigeria have a very different culture which places a premium on personal, physical relationships in transacting business. This probably explains why about 81% of current stage 3 adopters (Table 28), 71% of past stage adopters (Table 30) and 69% of current stage 4 adopters (Table 32) indicated that the cultural emphasis on physical contact is a barrier to their increased adoption of m-Commerce.

Because m-Commerce involves virtual conduct of business activities which does not favour the natural inclination towards physical contact, businesses are faced with the challenge of winning their customers' trust or confidence in spite of the missing physical touch. In the same vein, businesses tend to be sceptical about transacting with other businesses virtually. For instance, during the telephone interviews conducted for this study, it was observed that most of the respondents asked lots of personal questions about the researcher before granting the interview. This reflects a need to establish some form of personal relationship with the researcher before agreeing to take part in the study. This same attitude is reflected in business transactions. Therefore, until individuals and businesses develop or get accustomed to a culture that is more comfortable with virtual conduct of business, the current culture is likely to pose a continuous challenge to m-Commerce adoption.

#### *7.5.3.11 Personal Innovativeness*

Personal innovativeness refers to the extent to which an individual can adopt new technology earlier than others (Xiang et al., 2008). It reflects the ability to take the initiative towards achieving a certain aim through innovative adoption of technology or by making innovative decisions. Although (Duane et al., 2014) found that personal innovativeness has “almost no direct impact” on the conduct of m-Commerce, many other studies have identified this attribute as one of the factors that influence m-Commerce adoption (Thakur & Srivastava, 2014; Lu, 2014; Chong, 2013b; Xiang et al., 2008; Hung et al., 2003). This is perhaps because the adoption of m-Commerce requires a personal willingness to try out new technology. Therefore, an individual is less likely to adopt a technology they are not willing to try, no matter how beneficial the technology might seem.

This can also be related to business adoption of m-Commerce. If, for one reason or the other, the business owner or manager is not willing to try out different aspects of m-Commerce that might be new to them, they are less likely to adopt that technology. More so, the introduction of new technology into the business requires the ability for the owner or manager to be open to new trends of m-Commerce. Where the business owner or manager is open to new technology, they are likely to take initiatives towards the adoption of such technology. In addition, personal innovation often means that the business owner or manager will have a favourable perception towards the adoption of m-Commerce (López-Nicolás et al., 2008). It is therefore not surprising to see that about 71% of current stage 3 adopters (Table 27), 77% of past stage 3 adopters (Table 29) and 91% of current stage 4 adopters (Table 31) indicated that their personal innovativeness contributed to their current level of m-Commerce.

#### *7.5.3.12 Limited training and support*

From literature, training has been suggested by different authors as a means of inspiring positive m-Commerce perceptions and stimulating users' willingness to try m-Commerce (Xiang et al., 2008; Lu et al., 2005; Luarn & Lin, 2005). Although most authors tend to relate the need for training to customers, some authors have argued that it is easier to train business employees because seeking to train members of the general public is not feasible (Benou et al., 2012). As such, m-Commerce providers should seek to develop systems that require little or no training (Zhang et al., 2002) and may be used by people with the most basic computer skills (Benou et al., 2012). Nonetheless, some studies have highlighted the need for business employee training (Benou et al., 2012; Wang & Xu, 2012; Dholakia & Kshetri, 2009). Therefore, the absence or limited presence of needed training and support for business' staff can negatively impact on their adoption of m-Commerce.

From the survey responses, 50% of current stage 3 adopters (Table 28), 57% of past stage 3 adopters (Table 30) and 66% of current stage 4 adopters (Table 32) indicated that limited training (and support) was a barrier to their increased adoption m-Commerce. Although it may be argued that these percentages do not reflect the same level of significance as other factors that had very high percentages (e.g. 70% or more), the fact that this factor was identified by current adopters shows that there is still need for some level of training in order to motivate and equip business staff for increased adoption of m-Commerce.

#### *7.5.3.13 Access to Credit facility / loyalty cards*

The provision of credit facilities by businesses is an old tradition that was nurtured by different socio-cultural factors in Nigeria such as sympathy or empathy, personal relationship, trust, etc. However, due to disappointing experiences, many businesses have limited the option of credit buying to a few trusted customers. Nonetheless, the principle of offering credit facilities to customers seems to be a potential tool that can drive m-Commerce adoption in Nigeria. This principle is one that was highlighted by the only stage 4 business that was interviewed. During the interview, the owner pointed that the next phase in their adoption of m-Commerce is to provide customised cards that customers can use to buy items on credit through their online platforms. The rationale behind this approach is to increase customer trust and confidence in online transactions with the company by transferring the risk of much feared fraudulent activities to the business. This approach is likely to increase m-Commerce adoption because customers are more likely to feel comfortable with transacting with the business online since they are not spending their money directly or entering details that can provide direct access to their bank account. Although the business owner did not provide details about how customers repay the money or what condition has to be met before qualifying for the card, the plan reflects the possibility that offering such credit facilities to customers can potentially impact on m-Commerce adoption.

While this plan might seem ingenious within the Nigerian context, some companies in developed countries like UK already provide customised cards that operate on similar principles discussed above. These cards are referred to as store cards (The Money Advice Service, 2016). An example is the Argos card. With this card, customers can buy anything from Argos now and then pay later depending on the allowance they have (Argos, 2016). Other companies that offer store cards include Burton, Miss Selfridge, House of Fraser, Debenhams, IKEA, B&Q, Mothercare, etc. (Wilson, 2015; The Consumer Action Group, 2011). These companies offer the option of credit purchase but customers can only use their credit to shop within the store that issued the card. While this might seem restrictive, it appears to be a good starting point towards increasing customer trust and

perceptions about online purchase which will also help to get Nigerians to become comfortable with online transactions. This is particularly useful because customers can start with businesses that they know and have established some level of relationship with. Then gradually, Nigerians may become more open, adventurous and less sceptical of online transactions.

Although the popularity of store cards is gradually gaining momentum in Nigeria, there are other forms of cards, e.g. prepaid cards, which can also help to increase customer trust in online transactions. Unlike store cards that are issued by individual stores that then restrict transactions to the issuing store or chain, prepaid cards are issued by banks in Nigeria. An example of a prepaid card is the FirstBank Visa Prepaid Card. With this card, customers load their desired amount and use it for payment on any payment channel including online (First Bank of Nigeria Ltd., 2016). Other banks that provide similar visa prepaid cards include StanbicIBTC and UBA (Stanbic IBTC Bank, 2016; United Bank for Africa, 2016). Although some customers might still have concerns about the use of prepaid cards, a study by MasterCard found that 60% of the surveyed individuals were receptive to the concept of prepaid cards (MasterCard, 2014). More so, because these cards are not linked to a current or savings account (Central Bank of Nigeria, 2014), customers may be more confident to engage in online transactions or m-Commerce related activities.

In addition to store cards and prepaid cards, loyalty cards are also beginning to gain popularity in Nigeria. Research by McKinsey&Company revealed that brand loyalty is high in Nigeria due to perceived quality or an unwillingness to try new things (Fiorini, Hattingh, Maclaren, Russo, & Sunbatorun, 2013). The results of their study showed that 70% of Nigerians say they are brand loyal as compared to 59% in Africa as a whole (Ibid). Although the report indicated that Nigerians prioritise convenience, good store environment and layout above best offers and loyalty rewards, the report identified some customer profiles such as social fashionistas and quality convenience shoppers who value loyalty rewards (Fiorini et al., 2013). This shows that businesses can inspire more brand loyalty among their customers by leveraging the Nigerian customer's natural inclination towards brand loyalty. This may be achieved through the use of loyalty cards because results from a recent survey showed that 50% of the responding customers were likely to change their shopping behaviour in order to benefit maximally from a loyalty program; while 83% indicated that loyalty programs make them more likely to continue transacting with particular businesses (JollyBoss, 2016).

Loyalty cards refers to cards that are issued to particular companies' customers as a reward for patronage. Customers use the cards to earn loyalty points which are then converted into value that customers can use to purchase goods and services from the company (Akintola et al., 2011). Companies in developed countries like the UK already make use of loyalty cards. Example of these



companies include Tesco, John Lewis, Boots, Sainsbury, Costa Coffee, etc. (Cox, 2016). Research shows that British customers are “in love” with loyalty cards as 76% of shoppers indicated that they carry between one to five loyalty cards with them at all times (YouGov, 2013). Although a retail insights director suggested that UK customers might be falling “out of love” with loyalty cards for different reasons such as promiscuity, that is, wanting to get the best deals from any store possible, (Berg, 2014); recent statistics suggest that a good number of UK customers are still in favour of loyalty cards – 69% customers tend to be loyal due to rewards (Thompson, 2015).

Just as businesses in developed countries are reaping the benefit of using loyalty cards, businesses in developing countries like Nigeria are beginning to embrace the concept of loyalty cards. From the survey conducted for this research, about 57% of current stage 4 adopters indicated that the provision of credit facilities and the use of loyalty cards was one of the facilitators of their current level of m-Commerce adoption (Table 31). This is in line with a recent research that reported that 69% of the respondents indicated that their choice of retailer is influenced by the availability of loyalty rewards program; while 58% of the respondents indicated that at least once they month, they were likely to patronise businesses whose loyalty programs they belong (JollyBoss, 2016). This shows that the use of loyalty cards can motivate customers to remain loyal to businesses. Furthermore, the report suggested that 5% increase in customer loyalty could lead to 25% to 100% increase in average profit by customer (ibid). This reflects that an increase in customer loyalty could lead to financial benefits for participating companies. Therefore, given that the provision of loyalty cards can result in a potential increase in customer loyalty which will in turn increase profit, it is clear that loyalty cards can influence decisions to transact with participating businesses through different mediums. Hence, it is no surprise to see that this factor was highlighted as one of the motivators of m-Commerce adoption.

#### 7.5.4 Current Factors vs. Literature Factors

From Table 35 presented in the previous chapter, it may be observed that the combination of factors identified in the literature is different from the combination of factors identified in the survey by current adopters in each stage. This reflects the value of conducting a more recent study that will provide an update to existing literature. Nonetheless, a number of reasons may be associated with the observed differences between the findings from literature and the findings from the survey. One such reason may be attributed to the fact that most of the studies did not assess the factors within the context of a stage model. Therefore, there is bound to be differences since this study sought to identify factors within each stage of the m-Commerce adoption model that was designed, whereas, most other studies focused on identifying all factors without considering the stages of technology

adoption. Nevertheless, even if all the factors that were identified in this study are to be listed without considerations of their respective stages, there still exist some differences between the list of factors identified from this study and the list of factors identified in the summary or review of literature. This highlights the fact that the use of a stage model as a framework for identifying factors within this study is not the only reason for the observed differences.

One reason that can shed some light into the observed differences may be related to the fact that most existing literature on the factors that influence m-Commerce adoption focused on the consumers' perspective. As such, factors that might influence consumer adoption of m-Commerce are likely to be somewhat different from the factors that might influence business adoption of m-Commerce for different reasons. These different reasons include differences in their aims of adoption, which is likely to result in different considerations and then, different patterns of adoption. Although there are some similar factors that can influence both consumers and businesses, findings from existing literature suggest the presence of some differences in the factors that influence consumer and businesses adoption of m-Commerce.

A study conducted by Nassuora (2013) for instance, found that factors that influence consumer adoption of m-Commerce include perceived usefulness, perceived ease of use, perceived trust, perceived cost and perceived privacy. Similarly, a different study identified anxiety, self-perception of mobile skilfulness, enjoyment, usefulness, and compatibility as factors that influence consumer adoption of m-Commerce (Lu & Su, 2009). Furthermore, a study conducted by Chong et al. (2012) found that age, trust, cost, social influence, and variety of services constitute factors that can influence m-Commerce adoption by consumers. However, a study that focused on the factors that influence business adoption or performance of m-Commerce highlighted factors such as the extent to which firms' activity fits mobile business, technological competence and customer value for the firm as factors that can impact on the business' performance in the adoption of m-Commerce (Martin, Lopez-Catalan, & Ramon-Jeronimo, 2012). Also, Huang et al. (2007) highlighted some successful adoption factors such as having an appropriate needs strategy, understanding and targeting the right customers, personalisation, security, convenience, localization, etc. Similarly, changes brought by 3G, promotion by enterprise informationalization, limitation of mobile terminals and unclear business models were highlighted as factors that influence business adoption of m-Commerce (Niu & Bai, 2008). Therefore, considering that most m-Commerce literature focus on consumers' standpoint whereas this study focused on the businesses' perspective, there are bound to be differences in the combination of factors identified from literature vs. the list of factors identified from this study.

In addition, another possible reason for the differences between most literature factors and current factors identified in this study may be attributed to the fact that many of the existing studies on adoption factors in Nigeria might not be reflective of current trends considering the changing conditions between when the papers were written and now. Examples of papers that captured some factors that influence m-Commerce adoption in Nigeria include Boateng et al. (2013); Isiguzo (2010); Ayo et al. (2007); Obe & Balogun (2007). Although these papers identified some factors that were also identified in this study such as affordability, security and trust, there are some factors that were not identified in the studies but came up in this study such as regulatory cashless policy, increased publicity and access to credit facility / loyalty cards, etc. that were not identified from the studies. Therefore, those papers are likely to be behind on current trends.

More so, most of the m-Commerce literature that focused on factors that influence business' adoption of m-Commerce were either not focused on developing countries or they were not set in context that reflect some of the uniqueness of the Nigerian context. Furthermore, within the Nigerian telecommunication industry, rapid changes have characterised the trend in recent times. Therefore, research has to be consistently conducted (and published) in order to reflect those changes. Sadly, academic research on Nigeria is not as rich and readily available online, compared to research conducted on developed or emerging economies. As a result, the factors list represented in literature is likely to be less reflective of the Nigerian context since only a few research studies reflected the peculiarities of Nigeria. Hence, it is not surprising to see that there are differences in the summary of factors identified in literature and the factors identified in this study.

#### 7.5.5 Impact of Factors

In the preceding sections, the factors that influence m-Commerce adoption by micro and small businesses in Nigeria have been discussed. However, the fact that different factors had different percentages assigned to them is an indication of varying levels of importance or impact. In stage 3 for instance, increased publicity was ticked by 100% of current adopters in that stage (Table 27); whereas in stage 2, suitability for business was ticked by 49% of current adopters (Table 23). From the responses, it may be inferred that increased publicity has more impact on business' adoption of m-Commerce than suitability for business. Therefore, this section seeks to discuss the factors based on their classification into High, Mid and Low impact. As indicated in section 6.4.6, this classification was achieved through the use of a mathematical formula that divided the result of Highest Value – Lowest Value by the desired number of classes. From the result, high, mid and low impact factors were identified and these will be collectively discussed in the following sub-sections.

#### *7.5.5.1 High Impact Factors*

The first set of factors to be discussed are those that may be considered as high impact factors. These factors were ticked by 80 to 100 percent of current adopters in the respective stages (Table 33) and have been individually discussed in other sections of this chapter. Therefore, having established that most of the m-Commerce literature is focused on the consumer perspective, these high impact factors will now be discussed with reference to relevant business recommendations or practical implications identified in previous studies. This is important because it ensures that businesses that come into contact with this research will not only have access to a list of high impact factors they need to pay attention to, they will also become aware of possible reasons why these factors are important. Furthermore, these businesses can have access to different recommendations that have been born out of a series of studies conducted by different academic experts within the field of m-Commerce. Finally, the discussion will conclude with a few indications of how these factors can collectively impact on business adoption of m-Commerce. The high impact factors are as follows:

- ❖ Increased publicity
- ❖ Positive impact on business
- ❖ Availability of internet access
- ❖ Personal Innovativeness
- ❖ Keep up with Global Trend
- ❖ Affordable device technology
- ❖ Emphasis on physical contact
- ❖ Security fears

In any business decision, businesses tend to assess the impact of their decisions on their business in order to ensure that the decisions made have the potential to yield positive impacts on the business. This can also be applied to business decisions to adopt m-Commerce; hence, it is not surprising to see that 84% of current stage 2 adopters, 98% of current stage 3 adopters and 80% of current stage 4 adopters indicated that positive impact on business is a factor that influenced their level of adoption in the respective stages (Tables 23, 27 and 31). These figures are also similar to the responses of past adopters. 81% of past stage 2 adopters (Table 25) and 83% of past stage 3 adopters (Table 29) all indicated that positive impact on business is a factor that influenced their level of m-Commerce adoption at those respective stages. One way through which businesses can obtain positive impact from m-Commerce is through increased publicity, which also had high percentages in this study. However, other ways that businesses can ensure positive impact of m-Commerce adoption is by leveraging m-Commerce to create additional source

of revenue. For example, businesses that have apps can monetise the apps through the use of in-app advertisements, freemium models, subscription models or in-app purchases (Fred-Agbata, 2016b). By implementing the most suitable monetisation strategy for the business app, businesses can generate additional income through their app. Examples of Nigerian apps that use in-app advertising in Nigeria include Linda Ikeji app and All Nigerian News app. Considering that these apps do not have opportunities for in-app purchases like shopping apps e.g. Konga and Jumia, in-app advertisement seems to be most suitable way to generate additional revenue through these apps.

Another way through which businesses can obtain positive impact through the adoption of m-Commerce is by increasing productivity through the use of appropriate apps that would support business processes. Examples of apps that businesses can use to enhance their productivity include Dropbox, Prezi, Skype, Charlie, etc. (Fred-Agbata, 2016a). Although data was not collected in this study to capture the potential impact or trend of businesses' use of these apps, it is interesting to observe from Fred-Agbata's article that businesses can use their adoption of m-Commerce, through these apps, to gain positive impact in terms of increased productivity.

Although factors such as increased publicity, positive impact on business and emphasis on physical contact have not been previously identified as factors that influence m-Commerce adoption among micro and small businesses in a developing country like Nigeria, most of the other factors have been identified from literature. Chong (2013a) emphasised the vital role that internet access plays in the adoption of m-Commerce. However, considering that the study focused on identifying the role of demographic and motivation variables on m-Commerce usage, the study indicated that there is great potential for businesses to explore marketing strategies that would leverage increased internet access on mobile devices, particularly among young users. For instance, within the Nigerian context, micro and small businesses can create awareness and increase publicity of the business through the use of various social media platforms. This is in line with results of a research that found that purchases by 78% of respondents was influenced by companies' social media posts (Saleh, 2014). Therefore, by taking advantage of internet enabled marketing strategies, businesses can observe positive impact to their business through increased publicity and increased sales.

In addition, businesses can leverage an understanding of unique cultural trends to further increase their benefits from m-Commerce adoption. While their study did not capture the specific cultural context of emphasis on physical content, Zhang et al. (2012) found that an awareness of prevailing culture within a target market has moderating effect on the adoption of m-Commerce. Therefore, their recommendation to businesses reflects the need to pay attention to subjective factors that influence consumers within the cultural context where they intend to trade, rather than focusing on just technology related issues. Also, businesses are advised to understand the peculiarities of their

prospective customers by paying attention to popular considerations that influence their adoption decisions such as price, risk, entertainment, enjoyment, etc. (ibid). In the same vein, businesses operating with cultural contexts similar to the Nigerian cultural emphasis on physical contact should consider ways through which they can establish some level of personal relationship and opportunities for physical contact with their customers.

For example, IrokoTV<sup>27</sup>, an online movie streaming service understands the importance of this culture and has dedicated members of staff that engage in online chats with customers and also make it a point of duty to track and address every comment that raises a concern, query or complaint. Also, main stream banks like FCMB are not only encouraging their customers to engage in m-Commerce, they are also publicising Whatsapp numbers that can help bring their customers closer (First City Monument Bank Limited, 2016). While many banks in western countries may not need to publicise Whatsapp numbers to customers, a bank like FCMB understands the unique culture of Nigeria and is leveraging it. Similarly, businesses that intend to thrive through m-Commerce interactions with customers can adopt the use of features or activities such as creation of BBM channels, the use of Whatsapp, etc. in order to give their customers a personal experience of the business.

Having explored some implications and recommendations of how businesses can take advantage of the influence of these factors on their customers, it is clear that these factors can significantly influence business' adoption of m-Commerce. For instance, considering that most m-Commerce activities rely on the use of mobile platforms, particularly mobile phones, if consumers or businesses are unable to afford these devices because of cost, then the conduct of m-Commerce is almost impossible. However, if most consumers or businesses can only afford regular or feature phones that cannot connect to the internet, while certain m-Commerce activities such as calls, mobile money transfers, etc. can still be conducted, this limits the variety of m-Commerce activities that may be conducted. This is because most of the m-Commerce activities associated with stages 2 to 4 of the adoption spectrum require internet access (Figures 10 to 12). Nonetheless, it is not enough to be able to afford mobile phones or SIM enabled devices that can connect to the internet, it is equally important that those devices are connected to the internet as this reflects the uniqueness of m-Commerce. Therefore, affordability of device technology, as well as availability of internet access are crucial to the conduct of m-Commerce.

Furthermore, considering that most businesses thrive on the ability to make cost effective decisions while increasing their visibility and reach, businesses are likely to be encouraged to adopt m-Commerce if they are able to continuously reap benefits such as increased publicity and positive

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<sup>27</sup> Web address: [irokotv.com](http://irokotv.com) (User log in required)

impact on business. Therefore, if existing trends, such as increased uptake of mobile phones and social media, etc. that support the conduct of m-Commerce go out of vogue, then the likely implication is that businesses will abandon the conduct of m-Commerce in favour of other forms of commerce that fit within the emerging trend. This is because continuing to conduct m-Commerce activities in the absence of current trends that favour its conduct could mean that businesses are less likely to continue reaping benefits such as increased publicity and positive impact on business. For instance, one of the problems that led to the failure of HMV was their inability to keep up with changing trends (Thomas, 2013). While businesses were migrating from bricks and mortar to embrace online platforms due to the changing trend in favour of online technology, HMV remained committed to the fading bricks and mortar business model. This contributed to their failure. In the same vein, if businesses fail to keep up with global or national trends, this might have negative impacts on their successful adoption of m-Commerce.

In addition, personal innovativeness is another factor that can impact on business adoption of m-Commerce because it represents a trait that can help distinguish a business from its competition. While some business ideas might be obvious or popular, business owners or managers need to be innovative about other ways through which they can further leverage existing trends because their ability to do this might present unique business opportunities for the company. For instance, MTN Nigeria was able to identify innovative ways through which revenues may be generated from the current trends of increased uptake of mobile phones and the unique, ostentatious culture of Nigerians. The result was the introduction of the MTN CallerFeel service in 2015. This service allows individuals and businesses to customise short messages that will appear on their callers' phone screen when they call (Vanguard Newspaper, 2015). While this service may be adopted by businesses for advertisement purposes, individuals can take up this service as a way of putting their status in the spotlight in order to impress their callers (MTN Nigeria, 2015). As such, besides the benefits that businesses can gain by advertising through this medium, MTN is also generating additional revenues through subscriptions on this innovative service. HypeStat, a website analysis and statistics platform, estimates that MTN could generate up to \$29,565 yearly through the MTN CallerFeel website (HypeStat, 2016). Being a new service that was only recently introduced, the estimates suggest that this service has a viable potential within the Nigerian market. Therefore, personal innovativeness is a useful factor that can help business owners or managers to identify cultural or subjective norms, as well as current or potential trends that can present unique, innovative opportunities to generate additional income for the business.

Nonetheless, there are some factors that, if not effectively managed by businesses, can negatively impact on their adoption of m-Commerce. One major one is security fears. Ironically, these security fears and concerns that customers have are mostly the product of their 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 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 campaign<sup>28</sup>. 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 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 can yield positive impacts on consumer perception of security which in turn will positively influence m-Commerce adoption.

#### *7.5.5.2 Mid Impact Factors*

The next set of factors to be discussed are the factors that may be considered to have mid-level impact on the adoption of m-Commerce. These factors were ticked by 60 to 77 percent of current adopters within the respective stages (Table 33) and have been individually discussed in other sections within the chapters. Hence, this section will focus on discussing these factors in the context of relevant business implications and recommendations that can help businesses in their adoption of m-Commerce. Although factors such as limited training appear to have negative impacts on

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<sup>28</sup> 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



adoption, other factors such as regulatory cashless policy have been reported to have positive impacts on adoption. Nonetheless, these factors will all be discussed in a bid to suggest ways through which they may be leveraged or managed in order to yield positive impacts on business adoption of m-Commerce. The mid impact factors identified in this study are:

- ❖ Regulatory Cashless Policy
- ❖ Perceived ease of use
- ❖ Ease of use
- ❖ Limited training
- ❖ Perceived value

Ease of use and perceived ease of use have both been identified in literature as factors that influence m-Commerce adoption (Malik et al., 2013; Amin et al., 2011; Shin, 2009). As such, businesses need to pay attention to the potential impact of these factors on their business' adoption of m-Commerce. One of the recommendations of Chong (2013a)'s study is that m-Commerce providers and businesses should design applications that are easy to use. Also, considering that the study found that m-Commerce usage was more prominent among young or highlighted educated users, it was recommended that m-Commerce providers and businesses should create awareness of the ease of use of m-Commerce and also educate users so that they understand m-Commerce better. This buttresses the fact that businesses should not take for granted that their customers will find m-Commerce activities easy to use just because of the increasing uptake of mobile phones. In the same vein, businesses need to ensure that they actively take part in increasing awareness of the ease of use and benefit of engaging in m-Commerce activities. Within the Nigerian context, various businesses, particularly online shopping businesses often ensure that they reiterate ease of use as one of the features of their site or app. For instance, Kaymu (an online shopping business), in advertising their mobile app, made use of 3 important buzz words – Easy to Use, Exclusive Deals, Safe Payment (Kaymu, 2016). This reflects an understanding that while some customers might feel competent in the use of mobile apps, some customers might feel that they are difficult to use even if they have never tried the app. More so, this can help motivate customers to try the app even if they had a preconception of difficulty. While different companies are taking different approaches towards reiterating the ease of use of mobile apps, some companies such as Diamond Bank and First Bank branches in Portharcourt have members of staff who help to install the bank's app on customers' phones and teach them how to use it while some companies like Channels TV have in the past, made use of advertisement campaigns to show how customers can use the app.

Another factor that influences m-Commerce adoption is perceived value. Although only a few studies such as Chong (2013b) and Persaud & Azhar (2012) have directly identified perceived value

as a factor that influences m-Commerce adoption, a study conducted by Büyüközkan (2009) observed that perceived value affects m-Commerce customer loyalty. This shows that businesses need to also take this factor into consideration while seeking strategies that can support their successful adoption of m-Commerce. This is because their ability to influence their customers' perceived value of the company can inspire loyalty amongst their customers. An example of a company that is soaring on the wings of its customers' perceived value is Apple. It is apparent that Apple customers' perceived value is higher than its price and the perceived value attached to other products (Pyrzynski, 2014; Sten, 2013; Oertli, 2012). As a result, there exist many Apple customers that are willing to spend any amount to get an Apple product because they are convinced that they are getting value. This is largely because value may be measured based on any criteria and interestingly, Apple has been able to do "a good job of showing why the product experience is more valuable than the tech specs for their products" (Oertli, 2012). In the same vein, businesses can leverage this factor by emphasising other indicators that might create a perception of value amongst their customers such as price, class, luxury, usefulness, etc. For example, the Apple brand is often considered a luxury, coveted brand that everyone wants "to be seen with" (Pyrzynski, 2014). Similarly, businesses can leverage on Nigeria's ostentatious culture by creating high end, luxury brands that are marketed through the use of celebrity endorsement, as this can go a long way in influencing customers' perception of value.

While each of these mid impact factors can individually provide a platform for businesses to enhance their m-Commerce adoption, it is important to note that a combined effect of these factors can further impact on business adoption of m-Commerce. For instance, regulatory cashless policy is a factor that was highlighted by 77% and 71% of current stage 2 and 4 adopters respectively (Tables 23 and 31); thus, reflecting a significant impact of this factor on their level of adoption. Therefore, if customers are forced to take up m-Commerce activities because of the government policy, chances are that they are likely to engage in those activities with businesses that have appropriately positioned themselves to encourage customers to trade with them. This is probably what makes the difference between customers' willingness to transact with shops like Jumia and Konga, and other online shops, as reliance of cashless policy alone might not be sufficient to deliver the level of influence that businesses hope to have over customers' decision to adopt m-Commerce.

For example, Konga has a mobile app that fits within the objective of the cashless policy because customers can buy and pay for goods virtually. However, they did not rely on that alone. They advertise the app as fast, easy to use, consumes less data and provides access to lots of deals (Obiano, 2016). Not only does this marketing strategy reiterate how easy it is to use their mobile app, it also has a potential to influence customers' perception of value by stating that the app uses less data (which is precious to many Nigerians) and also offers various deals, which aligns with the

desire of most customers. More so, on top of using celebrities for their adverts, Konga has worked with different movies to show how easy, fast and reliable it is to transact with Konga. An example of a movie that showcased Konga is the Season 1 of the popular *Husbands of Lagos* Nigerian TV series. After seeing this movie, many Nigerians are likely to feel more comfortable or become more willing to buy something from Konga. This emphasises the fact that businesses can achieve a successful adoption of m-Commerce by leveraging on the combined effect that these mid impact factors present.

#### *7.5.5.3 Low Impact Factors*

The last set of factors to be discussed are the low impact factors. Although these factors were identified by about 37 to 57 percent of current adopters within the respective stages (Table 33), these factors still have the potential to significantly impact on m-Commerce adoption in future. This means that, while they might appear to be low impact factors now, changing conditions in future might mean that these factors become significant considerations in the decision to adopt m-Commerce by businesses and customers alike. More so, no factor should be considered too little to ignore as they might end up providing what a business needs to carve a niche in the market. Therefore, these factors also be discussed using relevant business advice and recommendations from academic experts and other evidence to ensure that businesses can still make use of these factors to their advantage. The low impact factors that were identified from this study are:

- ❖ Credit facility / loyalty cards
- ❖ Social norm
- ❖ Technology popularity
- ❖ Suitability for business
- ❖ Lack of trust
- ❖ Limited awareness
- ❖ Supplier reluctance
- ❖ High transaction cost

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 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).

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.

Although the provision of credit facilities that allow customers to buy products on credit is an old tradition in Nigeria, the provision of loyalty cards is an emerging business strategy that has been rolled out by mostly medium to large scale businesses like Spar and Total (SPAR, 2016; Total, 2016). While research on the impact of loyalty cards on m-Commerce adoption is limited, some studies have been able to identify potential impacts of the use of loyalty cards on m-Commerce adoption. For instance, although the report indicated that Nigerians prioritise convenience, good store environment and layout above best offers and loyalty rewards, Fiorini et al. (2013)'s report identified some customer profiles such as quality convenience shoppers who value loyalty rewards. This shows that there is a potential for businesses to inspire brand loyalty among certain types of customers through the use of loyalty cards.

This opportunity for businesses to inspire customer loyalty among their customers is buttressed in the results of a recent survey. The survey results showed that 50% of the responding customers were likely to change their shopping behaviour in order to benefit maximally from a loyalty program; while 83% indicated that loyalty programs make them more likely to continue transacting with particular businesses (JollyBoss, 2016). From these figures, it is clear that loyalty cards may be adopted by businesses to push their plans for the adoption of m-Commerce. One way through which the use of loyalty cards can support m-Commerce adoption is by making use of mobile wallets to provide smart access to loyalty cards (GSMA & UITP, 2012). Since Nigerians are becoming familiar with the use of mobile wallets, incorporating loyalty cards into mobile wallets can influence customers' decision to sign up for loyalty rewards program which in turn can inspire loyalty to those businesses. Furthermore, this approach can also help businesses to wield positive

influence on customers' perception of other m-Commerce activities such as the use of mobile NFC services (ibid) or receiving coupons through location based services (Xin, 2009c).

As discussed in the other two sections on high and mid impact factors, these low impact factors can have different combined effects on m-Commerce adoption. Therefore, businesses are to ensure that they adopt appropriate strategies that will help them take advantage of positive factors, while preventing or minimising the effect of negative factors. Hence, as businesses seek to leverage on factors such as technology popularity and social influence to support their adoption of m-Commerce, it is also important that they give consideration to other sources of potential influence on their adoption of m-Commerce. These include the current structure of the business and their suppliers' perspective on the business' adoption of m-Commerce activities that involves them. For instance, if a business decides to introduce virtual payment because it has become increasingly popular among customers but the business' supplier still prefers to receive cash payment for one reason or the other, such business would need to re-evaluate their decisions in order to effectively accommodate both customers and suppliers.

Furthermore, while considering the factors of trust, cost and the use of loyalty cards, businesses need to ensure that adequate awareness is created among their customers as failure to do this might mean that businesses have secure systems with lots of deals and offers but customers are unable to benefit from these because they are unaware of their existence. Therefore, in addition to increasing trust and reducing cost, businesses need to ensure that appropriate channels are adopted in order to create awareness within their target market.

#### 7.5.6 Unique Factors

Within this study, various factors that influence business adoption of m-Commerce were identified. However, some of the factors that were identified, as well as findings of the study, were reflective of unique attributes of the Nigerian context. These factors include:

- ❖ Mobile phone culture
- ❖ Ostentatious culture
- ❖ Regulatory cashless policy
- ❖ Emphasis on physical contact

These factors are a reminder of the need for businesses intending to adopt m-Commerce to be context aware because strategies that might work effectively in one context might not produce similar results in other contexts. As a result, this section will provide further discussions on practical

strategies that may be adopted by businesses within the Nigerian context. Through these strategies, businesses will have indications of possible steps that may be taken to leverage on these unique factors to enhance their adoption of m-Commerce.

The first factor to be discussed is the cultural emphasis on physical contact. While it might be difficult for businesses to establish physical contact with every customer when adopting m-Commerce, businesses need to be aware that this cultural emphasis is born out of a desire of establish personal relationships. This is largely because, as captured in Hofstede's cultural classification, Nigeria is considered a collectivist society. Hence, within the Nigerian context, businesses will find that consumer trust is built through personal relationships, unlike western countries where personal relationships are not required in the conduct of business activities. This unique tendency has also been reflected in literature. As Lawrence & Tar (2010) rightly noted, in developing countries, "trust is established and reinforced through family association, repeated personal contact and interaction". Therefore, the more familiar and aware consumers are of particular businesses and products, the more likely they are to engage in commercial activities with such businesses. As such, businesses need to ensure that they adopt strategies that will help promote consumer trust and confidence in their business and brand.

One strategy that may be adopted is to include additional information on company websites such as, easy to reach contact mobile numbers, and a physical store address that consumers can visit if the need arises. This is largely because, the more transparent and open a business is in their operations, the more likely consumers are to trust them. This principle resonates compliance to e-Commerce perceived ethical performance which was found to influence consumers' trust in a website (Yang, Chandrees, Lin, & Chao, 2009). Online stores like Jumia and Konga have taken the factor of personal relationship into consideration by offering their unique Pay on Delivery service which may not currently be available in other parts of the world. Interestingly, this service seems to help customers to have less concerns about fraudulent activities on the website as they do not have to make any online payments. More so, the fact that customers can see their products before paying provides an increased level of confidence and trust in the business.

Another strategy that businesses can adopt to create personal relationships with customers is to organise physical campaigns in order to complement media advertisements as this can help to further raise awareness about the company and her products. More so, this can provide a platform for consumers to physically interact with the business and ask questions where necessary. Furthermore, while it might be impossible for such campaigns to reach every potential customer, the contact the business makes with some consumers can help spread positive word of mouth about the business; which in turn can help create customer trust in the business. Although research has

shown that social word of mouth can positively influence consumer trust (Hajli, Lin, Featherman, & Wang, 2014), a study conducted by Meuter, McCabe, & Curran (2013) revealed that interpersonal word of mouth was found to be more influential than various forms of electronic word of mouth. Therefore, businesses that adopt the campaigns strategy are likely to benefit from interpersonal word of mouth which can help create consumer trust in the business or brand. Therefore, once customer trust is established, the perception of consumers about the business is likely to be positive.

Although businesses may not have the capacity to enforce change in customers' perception about factors such as cost, usefulness and enjoyment; businesses can provide appropriate information that will help eliminate or minimise wrong notions about them or their product(s). This can also contribute towards increasing consumer loyalty to a brand. A study conducted by Ball, Coelho, & Machás (2004) revealed that although trust may not have direct impact on loyalty, communication had an unexpected impact on loyalty. As result, one of the managerial implications of that study was for businesses to leverage their use of customer contact points in order to enhance relationships with customers and provide useful and needed advice or information that is easy to understand. This can also be applied to the conduct of various m-Commerce activities.

Another unique factor that was identified from this study is 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 (Ajanaku, 2015); yet, the rate of m-Commerce adoption does not seem to be increasing at the same pace as the rapid increase in 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. In an article that was featured in the Financial Times, it was noted that, "for a generation of image-conscious Nigerians, the smartphone has become a must-have status symbol; a material affirmation of having a place in the country's upward trajectory" (Hammond, 2012). While this might seem as a rather interesting culture, 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.

Businesses can take advantage of this ostentatious culture by getting celebrities, for instance, to adopt and showcase the m-Commerce activity and then create a *hype* around the brand. Before long, many people are likely to take up the activity thereby leading to increased popularity. Also, considering that there appears to be some form of relationship between celebrity and consumer (that is, consumers have some levels of attachment to particular celebrities); making use of celebrity endorsement can act as a form of value transfer which can influence the consumers' decision to

purchase the advertised product (Oyeniya, 2014). However, businesses should take into consideration, the public image of the celebrity as this tends to impact on consumers' buying decisions (Ibok, 2013). Nonetheless, it is clear that businesses can leverage celebrity endorsement to push their m-Commerce agenda. Remarkably, this has become a trend in Nigeria as many businesses, including telecommunication companies like Glo, Etisalat and MTN, are making use of celebrities to advertise their businesses (Sholola, 2014).

Another unique factor that was identified is the impact of the regulatory cashless policy. As a result of this policy, many businesses have been forced to embrace m-Commerce activities in order to avoid the consequences of non-compliance. Consequently, the surge in online shopping from N49.9billion in 2010 to N78billion in 2012 was largely attributed to the introduction of the cashless policy (JohnRhoda, 2014). Within this study, 77 and 71 percent of current adopters in stages 2 and 4 (Tables 23 and 31) respectively attested to the impact of the regulatory policy on their adoption decision. While this impact shows that government policies can influence m-Commerce adoption, this presents yet another opportunity for businesses to enhance their adoption of m-Commerce.

An example of a company that leveraged on a government policy for the benefit of the business is MTN Nigeria. In 2013, the Nigerian government introduced Mobile Number Portability (MNP) in order to allow Nigerians to change their service provider while retaining their existing mobile number (Kate Douglas, 2015). MTN took the opportunity to make a bold move for the benefit of the company. At the time, a celebrity called Hafiz Oyetoro was Etisalat's spokesperson. However, MTN made him an offer that saw him become MTN's celebrity endorser. This led to a media campaign that perfectly reflected his move from Etisalat to MTN, just as Nigerians can move from one mobile operator to the other without changing their number (ibid). This clearly shows a potential for businesses to make use of government policies such as the regulatory cashless policy to support specific aims or objectives.

One other unique factor identified within this study relates to the unique multi-SIM culture which cascades into a unique mobile phone culture. This culture represents heavy dependence on the use of mobile phones in African countries like Nigeria. Currently, the average Nigerian has at least 2-4 mobile numbers (GSMA, 2014; Onyango-Obbo, 2014). This multi-SIM culture is further enhanced by the presence of dual SIM phones. Report released by OpenSignal (2015) revealed that Nigeria has the highest proportion of users with multi SIM phones, currently at 66%. This culture was developed as Nigerians' response to poor network, poor quality of service and a way to cash in on low service tariffs (Sesan, 2012; Oluwafemi, 2015). Nonetheless, the presence of this culture provides businesses a higher chance to reach customers and suppliers in order to facilitate their m-Commerce agenda.



From the survey result, 95% of the respondents rely on their mobile phones for business related calls; 78% use mobile phones for product enquiry; and 66% use mobile phones to receive product reservation requests (See Appendix 8.9). These figures contrast online based activities such as accessing the internet (53% of all surveyed businesses); communicating through social media (44% of all surveyed businesses); and internet banking (16% of all surveyed businesses) (See Appendix 8.9). The contrasts reflect more dependence on mobile phones for voice communication; thus, buttresses the importance, as well as the benefit a multi-SIM culture to businesses. The presence of multiple SIM contacts provides a greater chance for suppliers and customers to reach businesses, and vice versa. This is important within the Nigerian context because it fosters transparency and trust between parties involved by reducing concerns about whether or not the business is genuine or may be trusted. Also, businesses and suppliers are able to have faster and frequent transfer of information which becomes useful in decision making processes (Boateng et al., 2013).

This is in line with results from a study that found that the use of mobile phones for audio communication tends to be the most popular mobile functionality (Boadi et al., 2007). As such, it is no surprise to observe high dependence on the use of mobile phones for business related calls or text messages. Furthermore, considering that the use of mobile phones plays a vital role in enhancing interpersonal communication (ibid), findings from previous studies observed that businesses reported positive impact of the use of mobile phone on their business (Boateng et al., 2013; Boadi et al., 2007). Therefore, it is apparent that this mobile phone culture can support business adoption of m-Commerce.

## **7.6 Chapter Conclusion**

This chapter sought to provide insight into the data that was presented in chapter 6. From the results, possible interpretations and implications of the findings were discussed from different perspectives. The discussion was divided into 3 broad categories – findings from demographics; findings from business activities and findings from factors. Through the use of literature, these findings were discussed from theoretical and practical perspectives. From a theoretical perspective, findings were discussed in the context of results from existing m-Commerce related research. From a practical perspective, findings were discussed through the use of examples and commentaries on various trends. Also, practical implications that might align with the Nigerian context were discussed in order to provide plausible ways through which businesses can support their adoption of m-Commerce. Therefore, besides providing further understanding of the Nigerian context as reflected by the survey results, this chapter sought to proffer suggestions that can help businesses

to leverage on positive trends and factors, while avoiding or minimising potential effects of negative factors on their adoption of m-Commerce.

# OVERVIEW OF CHAPTER EIGHT



# CHAPTER 8

## CONCLUSIONS

### **8.1 Introduction**

This chapter presents a culmination of the research on identifying the factors that influence successful adoption m-Commerce via SIM-enabled devices. Unlike most m-Commerce research that focuses on the consumer perspective, this research focused on the perspective of micro and small businesses in Nigeria. Through a series of literature review, interviews and survey, various findings were made that reflect recent trends within this target population. These findings have been presented and discussed at different stages of this research. However, this chapter will seek to present a complete picture by providing a summary of the work done at different stages of the research. Also, limitations of the research, as well as future research directions will be discussed in this chapter.

### **8.2 Summary of Research**

The current research was conducted through a series of steps and stages that were presented in the different chapters of this study. Within this section, each chapter will be discussed with a view of providing a concise summary of its content.

Chapter one provided an introduction to the research. First, the aim of the research – to develop a model that may be used to guide successful m-Commerce adoption by micro and small businesses in a developing country, Nigeria – and the objectives of the research were presented. However, a strong rationale for the research was discussed from an environmental, theoretical and practical perspective. The aim of this discussion was to provide various reasons that justify the importance of conducting this research and possible contributions that may be made towards different stakeholders of m-Commerce. The research questions, study context and structure of the thesis were presented within this chapter.

Chapter two provided a review of existing literature within the area of m-Commerce. Nonetheless, the chapter took a funnel approach by first discussing e-Commerce literature before presenting a review of m-Commerce literature. Key terms that form the basis of this research such as m-Commerce, micro and small business, etc. were defined within this chapter. This chapter also provided a comparison of trends, examples and barriers to e-Commerce and m-Commerce adoption in developing countries. The main aim of this comparison was to provide further justification for the research on m-Commerce adoption in developing countries. Therefore, by reviewing the merits

and demerits of e-Commerce and m-Commerce adoption, it was established that the adoption of m-Commerce appears to be more favourable within the context of developing countries than the adoption of e-Commerce. However, considering the presence of barriers and limited research on the adoption of m-Commerce, this research is important in order to fill in this gap, particularly from the perspective of micro and small businesses since they represent the highest number of businesses in Nigeria. Lastly, the chapter presented a conceptual model of m-Commerce literature.

Chapter three presented the strategy to be adopted in the conduct of this research. The philosophical paradigm (positivist), research methods (quantitative and qualitative), techniques (questionnaires and semi-structured interviews) and statistical tools (MS-Excel) to be deployed in the conduct of this research were presented. A rationale for the chosen research approach was discussed. Also, details regarding the research design such as the data collection procedure, sample size and selection, data analysis techniques, risk analysis and general ethics considerations were presented within this chapter.

In chapter four, preparations for the first study for this research were presented. This study involved further review of literature which culminated in the design of the first version of the m-Commerce adoption model. A first set of pilot interviews was conducted, after which, the model had to be redesigned to reflect the current level of m-Commerce adoption amongst micro and small businesses in Nigeria. This led to the design of the second version of the adoption model. Nonetheless, to ensure that the interview questions were effective in gathering the required information, another set of pilot interviews were conducted. Through the quality of responses generated from the pilot interviews, these questions were adopted for the exploratory study through interviews.

In chapter five, the first study for this research was presented. Through the study, the redesigned model was found to be more reflective of the current trends of m-Commerce amongst micro and small businesses in Nigeria. Also, the study provided insight into a number of current factors that influence m-Commerce adoption amongst the target population. The factors were discussed with respect to how they influence business migration from one stage of m-Commerce adoption to the next. The findings of this qualitative study formed the basis for the quantitative study which was conducted in chapter six.

In chapter six, the quantitative study took off from the design of the questionnaire. This questionnaire was designed based on findings from the qualitative study. Upon completion, the questionnaire was distributed online and physically to owners and managers of micro and small businesses from different states that represent the six geo-political regions of Nigeria. Although 230 businesses took part in the survey, only 197 responses were included in the dataset for analysis. The data collected from the survey was presented in this chapter through the use of graphs and

tables. Information regarding the profile of the businesses, their pattern of phone usage within the business and the factors that influence their adoption of m-Commerce were presented within this chapter. However, possible explanations and implications of these findings were not discussed within this chapter.

In chapter seven, the findings of the quantitative study were discussed from different perspectives. Findings from the demographics and business activities were discussed in the light of their possible implications for business adoption of m-Commerce. Then, the factors to be included and those to be excluded from the list of factors that influence m-Commerce adoption within each stage were discussed based on the testimony of current adopters within the respective stages. Also, possible reasons for observed differences between the factors identified in the study and those previously identified from literature were discussed. In addition, the factors were discussed with respect to their level of impact, which was categorised into high, mid and low through the use of a mathematical formula. Furthermore, practical implications and recommendations from existing research were highlighted in the discussion of factors with respect to their levels of impact. Lastly, unique factors that influence m-Commerce adoption among micro and small businesses in a developing country like Nigeria were discussed. Again, practical implications and recommendations on how businesses can leverage these factors to support their adoption of m-Commerce were explored.

Chapter eight presents a complete picture of the research findings and implications. This chapter also helps to reiterate and emphasis major findings and implications of this research. In addition, limitations of the research, as well as future research directions are presented in this chapter.

Within this thesis, the objectives of the research were achieved at different stages.

Objective 1 - To identify from literature, factors that contribute towards successful adoption of m-Commerce with a focus on factors that are specific to businesses in developing countries like Nigeria.

This was achieved in Chapter 2 of the thesis which discussed factors such as personal innovativeness, security, design aesthetics, etc. A list of the factors that were identified from literature was presented in Table 3.

Objective 2 - To propose a model, using the identified factors that can serve as a guide to encourage m-Commerce adoption by micro and small business in Nigeria.

This was achieved in Chapter 4 of the thesis where an initial model (Figure 4) was redesigned to suit the Nigerian context through the use of interviews (Figure 5).

Objective 3 - To design an instrument that will be used to test and validate the model, using qualitative data collected from micro and small businesses that adopt m-Commerce in Nigeria.

This was achieved in Chapter 5 of the thesis which presented data from the interviews conducted on owners and managers of micro and small businesses in Nigeria. The results were useful in the design of the instrument (questionnaire) that was used to validate the model. A copy of the questionnaire is attached as Appendix 4.

Objective 4 - To identify from the study, current and unique factors that influence m-Commerce adoption by micro and small businesses in Nigeria

This was achieved in Chapter 6 of the thesis where the data from the survey was presented. The data provided insight into a series of current and unique factors that influence m-Commerce by micro and small businesses in Nigeria. These factors were presented in Tables 19 to 32 and Figures 22 to 25.

Objective 5 - To discuss implications of the identified factors and provide recommendations for effectively leveraging the factors to support m-Commerce adoption by the target population

This was achieved in Chapter 7 of the thesis which focused on discussing the implications of the data presented in chapter 6. A summary of the implications are presented in section 8.4 of this chapter.

The research questions for this study were addressed at different stages of this research. The research questions presented in chapter 1 are:

- ❖ What is the current state of m-Commerce adoption in Nigeria?
- ❖ What are the factors that affect m-Commerce adoption in Nigeria?
- ❖ What factors influence the successful adoption of m-Commerce by micro and small businesses in Nigeria?

Research Question 1 was addressed through the literature review conducted and presented in chapter 2. Within that chapter, sections 2.4 and 2.5 provided a picture of the trends and barriers to m-Commerce adoption in developing countries was presented from the perspective of past m-Commerce research on developing countries.

Research Question 2 was also addressed through a review of literature. A summary of the factors that were identified from literature are presented in Table 3, in chapter 4.

Research Question 3 was addressed by the research which included data collected from interviews and survey presented in chapters 5 and 7 respectively. A summary of the factors identified from the interviews and survey are presented in Table 35, in chapter 6.

### **8.3 Major Findings of Research**

The major findings of this research have been discussed in various sections of this thesis. However, this section seeks to provide a concise summary of these findings. These findings are based on results of the survey conducted on owners or managers of micro and small businesses in Nigeria. This is because the interviews served exploratory purposes, while the survey served confirmatory purposes. As such, common, unique trends that were identified from the interviews were also highlighted in the survey. However, patterns that were unique to particular businesses that were interviewed did not feature in the findings of the survey. Therefore, the major findings of the survey are inclusive of major findings from the interviews. These findings are summarised in this section in order to avoid repetition of points that have been discussed earlier.

From the research data, the following observations were made.

- ✓ Most businesses are 1 to 5 years old and are mostly in Stage 2. This could be an indication that being set up in a technology age could mean more use of or exposure to technology (Section 7.3.1).
- ✓ Most MSBs are owned by graduates who often tend to be sole traders and retailers. This might be due to high emphasis on education and a solution to high unemployment rates (Section 7.3.2).
- ✓ When businesses migrate from one stage of adoption to the other, they do not necessarily outgrow previous stages. Rather, they tend to add to previous m-Commerce activities or progress to smarter ways of conducting previous activities (Section 7.4.1).
- ✓ The adoption of mobile money as a means of receiving or making payment by businesses is on the rise in Nigeria (Section 7.4.2).
- ✓ Currently, the use of websites by micro & small businesses is limited. This could be a reflection of preference for m-Commerce business models than e-Commerce or e-Business models (Section 7.4.3).
- ✓ Within the target population, there appears to be an increasing appreciation of mobile apps and mobile enabled platforms; thus buttressing a preference for m-Commerce rather than e-Commerce (Section 7.4.4).



- ✓ Differences exist between factors identified by current adopters of m-Commerce and past adopters. This could be a reflection of changing trends in Nigeria, e.g. increasing uptake of smartphones and m-Commerce related activities (Section 7.5.1 - Section 7.5.3).
- ✓ The introduction of the cashless policy is driving increased adoption of m-Commerce by customers and businesses (Section 7.5.3.9).
- ✓ Also, there are differences between the combination of factors identified from literature and the combination of factors identified from current adopters of m-Commerce. This could be because most m-Commerce literature focused on the consumer perspective and were mostly conducted on developed or emerging economies. Also, differences in trends or occurrence at the time of this research could have contributed to the observed differences (Section 7.5.4).
- ✓ Although various factors were identified within each stage of adoption spectrum, these factors were classified into High, Mid and Low impact factors through the use of a maths formula (Section 7.5.5).
- ✓ In addition, unique factors that influence m-Commerce adoption by micro and small businesses in developing countries like Nigeria were identified. These unique factors were ostentatious culture, mobile phone culture, regulatory cashless policy and emphasis on physical contact (Section 7.5.6).

As earlier stated, these findings have been discussed in other sections of this thesis, particularly in chapter 7; however, this section provides a quick summary of the major findings.

## **8.4 Research Contribution and Implication**

Having summarised the major findings of this research, this section seeks to summarise the implications of this research which have also been discussed mostly in chapters five and seven. However, in order to provide clarity of implications being highlighted, this section has been divided into three main sub sections which reflects the stakeholders or aspects they most relate to.

### **8.4.1 Theoretical Contribution and Implication**

The contributions of this research to theory have been intertwined with discussions from findings of the study at the different stages, particularly in chapters five and seven. However, this section seeks to provide a concise summary of the contributions of this research to theory and the body of literature. These are highlighted as follows:

- ✓ This research contributed to the debate on the dividing line between e-Commerce and m-Commerce. This contribution resulted in the publication of a paper titled “e-Commerce versus m-Commerce: Where is the Dividing Line?” (Omonedo, P., & Bocij, P. (2014). e-Commerce versus m-Commerce: Where is the Dividing Line? International Journal of Science, Education, Economics and Management Engineering, 8(11), 3402 – 3407).
- ✓ This research has provided an update to literature on the factors that influence m-Commerce adoption from a business perspective (Section 6.4.8 and Table 35).
- ✓ This research proposed a general stage model of m-Commerce adoption that could propel interest into a new aspect of m-Commerce research (Figure 4).
- ✓ The research also presented the first stage model that can help classify & motivate micro and small businesses in their adoption of m-Commerce in Nigeria (Figure 27).
- ✓ This research also helped identify unique factors that can influence m-Commerce adoption by micro and small businesses in developing countries like Nigeria (Section 7.5.6).
- ✓ The study also identified current, high, mid and low impact factors that could influence m-Commerce adoption in Nigeria (Section 7.5.5).

These bullet points provide a summary of the contribution of this research to theory. Again, these points have been discussed in different parts of this thesis.

#### 8.4.2 Practical Implication and Recommendation

This section seeks to provide a summary of implications and recommendations of this research to practice. The recommendations are the result of practical implications discussed in chapter seven and includes a combination of expert advice from literature and recommendations from this study.

Practical recommendations to businesses include:

- ✓ Businesses are advised to understand the peculiarities of their prospective customers by paying attention to popular considerations that influence their customers’ adoption decisions such as price, risk, entertainment, enjoyment, etc. (Section 7.5.5.1).
- ✓ Businesses should ensure they establish some level of personal or face-to-face business relationship with their customers through the use of platforms like BBM channels and other social media platforms, campaigns, etc. (Section 7.5.5.1).
- ✓ Business owners are encouraged to be forward thinking, innovative and able to keep up with changing trends within the area(s) of their operation (Section 7.5.5.1).

- ✓ Businesses should introduce creative promotional and pricing strategies that can attract price conscious customers (Section 7.5.5.3).
- ✓ Businesses should embrace transparency through strategies such as including additional information on company websites e.g. easy to reach contact mobile number(s), and a physical store address where consumers can visit if the need arises (Section 7.5.6).
- ✓ Perceived trust may be enhanced through strategies such as creating a good reputation, offering good encryption security, maintaining transparency on data usage, guaranteeing effective dispute resolution, educating customers and creating awareness of security features (Sections 7.5.5.1 and 7.5.5.3).
- ✓ Although businesses may not have the capacity to enforce change in customers' perception about factors such as cost, usefulness and enjoyment; businesses can provide appropriate information that will help eliminate or minimise wrong notions about them or their product(s). This can also contribute towards increasing consumer loyalty to a brand (Section 7.5.6).
- ✓ Businesses should also address issues relating to other sources of potential influence on their adoption of m-Commerce, e.g. the current structure of the business and their suppliers' perspective on the business' adoption of m-Commerce activities that involves them (Section 7.5.5.3).
- ✓ In addition to technology related issues, businesses need to focus on subjective factors that influence consumers within the context they intend to trade, e.g. trust, cost, social influence (Section 7.5.2.7 and 7.5.5.1).
- ✓ Businesses can take advantage of the ostentatious culture by getting celebrities, for instance, to adopt and show case the m-Commerce activity and then create a *hype* around the brand. Before long, many people are likely to take up the activity thereby leading to increased popularity (Section 7.5.6).
- ✓ Businesses can leverage on perceived value by emphasising other indicators that might create a perception of value amongst their customers such as price, class, luxury, usefulness, etc. (Section 7.5.5.2)
- ✓ Businesses can create additional revenues by monetising their app through strategies such as in-app advertisements, freemium model, subscription model or in-app purchases (Section 7.5.5.1).
- ✓ Businesses can enhance their productivity through the use of mobile apps such as Dropbox, Prezi, Skype, Charlie, etc. (Section 7.5.5.1).
- ✓ Businesses and m-Commerce providers should design applications that are easy to use and also create awareness of the benefit and ease of use of m-Commerce (Section 7.5.5.2).

Practical recommendations to government and policy makers include:

- ✓ Government and policy makers are encouraged to develop policies like the cashless policy, which will encourage further adoption of m-Commerce (Sections 7.5.5.2 and 7.5.6).
- ✓ Government and policy makers are also encouraged to introduce consumer protection laws that can boost customers' confidence in online transactions and reduce perceived security concerns (Section 7.5.3.10).
- ✓ Government and policy makers can also introduce financial incentives such as tax breaks, which will encourage businesses' adoption of m-Commerce and support the move towards making Nigeria a cashless society.

These recommendations are reflective of practical implications. As such, separating a list of implications from a list of recommendations might provide little or no additional information as repetition is almost unavoidable.

## **8.5 Study Limitations**

This research has been 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 which will be discussed in this section. While these limitations do not undermine the results of this research, these limitations are a reflection that different patterns or result might be observed in this research was to be conducted in a different context. For instance, this research focused on micro and small businesses in Nigeria. Therefore, if this research is to be conducted on micro and small businesses in Canada, UK, Hong Kong, China, 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 study only surveyed 197 businesses, the possibility of getting more information or slightly different insight into the current trends of m-Commerce adoption among micro and small businesses in Nigeria, if a larger sample is used, cannot be ruled out.

In addition, 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 to be conducted on micro and small businesses that offer services in Nigeria. Similarly, different patterns might also be observed if the research is to be conducted on medium, large scale or international businesses in Nigeria. As a result, while some of the factors and patterns observed from 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.

Although this study provides an update to the literature on factors that influence m-Commerce adoption in developing countries like Nigeria, it is worth noting that, given the rapid rate of adoption and the changing pattern of technology adoption in places like Nigeria, care would need to be taken in applying the results of this research after a few years. Therefore, it is important that constant research on this subject area is conducted in order to ensure that literature is in sync with the evolution of m-Commerce adoption in developing countries, particularly in Nigeria.

### **8.6 Future Research Directions**

Based on the findings of this study, as well as its limitations, new research directions may be identified. The first line of enquiry can focus on the extension of the m-Commerce adoption model to provide the potential to accommodate new m-Commerce trends that might evolve in future. It might be worth testing the first adoption model that was designed (Figure 4) in other countries that are more advanced in the level of sophistication associated with their adoption of m-Commerce than Nigeria that is yet to fully embrace activities such as NFC, location based advertisement, etc.

Also, more research needs to be conducted on m-Commerce adoption from a business perspective. Perhaps, various authors might consider existing research that has focused on various concepts of m-Commerce, albeit from a consumer perspective; and seek to identify possible differences that might emerge from similar studies being conducted from a business perspective. Also, more research needs to be conducted in order to investigate the factors that influence m-Commerce adoption from the perspective of businesses within different socio-cultural contexts, industries, etc.

Within the context of developing countries like Nigeria, academics and researchers are encouraged to conduct more m-Commerce research that captures and reflects the rapidly changing trends of mobile uptake and the telecommunication industry. Also, the conduct of more research within these countries will provide a platform to showcase innovative ways that individuals, customers, businesses and the government are adopting m-Commerce.

Another research direction might focus on conducting this study with a sample of micro and small businesses 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 behaviour of companies in different industries due to different factors that might be unique to the different industries. These can also be researched.

In addition, it might be worth researching the impact of technological advancements on m-Commerce adoption among different categories of businesses – micro, small, medium or large businesses – in different countries. This can provide insight into the factors that influence the adoption of m-Commerce by the respective categories of businesses in the respective countries.

### **8.7 Chapter Conclusion**

This chapter sought to present a concise summary of the research conducted on the factors that influence the successful adoption of m-Commerce through SIM enabled devices in a developing country, Nigeria. This chapter provided a brief insight into the major findings of this research, as well as theoretical and practical implications. The chapter also highlighted different points where the research objectives were fulfilled. Limitations and future research directions from this research were also highlighted.

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# APPENDIX

## APPENDIX 1

### 1.1 Initial Design of Interview Discussion Guide

#### PROPOSED INTERVIEW QUESTIONS

Considering that the interviews are exploratory, provisional questions have been noted and place into 4 identified categories of interest. These are:

##### Category 1

Enquiry into current use of internet and other forms of technology within the company

Possible questions include:

- Do you have a website?
- What are the features of your website?
- How do you receive payments from customers?
- How do you make payments to suppliers?
- What kinds of contacts do you have with your customers?
- Do you make use of any form of technology in your business?
- If yes, which technology do you use? What do you use it for?
- Why did you decide to start using that technology?

##### Category 2

Enquiry into prospect of using internet and other forms of technology within the company

Possible questions include:

- Do you have any plans to incorporate (more) technology into your business?
- How do you think the use of technology can impact on your business?
- If you were to incorporate technology, what are your major considerations?
- How do you use mobile phones or other mobile devices in your business?
- Can you think of (or could you mention) ways through which mobile phones or mobile devices can be used for business purposes?
- How do you get new customers?
- How do you keep existing customers?
- How do you advertise your business?

##### Category 3

Enquiry into factors that could determine their use of internet and other forms of technology within the business.

Possible questions include:



- In deciding what you do or don't do in your business, what factors do you consider?
- Are there external bodies that influence the way you run your business? If yes, please mention
- How does the culture around your business location/state affect your business?
- If you were to start taking online payment from customers, what would be your major considerations? What about mobile phone transfer?

#### Category 4

Enquiry into business classification and possible uses of internet and other forms of technology

- Technologically speaking, what can you do to make your customers happy and loyal?
- Do you have other business that you partner with?
- What kind of relationships or contacts do you have with those partners?
- How do you contact your suppliers?
- How many employees do you have?
- Excluding land and building, is the total asset of your business up to 5million naira?
- If yes, is it greater than 50million naira?
- What keeps you going in your business?
- In 5 years' time, where do you see your business?

### **1.2 Interview Discussion Guide for Pilot**

Considering that the interviews are exploratory, the following key questions have been identified:

- Do you have a website?
- How do you receive payments from customers?
- \*If you were to start taking online payment from customers, what would be your major considerations? What about mobile phone transfer?
- How do you use mobile phones or other mobile devices in your business?
- \*Can you think of (or could you mention) ways through which mobile phones or mobile devices can be used for business purposes?
- In deciding what you do or don't do in your business, what factors do you consider?
- Are there external bodies that influence the way you run your business? If yes, please mention
- How does the culture around your business location/state affect your business?

*\* These questions rely on answers from the previous question*

However, depending on the direction of the interview and availability of time, other questions that might be asked include:

- What are the features of your website?

- Do you have any plans to incorporate (more) technology into your business?
- How do you think the use of technology can impact on your business?
- If you were to incorporate technology, what are your major considerations?
- How do you make payments to suppliers?
- What kinds of contacts do you have with your customers?
- Do you make use of any form of technology in your business?
- If yes, which technology do you use? What do you use it for?
- Why did you decide to start using that technology?
- Technologically speaking, what can you do to make your customers happy and loyal?
- Do you have other business that you partner with?
- What kind of relationships or contacts do you have with those partners?
- How do you get new customers?
- How do you keep existing customers?
- How do you advertise your business?
- How do you contact your suppliers?
- How many employees do you have?
- Excluding land and building, is the total asset of your business up to 5million naira?
- If yes, is it greater than 50million naira?
- What keeps you going in your business?
- In 5 years' time, where do you see your business?

### **1.3 Interview Discussion Guide for Main Study**

- Can you please introduce your business? (Ask about their position)
- Do you make use of any form of technology in your business?
- If yes, which technology do you use? What do you use it for?
- Why did you decide to start using that technology?
- Do you plan to incorporate (more) technology into your business?
- If you were to incorporate (more) technology, what are your major considerations?
- \* How do you think the use of technology can impact on your business?
- Do you have a website? If yes, what are the features of your website (order tracking, etc.)?
- \* Is there a different view when accessing the website on a phone and on a computer?
- Do you use the internet within your business? If yes, how does it help/*limit* your business?
- How do you use mobile phones or other mobile devices in your business?

- *What influenced your decision to start using mobile transfer or POS?*
- *Did you encounter any problems?*
- Can you think of other ways through which mobile phones or mobile devices can be used for business purposes?
- If you were to advance in your use of mobile phones, what would you consider?
- How do you receive payments from customers (mobile, virtual, cash, NFC, etc.)?
- How do you keep existing customers?
- **In terms of customer needs, enquiry & complaints, do you make use of mobile phones or any form of technology?**
- How do you advertise your business?
- How do you make payments to suppliers?
- What are the key factors that influence the decisions you make in your business?
- Are there external bodies that influence the way you run your business? If yes, please mention
- **\* How does the culture around your business location/state affect your business?**
- If you were to start taking online payment from customers, what would be your major considerations? What about mobile phone transfer?
- How do you contact your suppliers?
- How do you make payments to your suppliers?
- Is your staff strength less than or greater 10?
- Excluding land and building, is the total asset of your business greater than 5million naira?
- **\* If yes, is it greater than 50million naira?**
- Is there anything else you would like to add with respect to this interview?
- How do you feel about the Interview? Comments, suggestions...
- Would you like to get results of this research?

**Checklist of key aspects to investigate (Ensure these are covered in the interviews):**

- ✓ Use of mobiles phones for telecoms
- ✓ Web presence; content of web page
- ✓ Extent of Use of internet
- ✓ Mode of interaction with customers and suppliers
- ✓ Integration of mobile platform
- ✓ Functionality of website – order, reservation, purchase, queries/feedback,
- ✓ Advertisement,

- ✓ Online customer support / service
- ✓ Mobile app
- ✓ Mobile payment
- ✓ NFC

## APPENDIX 2

### 2.1 Map of Nigeria with Thirty-six States



Picture retrieved from Daily Mail. Available at [http://dailymail.com.ng/wp-content/uploads/2015/01/10360606\\_10203337420937904\\_71905998820449261\\_n.jpg](http://dailymail.com.ng/wp-content/uploads/2015/01/10360606_10203337420937904_71905998820449261_n.jpg)

Original Post can be found at <http://dailymail.com.ng/state-nigeria-map-nigeria-list-36-states-capitalwhats-the-name-of-your-state-in-nigeria-map-of-nigeria-and-list-of-all-36-states-in-nigeria/>

## **2.2 Map of Nigeria with Geo-political distribution**



Picture retrieved from SlideShare. Available at

<http://image.slidesharecdn.com/bokoharamandjambiteschoices-140609024426-phpapp02/95/boko-haram-and-jambites-choices-4-638.jpg?cb=1402281950>

Original Post can be found at <http://www.slideshare.net/statisense/boko-haram-and-jambites-choices>

## **2.3 Location of Interviewed Businesses**

List of States within the 6 geo-political regions where businesses were selected for the Interviews.

- North Central: Benue and Abuja
- North East: Adamawa and Adamawa
- North West: Kebbi and Kaduna
- South East: Imo and Imo
- South West: Lagos and Oyo
- South South: Bayelsa and Delta

## **2.4 Participant Briefing Sheet for Interviews**

### **PARTICIPANT BRIEFING SHEET**

#### **FACTORS THAT INFLUENCE THE SUCCESSFUL ADOPTION OF M-COMMERCE VIA SIM-ENABLED DEVICES IN A DEVELOPING COUNTRY**

*You are being invited to take part in a research study. Before deciding whether or not to take part, it is important that you understand why the research is being done and what it will involve. Kindly take time to read the following information carefully.*

The study you are being invited to take part in is a 3-year research course conducted by Priscilla Omonedo, a PhD student at Aston University. This research has been given a favourable opinion by Aston University Research Ethics Committee.

#### **What is the Purpose of the Study?**

The primary purpose of this research is to develop a blueprint that micro or small businesses in Nigeria can use as a guide in order to gain some form of benefit from including m-Commerce as part of their business. This research is important because the increasing use of mobile phones and other mobile devices in Nigeria presents a potential opportunity for increased business activity. Therefore, businesses need to think of ways through which they can make use of this opportunity to gain additional benefits. However, considering the large number of micro and small businesses and the limited resources they have, this study will focus on developing a blueprint that can be used by micro and small businesses in Nigeria and other similar economies.

In order to achieve this, a series of interviews need to be conducted on owners or managers of micro and small businesses in Nigeria. These interviews will help in gaining an understanding of how businesses use mobile devices and what factors affect the way they use mobile devices.

#### **Why have I been selected?**

You have been selected to take part in this study because of the size of your business and your position within the business as the owner or the manager of the business.

#### **Do I have to take part?**

You are free to decide whether or not you wish to take part. If you decide to take part, you will be given this information sheet to keep and also be asked to sign a consent form. *If you decide to take part you are still free to withdraw at any time up until publication without giving a reason. Also, you will not have to answer any question you do not wish to answer.*

#### **What will happen if I agree to take part in the Study?**

*In order to participate in the study, you will be contacted for a telephone interview which will last for about 25 minutes. Questions to be asked will be entirely based on your business and how you use mobile devices as part of your business. All information collected will be used solely for the purpose of this research. Although the interview will be recorded for the purpose of analysis, all information gathered will be kept strictly confidential through the use of password protection of files and possibly hiding folders when they are stored. Also, before reporting results, all information gathered will be made anonymous so that it's difficult to link your business to the research. The results will be reported within academic publications and the PhD dissertation. In accordance to Aston Business School ethical regulation, data will be held for 5 years after the completion of the research.*

If you wish to participate in this research, kindly indicate by signing the consent form. If you wish to receive summarized report of results, please indicate by writing your email address on the consent form.

For further information, kindly contact [omonedpe@aston.ac.uk](mailto:omonedpe@aston.ac.uk) or the Project Supervisors:

Christopher Brewster: [c.a.brewster@aston.ac.uk](mailto:c.a.brewster@aston.ac.uk)

Paul Bocij: [bocij@aston.ac.uk](mailto:bocij@aston.ac.uk)

In case you wish to raise any concerns about the way in which the study has been conducted, please contact the Secretary of the University Ethics Committee on [j.g.walter@aston.ac.uk](mailto:j.g.walter@aston.ac.uk) or telephone 0121 204 4869.

Thank you

Priscilla Omonedo  
PhD Student, Aston Business School  
12th May, 2014



## APPENDIX 3

### 3.1 Summary of Responses from Phase 1 Data Collection: Exploratory Phase

STAGE	Scale / Region	Business Type	Tech Adoption	Reason for Adoption	Future Tech Plans / Awareness	Website Features	Internet Usage	Mobile phone usage	Factors - Mobile Transfer	Factors - Advanced Mobile Usage	Mode of Payment	Advert	Factors - business decisions
1	Micro / SE Imo	Super-market & canteen	No technology	NA	My son will get me a laptop soon; Previously used mobile phones to sell call credit	NA	No internet access	Calls for orders; Calculating transactions; Contact customers to come pick up goods	NA	Getting more customers; Exposure of business	Cash	Mouth to mouth,	How to get more money in the business
1	Micro / NC Abuja	Supermarket	No technology	NA	NA	NA	Emails, Facebook	Alarm; Check time; Order confirmation; Customers call to enquire about product availability; Use for recharge card sales	IT is not versatile; Many people don't know about it; If I find it workable I can use it	No other way. Who knows if I supply this product that the customer will keep to their word; Also suppliers want their money in cash; If it's in vogue I can agree to it	Cash; bank deposit	Display products ; Used to have signpost but since it fell, I've not put it back up	Consider losses & profit (benefit); check price ranges; how fast will the product move; impact on sales and customers; maintain consistency

2	Micro / NC Benue	Rice mill	No technology	NA	NA	NA	Emails	Calls; mobile transfer			Bank transfer; mobile transfer; Cash deposit to bank	Friends; vehicle publicity	Profitability
2	Small / NE Adama wa	Super-market	POS; printers; computers	For managing transaction & information, replacement of manual book system, track inventory	Plans = None for now // Awareness = prospects; improving POS; barcode & security on doors; electronic scanner	NA	emails, research	Banking - alerts, calls, orders, same old things; business app to track stock that works with barcode scanner	Ease of transaction, ease of cashing	People are not enlightened about it	Cash, POS, Credit card, electronic transfer	Media - TV, Radio, Billboards, signboard, Internet - social network	Customers are number 1; Impact on customers; what will it add; ease of implication; how feasible; what will it bring

2	Medium / NW Kaduna	Restaurant, Bakery, Coffee, Ice cream centre	Computer s, Cash register, internet, mobile phones	Cost, Usability (technical know-how), Suitability, Effectiveness	Mobile phone for cash transfers/ transaction, Feedback and stable / online customer desk	Company info; online order placement; customer interaction; web portals; sign post	Sharing of ideas and information	Communication (calls), customer feedback, orders, cash transaction, text message procurement	Security fears, Not everyone is comfortable with it; CBN Cashless Policy	Cost of technology ; Staff capability; Trainability; Effective reach scope coverage; Understanding / Interpretation to Tax officials, government and 3rd party	Bank transfer, POS, cash		Customer acceptance; Cost - human, resources, financial; Practicality
2	Small / SW Lagos	Agriculturist, consultant ; crops and livestock	Tractor, no computer but sophisticated phones	To follow trend		NA	emails	Calls; information transfer; text messages for advert; placing orders; make bookings		Cashless policy so we're planning to incorporate mobile money transaction; online booking	Bank deposit; cash payment; bank transfer	Internet advert; mouth-to-mouth; newspaper (face media)	Welfare of staff; Trend; Marketing strategy; customer satisfaction ; quality of products

2	Small / SW Oyo	Buying and selling of chemicals, lab furnishing	Computers	To keep up with global trend; for ease of operation; for easy storage of information; for stock taking and tracking	None // no except for communication	NA	For online catalogue; For product information; For emails	For communication - calls & emails	POS - Charges collected for transactions, general problems with handling of issues when they arise // to fit into Cashless policy	Be careful of fraudsters	Mobile transfer; POS; cheque	Emails; bulk SMS; radio	Progress / impact; quality of products; customer satisfaction
2	Small / NE Adama wa	Supermarket - wholesale and retail	Computers, POS, GSM	To fit into cashless policy, more convenient access to cash, reduces crimes, increased popularity	Online sales and delivery	Company information, website not fully in operation	emails, information exchange	Communication (calls), internet search (browsing),	Network issue	Trust issue, poor handling of issues, stabilizing	Cash, POS, 1 person conducts mobile transfer probably one or twice a month, Bank transfer (Instant transfer), cheque	Signboard, delivery van; newspaper, radio, TV, but no more due to security challenge - we've been attacked in the past	Customer complaints, price, improve services, salary (staff morale)

3	Small / NW Kebbi	Animal Nutritionist, poultry business	Computer s, Sales attendanc e, automated fan	Trendy with age (odd not to have)	Thinking of more technology	Informat ion & Advertis ement	Internet banking; emails	Calls for orders; sending of banking		Yes, will consider	Cash deposit; Bank transfer; Cash transacti ons	local TVs, radio, website	Current situation or forecast e.g., changes in cost of production
3	Micro / SE Imo	Communi cations business	Laptops	Profitabilit y, Impact on business	Never made enquiry // No other way	Informat ion	Emails, chatting, Informati on,	Communicatio n, text messaging, calls to place order, send emails	Fraudster s, not convince d; long term relationsh ip; face-2-face interactio n	Interview the person, consider the impact of the technology Profitabilit y, Relevance to business type	Bank transfer; Cheque, Cash less than 100,000; no mobile transfer, no POS	Faceboo k; mouth 2 mouth; flyers; signpost with phone no and email; convinc e them	Not favourable; lower sales; introduce & research - if it works, fine, if not, no

3	Small / SS Delta	Diagnostic, lab invest, medical ultrasound, consumables, kits, ambulance hire	Lab analysis technology, ultrasound, digital x-ray machine			Information display	Purchase of equipment, for information, technology support, keep up to date with current trends in research	Calls, reporting / relaying of results	Cashless Policy, Monetary transactions not being used due to system failure, network issues, and other hitches	level of literacy; little or no appreciation and knowledge; fear of fraudsters;	95% Cash, 5% POS, Cheque, Bank transfer, e-Banking	No advert due to ethics of medical field, signboard, mouth 2 mouth, personal promotion	Impact on Growth, Finance/funds, space, demands from clients and patients
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4	Small / SS Rivers	Super- market, boutique, kitchen and furniture	Laptops, Oracle (POS), thumbprin t	To meet internation al standard, to reduce queues, to get an edge over other supermark ets, to print receipts (increase customer confidence in sales figure)	None for now, happy with the one we have // mobile phones can help to contact customers	Compan y informat ion, display items / products , View, Order, Purchase online and then have door delivery, chat feature, mobile optimise d, tracking	emails, website access, send daily report,	calls, access to website, inform customers of new products, emails	Problems with installatio n; not familiar with software; limited technical expertise of people coming to fix things, manual payment when system is down. With training, staff was able to catch up because system was easy	for online payment, we're trying to make arrangeme nts for customers to access credit facilities which can be customized to purchases on our platforms	Pay on delivery - cash or POS // Bank transfer	Radio, TV, Internet (Facebo ok, twitter)	Board of directors
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### 3.2 Coding of Interview Findings: Stage 1 Characteristics

MAPPING OF INTERVIEW FINDINGS			
STAGE 1 CHARACTERISTICS			
List of Characteristics from Interview Responses		Coding of Characteristics	List of Stage 1 Characteristics (without duplicates)
Business 1			
Website	No website	No web presence	No web presence
Internet Usage	No internet access	No use of internet	No use of internet
Payment Mode	Cash	Cash & Cheque payment	Cash & Cheque payment
Advert	Mouth-to-mouth	Word of mouth	Word of mouth
Mobile phone Usage	Calls for order	SMS & Verbal product reservation	SMS & Verbal product reservation
	Calculating transactions	<i>Calculate transactions</i>	<i>Calculate transactions</i>
	Contact customers to come pick up goods	Use of mobile phones for communication	Use of mobile phones for communication
	Extend greetings	SMS based advertisement	SMS based advertisement



Business 2			
Website	No website	No web presence	
Internet Usage	Email, Facebook	<i>Sign of evolution to stage 2</i>	
Payment Mode	Cash, bank deposit	Bank transfer / deposit with SMS Alert	Bank transfer / deposit with SMS Alert
Advert	Display products, used to have signpost but since it fell, I've not put it back up	Word of mouth	
Mobile phone Usage	Alarm since I work late	<i>Alarm</i>	<i>Alarm</i>
	Check time	<i>Check time</i>	<i>Check time</i>
	Use for order confirmation	SMS & Verbal product reservation	
	Customers call to enquire about product availability	SMS & Verbal product enquiry	SMS & Verbal product enquiry
	Use for recharge card sales	<i>Sale of recharge card</i>	<i>Sale of recharge card</i>

### 3.3 Coding of Interview Findings: Stage 2 Characteristics

MAPPING OF INTERVIEW FINDINGS			
STAGE 2 CHARACTERISTICS			
List of Characteristics from Interview Responses		Coding of Characteristics	List of Stage 2 Characteristics (without duplicates)
Business 3			
Website	No website	No web presence	No web presence
Internet Usage	Emails	Limited use of internet	Limited use of internet
Payment Mode	Bank transfer, mobile transfer, cash deposit to bank	Bank transfer / deposit with SMS Alert	Bank transfer / deposit with SMS Alert
Advert	Friends, vehicle publicity	Word of mouth + Vehicle publicity	Word of mouth + Vehicle publicity
Mobile phone Usage	Calls	Use of mobile phones for communication	Use of mobile phones for communication
	Mobile transfer	Mobile transfer for payment	Mobile transfer for payment
Business 4			
Website	No website	No web presence	
Internet Usage	Emails, research	Limited use of internet	

Payment Mode	Cash, POS, Credit card, electronic transfer	Cash & Cheque payment + Bank wire transfer	Cash & Cheque payment + Bank wire transfer
Advert	Media - TV, Radio, Billboards, signboard, Internet - social network	Use of mobile phones for social media advertisement	Use of mobile phones for social media advertisement
Mobile phone Usage	Banking - alerts	Bank transfer / deposit	
	Calls	Use of mobile phones for communication	
	Orders	SMS & Verbal product reservation	
	Business app to track stock that works with barcode scanner		
Business 5			
Website	Yes, website under development	No web presence	
Internet Usage	Sharing of ideas and information	Use of mobile phones for internet communication	
Payment Mode	Bank transfer, POS, cash	Bank transfer / deposit with SMS Alert	
Mobile phone Usage	Communication (calls)	Use of mobile phones for communication	
	Customer feedback	Use of mobile phones for communication	
	Orders	SMS & Verbal product reservation	SMS & Verbal product reservation
	Cash transactions	Cash & Cheque payment	Cash & Cheque payment
	Text message procurement	SMS & Verbal product reservation	

Business 6			
Website	No website	No web presence	
Internet Usage	Emails	Limited use of internet	
Payment Mode	Bank deposit, cash payment, bank transfer	Cash & Cheque payment + Bank wire transfer	
Advert	Internet advert, mouth-to-mouth, newspaper (face media)	Use of mobile phones for social media advertisement	
Mobile phone Usage	Calls	Use of mobile phones for communication	
	Information transfer	Use of mobile phones for internet communication	Use of mobile phones for internet communication
	Text messages for advert	SMS based advertisement	SMS based advertisement
	Placing orders	SMS & Verbal product reservation	
	Make bookings	SMS & Verbal product reservation	
Business 7			
Website	Yes, but it's shutdown now	No web presence	
Internet Usage	For online catalogue, for product information, for emails	Limited use of internet	
Payment Mode	Mobile transfer, POS, cheque,	Mobile transfer for payment	

Advert	Emails, bulk sms, radio	Media advert – TV, Radio, Billboard, newspaper, bulk SMS	Media advert – TV, Radio, Billboard, newspaper, bulk SMS
Mobile phone Usage	For communication - calls & emails	Use of mobile phones for communication	
Business 8			
Website	Yes	<i>Sign of evolution to Stage 3</i>	
Internet Usage	Emails, information exchange	Limited use of internet	
Payment Mode	Cash, POS, 1 person conducts mobile transfer probably one or twice a month, Bank transfer (Instant transfer), cheque	Cash & Cheque payment + Bank wire transfer	
Advert	Signboard, delivery van. Also, newspaper, radio, TV, but no more due to security challenge - we've been attacked in the past which led to deaths	Media advert – TV, Radio, Billboard, newspaper, bulk SMS	
Mobile phone Usage	Communication (calls)	Use of mobile phones for communication	
	Internet search (browsing)	Limited use of internet	

### 3.4 Coding of Interview Findings: Stage 3 Characteristics

MAPPING OF INTERVIEW FINDINGS			
STAGE 3 CHARACTERISTICS			
List of Characteristics from Interview Responses		Coding of Characteristics	List of Stage 3 Characteristics (without duplicates)
Business 9			
Website	Yes	Web presence	Web presence
Website features	Information & Advertisement	Website for product / service advertisement	Website for product / service advertisement
Internet Usage	Internet banking, emails	Internet banking	Internet banking
Payment Mode	Cash deposit, Bank transfer, Cash transactions	Cash & Cheque payment + Bank wire transfer	Cash & Cheque payment + Bank wire transfer
Advert	local TVs, radio, website	Media advert – TV, Radio, Billboard, newspaper, bulk SMS	Media advert – TV, Radio, Billboard, newspaper, bulk SMS
Mobile phone Usage	Calls for orders	SMS & Verbal product reservation	SMS & Verbal product reservation
	Sending of banking	Use of mobile phones for communication	Use of mobile phones for communication

Business 10			
Website	Yes	Web presence	
Website features	Information	Website for information enquiry / dissemination	Website for information enquiry / dissemination
Internet Usage	Emails, chatting, Information,	Social networking	Social networking
Payment Mode	Bank transfer, Cheque, Cash less than 100,000, no mobile transfer, no POS	Cash & Cheque payment + Bank wire transfer	
Advert	Facebook, mouth to mouth, pamphlet, flyers, signpost with phone no and email, convince them	Advertisement via TV, radio, website, pamphlet, flyers, signposts	Advertisement via TV, radio, website, pamphlet, flyers, signposts
Mobile phone Usage	Communication	Use of mobile phones for communication	
	Text messaging	Use of mobile phones for communication	
	Calls to place orders	SMS & Verbal product reservation	
	Send emails	Use of mobile phones for internet communication	Use of mobile phones for internet communication
Business 11			
Website	Yes	Web presence	
Website features	Information display	Website for information enquiry / dissemination	
Internet Usage	Purchase of equipment, for information, technology support, keep up to date with current trends in research	Use of mobile phones for internet research	

Payment Mode	95% Cash, 5% POS, Cheque, Bank transfer, e-Banking	Cash & Cheque payment + Bank wire transfer	
Advert	No advert due to ethics of medical field, just have a signboard, moth-to-mouth, personal promotion of medical kit	Word of mouth	Word of mouth
Mobile phone Usage	Calls	Use of mobile phones for communication	
	Reporting / relaying of results	Use of mobile phones for internet communication	



### 3.5 Coding of Interview Findings: Stage 4 Characteristics

MAPPING OF INTERVIEW FINDINGS			
STAGE 4 CHARACTERISTICS			
List of Characteristics from Interview Responses		Coding of Characteristics	List of Stage 4 Characteristics (without duplicates)
Business 12			
Website	Yes	Web presence	Web presence
Website features	Company information, display items / products, View, Order, Purchase online and then have door delivery, chat feature, mobile optimised, tracking	Interactive website + Online / Card payment + Order placing & tracking + Online reservation	Interactive website + Online / Card payment + Order placing & tracking + Online reservation
Internet Usage	Emails, website access, send daily report,	Internet communication + Sending of daily reports	Internet communication + Sending of daily reports
Payment Mode	Pay on delivery - cash or POS // Bank transfer	Electronic / Card payment	Electronic / Card payment
Advert	Radio, TV, Internet (Facebook, twitter)	Social networking	Social networking
Mobile phone Usage	Calls	Use of mobile phones for communication	Use of mobile phones for communication
	Access to website	Mobile tracking of website and orders	Mobile tracking of website and orders
	Inform customers of new products	Use of mobile phones for communication	
	Emails	Internet communication	

### 3.6 Coding of Interview Findings: Migration Factors 0 - 1 & 1 - 2

MAPPING OF INTERVIEW FINDINGS				
STAGE 1 BUSINESSES				
List of Characteristics from Interview Responses	Coding of Factors	Stage 0 - 1 Factors (without duplicates)	Stage 1 - 2 Factors (without duplicates)	
Business 1				
Factors - advanced Mobile Usage	Getting more customers	Customer Acceptance		Customer Acceptance
	Exposure of business	Effectiveness		Effectiveness
	Profitability / Benefit / Value	Profitability + Perceived Value		Perceived Value
	Easier access to bank facilities	Convenience		Convenience
Factors - business decisions	How to get more money in the business	Profitability	Profitability	
Business 2				
Mobile Transfer Challenges / Factors	IT's not versatile, many people don't know about it	Technology Popularity	Technology Popularity	
	If I find it workable I can use it	Perceived Usefulness & Perceived Value	Perceived Usefulness	
Factors - advanced Mobile Usage	No other way	Low Literacy		Limited Awareness / Appreciation of Technology

	Who knows if I supply this product that the customer will keep to their word	Presence of Trust		Presence of Trust
	Also suppliers want their money in cash so how will I pay if my money is in the air	Supplier Readiness / Acceptance		Supplier Readiness / Acceptance
	If it's in vogue I can agree to it	In vogue, general acceptance		In vogue, general acceptance
	Training and guidance	Need for Training and guidance		Need for Training and guidance
Factors - business decisions	Consider losses & profit (benefit)	Profitability		
	Check price ranges	Business Cost	Business Cost	
	How fast will the product move	Increased Popularity	Increased Popularity	
	Impact on sales and customers	Suitability "appropriate" for business	Suitability "appropriate" for business	
	Maintain consistency	Suitability "appropriate" for business		

### 3.7 Coding of Interview Findings: Migration Factors 1 - 2 & 2 - 3

MAPPING OF INTERVIEW FINDINGS				
STAGE 2 BUSINESSES				
List of Characteristics from Interview Responses	Coding of Factors	Stage 1 - 2 Factors (without duplicates)	Stage 2 - 3 Factors (without duplicates)	
Business 3				
Factors - business decisions	Profitability	Profitability	Profitability	
Business 4				
Reason for Tech Adoption	For managing transactions and information	Usability	Usability	
	Replacement of manual book system, track inventory	Perceived Usefulness	Perceived Usefulness	
Mobile Transfer Challenges / Factors	Ease of transaction	Ease of Use	Ease of Use	
	Ease of cashing	Ease of Use		
Factors - advanced Mobile Usage	People are not enlightened about it	Customer Awareness		Customer Awareness
Factors - business decisions	Customers are number 1	Customer Acceptance	Customer Acceptance	
	Impact on customers	Customer Acceptance		

	What will it add	Impact on busines		
	Ease of implication	Ease of Use		
	How feasible	Suitability “appropriate” for business	Suitability “appropriate” for business	
	What will it bring	Suitability “appropriate” for business		
Business 5				
Reason for Tech Adoption	Cost	Transaction Cost	Transaction Cost	
	Usability (technical know-how)	Ease of Use		
	Suitability	Suitability “appropriate” for business		
	Effectiveness	Effectiveness	Effectiveness	
Mobile Transfer Challenges / Factors	Security fears	Security fears		
	Not everyone is comfortable with it	Customer Acceptance		
	CBN Cashless Policy	Impact of Regulatory Policy	Impact of Regulatory Policy	
Factors - advanced Mobile Usage	Cost of technology	Cost of Technology		Cost of Technology
	Staff capability	Staff capability		Staff capability
	Trainability	Trainability		Trainability

	Effectiveness (scope coverage)	Effectiveness (scope coverage)		Effectiveness (scope coverage)
	Understanding / Interpretation to Tax officials, govt. and 3rd party	Lack of Technical Expertise among Policy makers		Lack of Technical Expertise among Policy makers
Factors - business decisions	Customer acceptance	Customer Acceptance		
	Cost - human, resources, financial	Business Cost	Business Cost	
	Practicability	Impact on business		
Business 6				
Reason for Tech Adoption	To follow trend	Technology popularity	Technology popularity	
Factors - advanced Mobile Usage	Cashless policy so we're planning to incorporate mobile money transactions, online booking	Impact of Regulatory Policy		Impact of Regulatory Policy
Factors - business decisions	Welfare of staff	Training and Guidance	Training and Guidance	
	Trend	Social Influence	Social Influence	
	Marketing strategy	Effectiveness	Effectiveness	
	Customer satisfaction	Customer Acceptance		
	Quality of products	Usability & Effectiveness		
Business 7				

Reason for Tech Adoption	To keep up with global trend	Global Trend	Social Influence	
	For ease of operation	Ease of Use		
	For easy storage of information	Impact on business		
	For stock taking and tracking	Perceived Usefulness		
Mobile Transfer Challenges / Factors	POS - Charges collected for transactions	Transaction Cost	Transaction Cost	
	No network but it's okay a lot times	Availability of Internet access & High connection speed	Availability of Internet access & High connection speed	
	General problems with handling of issues when they arise	Trust	Trust	
	To fit into Cashless policy	Impact of Regulatory Policy		
Factors - advanced Mobile Usage	Be careful of fraudsters	Effective Security Feature		Effective Security Feature
Factors - business decisions	Progress impact	Effectiveness		
	Quality of products	Usability		
	Customer satisfaction	Customer Acceptance		
Business 8				
Reason for Tech Adoption	To fit into cashless policy	Impact of Regulatory Policy		
	More convenient access to cash	Convenience		

	Reduces crimes	Positive impact on Crime	Positive impact on Crime	
	Increased popularity	Increased Popularity	Increased Popularity	
Mobile Transfer Challenges / Factors	Network issue	Availability of Internet access & High connection speed		
Factors - advanced Mobile Usage	Trust issue	Trustworthiness of technology		Trustworthiness of technology
	Poor handling of issues	Poor resolution of issues		Poor resolution of issues
	Stabilizing	Personal Innovativeness		Personal Innovativeness
Factors - business decisions	Customer complaints	Customer Acceptance		
	Price	Availability and affordability of Device Technology	Availability and affordability of Device Technology	
	Improve services	Impact on business		
	Salary (staff morale)	Business Cost		



### 3.8 Coding of Interview Findings: Migration Factors 2 - 3 & 3 - 4

MAPPING OF INTERVIEW FINDINGS				
STAGE 3 BUSINESSES				
List of Characteristics from Interview Responses		Coding of Factors	Stage 2 - 3 Factors (without duplicates)	Stage 3 - 4 Factors (without duplicates)
Business 9				
Reason for Tech Adoption	Trendy with age (odd not to have)	Social Influence	Social Influence	
Factors - business decisions	Current situation or forecast e.g., changes in cost of production	Commitment	Commitment	
Business 10				
Reason for Tech Adoption	Profitability	Profitability	Profitability	
	Impact on business	Impact on business	Impact on business	
Mobile Transfer Challenges / Factors	Fraudsters	Security fears	Security fears	
	Not convinced	Access to Orientation, training and support	Access to Orientation, training and support	
	Long term relationship	Trust & Culture	Trust	
	Face-2-face interaction	Culture	Culture	

Factors - advanced Mobile Usage	Interview the person	Culture - natural emphasis on personal relationship		Culture - natural emphasis on personal relationship
	Consider the impact of the technology	Impact on business		Impact on business
	Profitability	Profitability		Profitability
	Relevance to business type	Relevance to business type		Relevance to business type
Factors - business decisions	Not favourable	Impact on business		
	Lower sales	Profitability		
	Introduce & research - if it works, fine, if not, no	Willingness to engage in Resource investment	Willingness to engage in Resource investment	
Business 11				
Mobile Transfer Challenges / Factors	Government influenced Cashless Policy	Impact of Regulatory Policy	Impact of Regulatory Policy	
	Monetary transactions not being used due to system failure	Instability / unreliableness of technology	Instability / unreliableness of technology	
	Network issues, and other hitches	Network issues	Network issues	
Factors - advanced Mobile Usage	Level of literacy	Low literacy		Low literacy
	Little or no appreciation and knowledge	Little or no appreciation of technology		Little or no appreciation of technology
	Fear of fraudstars	Security fears		Security fears
Factors - business decisions	Impact on Growth	Impact on business		

	Finance/funds	Cost of technology	Cost of technology	
	Space	Access to Orientation, training and support	Access to Orientation, training and support	
	Demands from clients and patients	Customer Acceptance	Customer Acceptance	

### 3.9 Coding of Interview Findings: Migration Factors 3 - 4

MAPPING OF INTERVIEW FINDINGS				
STAGE 4 BUSINESSES				
List of Characteristics from Interview Responses		Coding of Factors	Stage 3 - 4 Factors (without duplicates)	Stage 3 - 4 Factors (without duplicates)
Business 12				
Reason for Tech Adoption	To meet international standard	To meet international standard	To meet international standard	To meet international standard
	To reduce queues	To reduce queues	To reduce queues	To reduce queues
	To get an edge over other supermarkets	Possibility of gaining competitive advantage	Possibility of gaining competitive advantage	Possibility of gaining competitive advantage

	To print receipts (increase customer confidence in sales figure)	Potential to increase customer confidence in sales figure	Increase Trust & Confidence	Increase Trust & Confidence
Mobile Transfer Challenges / Factors	Problems with installation	Installation problem	Installation problem	Installation problem
	Not familiar with software (technical know-how)	Poor Expertise of installation team	Poor Expertise of installation team	Poor Expertise of installation team
	Didn't get what we paid for	Poor Expertise of installation team		
	Limited technical expertise of people coming to fix things	Poor Expertise of installation team		
	Manual payment when system is down	Network issues	Network issues	Network issues
	Technology was installed prior to staff recruitment, thus, with training, staff was able to catch up 'cos system was easy	Presence of Training	Presence of Training	Presence of Training
Factors - advanced Mobile Usage	For online payment	Personal Innovativeness	Personal Innovativeness	Personal Innovativeness
	We're trying to make arrangements for customers to access credit facilities which can be customized to purchases on our platforms	Access to Credit Facility	Access to Credit Facility	Access to Credit Facility
Factors - business decisions	Board of directors	Personal Innovativeness		

## APPENDIX 4:

### 4.1 Initial Design of Questionnaire

PROJECT TITLE: FACTORS THAT INFLUENCE THE SUCCESSFUL ADOPTION OF M-COMMERCE VIA SIM-ENABLED DEVICES IN A DEVELOPING COUNTRY

**Kindly complete this questionnaire ONLY if your business involves buying or selling goods NOT services.**

*Please answer the questions that are most relevant to your business. Many thanks for your support*

**Section 1 - Demographics** (This section seeks to gather information about your business)

<b>Region where business is located</b>	<input type="checkbox"/> North Central	<input type="checkbox"/> North East	<input type="checkbox"/> North West	<input type="checkbox"/> South East	<input type="checkbox"/> South South	<input type="checkbox"/> South West	
<i>(See Appendix for classification guide)</i>							
<b>Business Age (years)</b>	<input type="checkbox"/> Below 1	<input type="checkbox"/> 1 - 5	<input type="checkbox"/> 6 - 10	<input type="checkbox"/> 11 - 15	<input type="checkbox"/> 16 - 20	<input type="checkbox"/> 21 - 25	<input type="checkbox"/> Above 25
<b>Business Industry</b>	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Construction	<input type="checkbox"/> Engineering	<input type="checkbox"/> Medical	<input type="checkbox"/> Technology	<input type="checkbox"/> Other _____	
<b>Business Category</b>	<input type="checkbox"/> Manufacturer	<input type="checkbox"/> Producer	<input type="checkbox"/> Wholesaler	<input type="checkbox"/> Retailer			
<b>Your Age</b>	<input type="checkbox"/> Below 16	<input type="checkbox"/> 16 - 25	<input type="checkbox"/> 26 - 45	<input type="checkbox"/> 46 - 55	<input type="checkbox"/> 56 - 65	<input type="checkbox"/> Above 65	
<b>Gender</b>	<input type="checkbox"/> Male	<input type="checkbox"/> Female					
<b>Educational Qualification</b>	<input type="checkbox"/> No qualifications	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> Graduate	<input type="checkbox"/> Post-Graduate		
<b>Nature of Business</b>	<input type="checkbox"/> Sole-trader	<input type="checkbox"/> Partnership	<input type="checkbox"/> Other _____				
<b>Number of employees</b>	<input type="checkbox"/> 1 - 9	<input type="checkbox"/> 10 - 49	<input type="checkbox"/> 50 - 199				
<b>Estimated Value of the Business (Excluding land and building)</b>	<input type="checkbox"/> Less than <del>N</del> 5 million	<input type="checkbox"/> <del>N</del> 5million - <del>N</del> 50 million	<input type="checkbox"/> <del>N</del> 50 million - <del>N</del> 500 million				

**Section 2 - Business Activities (Tick activities that you engage in regularly)**

Section A		Section B		Section C		Section D	
SMS or Call for business related communication	<input type="checkbox"/>	Use of mobile phones for internet communication (email, social media, etc.)	<input type="checkbox"/>	Mobile optimised Website	<input type="checkbox"/>	Receive Electronic / Card payment via website	<input type="checkbox"/>
SMS or call based advertisement	<input type="checkbox"/>	SMS driven transactions	<input type="checkbox"/>	Product / service catalogue on website	<input type="checkbox"/>	Online reservation via mobile optimised website	<input type="checkbox"/>
SMS & Verbal product enquiry	<input type="checkbox"/>	Use of mobile phones for social media advertisement	<input type="checkbox"/>	Data gathering via Contact Us / Enquiry form	<input type="checkbox"/>	Customers Order tracking via website	<input type="checkbox"/>
Physical Transactions with SMS or Verbal Confirmation	<input type="checkbox"/>	Internet for business related Research	<input type="checkbox"/>	Analysis of data gathered	<input type="checkbox"/>	Confirmation alert for payments received	<input type="checkbox"/>
SMS & Verbal product reservation	<input type="checkbox"/>			Mobile Internet banking	<input type="checkbox"/>	Delivery response post payment completed via mobile phone	<input type="checkbox"/>
Sale of PIN codes / numbers e.g. top-up, registration	<input type="checkbox"/>			No mobile online payment	<input type="checkbox"/>	Generate mailing list from m-Commerce transactions	<input type="checkbox"/>
						Mobile app for business	<input type="checkbox"/>

**Section 3** - Kindly progress to the question that is appropriate for the section(s) you have selected above

**For Section A Activities, answer  
ONLY Question 1**

**For Section A and B Activities, answer  
ONLY Question 2**

**For Section A, B and C Activities, answer  
ONLY Question 3**

**For Section A, B, C and D Activities,  
answer ONLY Question 4**

1a. List the factors that helped you achieve the activities in Section A				1b. List the factors that can prevent you from achieving the activities in Section A			
2a. Tick factors that helped you achieve the activities in section B				2b. Tick factors that can prevent you from achieving the activities in section B			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
Availability of quality Internet access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limited Awareness / Appreciation of technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability and affordability of Device Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Need for Training and Guidance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perceived Usefulness & Perceived Value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High Transaction Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keep up with trend / Social Influence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lack of Trust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology acceptance within business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Supplier's rejection of Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Consumer's rejection of Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Non popularity of Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regulatory Policy - Cashless Policy Effectiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

Others:				Others:			
3a. Tick factors that helped you achieve the activities in section C				3b. Tick factors that can prevent you from achieving the activities in section C			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
Effectiveness in reaching customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lack of training and support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Positive Impact on business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Difficulty in training and equipping employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal Qualities such as Innovativeness, Commitment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High Cost of Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meet up with Global Trend or societal change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Presence of Security fears	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer awareness & acceptance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Others:				Others:			



4a. Tick factors that helped you achieve the activities in section D				4b. Tick factors that can prevent you from achieving the activities in section D			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
Access to credit facility for customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lack of Trust	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal Innovativeness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lack of Training for employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Positive Impact on business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Perceived Security risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Negative Public Orientation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Low level of technology literacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conform to International standards / Social Norm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cultural emphasis on personal relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Influence of Regulatory Cashless Policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not suitable for type of business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relevance to business type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Others:				Others:			
<p>* Appendix – Region   <b>1. North-Central</b> = Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, Federal Capital Territory   <b>2. North-East</b> = Adamawa, Bauchi, Borno, Gombe, Taraba, Yobe   <b>3. North-West</b> = Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, Zamfara   <b>4. South-East</b> = Abia, Anambra, Ebonyi, Enugu, Imo   <b>5. South-South</b> = Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Rivers   <b>6. South-West</b> = Ekiti, Lagos, Ogun, Ondo, Osun, Oyo</p>							

## 4.2 Copy of Study Questionnaire

PROJECT TITLE: FACTORS THAT INFLUENCE THE SUCCESSFUL ADOPTION OF M-COMMERCE VIA SIM-ENABLED DEVICES IN A DEVELOPING COUNTRY  
[V3]

**Kindly complete this questionnaire ONLY if your business involves buying or selling goods NOT services.**

*Please answer the questions that are most relevant to your business. Many thanks for your support*

**Part 1 - Demographics** (This section seeks to gather information about your business)

<b>Region where business is located</b>	<i>See below for Guide</i>	<input type="checkbox"/> North Central	<input type="checkbox"/> North East	<input type="checkbox"/> North West	<input type="checkbox"/> South East	<input type="checkbox"/> South South	<input type="checkbox"/> South West
<b>Business Age (years)</b>	<input type="checkbox"/> Below 1	<input type="checkbox"/> 1 - 5	<input type="checkbox"/> 6 - 10	<input type="checkbox"/> 11 - 15	<input type="checkbox"/> 16 - 20	<input type="checkbox"/> 21 - 25	<input type="checkbox"/> Above 25
<b>Sector of Business' Registration</b>	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Health	<input type="checkbox"/> Engineering	<input type="checkbox"/> Technology	<input type="checkbox"/> Other _____		
<b>Business Category</b>	<input type="checkbox"/> Wholesaler	<input type="checkbox"/> Retailer	<input type="checkbox"/> Other _____				
<b>Your Age</b>	<input type="checkbox"/> Below 16	<input type="checkbox"/> 16 - 25	<input type="checkbox"/> 26 - 45	<input type="checkbox"/> 46 - 55	<input type="checkbox"/> 56 - 65	<input type="checkbox"/> Above 65	
<b>Educational Qualification</b>	<input type="checkbox"/> No qualification	<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> Graduate	<input type="checkbox"/> Post-Graduate		
<b>Nature of Business</b>	<input type="checkbox"/> Sole-trader	<input type="checkbox"/> Partnership	<input type="checkbox"/> Other _____				
<b>Number of employees</b>	<input type="checkbox"/> 1 - 9	<input type="checkbox"/> 10 - 49	<input type="checkbox"/> Other _____				

**Part 2 - Business Activities** (Tick activities that you engage in regularly)

Section A		Section B		Section C		Section D	
The business uses mobile phone as follows:		<b>The business uses mobile phone as follows:</b>		<b>Which of the following applies to your business?</b>		<b>Which of the following applies to your business?</b>	
<b>To make business related calls or send text messages</b>	<input type="checkbox"/>	To access the internet	<input type="checkbox"/>	The business has a website	<input type="checkbox"/>	Customers can use their mobile phone to reserve products on the business' website	<input type="checkbox"/>
<b>To advertise products through phone calls or text message</b>	<input type="checkbox"/>	To communicate through email, social media (e.g., Facebook, twitter), etc.	<input type="checkbox"/>	The business' website has a slightly different appearance on mobile phones	<input type="checkbox"/>	Customers can pay for products on the website using PayPal, bank card or other payment cards	<input type="checkbox"/>
<b>To make enquiries about products through phone calls or text message</b>	<input type="checkbox"/>	To advertise the business on social media (e.g., Facebook, twitter, etc.)	<input type="checkbox"/>	The website displays information about products that the business sells	<input type="checkbox"/>	After payment, confirmation is sent to the Customer and to the business	<input type="checkbox"/>
<b>To confirm payment transactions via phone call or text message</b>	<input type="checkbox"/>	To look for relevant information for the business on the internet	<input type="checkbox"/>	The website has a "Contact Us" or enquiry form	<input type="checkbox"/>	The website has an "Order Tracking" feature to help customers track the products they have bought	<input type="checkbox"/>

<b>To receive calls or text messages about product reservation</b>	<input type="checkbox"/>	To receive payments from customers through SMS or mobile money e.g. Afripay	<input type="checkbox"/>	The business uses the information they get from the form to contact customers	<input type="checkbox"/>	The business makes use of customers' information to contact customers or send adverts to them	<input type="checkbox"/>
<b>To sell PIN codes / numbers e.g. top-up PIN, exam registration PIN, etc.</b>	<input type="checkbox"/>	To make payments to suppliers through SMS or mobile money e.g. Afripay	<input type="checkbox"/>	The business makes use of mobile phone to access internet banking	<input type="checkbox"/>	The business has a mobile application that customers can download	<input type="checkbox"/>

Region | 1. **North-Central** = Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, Federal Capital Territory | 2. **North-East** = Adamawa, Bauchi, Borno, Gombe, Taraba, Yobe | 3. **North-West** = Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, Zamfara | 4. **South-East** = Abia, Anambra, Ebonyi, Enugu, Imo | 5. **South-South** = Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Rivers | 6. **South-West** = Ekiti, Lagos, Ogun, Ondo, Osun, Oyo

[V3]

### PLEASE READ THIS INSTRUCTION BEFORE PROGRESSING

The following instruction will guide you on which question(s) you will need to answer in the next section.

If you ticked one or more activities in Section A - Answer **Question 1**

If you ticked one or more activities in Section B - Answer **Question 2**

If you ticked one or more activities in Section C - Answer **Question 3**

If you ticked one or more activities in Section D - Answer **Question 4**

N.B: Answer ALL the questions that fit the activities you ticked in Part 2.

For instance, if you ticked activities in Section A and B, you will answer Questions 1 and 2, etc.

**Part 3** – Kindly answer ALL the questions in this section that correspond to the activities you ticked in Part 2

[V3]

<b>1a. Tick all the reasons that can encourage you to use mobile phone in your business (Please answer ALL questions)</b>				<b>1b. Tick all the reasons that can prevent you from using mobile phone in your business (Please answer ALL questions)</b>			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
<b>Access to Internet connection on my mobile phone</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	People have limited confidence in the security of SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Affordable mobile phones that can support Internet activities (e.g. smartphones)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Absence of training needed to make SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Investing in smartphone will provide features that brings benefit to the business</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High transaction charges related to SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Smartphones are popular	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppliers do not like to use SMS payment or mobile money transfers e.g. Afriipay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- People are engaging in internet activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customers do not like to SMS payment or mobile money transfers e.g. Afriipay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Smartphones are easy to operate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
- Engaging in internet activity is easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Others:</b>				<b>Others:</b>			
<b>2a. Tick all the factors (reasons) that encouraged your business to engage in the activities you ticked previously (Please answer ALL questions)</b>				<b>2b. Tick all factors (reasons) that have been barriers or challenges to your business' increased use of mobile phone and internet activities (Please answer ALL questions)</b>			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
<b>Access to Internet connection on my mobile phone</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Business activities conducted through the internet is not popular among customers and suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Affordable mobile phones that support internet activities e.g. Facebook, Twitter, Instagram</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employees have limited training to help them engage in internet activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

People agree that the business should engage in SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High transaction charges related to SMS payment or mobile money transfers e.g. Afriipay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People consider internet activities to be easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	People have limited confidence in the security of SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The business achieved benefits by engaging in internet activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suppliers do not like to use SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engaging in internet activities helped create awareness for the business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customers do not like to use SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Government's Cashless Policy encourage SMS payment or mobile money transfers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Perceived benefit of SMS payment or mobile money transfers is low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others:				Others:			

<b>3a. Tick all the factors (reasons) below that encouraged your business to engage in the activities you ticked previously (Please answer ALL questions)</b>				<b>3b. Tick all the factors (reasons) that have been barriers or challenges to your business' increased use of mobile phone and internet activities (Please answer ALL questions)</b>			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
Mobile phone provided opportunities for the business to reach new and existing customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High cost related to design, deployment (domain name registration & hosting) and maintenance of the website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using Mobile phone has provided benefits to the business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limited support for employees to continue to maintain the website after its design and deployment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The business owner or manager has personal interest in technology innovations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customers are not aware of the business website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The business owner or manager wants to keep up with Global Trend or societal change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Customers prefer to make physical contact with the business rather than through the website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others:				Others:			

<b>4a. Tick all the factors (reasons) below that encouraged your business to engage in the activities you ticked previously (Please answer ALL questions)</b>				<b>4b. Tick all the factors (reasons) that have been barriers or challenges to your business' increased use of mobile phone and internet activities? (Please answer ALL questions)</b>			
	Disagree	Not sure	Agree		Disagree	Not sure	Agree
The Business offers credit or bonus points to customers through loyalty or credit cards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Online shopping is not popular among customers and suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>The business owner or manager has personal interest in technology innovations</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	People have fear of security risks or fraud when transactions are completed through online stores	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>The business owner or manager wants to keep up with Global Trend or societal change</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Perceived benefits of online stores is low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Online payment on the website has provided benefits to the business</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The culture prefers physical relationships rather than online interaction with the business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Customers find it easy to shop on the website rather than physically visit the store</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Employees have limited training to be able to maintain the online store, order processing and delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Government's Cashless Policy encourage business transactions on the website</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High cost related to transaction charges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>The mobile app of the business has provided benefits to the business</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Online store is not suitable for the type of business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Customers find it easy to use the mobile app of the business rather than visit the website</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High cost related to the design of the mobile app	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Others:</b>				Others:			

[V3]

## APPENDIX 5:

### Email Briefing for Participant Recruitment

Warm Greetings,

I write with respect to the attached questionnaire for my study.

Kindly give the questionnaire to only people who own or manage businesses that sell products, goods or other items e.g. Supermarkets, Shops, Canteen, Restaurants, Agriculture/Farming (Fishery, Poultry etc.).

Please do not give to those that own or manage businesses that provide services e.g. Schools, Tailoring, Laundry/Dry Cleaning, Saloon etc.

Also, when the questionnaire is collected, kindly ensure that all relevant sections are filled appropriately; particularly in Part 1 and 3... For instance, if they are to answer Question 1 in part 3, they should tick all the options with either Agree, Not Sure or Disagree.

God bless,

Priscilla Omonedo

## APPENDIX 6

### 6.1 Participant Information Leaflet

#### PARTICIPANT BRIEFING SHEET

##### **FACTORS THAT INFLUENCE THE SUCCESSFUL ADOPTION OF M-COMMERCE VIA SIM-ENABLED DEVICES IN A DEVELOPING COUNTRY**

*You are being invited to take part in a research study. Before deciding whether or not to take part, it is important that you understand why the research is being done and what it will involve. Kindly take time to read the following information carefully.*

The study you are being invited to take part in is a 3-year research course conducted by Priscilla Omonedo, a PhD student at Aston University. This research has been given a favourable opinion by Aston University Research Ethics Committee.

#### **What is the Purpose of the Study?**

The primary purpose of this research is to develop a blueprint that micro or small businesses in Nigeria can use as a guide in order to gain some form of benefit from including m-Commerce as part of their business. This research is important because the increasing use of mobile phones and other mobile devices in Nigeria presents a potential opportunity for increased business activity. Therefore, businesses need to think of ways through which they can make use of this opportunity to gain additional benefits. However, considering the large number of micro and small businesses and the limited resources they have, this study will focus on developing a blueprint that can be used by micro and small businesses in Nigeria and other similar economies.

In order to achieve this, a questionnaire has been designed for completion by owners or managers of micro and small businesses in Nigeria. This questionnaire will validate or update my understanding of how businesses use mobile devices and what factors affect the way they use mobile devices.

#### **Why have I been selected?**

You have been selected to take part in this study because of the size of your business, the product you sell and your position within the business as the owner or the manager of the business. Details of your company's contact information was obtained from Nigerian Bureau of Statistics (NBS).

#### **Do I have to take part?**

You are free to decide whether or not you wish to take part. However, I will be very grateful if you choose to take part in this study because it is an important part of my PhD work.

#### **What will happen if I agree to take part in the Study?**

*In order to participate in the study, you can follow the link provided in the email or request to fill a Word version of the questionnaire which will take about 10 minutes to complete. Questions to be asked will be entirely based on your business and how you use mobile devices as part of your business. All information collected will be used solely for the purpose of this research. All information gathered will be kept strictly confidential through the use of password protection of files and possibly hiding folders when they are stored. Also, all information gathered will be made anonymous so that it's difficult to link your business to the research. The results will be reported within academic publications and the PhD dissertation. In accordance to Aston Business School ethical regulation, data will be held for 5 years after the completion of the research.*

If you wish to receive summarized report of results, please indicate by sending an email to [omonedpe@aston.ac.uk](mailto:omonedpe@aston.ac.uk)

For further information, kindly contact Priscilla: [omonedpe@aston.ac.uk](mailto:omonedpe@aston.ac.uk) or the Project Supervisors:

Christopher Brewster: [c.a.brewster@aston.ac.uk](mailto:c.a.brewster@aston.ac.uk)

Paul Bocij: [bocijp@aston.ac.uk](mailto:bocijp@aston.ac.uk)



In case you wish to raise any concerns about the way in which the study has been conducted, please contact the Secretary of the University Ethics Committee on j.g.walter@aston.ac.uk or telephone 0121 204 4869.

Thank you

Priscilla Omonedo  
PhD Student, Aston Business School  
15th September, 2015

## **6.2 Consent Form**

### **CONSENT FORM**

Full title of Project:

**FACTORS THAT INFLUENCE THE SUCCESSFUL ADOPTION OF M-COMMERCE VIA SIM-ENABLED DEVICES IN A DEVELOPING COUNTRY**

Name, Position and Contact Address of Researcher:

**PRISCILLA OMONEDO**  
PhD, Management  
Research Degrees Programme,  
South Wing/11th Floor,  
Aston Business School,  
Aston University,  
Birmingham, B4 7ET,  
United Kingdom

**Please initial box**

I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.

I agree to take part in the above study.

I agree that my data gathered in this study may be stored (after it has been anonymised) in a specialist data centre and may be used for future research.

---

Name of Participant

Date

Signature

N.B: If you wish to receive summarized report of results, please indicate by writing your email address

## APPENDIX 7:

### **7.1 Examples of Statistical Tests that were run on the data**

In assessing the statistical tools that can be used for this study, different options were considered, albeit, most of these options were rejected for different reasons which are discussed in this section. Factor Analysis was one of the options that was considered because this helps to summarise interrelationships among variables in a concise manner (Gorsuch, 1983). However, Factor Analysis was rejected as it is not suitable for the data set because all variables need to be interval and are assumed to be normally distributed (Fabrigar & Wegener, 2012). Therefore, Confirmatory Factor Analysis was considered because it is a form of Structural Equation Modelling that helps to identify relationships between observed measures (indicators) and latent variables (factors) (Brown, 2015). It is a form of analysis that tests hypothesis that items are associated with specific factors. Therefore, for the purpose of this research, CFA could have helped in providing insight into relationships between the factors and the characteristics. However, considering that the factors and characteristics were in different stages, the option of CFA was rejected in favour of ANOVA. The option of conducting a 5-way ANOVA in order to reduce the factors in each stage to 5 was explored but later rejected because the dependent variable for this test is required to be categorical and continuous (CSE, University of Minnesota)<sup>29</sup>. Therefore, considering that the dependent variables for the data (characteristics) is categorical but not continuous, it would be difficult to interpret (that is,

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<sup>29</sup> CSE, University of Minnesota (Online). Retrieved from [http://www-users.cs.umn.edu/~ludford/stat\\_overview.htm](http://www-users.cs.umn.edu/~ludford/stat_overview.htm)

meaningless to interpret) the means of the dependent variables even if the options of Yes and No were coded to 1 and 2.

The option of conducting a MANOVA (Multiple Analysis of Variance) was also explored because this test helps to measure the difference between different groups of dependent variables and several outcomes; that is, the MANOVA test can be used to simultaneously measure several dependent variables (Field, 2013). This test was applied to the data because it provided the option of observing the relationships between all the characteristics and the factors within each stage at the same time. Again, this option was rejected because the results were not statistically significant. This is because, for a Factorial ANOVA to work, the data should include 2 or more categorical Independent Variables and 2 or more continuous Dependent Variable (Laerd Statistics)<sup>30</sup>.

Therefore, considering that the data's independent and dependent variables are categorical in nature, it became apparent that the most effective way to analyse the data is by placing results into different groups in order to observe different trends or patterns (Peters, 2015). Also, categorical data can be analysed through the use of tests such as chi-square, chi-square goodness-of-fit, Fisher's exact test, etc. (UCLA: Statistical Consulting Group, 2014).

### 7.1.1 Chi-square Test

A chi-square test is used to identify existing relationships between two categorical variables (UCLA, 2014). Therefore, considering that the dataset has dependent and independent variables that are categorical in nature, the author conducted chi-square on each factor of each stage to each characteristic of each stage. However, the author found that majority of the results did not have statistical significance because chi-square test assumes that the expected value for each cell is five or higher. Therefore, where most respondents ticked one option e.g. Agree, the test for relationships associated with that option came up with no statistical significance. An example of this can be observed in stage 3. From the tables below, it can be observed that Increased publicity is an important factor because all the respondents that answered this question ticked in favour of this factor. However, when a chi-square test was run, because the option of "Disagree" and "Not sure" had frequencies less than 5 (in this case, the frequency is 0), this factor did not return statistically significant results.

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<sup>30</sup> Laerd Statistics (Online). Retrieved from <https://statistics.laerd.com/spss-tutorials/two-way-anova-using-spss-statistics.php>

Stage 3 Facilitators	Disagree	Not sure	Agree	Total	Percent
Increased publicity / Effectiveness ←	0	0	42	42	100.00%
Positive impact on business	1	0	41	42	97.62%
Keep up with Global Trend / Commitment	1	4	37	42	88.10%
Personal Innovativeness	3	9	30	42	71.43%

In the data set inputted into SPSS, Increased publicity / Effectiveness was coded as MIG\_FACT 3\_1. The results of all the chi-square tests run between this factor and all the characteristics of stage 3 returned no statistical significance because “Disagree” and “Not sure” frequency for this factor is 0.

Figure 28 shows the result of Stage 3\_1 and MIG\_FACT 3\_1. STAGE 3\_1 refers to the first characteristic of Stage 3 businesses provided in the survey – *The business has a website*. From the results, it can be observed that 4 cells have expected count less than 5 which violates the expectation of a statistically significant chi-square test. Similar results were obtained for all the tests that were run with this factor. For clarity, the remaining stage 3 characteristics that were tested with the factor: Increased publicity / Effectiveness are:

Stage 3\_2 = The business’s website has a slightly different appearance on mobile phones

Stage 3\_3 = The website displays information about products that the business sells

Stage 3\_4 = The website has a “Contact Us” or enquiry form

Stage 3\_5 = The business uses the information they get from the form to contact customers

Stage 3\_6 = The business makes use of mobile phone to access internet banking

The results of the chi-square tests are presented in Figures 29 to 33.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 3_1 * MIG_FACT 3_1	74	100.0%	0	0.0%	74	100.0%

**Stage 3\_1 \* MIG\_FACT 3\_1 Crosstabulation**

			MIG_FACT 3_1			Total
			Disagree	Not Sure	Agree	
Stage 3_1	Yes	Count	2	3	43	48
		Expected Count	1.9	1.9	44.1	48.0
	No	Count	1	0	25	26
		Expected Count	1.1	1.1	23.9	26.0
Total		Count	3	3	68	74
		Expected Count	3.0	3.0	68.0	74.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.709 <sup>a</sup>	2	.426
Likelihood Ratio	2.680	2	.262
Linear-by-Linear Association	.420	1	.517
N of Valid Cases	74		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.05.

*Figure 28: Chi-square test result for Stage 3\_1 and Increased Publicity*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 3_2 * MIG_FACT 3_1	74	100.0%	0	0.0%	74	100.0%

**Stage 3\_2 \* MIG\_FACT 3\_1 Crosstabulation**

			MIG_FACT 3_1			Total
			Disagree	Not Sure	Agree	
Stage 3_2	Yes	Count	0	0	14	14
		Expected Count	.6	.6	12.9	14.0
	No	Count	3	3	54	60
		Expected Count	2.4	2.4	55.1	60.0
Total		Count	3	3	68	74
		Expected Count	3.0	3.0	68.0	74.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.524 <sup>a</sup>	2	.467
Likelihood Ratio	2.638	2	.267
Linear-by-Linear Association	1.341	1	.247
N of Valid Cases	74		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .57.

*Figure 29: Chi-square test result for Stage 3\_2 and Increased Publicity*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 3_3 * MIG_FACT 3_1	74	100.0%	0	0.0%	74	100.0%

**Stage 3\_3 \* MIG\_FACT 3\_1 Crosstabulation**

			MIG_FACT 3_1			Total
			Disagree	Not Sure	Agree	
Stage 3_3	Yes	Count	1	1	25	27
		Expected Count	1.1	1.1	24.8	27.0
	No	Count	2	2	43	47
		Expected Count	1.9	1.9	43.2	47.0
Total		Count	3	3	68	74
		Expected Count	3.0	3.0	68.0	74.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.028 <sup>a</sup>	2	.986
Likelihood Ratio	.028	2	.986
Linear-by-Linear Association	.025	1	.875
N of Valid Cases	74		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.09.

*Figure 30: Chi-square test result for Stage 3\_3 and Increased Publicity*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 3_4 * MIG_FACT 3_1	74	100.0%	0	0.0%	74	100.0%

**Stage 3\_4 \* MIG\_FACT 3\_1 Crosstabulation**

			MIG_FACT 3_1			Total
			Disagree	Not Sure	Agree	
Stage 3_4	Yes	Count	0	1	25	26
		Expected Count	1.1	1.1	23.9	26.0
	No	Count	3	2	43	48
		Expected Count	1.9	1.9	44.1	48.0
Total		Count	3	3	68	74
		Expected Count	3.0	3.0	68.0	74.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.709 <sup>a</sup>	2	.426
Likelihood Ratio	2.680	2	.262
Linear-by-Linear Association	1.455	1	.228
N of Valid Cases	74		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.05.

*Figure 31: Chi-square test result for Stage 3\_4 and Increased Publicity*



**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 3_5 * MIG_FACT 3_1	74	100.0%	0	0.0%	74	100.0%

**Stage 3\_5 \* MIG\_FACT 3\_1 Crosstabulation**

			MIG_FACT 3_1			Total
			Disagree	Not Sure	Agree	
Stage 3_5	Yes	Count	0	0	30	30
		Expected Count	1.2	1.2	27.6	30.0
	No	Count	3	3	38	44
		Expected Count	1.8	1.8	40.4	44.0
Total		Count	3	3	68	74
		Expected Count	3.0	3.0	68.0	74.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.452 <sup>a</sup>	2	.108
Likelihood Ratio	6.596	2	.037
Linear-by-Linear Association	3.918	1	.048
N of Valid Cases	74		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.22.

*Figure 32: Chi-square test result for Stage 3\_5 and Increased Publicity*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 3_6 * MIG_FACT 3_1	74	100.0%	0	0.0%	74	100.0%

**Stage 3\_6 \* MIG\_FACT 3\_1 Crosstabulation**

			MIG_FACT 3_1			Total
			Disagree	Not Sure	Agree	
Stage 3_6	Yes	Count	0	1	30	31
		Expected Count	1.3	1.3	28.5	31.0
	No	Count	3	2	38	43
		Expected Count	1.7	1.7	39.5	43.0
Total		Count	3	3	68	74
		Expected Count	3.0	3.0	68.0	74.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.391 <sup>a</sup>	2	.302
Likelihood Ratio	3.487	2	.175
Linear-by-Linear Association	2.237	1	.135
N of Valid Cases	74		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.26.

*Figure 33: Chi-square test result for Stage 3\_6 and Increased Publicity*


Although result for only stage 3 characteristics have been provided, it is worth noting that the chi-square test was run for all the factors and all the characteristics. However, as seen in Figures 28 to 33, for factors that with frequencies less than 5 in any of the field, the results of running chi-square tests with these factors and the characteristics in the respective stages returned results that were not statistically significant.

### 7.1.2 Fisher's Exact Test

As presented in the previous section, the chi-square test was not suitable for analysing the data because the frequencies in some fields were less than the required 5 which therefore meant that the results for such fields were not statistically significant. Therefore, in such instances, the Fisher's Exact Test becomes more suitable. As stated by UCLA (2014), the Fisher's exact test is used to conduct chi-square tests if one or more cells has an expected frequency less than 5 and can be used regardless of how small the expected frequency is. However, in SPSS, unless the copy of the software being used has SPSS Exact Test Module, Fisher's exact test can only be performed on a 2x2 table. Therefore, the author conducted Fisher's Test on stage 1 factors and characteristics by removing the Not sure column from the data in order to have a 2x2 table. Considering that the value of Fisher's exact test needs to be less than 0.05 to be considered significant, the author observed that most of the results of the Fisher's test that was conducted on the stage 1 factors returned values that were not statistically significant. Of the 42<sup>31</sup> Fisher's exact test that was conducted on the Stage 1 data, only 7 tests returned statistically significant results. These were:

- Stage 1\_2 \* MIG\_FACT 1\_4
- Stage 1\_2 \* MIG\_FACT 1\_5
- Stage 1\_4 \* MIG\_FACT 1\_2
- Stage 1\_4 \* MIG\_FACT 1\_4
- Stage 1\_4 \* MIG\_FACT 1\_5
- Stage 1\_5 \* MIG\_FACT 1\_7

All the tests conducted with Stage 1\_1 and Stage 1\_3 returned results that were not statistically significant, while the other characteristics had a mixture of statistically significant and non-statistically significant results. Therefore, considering that most of the results were not statistically significant, the Fisher's exact test was also considered not suitable for the analysis of this study's data.

Stage 1 Facilitators	Disagree	Not sure	Agree	Total	Percent
Availability of internet access 	6	9	36	51	70.59%
Perceived value / Perceived usefulness	8	12	31	51	60.78%
Affordability of device technology	9	12	30	51	58.82%
General acceptance / Social norm	5	17	29	51	56.86%
Technology popularity	7	17	27	51	52.94%
Perceived ease of use	9	15	27	51	52.94%
Perceived ease of use / Convenience	9	17	25	51	49.02%

<sup>31</sup> 6 characteristics \* 7 factors = 42 tests

Stage 1\_1 refers to Availability of internet access. Figures 34 to 40 presents the results obtained for the Fisher's exact test conducted with this characteristic. These figures are presented as examples of the Fisher's exact tests that were conducted.

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_1	22	11.2%	175	88.8%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_1 Crosstabulation**

			MIG_FACT 1_1		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	10	10	20
		Expected Count	10.0	10.0	20.0
	No	Count	1	1	2
		Expected Count	1.0	1.0	2.0
Total		Count	11	11	22
		Expected Count	11.0	11.0	22.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.000 <sup>a</sup>	1	1.000	1.000	.762
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.000	1	1.000		
Fisher's Exact Test					
Linear-by-Linear Association	.000	1	1.000		
N of Valid Cases	22				

*Figure 34: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_1*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_2	34	17.3%	163	82.7%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_2 Crosstabulation**

			MIG_FACT 1_2		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	15	17	32
		Expected Count	14.1	17.9	32.0
	No	Count	0	2	2
		Expected Count	.9	1.1	2.0
Total		Count	15	19	34
		Expected Count	15.0	19.0	34.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.678 <sup>a</sup>	1	.195	.492	.305
Continuity Correction <sup>b</sup>	.315	1	.575		
Likelihood Ratio	2.426	1	.119		
Fisher's Exact Test					
Linear-by-Linear Association	1.628	1	.202		
N of Valid Cases	34				

*Figure 35: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_2*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_3	58	29.4%	139	70.6%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_3 Crosstabulation**

			MIG_FACT 1_3		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	15	41	56
		Expected Count	15.4	40.6	56.0
	No	Count	1	1	2
		Expected Count	.6	1.4	2.0
Total		Count	16	42	58
		Expected Count	16.0	42.0	58.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.521 <sup>a</sup>	1	.470	.479	.479
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.467	1	.494		
Fisher's Exact Test					
Linear-by-Linear Association	.512	1	.474		
N of Valid Cases	58				

*Figure 36: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_3*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_4	48	24.4%	149	75.6%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_4 Crosstabulation**

			MIG_FACT 1_4		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	18	27	45
		Expected Count	17.8	27.2	45.0
	No	Count	1	2	3
		Expected Count	1.2	1.8	3.0
Total		Count	19	29	48
		Expected Count	19.0	29.0	48.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.052 <sup>a</sup>	1	.819	1.000	.657
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.053	1	.817		
Fisher's Exact Test					
Linear-by-Linear Association	.051	1	.821		
N of Valid Cases	48				

*Figure 37: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_4*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_5	47	23.9%	150	76.1%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_5 Crosstabulation**

			MIG_FACT 1_5		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	15	28	43
		Expected Count	13.7	29.3	43.0
	No	Count	0	4	4
		Expected Count	1.3	2.7	4.0
Total		Count	15	32	47
		Expected Count	15.0	32.0	47.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.049 <sup>a</sup>	1	.152	.291	.202
Continuity Correction <sup>b</sup>	.758	1	.384		
Likelihood Ratio	3.247	1	.072		
Fisher's Exact Test					
Linear-by-Linear Association	2.006	1	.157		
N of Valid Cases	47				

*Figure 38: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_5*



**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_6	63	32.0%	134	68.0%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_6 Crosstabulation**

			MIG_FACT 1_6		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	23	37	60
		Expected Count	22.9	37.1	60.0
	No	Count	1	2	3
		Expected Count	1.1	1.9	3.0
Total		Count	24	39	63
		Expected Count	24.0	39.0	63.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.030 <sup>a</sup>	1	.862	1.000	.678
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.031	1	.861		
Fisher's Exact Test					
Linear-by-Linear Association	.030	1	.863		
N of Valid Cases	63				

*Figure 39: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_6*

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stage 1_1 * MIG_FACT 1_7	51	25.9%	146	74.1%	197	100.0%

**Stage 1\_1 \* MIG\_FACT 1\_7 Crosstabulation**

			MIG_FACT 1_7		Total
			Disagree	Agree	
Stage 1_1	Yes	Count	20	30	50
		Expected Count	19.6	30.4	50.0
	No	Count	0	1	1
		Expected Count	.4	.6	1.0
Total		Count	20	31	51
		Expected Count	20.0	31.0	51.0

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.658 <sup>a</sup>	1	.417	1.000	.608
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	1.009	1	.315		
Fisher's Exact Test					
Linear-by-Linear Association	.645	1	.422		
N of Valid Cases	51				

*Figure 40: Fisher's exact test result for Availability of Internet Access \* MIG\_FACT 1\_7*

**7.1.3 Chi-square Goodness-of-fit Test**

Goodness-of-fit is an index of how well a model fits the data from which it was generate; that is, how well the model's prediction of the data corresponds to the data that was actually collected (Field, 2013). The chi-square goodness-of-fit test is usually used to test whether the observed proportions for a categorical variable differ from the hypothesized proportions (UCLA, 2014). Within the context of this study, Chi-square goodness-of-fit test was conducted using a 60-40 (Yes-No) prediction of all the characteristics from stages 1 to 4. The author also conducted goodness-of-fit test on the factors in each stage using a 25-25-50 (Disagree-Not sure-Agree) prediction. Although a few of the results were statistically significant, the author soon realised that this test provided little or no insight into understanding the data. First, the study did not set out to test a pattern in the number of responses for

each question. Therefore, basing the analysis of the data on results from this test would not be helpful in providing insight into identifying the factors that influence m-Commerce adoption or observing the characteristics of respondents within each stage. More so, if there is an interest in understanding the number of people that responded to each question, these figures are already represented in the tables presented in chapter 6. More so, since the tables provide the same information as what the goodness-of-fit test results provides (observed number of responses for each option / category), there is little value in presenting results that provide the same information as the tables already provide.

Take the characteristics of stage 1 as an example, the table below provides information about the number of respondents that selected each option (that is, answered Yes) in stage 1. If there is an interest in knowing the number that answered No, the numbers presented can easily be subtracted from the total number of respondents (197) using MS-Excel.

<b>Field summary for Section A</b>		
<b>Section A: The business uses mobile phone as follows (Tick all options that apply to your business)</b>		
<b>Answer</b>	<b>Count</b>	<b>Percentage</b>
To make business related calls or send text messages (SQ001)	188	95.43%
To advertise products through phone calls or text message (SQ002)	113	57.36%
To make enquiries about products through phone calls or text message (SQ003)	154	78.17%
To confirm payment transactions via phone call or text message (SQ004)	128	64.97%
To receive calls or text messages about product reservation (SQ005)	130	65.99%
To sell PIN codes / numbers e.g. top-up PIN, exam registration PIN, etc. (SQ006)	27	13.71%
Other	0	0.00%

However, the same information provided in the table is also provided in the chi-square goodness-of-fit test results. Although the goodness-of-fit test results provide additional information about whether or not the number of respondents that answered Yes or No is significantly different from the expected 60-40 rate, questions arise from the result such as:

- What does the result mean with respect to this research?
- If the result is significantly different or not, so what?
- What value does this information contribute towards this research?

Considering that the results of the chi-square goodness-of-fit tests do not make any real meaning or provide useful insight or contribution towards the research, the author decided that this test was not

suitable for the research because more value, meaning and insight can be obtained about the data through the descriptive statistics.

Examples of the chi-square goodness-of-fit test results are presented in figures 41 to 46.

### NPar Tests

#### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Stage 1_1	197	1.05	.209	1	2

### Chi-Square Test

#### Frequencies

##### Stage 1\_1

	Observed N	Expected N	Residual
Yes	188	118.2	69.8
No	9	78.8	-69.8
Total	197		

#### Test Statistics

	Stage 1_1
Chi-Square	103.047 <sup>a</sup>
df	1
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 78.8.

*Figure 41: Chi-square Goodness-of-fit test result for Stage 1\_1*

## NPar Tests

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Stage 1_2	197	1.43	.496	1	2

## Chi-Square Test

## Frequencies

### Stage 1\_2

	Observed N	Expected N	Residual
Yes	113	118.2	-5.2
No	84	78.8	5.2
Total	197		

### Test Statistics

	Stage 1_2
Chi-Square	.572 <sup>a</sup>
df	1
Asymp. Sig.	.450

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 78.8.

*Figure 42: Chi-square Goodness-of-fit test result for Stage 1\_2*

## NPar Tests

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Stage 1_3	197	1.22	.414	1	2

## Chi-Square Test

## Frequencies

### Stage 1\_3

	Observed N	Expected N	Residual
Yes	154	118.2	35.8
No	43	78.8	-35.8
Total	197		

### Test Statistics

	Stage 1_3
Chi-Square	27.107 <sup>a</sup>
df	1
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 78.8.

*Figure 43: Chi-square Goodness-of-fit test result for Stage 1\_3*

## NPar Tests

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Stage 1_4	197	1.35	.478	1	2

## Chi-Square Test

## Frequencies

### Stage 1\_4

	Observed N	Expected N	Residual
Yes	128	118.2	9.8
No	69	78.8	-9.8
Total	197		

### Test Statistics

	Stage 1_4
Chi-Square	2.031 <sup>a</sup>
df	1
Asymp. Sig.	.154

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 78.8.

*Figure 44: Chi-square Goodness-of-fit test result for Stage 1\_4*

## NPar Tests

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Stage 1_5	197	1.34	.475	1	2

## Chi-Square Test

## Frequencies

### Stage 1\_5

	Observed N	Expected N	Residual
Yes	130	118.2	11.8
No	67	78.8	-11.8
Total	197		

### Test Statistics

	Stage 1_5
Chi-Square	2.945 <sup>a</sup>
df	1
Asymp. Sig.	.086

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 78.8.

*Figure 45: Chi-square Goodness-of-fit test result for Stage 1\_5*



## NPar Tests

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Stage 1_6	197	1.86	.345	1	2

## Chi-Square Test

### Frequencies

#### Stage 1\_6

	Observed N	Expected N	Residual
Yes	27	118.2	-91.2
No	170	78.8	91.2
Total	197		

### Test Statistics

	Stage 1_6
Chi-Square	175.919 <sup>a</sup>
df	1
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 78.8.

*Figure 46: Chi-square Goodness-of-fit test result for Stage 1\_6*

## APPENDIX 8:

### 8.1 Sample of Data showing Stage Grouping

Colour-code for Table		
Colours	Stage	Count
	Stage 1	51
	Stage 2	69
	Stage 3	42
	Stage 4	35
TOTAL		197

S/N o	ID	Section A [SQ 001]	Section A [SQ 002]	Section A [SQ 003]	Section A [SQ 004]	Section A [SQ 005]	Section A [SQ 006]	Section B [SQ 001]	Section B [SQ 002]	Section B [SQ 003]	Section B [SQ 004]	Section B [SQ 005]	Section B [SQ 006]	Section C [SQ 001]	Section C [SQ 002]	Section C [SQ 003]	Section C [SQ 004]	Section C [SQ 005]	Section C [SQ 006]	Section D [SQ 001]	Section D [SQ 002]	Section D [SQ 003]	Section D [SQ 004]	Section D [SQ 005]	Section D [SQ 006]
1	22	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
2	31	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	32	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No
4	33	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
5	34	Yes	No	No	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No
6	35	No	No	Yes	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes	No	No	No
7	36	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No
8	37	Yes	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No
9	38	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
10	39	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
11	40	Yes	No	No	Yes	No	No	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	No
12	41	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
13	42	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	No	No	Yes	No	No	No
14	43	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
15	44	Yes	Yes	No	Yes	No	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No
16	45	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No	No	No	Yes	No	Yes	Yes	No	No
17	47	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
18	48	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No
19	50	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No
20	51	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No
21	52	No	No	Yes	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
22	53	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
23	54	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No
24	55	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
25	58	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
26	59	Yes	No	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
27	60	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No	No	No	No

28	61	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes	
29	65	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	Yes	
30	66	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
31	67	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
32	68	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
33	69	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
34	70	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	
35	72	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	
36	73	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
37	75	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	
38	76	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
39	77	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	
40	78	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
41	79	No	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
42	80	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
43	81	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
44	82	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
45	83	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	
46	84	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	
47	85	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	
48	86	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
49	87	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
50	88	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
51	89	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
52	90	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
53	91	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
54	92	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
55	93	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
56	94	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
57	95	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	
58	96	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

59	97	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
60	98	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No
61	99	No	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
62	100	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
63	101	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No
64	102	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
65	103	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
66	104	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
67	105	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
68	106	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No	No	No
69	107	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
70	109	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
71	110	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
72	111	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
73	112	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
74	113	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
75	114	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
76	115	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
77	116	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
78	117	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
79	119	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
80	120	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
81	121	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
82	122	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
83	123	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
84	124	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
85	125	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
86	126	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
87	127	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
88	128	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
89	129	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No

90	130	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
91	131	Yes	No	Yes	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
92	132	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
93	133	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
94	134	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
95	135	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
96	136	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
97	137	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
98	138	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
99	139	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No
100	140	Yes	No	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
101	141	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
102	142	Yes	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
103	143	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
104	144	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
105	145	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
106	148	Yes	No	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
107	149	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
108	150	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
109	151	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
110	153	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
111	154	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
112	155	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No
113	156	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
114	157	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No
115	158	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
116	159	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
117	160	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
118	161	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
119	162	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
120	163	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No

121	164	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
122	166	Yes	No	No	No	No	No	No	Yes	No	No	No	No	Yes	No	No	Yes	No	No	Yes	No	Yes	No	No	No
123	167	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No
124	175	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No
125	176	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
126	177	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
127	178	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
128	179	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	Yes
129	180	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No
130	181	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No
131	182	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No
132	183	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
133	184	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
134	185	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
135	186	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
136	187	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
137	188	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
138	189	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
139	190	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No	Yes	No	No
140	191	Yes	No	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No
141	192	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
142	193	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
143	194	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No
144	196	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
145	197	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No
146	198	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
147	199	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes
148	200	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
149	201	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No
150	202	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
151	203	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No

152	204	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
153	205	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No
154	206	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
155	207	Yes	Yes	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
156	208	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
157	211	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
158	212	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
159	213	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
160	214	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
161	215	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No
162	216	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
163	217	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
164	218	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No
165	219	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
166	220	Yes	Yes	Yes	No	No	No	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
167	221	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
168	222	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes
169	223	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No
170	224	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No
171	225	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No
172	226	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
173	227	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	Yes	No
174	228	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No	Yes
175	229	No	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
176	230	Yes	No	Yes	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
177	234	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
178	235	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No
179	236	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
180	237	Yes	No	Yes	No	Yes	No	No	No	Yes	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	Yes
181	238	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
182	239	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No

183	240	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
184	241	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
185	242	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
186	243	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
187	244	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No
188	245	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	No
189	246	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
190	247	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
191	248	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
192	249	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
193	250	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
194	251	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
195	252	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
196	253	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
197	254	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## 8.2 Summary of Stage 1 Data

S/No	ID	Question 1a [SQ001]	Question 1a [SQ002]	Question 1a [SQ003]	Question 1a [SQ004]	Question 1a [SQ005]	Question 1a [SQ006]	Question 1a [SQ007]	Question 1b [SQ001]	Question 1b [SQ002]	Question 1b [SQ003]	Question 1b [SQ004]	Question 1b [SQ005]
1	22	Not sure	Not sure	Agree	Not sure	Agree	Agree	Agree	Disagree	Disagree	Not sure	Not sure	Not sure
2	33	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree
3	38	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
4	39	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure
5	43	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Agree	Agree
6	66	Agree	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Not sure	Disagree	Disagree



7	69	Not sure	Disagree	Agree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Disagree	Disagree	Disagree
8	73	Disagree	Disagree	Disagree	Agree	Not sure	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree
9	76	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Not sure	Agree	Not sure	Agree	Not sure
10	80	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Disagree	Agree	Agree	Agree
11	81	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Disagree
12	82	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Agree	Not sure	Not sure	Disagree
13	86	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree
14	90	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Not sure	Not sure
15	91	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Disagree	Disagree	Not sure	Not sure
16	97	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Disagree	Disagree
17	102	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
18	104	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Disagree	Disagree
19	110	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree
20	112	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree
21	113	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree	Agree	Disagree	Not sure	Not sure
22	116	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Agree	Agree	Not sure	Agree	Agree
23	117	Agree	Not sure	Agree	Not sure	Agree	Agree	Agree	Disagree	Not sure	Disagree	Not sure	Not sure
24	119	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Disagree	Not sure	Not sure
25	122	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Agree	Not sure	Disagree	Not sure	Not sure
26	124	Agree	Not sure	Not sure	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
27	125	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
28	128	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
29	133	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree	Disagree	Not sure	Not sure
30	134	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
31	135	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Not sure
32	137	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure

33	138	Not sure	Disagree	Agree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Disagree	Disagree	Disagree
34	143	Agree	Not sure	Not sure	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree
35	151	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
36	160	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Disagree	Agree	Not sure	Not sure
37	161	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Disagree	Agree	Agree	Agree
38	164	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Not sure	Not sure
39	177	Agree	Agree	Disagree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Agree	Not sure	Not sure
40	183	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
41	184	Not sure	Not sure	Disagree	Agree	Agree	Disagree	Disagree	Agree	Agree	Not sure	Not sure	Not sure
42	186	Agree	Disagree	Disagree	Not sure	Agree	Agree	Agree	Not sure	Disagree	Agree	Disagree	Disagree
43	187	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Agree
44	192	Agree	Not sure	Agree	Disagree	Disagree	Not sure	Not sure	Disagree	Agree	Agree	Agree	Agree
45	213	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Not sure	Agree
46	226	Disagree	Disagree	Disagree	Disagree	Not sure	Not sure	Not sure	Agree	Agree	Agree	Disagree	Disagree
47	234	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Agree
48	243	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree	Agree
49	246	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree	Disagree
50	247	Disagree	Disagree	Disagree	Disagree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Disagree
51	248	Disagree	Disagree	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Not sure	Agree	Agree	Agree
COUNT	Disagree	6	9	8	7	5	9	9	10	10	22	12	15
	Not Sure	9	12	12	17	17	15	17	20	22	13	22	21
	Agree	36	30	31	27	29	27	25	21	19	16	17	15
	Total	51	51	51	51	51	51	51	51	51	51	51	51

### 8.3 Summary of Stage 2 Data

S/No	ID	Question 2a [SQ001]	Question 2a [SQ002]	Question 2a [SQ003]	Question 2a [SQ004]	Question 2a [SQ005]	Question 2a [SQ006]	Question 2a [SQ007]	Question 2b [SQ001]	Question 2b [SQ002]	Question 2b [SQ003]	Question 2b [SQ004]	Question 2b [SQ005]	Question 2b [SQ006]	Question 2b [SQ007]
1	32	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Disagree
2	52	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Agree
3	53	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree	Disagree	Agree
4	55	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree
5	58	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Disagree	Disagree	Disagree
6	59	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Disagree	Not sure	Disagree	Disagree	Not sure	Disagree	Disagree
7	67	Agree	Agree	Disagree	Not sure	Not sure	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
8	68	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
9	78	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Not sure	Disagree
10	79	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Disagree	Agree
11	87	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree
12	88	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Not sure	Disagree	Disagree	Disagree
13	92	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Not sure	Disagree	Disagree	Not sure
14	93	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure	Not sure	Not sure
15	94	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Disagree	Disagree	Disagree
16	95	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Not sure	Not sure	Not sure
17	99	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
18	100	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Not sure	Not sure	Not sure
19	103	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Not sure	Agree	Agree	Not sure
20	105	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Disagree	Disagree	Disagree
21	107	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Agree	Agree	Agree	Disagree
22	111	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Agree	Agree	Agree	Not sure

23	114	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Agree	Disagree	Disagree	Disagree
24	115	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Agree
25	123	Agree	Not sure	Disagree	Not sure	Agree	Not sure	Agree	Disagree	Not sure	Disagree	Disagree	Not sure	Not sure	Not sure
26	126	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Not sure
27	127	Agree	Not sure	Not sure	Not sure	Agree	Agree	Agree	Disagree	Not sure	Disagree	Not sure	Not sure	Not sure	Not sure
28	129	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Not sure
29	130	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Not sure
30	131	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
31	132	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Agree
32	136	Agree	Agree	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Not sure	Disagree	Agree	Not sure	Not sure	Not sure
33	140	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
34	141	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Agree
35	142	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
36	144	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure	Not sure	Not sure	Disagree
37	145	Not sure	Not sure	Disagree	Agree	Not sure	Not sure	Disagree	Agree	Not sure	Agree	Agree	Agree	Not sure	Agree
38	148	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
39	149	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Not sure	Not sure	Not sure	Not sure	Agree
40	150	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Not sure	Not sure	Not sure	Not sure
41	153	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Agree	Agree	Not sure	Not sure
42	154	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree
43	158	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure	Not sure	Not sure
44	159	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Not sure	Disagree
45	162	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Disagree	Not sure	Agree	Agree	Agree	Agree
46	163	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure	Not sure	Not sure
47	176	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Not sure	Not sure	Agree
48	178	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Agree	Not sure	Agree	Not sure

49	185	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure
50	193	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Not sure	Disagree	Agree	Not sure	Agree	Not sure
51	196	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure
52	206	Agree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Not sure	Agree	Not sure	Agree	Agree	Not sure
53	207	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure
54	208	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
55	211	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
56	212	Agree	Agree	Not sure	Not sure	Agree	Not sure	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Agree
57	214	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree
58	219	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Not sure	Not sure	Not sure	Agree
59	220	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
60	221	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Agree
61	229	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Agree	Disagree	Not sure	Agree	Agree	Not sure	Agree
62	230	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
63	236	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Not sure	Disagree	Disagree	Not sure
64	239	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
65	240	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Agree	Disagree	Disagree
66	241	Agree	Agree	Disagree	Disagree	Not sure	Agree	Not sure	Agree	Agree	Disagree	Agree	Agree	Agree	Agree
67	249	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Agree	Agree
68	250	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
69	251	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
COUNT	Disagree	1	1	9	4	3	3	4	21	17	33	14	13	15	16
	Not Sure	4	12	26	17	8	14	12	26	33	11	21	27	32	26
	Agree	64	56	34	48	58	52	53	22	19	25	34	29	22	27
	Total	69	69	69	69	69	69	69	69	69	69	69	69	69	69

### 8.4 Summary of Stage 3 Data

S/No	ID	Question 3a [SQ001]	Question 3a [SQ002]	Question 3a [SQ003]	Question 3a [SQ004]	Question 3b [SQ001]	Question 3b [SQ002]	Question 3b [SQ003]	Question 3b [SQ004]
1	34	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree
2	36	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Agree
3	37	Agree	Agree	Not sure	Agree	Agree	Not sure	Disagree	Not sure
4	44	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree
5	48	Agree	Disagree	Not sure	Agree	Agree	Not sure	Disagree	Agree
6	50	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
7	51	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
8	54	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
9	60	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree
10	70	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Agree
11	72	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure
12	75	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree
13	77	Agree	Agree	Not sure	Agree	Disagree	Not sure	Agree	Agree
14	83	Agree	Agree	Agree	Agree	Disagree	Not sure	Not sure	Agree
15	84	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Agree
16	85	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree
17	98	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure
18	101	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure
19	120	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Agree
20	121	Agree	Agree	Agree	Agree	Disagree	Not sure	Not sure	Agree
21	139	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Agree
22	155	Agree	Agree	Agree	Agree	Disagree	Not sure	Not sure	Agree

23	156	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure
24	157	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Agree
25	175	Agree	Agree	Disagree	Agree	Disagree	Agree	Agree	Agree
26	180	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree
27	181	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
28	182	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure
29	191	Agree	Agree	Not sure	Agree	Not sure	Not sure	Not sure	Agree
30	194	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
31	197	Agree	Agree	Disagree	Not sure	Agree	Agree	Not sure	Agree
32	198	Agree	Agree	Disagree	Disagree	Agree	Agree	Agree	Agree
33	201	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree
34	204	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure
35	215	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
36	223	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
37	224	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
38	225	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
39	235	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree
40	244	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree
41	245	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
42	253	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree
COUNT	Disagree	0	1	3	1	8	3	10	0
	Not Sure	0	0	9	4	10	18	17	8
	Agree	42	41	30	37	24	21	15	34
	Total	42	42	42	42	42	42	42	42

## 8.5 Summary of Stage 4 Data

S/No	ID	Question 4a [SQ001]	Question 4a [SQ002]	Question 4a [SQ003]	Question 4a [SQ004]	Question 4a [SQ005]	Question 4a [SQ006]	Question 4a [SQ007]	Question 4a [SQ008]	Question 4b [SQ001]	Question 4b [SQ002]	Question 4b [SQ003]	Question 4b [SQ004]	Question 4b [SQ005]	Question 4b [SQ006]	Question 4b [SQ007]	Question 4b [SQ008]
1	31	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Not sure	Agree	Not sure	Agree	Agree
2	35	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Not sure	Disagree	Disagree	Not sure
3	40	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Not sure
4	41	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Not sure	Agree	Disagree	Disagree	Agree
5	42	Disagree	Not sure	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure
6	45	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
7	47	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
8	61	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Agree	Agree	Agree	Disagree	Agree
9	65	Disagree	Disagree	Disagree	Agree	Disagree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree	Not sure	Not sure
10	89	Disagree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Agree	Disagree	Agree	Agree	Disagree	Disagree	Disagree
11	96	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
12	106	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Disagree	Not sure	Agree	Disagree	Agree
13	109	Disagree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure
14	166	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
15	167	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
16	179	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Not sure	Agree	Not sure
17	188	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Disagree	Not sure	Disagree	Agree	Agree	Agree	Agree	Not sure
18	189	Agree	Agree	Disagree	Disagree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree
19	190	Disagree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
20	199	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree
21	200	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree
22	202	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree



23	203	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Not sure	Disagree	Not sure	Agree
24	205	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Disagree
25	216	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
26	217	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
27	218	Agree	Agree	Agree	Not sure	Not sure	Not sure	Disagree	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Not sure
28	222	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Agree	Disagree	Agree	Agree	Agree	Disagree	Agree	Not sure
29	227	Disagree	Agree	Agree	Disagree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Agree
30	228	Disagree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
31	237	Disagree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Disagree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Not sure
32	238	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
33	242	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure
34	252	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Disagree	Agree
35	254	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree
COUNT	Disagree	8	1	2	3	4	1	2	3	11	4	9	5	4	12	18	5
	Not sure	7	2	2	4	9	9	5	9	8	3	4	6	8	10	6	12
	Agree	20	32	31	28	22	25	28	23	16	28	22	24	23	13	11	18
	Total	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35

### 8.6 Summary of Stage 1 Past Adopters Data

S/No	ID	Question 1a [SQ001]	Question 1a [SQ002]	Question 1a [SQ003]	Question 1a [SQ004]	Question 1a [SQ005]	Question 1a [SQ006]	Question 1a [SQ007]	Question 1b [SQ001]	Question 1b [SQ002]	Question 1b [SQ003]	Question 1b [SQ004]	Question 1b [SQ005]
1	31	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Agree	Not sure
2	32	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
3	34	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree

4	35	Disagree	Not sure	Not sure	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree
5	36	Agree	Disagree	Agree	Agree	Agree	Disagree	Agree	Not sure	Not sure	Agree	Disagree	Not sure
6	37	Agree	Agree	Not sure	Agree	Not sure	Agree	Not sure	Agree	Not sure	Agree	Agree	Disagree
7	40	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Not sure
8	41	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Agree	Disagree
9	42	Agree	Not sure	Agree	Disagree	Disagree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree
10	44	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure
11	45	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
12	47	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure
13	48	Agree	Agree	Disagree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Not sure
14	50	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Disagree
15	51	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Not sure	Not sure
16	52	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree	Agree	Not sure	Disagree
17	53	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Disagree
18	54	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
19	55	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
20	58	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree
21	59	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Disagree	Not sure	Disagree	Not sure	Agree
22	60	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
23	61	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree
24	65	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Not sure	Disagree	Agree
25	67	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
26	68	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
27	70	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree	Not sure	Not sure
28	72	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Disagree	Agree
29	75	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Disagree	Disagree

30	77	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Disagree	Not sure	Disagree	Disagree	Disagree
31	78	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Disagree	Not sure
32	79	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Not sure	Not sure
33	83	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
34	84	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure
35	85	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Disagree	Not sure	Agree	Agree
36	87	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Agree
37	88	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
38	89	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
39	92	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
40	93	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Disagree	Disagree
41	94	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Disagree	Disagree
42	95	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Not sure
43	96	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
44	98	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree
45	99	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
46	100	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
47	101	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
48	103	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Not sure
49	105	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Disagree	Disagree
50	106	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure
51	107	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree
52	109	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
53	111	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Agree	Agree
54	114	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Disagree	Disagree
55	115	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure

56	120	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure
57	121	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
58	123	Agree	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Not sure	Disagree	Disagree
59	126	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Disagree	Disagree	Not sure
60	127	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Disagree	Not sure	Not sure
61	129	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Disagree	Disagree
62	130	Not sure	Disagree	Agree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Disagree	Disagree	Disagree
63	131	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Disagree	Disagree	Disagree	Not sure	Not sure
64	132	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree
65	136	Agree	Agree	Agree	Disagree	Disagree	Not sure	Not sure	Not sure	Not sure	Disagree	Not sure	Not sure
66	139	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree	Not sure	Not sure	Not sure
67	140	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
68	141	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
69	142	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Disagree
70	144	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Not sure	Not sure
71	145	Agree	Agree	Not sure	Not sure	Not sure	Disagree	Agree	Not sure	Agree	Not sure	Disagree	Not sure
72	148	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Disagree
73	149	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
74	150	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree	Not sure	Not sure
75	153	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Not sure	Not sure
76	154	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure
77	155	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
78	156	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure
79	157	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Disagree	Disagree
80	158	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Not sure	Agree	Not sure	Agree	Not sure
81	159	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Disagree	Not sure

82	162	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Disagree	Not sure	Agree	Agree
83	163	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Agree	Not sure	Not sure	Disagree
84	166	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Agree
85	167	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
86	175	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
87	176	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure	Not sure
88	178	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Disagree
89	179	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree
90	180	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Not sure	Agree	Not sure	Not sure
91	181	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
92	182	Agree	Agree	Disagree	Disagree	Disagree	Not sure	Agree	Agree	Not sure	Disagree	Disagree	Disagree
93	185	Agree	Agree	Not sure	Agree	Agree	Not sure	Disagree	Agree	Not sure	Agree	Agree	Agree
94	188	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree
95	189	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
96	190	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree
97	191	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Not sure
98	193	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Not sure	Disagree
99	194	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree
100	196	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Agree	Not sure	Agree	Agree	Agree
101	197	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Agree	Agree
102	198	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Not sure	Not sure	Agree	Agree	Agree
103	199	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree
104	200	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree
105	201	Agree	Not sure	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
106	202	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Agree	Agree
107	203	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure

108	204	Agree	Agree	Agree	Disagree	Not sure	Not sure	Agree	Agree	Not sure	Not sure	Agree	Agree
109	205	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
110	206	Agree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree	Agree
111	207	Agree	Agree	Not sure	Disagree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Disagree
112	208	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
113	211	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree	Not sure
114	212	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure
115	214	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Not sure	Agree	Agree
116	215	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Not sure
117	216	Agree	Agree	Not sure	Agree	Agree	Disagree	Agree	Not sure	Agree	Not sure	Not sure	Agree
118	217	Agree	Agree	Not sure	Agree	Agree	Disagree	Agree	Not sure	Agree	Not sure	Not sure	Agree
119	218	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Disagree	Disagree	Agree	Agree
120	219	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
121	220	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
122	221	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
123	222	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Not sure
124	223	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Not sure	Agree	Agree	Agree
125	224	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree
126	225	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree	Agree	Agree	Disagree	Not sure
127	227	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Agree	Agree	Not sure	Agree	Agree
128	228	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree
129	229	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree
130	230	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree
131	235	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree
132	236	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Not sure	Not sure
133	237	Agree	Not sure	Not sure	Agree	Agree	Not sure	Disagree	Agree	Agree	Not sure	Agree	Agree

134	238	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Agree	Disagree
135	239	Agree	Agree	Not sure	Not sure	Agree	Not sure	Not sure	Agree	Not sure	Agree	Agree	Agree
136	240	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
137	241	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree
138	242	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
139	244	Agree	Disagree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Not sure	Disagree	Disagree
140	245	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree
141	249	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure
142	250	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
143	251	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
144	252	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Agree
145	253	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
146	254	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
COUNT	Disagree	5	6	8	12	10	15	11	26	28	48	35	36
	Not sure	2	7	30	12	15	24	14	41	50	36	46	46
	Agree	139	133	108	122	121	107	121	79	68	62	65	64
	Total	146	146	146	146	146	146	146	146	146	146	146	146

### 8.7 Summary of Stage 2 Past Adopters Data

S/No	ID	Question 2a [SQ001]	Question 2a [SQ002]	Question 2a [SQ003]	Question 2a [SQ004]	Question 2a [SQ005]	Question 2a [SQ006]	Question 2a [SQ007]	Question 2b [SQ001]	Question 2b [SQ002]	Question 2b [SQ003]	Question 2b [SQ004]	Question 2b [SQ005]	Question 2b [SQ006]	Question 2b [SQ007]
1	31	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Disagree	Not sure	Agree	Agree	Agree	Not sure
2	34	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure

3	35	Disagree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree
4	36	Disagree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Not sure	Not sure	Not sure	Disagree	Not sure
5	37	Agree	Agree	Disagree	Agree	Disagree	Agree	Agree	Disagree	Not sure	Agree	Disagree	Not sure	Agree	Disagree
6	40	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Agree	Agree	Not sure	Agree
7	41	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Disagree	Agree	Disagree	Agree
8	42	Agree	Agree	Not sure	Disagree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Disagree	Agree
9	44	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Not sure	Not sure	Not sure
10	45	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
11	47	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
12	48	Agree	Agree	Disagree	Not sure	Disagree	Agree	Agree	Disagree	Not sure	Not sure	Agree	Not sure	Not sure	Agree
13	50	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree
14	51	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure	Not sure
15	54	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Agree	Agree
16	60	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
17	61														
18	65	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Disagree	Agree	Disagree	Disagree	Agree
19	70	Agree	Disagree	Not sure	Agree	Agree	Disagree	Agree	Agree	Disagree	Not sure	Not sure	Disagree	Not sure	Not sure
20	72	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
21	75	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Not sure
22	77														
23	83	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure	Agree	Disagree	Disagree	Disagree
24	84	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Disagree	Not sure
25	85														
26	89	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree
27	96	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Not sure	Not sure	Not sure	Not sure
28	98	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree



29	101	Agree	Agree	Not sure	Not sure	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure
30	106	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Not sure	Not sure	Not sure	Agree
31	109	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Disagree	Disagree	Not sure
32	120	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Disagree	Not sure
33	121	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure	Agree	Disagree	Disagree	Disagree
34	139	Agree	Not sure	Not sure	Agree	Agree	Disagree	Agree	Agree	Disagree	Not sure	Not sure	Disagree	Not sure	Not sure
35	155	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Not sure	Agree	Disagree	Disagree	Disagree
36	156	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Disagree	Not sure
37	157	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Not sure	Disagree	Disagree	Disagree
38	166	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
39	167	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree
40	175	Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree
41	179	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Agree	Agree
42	180	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure	Not sure	Not sure
43	181	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Disagree	Disagree	Disagree	Disagree
44	182	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Disagree	Agree	Disagree	Disagree	Disagree
45	188	Disagree	Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree
46	189	Agree	Agree	Disagree	Disagree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree
47	190	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Not sure	Agree
48	191	Not sure	Agree	Agree	Agree	Not sure	Agree	Not sure	Disagree	Not sure	Not sure	Not sure	Disagree	Not sure	Not sure
49	194	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Agree	Agree
50	197	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
51	198	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Disagree	Disagree	Agree	Agree
52	199	Disagree	Agree	Agree	Agree	Agree	Not sure	Agree	Disagree	Disagree	Agree	Agree	Disagree	Disagree	Agree
53	200	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure
54	201	Agree	Agree	Agree	Not sure	Not sure	Agree	Disagree	Agree	Agree	Not sure	Not sure	Agree	Disagree	Agree

55	202	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Agree	Disagree	Agree
56	203	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Disagree	Agree
57	204	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Not sure	Agree	Not sure
58	205	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree	Agree	Not sure	Agree
59	215	Agree	Agree	Not sure	Disagree	Not sure	Agree	Agree	Agree	Disagree	Disagree	Agree	Agree	Not sure	Agree
60	216	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree
61	217	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree
62	218	Agree	Agree	Not sure	Agree	Agree	Agree	Disagree	Disagree	Agree	Disagree	Agree	Agree	Agree	Not sure
63	222	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Not sure	Not sure	Agree	Agree
64	223	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree
65	224	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree
66	225														
67	227	Agree	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
68	228	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
69	235														
70	237	Agree	Agree	Disagree	Not sure	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
71	238	Agree	Agree	Disagree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Disagree	Not sure	Agree	Not sure	Agree
72	242	Agree	Not sure	Agree	Agree	Agree	Agree	Agree	Disagree	Not sure	Agree	Agree	Disagree	Agree	Agree
73	244														
74	245	Agree	Agree	Not sure	Agree	Agree	Agree	Not sure	Not sure	Agree	Agree	Agree	Not sure	Agree	Agree
75	252	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Agree	Not sure	Agree
76	253	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Disagree	Agree	Agree	Agree	Not sure	Agree	Agree
77	254	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
COUNT	Disagree	4	2	7	3	2	4	2	24	13	12	7	22	22	10
	Not Sure	1	3	27	9	7	4	8	18	20	17	21	22	20	21
	Agree	66	66	37	59	62	63	61	29	38	42	43	27	29	40

Blank	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Total	77	77	77	77	77	77	77	77	77	77	77	77	77	77

### 8.8 Summary of Stage 3 Past Adopters Data

S/No	ID	Question 3a [SQ001]	Question 3a [SQ002]	Question 3a [SQ003]	Question 3a [SQ004]	Question 3b [SQ001]	Question 3b [SQ002]	Question 3b [SQ003]	Question 3b [SQ004]
1	31	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
2	35	Disagree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
3	40	Agree	Agree	Agree	Agree	Not sure	Disagree	Disagree	Agree
4	41	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure	Disagree
5	42	Agree	Agree	Disagree	Not sure	Disagree	Disagree	Agree	Agree
6	45	Not sure	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure
7	47	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Not sure
8	61	Agree	Agree	Agree	Agree	Agree	Disagree	Disagree	Agree
9	65	Agree	Agree	Not sure	Not sure	Agree	Not sure	Agree	Agree
10	89	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
11	96	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree
12	106	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Not sure
13	109	Agree	Agree	Not sure	Not sure	Agree	Agree	Not sure	Agree
14	166	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
15	167	Not sure	Agree	Agree	Agree	Agree	Agree	Agree	Agree
16	179								
17	188	Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree

18	189	Not sure	Not sure	Agree	Agree	Agree	Agree	Agree	Agree
19	190	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
20	199	Disagree	Disagree	Disagree	Disagree	Not sure	Disagree	Disagree	Agree
21	200	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Not sure
22	202	Agree	Agree	Not sure	Not sure	Disagree	Agree	Agree	Agree
23	203	Agree	Agree	Agree	Not sure	Agree	Agree	Not sure	Agree
24	205	Agree	Agree	Agree	Agree	Agree	Not sure	Agree	Agree
25	216	Agree	Agree	Agree	Agree	Agree	Agree	Not sure	Agree
26	217	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
27	218	Agree	Agree	Agree	Agree	Not sure	Not sure	Not sure	Agree
28	222	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
29	227								
30	228								
31	237	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
32	238	Agree	Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree
33	242	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
34	252	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
35	254	Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
COUNT	Disagree	3	2	2	1	4	6	10	3
	Not sure	3	1	3	6	5	6	12	4
	Agree	26	29	27	25	23	20	10	25
	Blank	3	3	3	3	3	3	3	3
	Total	35	35	35	35	35	35	35	35

## 8.9 Summary of Percentage Responses for Business Activities

STAGE 1			
Answer	Count	Percentage of 197 Stage 1 Respondents	Percentage of All 197 Respondents
Calls / text messages	188	95.43%	95.43%
Advertise products	113	57.36%	57.36%
Make product enquiries	154	78.17%	78.17%
Confirm payment transactions	128	64.97%	64.97%
Product reservation	130	65.99%	65.99%
Sell PIN codes	27	13.71%	13.71%
Other	0	0.00%	0.00%

STAGE 2			
Answer	Count	Percentage of 146 Stage 2 Respondents	Percentage of All 197 Respondents
Access the internet	104	71.23%	52.79%
e-Mail / Social media	87	59.59%	44.16%
Social media advert	63	43.15%	31.98%
Sourcing for Information	90	61.64%	45.69%
Receive SMS / Mobile money	76	52.05%	38.58%
Pay via SMS / Mobile money	61	41.78%	30.96%
Other	1	0.68%	0.51%

STAGE 3			
Answer	Count	Percentage of 77 Stage 3 Respondents	Percentage of All 197 Respondents
Business website	48	62.34%	24.37%
Mobile-optimised website	14	18.18%	7.11%
Static website information display	27	35.06%	13.71%
"Contact Us" / Enquiry form	26	33.77%	13.20%
Customer information for contact	31	40.26%	15.74%
Access internet banking	31	40.26%	15.74%
Other	2	2.60%	1.02%

STAGE 4			
Answer	Count	Percentage of 35 Stage 4 Respondents	Percentage of All 197 Respondents
Product reservation	21	60.00%	10.66%
Online payment on website	14	40.00%	7.11%
Payment confirmation	13	37.14%	6.60%
"Order Tracking" feature	12	34.29%	6.09%
Customer contact / adverts	12	34.29%	6.09%
Business' mobile application	17	48.57%	8.63%
Other	1	2.86%	0.51%

APPENDIX 9:

Calculation of Class Interval

Class Interval	
Highest Value	100.00
Lowest Value	37.14
Number of Classes	3
Class Interval	20.95
Low Impact Range	37.14 - 58.09
Mid Impact Range	58.10 - 79.05
High Impact Range	79.06 - 100.01

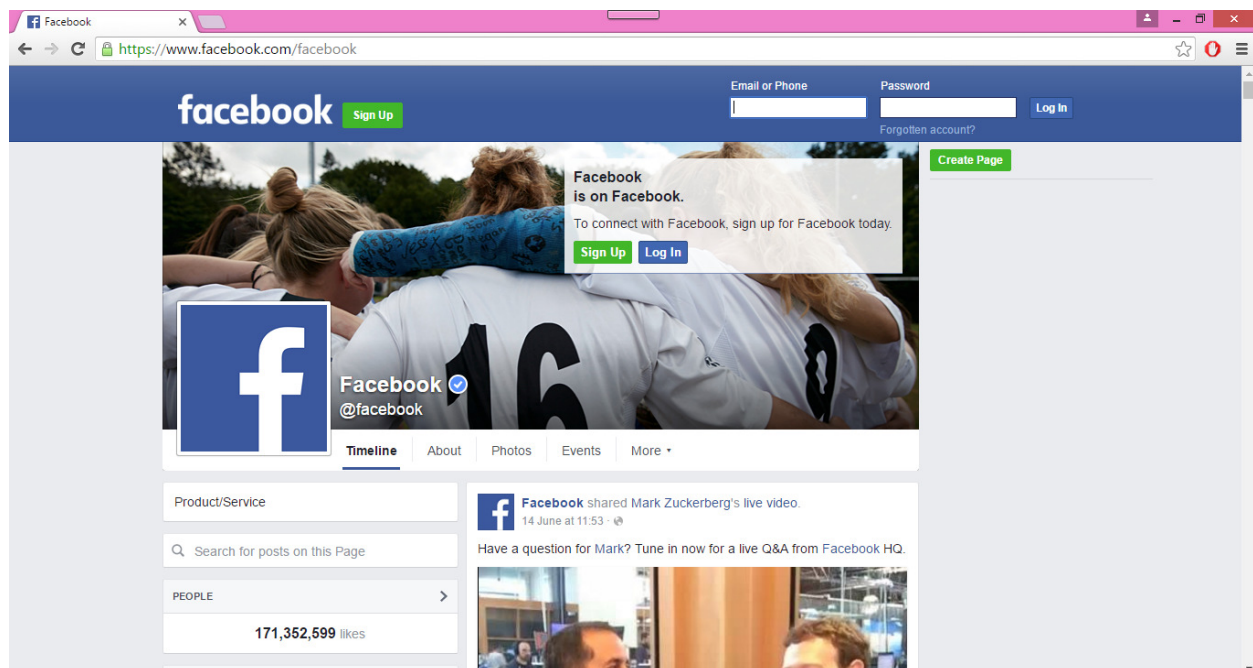
Class Interval = (Highest Value – Lowest Value) – Number of Classes

## APPENDIX 10:

### 10.1 Social Media Definition and Screenshot

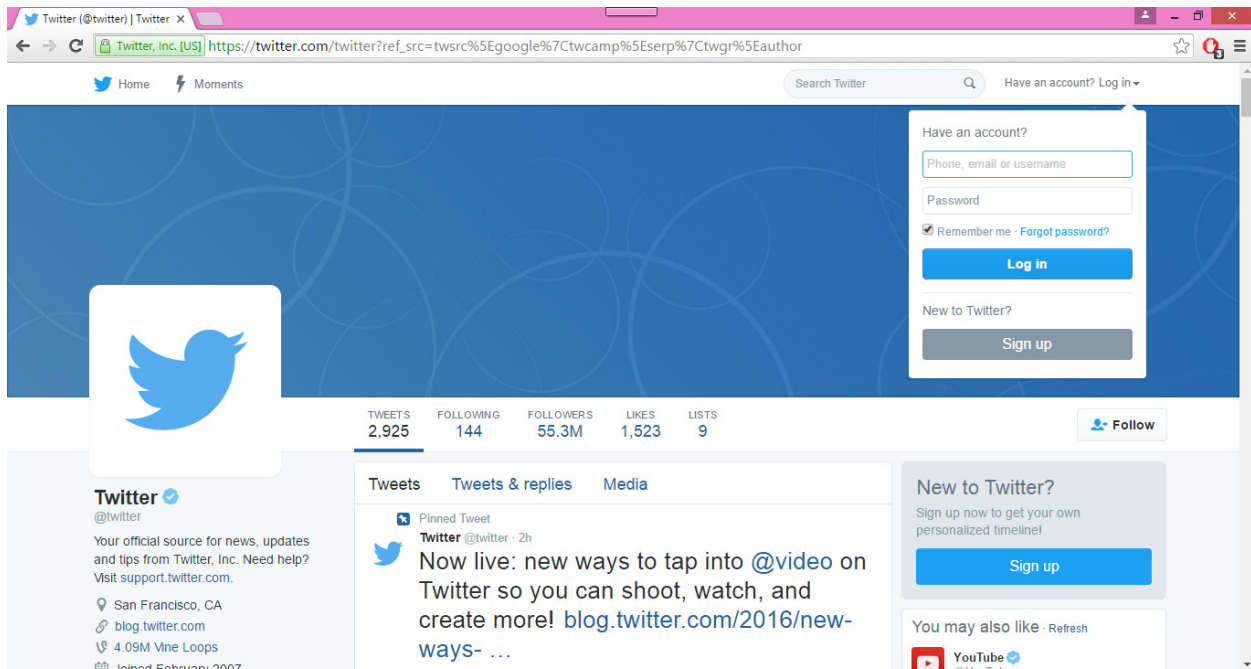
Facebook is a for-profit corporation and online social networking service based in Menlo Park, California, United States. After registering to use the site, users can create a user profile, add other users as "friends", exchange messages, post status updates and photos, share videos, use various apps, and receive notifications when others update their profiles. Additionally, users may join common-interest user groups organized by workplace, school, or other characteristics, and categorize their friends into lists such as "People From Work" or "Close Friends". In groups editors can pin posts to top. Also, users can complain about or block unpleasant people. *Extracted from Wikipedia at: <https://en.wikipedia.org/wiki/Facebook>*

A screenshot of Facebook's login page is as shown below:



Twitter is an online social networking service that enables users to send and read short 140-character messages called "tweets". Registered users can read and post tweets, but those who are unregistered can only read them. Users access Twitter through the website interface, SMS or mobile device app. Twitter Inc. is based in San Francisco and has more than 25 offices around the world. *Extracted from Wikipedia at: <https://en.wikipedia.org/wiki/Twitter>*

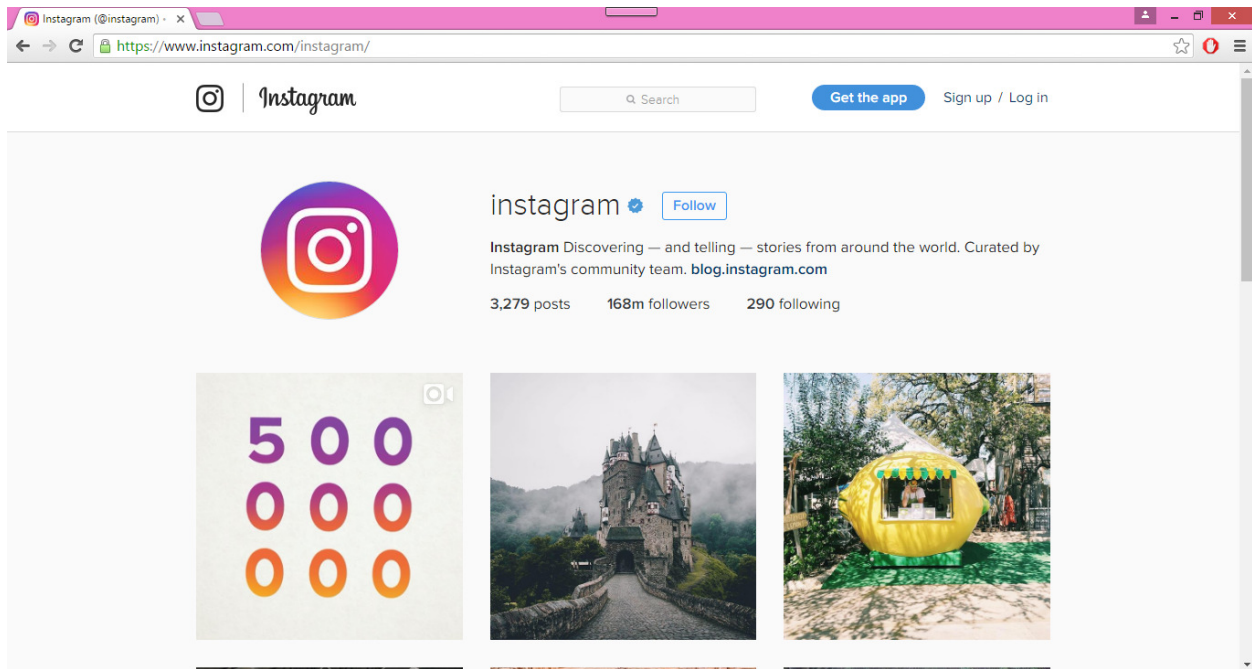
A screenshot of Twitter is as shown below:



Instagram is an online mobile photo-sharing, video-sharing, and social networking service that enables its users to take pictures and videos, and share them either publicly or privately on the app, as well as through a variety of other social networking platforms, such as Facebook, Twitter, Tumblr, and Flickr. Originally, a distinctive feature was that it confined photos to a square shape, similar to Kodak Instamatic and Polaroid SX-70 images, in contrast to the 4:3 aspect ratio typically used by mobile device cameras. In August 2015, version 7.5 was released, allowing users to post photos captured in any aspect ratio. Users can also apply digital filters to their images. The maximum duration for Instagram videos is 15 seconds. *Extracted from Wikipedia at: <https://en.wikipedia.org/wiki/Instagram>*

A screenshot of Instagram is as shown below





The logos for Facebook, Twitter and Instagram are displayed below. These logos are often used to create a direct link from websites to the respective social media platforms.



## 10.2 Examples of BBM Channels

BlackBerry Messenger, also known as BBM, is a proprietary Internet-based instant messenger and videotelephony application included on BlackBerry devices that allows messaging and voice calls between BlackBerry, iOS, Windows Phone and Android users. It is developed by BlackBerry Limited (formerly known as Research In Motion Limited (RIM)) and was first released in August 2005. Messages sent via BlackBerry Messenger are sent over the Internet and use the BlackBerry PIN system. Many service providers allow sign-in to BlackBerry Messenger using a dedicated BlackBerry data plan.[2] Exchanging messages is possible to a single person or via dedicated discussion or chat groups, which allow multiple

BlackBerry devices to communicate in a single session. In addition to offering text-based instant messages, BlackBerry Messenger also allows users to send pictures, voicenotes (audio recordings), files (up to 16 MB), share real time location on a map, stickers and a wide selection of emoticons. Communication was only possible between BlackBerry devices until late 2013 when BBM was released on iOS and Android systems. *Extracted from Wikipedia at: [https://en.wikipedia.org/wiki/BlackBerry\\_Messenger](https://en.wikipedia.org/wiki/BlackBerry_Messenger)*

A screenshot of Blackberry Messenger is as shown below:



Examples of BBM Channels that advertise their products are shown below:



Examples of BBM Channels advertising products for other businesses are as follows:



Illustration removed for copyright restrictions



Illustration removed for copyright restrictions



Illustration removed for copyright restrictions



Illustration removed for copyright restrictions