**The University of Nairobi**


**Adoption of Mobile Payments in Kenyan Businesses: A case study of Small and Medium Enterprises (SME) in Kenya.**

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## Declaration

This research is my original work and has not been presented for a degree in any other university.

Signature……………………………..        Date……………………………….

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This research project has been submitted for examination towards fulfilment for the award of degree of Masters of Science in Information Systems with my approval as the University of Nairobi supervisor

Signature……………………………..        Date……………………………….

Dr. Andrew Kahonge

## Dedication

This research is dedicated to my late Mother, The late Rose Atieno, whose presence would have added tremendous inspirations, and aspirations that she instilled in me as well as the intelligence she displayed to me while alive during tough and challenging situations as the process I went in doing this research.

**Acknowledgement**

**Abstract**

There has been a general increase in the usage of mobile phones in developed world countries and developing countries. The most significant trend however is the value added services of mobile telephony services such as mobile payment, mobile commerce, and mobile finance. Every player in the market is trying to express innovative moves in order that they are always ahead in their respective competitive markets. Small and Medium-sized Enterprises (SMEs) are not left behind in all these. With the advancement in e-commerce platforms and mobile commerce platforms, many SME are trying to employ user friendly payment systems A lot of studies have been done with regards to adoption of M-Pesa by individuals and merchants but very few of such studies have focused on SMEs, however, with these studies, we were able to identify various theories that have been used in formulating reasons or motivations towards these technological adoptions. Such theories include Technology Acceptance Theory (TAM), Innovation Diffusion theory (ID), Technology Organization and Environment theory (TOE) amongst others. In our study, we employed TOE to identify factors that motivate SME to adopt mobile payment methods in their business processes and e-commerce platforms. Our research design was cross-sectional survey design to enable us make generalizations and methodology was that of Case Study in order that we propose and validate any new theory of Technology adoption that may emerge. Adoption and Acceptance are terms that have been used interchangeably to mean one and the same thing in many literature. Our study also applied the two terms interchangeably within the context of Technology Acceptance to mean the same thing. The study sampled 317 SMEs from three strata Hotels and restaurants, Tours and travel and Supermarkets which have 1,584 registered SMEs. With a response rate of 73%, a justified analysis of the 232 responses received was done to test the hypotheses under TOE theory. The results of this study revealed that a majority of SMEs in Kenya are willing to invest in personnel and technology in order to provide convenient mobile payment options to clients irrespective of the SME annual revenue, number of employees, nature of business and years of operation. Further Structured Equation Model (SEM) analysis showed a significant and positive relationship between all indicators adopted for data collection and the three factors (latent variables), Technology, Organization and Environment that affect adoption of mobile payment systems by SMEs. We recommend further studies on this subject to focus on mixed of Technology Diffusion and TOE to find out how constructs derived from the two models would generate the concept of mobile payment technology adoption.

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**List of Acronyms**

1. AMOS - Analysis of a moment structures
2. EQS - Structural Equation Modelling Software
3. LISREAL - Linear Structural Relations
4. STATA – Statistical Software

# CHAPTER 1

# INTRODUCTION

Over the recent years, mobile phones have played a very important role in the lives of many in the third world countries especially in Kenya with regards to mobile payment ranging from the banked to the non-banked, (Yakub *et. al*, 2013). Interaction between the clients and the merchants may take a variety of processes as indicated by Toma (2012). In developed countries, such as Japan mobile payment methods have taken forms of advanced chipsets in the mobile phones and Integrated Circuits Cards, an example being the "Wallet Mobile", (Toma 2012).

## 1.1 Background Information

### 1.1.1Electronic commerce

Electronic commerce (*e-Commerce*) has been variedly defined as the concept of trading online via the internet. This usually involves the buyers exchanging money and goods or services in a virtual environment even though the goods can either be virtually accessed online or delivered later on after the payment transactions have been made.

Mutua, Oteyo, & Njeru, (2013) defines e-commerce as a form of electronic commercial engagement whereby transactions and selling of goods and services is done online through world wide web or through telecommunications network such as mobile telephone service provision. Kinnuthia & Akinnusi (2013) also summarizes e-commerce definition as that transaction done over the internet. This therefore can be argued that there is a very thin line between m-commerce and e-commerce.

Many e-commerce transactions have been done in developed world and when you mention e-commerce, E-Bay and Amazon comes in the picture. In developed countries, a lot of studies indicate an increased trend in businesses and commercial agencies such as banks embracing e-commerce. Mobile commerce (*m-Commerce*) has also started rivalling e-Commerce in the recent past with the increased advancement of telecommunications and increased mobile technology advancement such as smart phones and personal digital assistant. Donner (2007) defines m-commerce as a cluster of mobile banking (*m-banking*),

mobile payments (*m-payments*) and mobile finance (*m-finance*). This m-commerce group of applications enable mobile phone users manipulates their respective bank accounts through mobile phone remotely.

Many mobile based commercial applications are increasingly being developed with the emergence of platforms such as androids and windows mobile platform. With this technological trend, a lot is yet to be determined on how they have added to the growth of m-commerce and e-commerce.

Developing countries have ventured a lot in to m-commerce with mobile phone users exchanging goods and services through their phones, however, electronic commerce has also gained prevalence with shopping malls such as supermarkets rolling out electronic payment methods and combining both e-commerce and m-commerce in a virtual environment.

In most African countries, however, there is still some perceived slow appreciation of electronic commerce, according to. M-commerce has also been suggested to level the playing field by providing an opportunity for developing countries to compete on an equal footing with developed countries. According to Jobodwana (2009), m-commerce and e-commerce are a force to reckon with in Africa although m-commerce is perceived to in future surpass the e-commerce as a method of digital transaction. For the case of this study therefore, we assumed both m-commerce and e-commerce as one entity since they are both generally electronic in nature.

Electronic commerce can be subdivided into various domains, these are B2B (Business-to-Business), B2C (Business-to-Consumer), C2B (Consumer-to-Business), C2C (Consumer-to-Consumer). Others include G2G (Government-to-Government), G2E (Government-to-Employee), G2B (Government-to-Business), B2G (Business-to-Government), G2C (Government-to-Citizen), C2G (Citizen-to-Government) and with increasing governments initiative for e-governance in Kenya, it will be interesting in future studies how these affects the electronic transactions in Kenya.

### 1.1.1.1 B2B (Business-to-Business)

Business-to-business could be defined as a phenomenon where two commercial entities do business transactions amongst one another. For example, Companies can do business with each other such as manufacturers selling to distributors and wholesalers selling to retailers. In many of these occasions, pricing may be based on quantity of order and which may more often than not be negotiable. This is considered to be the largest form of e-commerce, (Mutua et al, 2013).

### 1.1.1.2 B2C (Business-to-Consumer)

Business-to-consumer on the other hand is considered to involve the transactions between the business entities and the consumers. This will be the main focus of e-commerce segment of our study. Mutua et al, (2013) further adds that (B2C) e-commerce is mostly online process in which business entities tend to reach to various individual consumers. Most of these transactions are done over the air (mobile transactions) or over the World Wide Web (internet). In these businesses, the structure of selling to the general public is usually via portals utilizing shopping cart software.

### 1.1.1.3 C2B (Consumer-to-Business)

A consumer-to-business phenomenon is where consumers negotiate the project budget online by posting project with a particular preferred pre-set budget online. This is usually quickly followed by companies reviewing the consumer's requirements and bid on the project. The consumer thereafter reviews the bids and selects the company that will complete the project. Elance can be considered as one of the C2B and utilizes online payment such as PayPal and other payments methods. Mobile payment has been adopted by PayPal and other real time online payment processors although the concept is still new.

### 1.1.1.4 C2C (Consumer-to-Consumer)

Many international e-commerce platforms also employ consumer-to-consumer e-commerce system. These may include offering free classifieds, auctions, and forums where individuals can buy and sell with support from online payment systems like PayPal where people can send and receive money online with ease. eBay's auction

service is a great example of where person-to-person transactions take place. In Kenya, businesses like OLX, Nation media's N-Soko amongst others can be considered as C2C entities. Mobile payment has been applied by the Kenyan business to achieve flexibility of the consumers trading therein.

E-commerce and M-commerce have not escaped the challenges that every transactions phenomenon has and these have affected both developing and developed countries especially with regards to Mobile Money transactions such as electronic payments.

With the need to be ahead of the competition in Kenya, Small and Medium sized Enterprises have had to rethink on their strategies with regard to electronic trading. A study conducted on banks in Kenya by Asiabugwa & Munyoki (2013) indicated a positive correlation between the adoption of e-commerce and performance. In their study, they concluded that from the result, banks that adopted e-commerce improved in their performance as opposed to those that did not. This indicates to us that e-commerce platforms are a good source of banks and to a greater extent Small and Medium Sized Enterprises' (SME) improved performance.

Mutua J. Oteyo I. N. & Njeru A. W. (2013) also gave an indication of the general trend of e-commerce adoption by SME in Kenya. In their study, they established that e-commerce was not widespread with about 43% of all the firms they surveyed having no functioning websites. Out of the sampled SMEs 31% of the firms had only static websites which could not interact with customers, while 22% of the firms had active websites that allowed the firm to interactive communication with customers. With this in mind, it can be argued that a substantial number of firms at 22% have e-commerce platform.

### 1.1.2 Mobile payment

Mobile payment methods is just but a fraction of cashless payment methods such as those services offered by payment processors such as PayPal, 2-checkout, MoneyBooker and others who have provided secure payment platforms for quite a very long time, (Dahlberg et al, 2006).

Mobile payment has been modelled in to four different domains by Chaix and Torre (2011). These domains had been subdivided as; the operator-centred mode, the bank-centred model, the independent services model and the collaborative model, Chaix et al (2011). The need to look at the mobile payment methods have been necessitated by lack of informative data on the various payment methods such as mobile payment and e-payments available, Dahlberg et al (2006).

One of the most used methods of mobile payment in Kenya is M-Pesa. According to a World Bank report, a huge percentage of money transfers were done via M-Pesa as opposed to the custom post office, (Toma 2012).

By the end of 2007, it is estimated that M-Pesa subscription had reached 1million; a figure that has continuously increased with each passing year with 2009 recording over7.7 million and by 2010 the figure going to about 9 million, (Plyler *et. al.* 2010). Bill (2012) indicates in a more recent work, that subscription to M-Pesa is more than 13 million people. Considering that many more mobile phone providers have also introduced the mobile payment platform, this figure could be even higher, although empirical data to that effect is yet to be availed.

Various theoretical models have been successfully used to test the acceptance of Information technology (IT) at user level, these include Technology Acceptance Model TAM, Unified Theory of Acceptance and Use of Technology UTAUT, as well as at firm Level; Diffusion of Innovation and Technology, Organization and Environment, (Oliveira et. al. 2011, Aparci et.al. 2012).

## 1.2 Problem statement

With the high prospects of growth in the mobile payment sector as seen in the positive growth trend above, the question that we may ask is how would this contribute to the Small and Medium-sized Enterprises growth if adopted, and secondly, what would make the SME decision makers on E-Commerce platforms opt for the adoption of the mobile payment technology.

Donovan (2012) paints a picture of the positive role of M-Pesa, one of the mobile payment methods in Kenya, in the Information and Communication Technology for Development (ICT4D). With this in mind, it can therefore be argued that it is important to understand; what are the considerations that the SME's decision makers have in mind when they opt to adopt a particular payment method so as to have a clear way forward in promoting the growth the mobile payment method and improve on it as a technology.

## 1.3 Research questions

After the end of this study, we need to have answered the following research questions that emerge;

- What effect do technological, organizational and environmental variables have on the decision makers in firms to adopt or not to adopt mobile payment?
- What are the possible variables that decision makers in firms consider while opting not adopting mobile payment?
- Are there any other unknown possible extra reasons for decision makers in firms to adopt or not to adopt mobile payment?

## 1.4 Objective

The study will have three main objectives;

1. Identify the appropriate acceptance model suited at firm level
2. Determine factors and inhibitors to adoption of mobile payment methods by SME decision makers
3. To propose and validate an Acceptance of Technology Model at firm level.

## 1.5 Rationale

According to Diniz *et al* (2011), in their literature review work, it emerged that there were still missing gaps with regards to information relating to factors leading to adoption of mobile money technology at firm level. In their results, they indicated that literature

available with respect to Consumer adoption took 30% of the literary work, with respect to Merchant adoption the literature available covered 4% and the technology factors covered only 3%.

This study, therefore, is significant since it would give an insight as to how decisions are made to adopt the mobile phone based payments by the SME, a sector which is considered to be one of the key economic growth stimulants to Kenya's economy.

Mbogo (2010), for instance, in her research indicates a positive correlation between mobile payments and positive constructs amongst the micro-business enterprises. Even though the study seems similar to the one in this study, there is a remarked difference in that this study will not only study the factors leading to adoption of M-pesa by SME, but also adoption of other mobile money platforms such as Orange money, and Zap Money.

Secondly, the use of a different methodology in the study will add some relevance to the models used to determine how firms adopt technology. This will add to the base study of the mobile money phenomenon thus offer a more realistic data as a whole on the fast growing E-Commerce sector.

The rationale of such a study is also strengthened by El-Gayar *et al* (2011), who underpinned the importance of the analysis on the adoption of technological initiative studies with regards giving insights on how to enhance planning and management by giving proper diagnostic hence increase effectiveness and interactivity which in their case was the students' learning and teaching effectiveness.

# CHAPTER 2
# LITERATURE REVIEW

Information technology (IT) has become a major component for growth and development for any institution. Coupled with numerous developments in IT currently experienced, mobile phones have shifted from a basic communication use to virtually a necessity for business interaction both from an individual point of view to firm level point of view. Studies on mobile usage acceptance from both individual level and firm level may need to be conducted just as any other IT research.

As it is evident in many scholarly work, various factors influence how information systems and by extension mobile payment technology, may be accepted or rejected at firm level and individual level. In our case we looked at firm level acceptance in the context of Small and Medium Enterprises (SME) institutions.

## 2.1 Theories and frameworks

Studies that have been conducted so far regarding mobile payment already show a general trend that is quite promising; however, none of the studies have capitalized on the fast growing E-Commerce business platform sector and also the methodology used are not satisfactory enough.

## 2.1.1 Technology Acceptance Model

The theory of Technology Acceptance Model (TAM) looks at factors that affect technology acceptance from an individual. For instance, it theorizes that an individual is prone to adopt a particular technology based on their attitude towards those technologies which in turn are driven by perceived usefulness and Perceived ease of use, Bruner *et al.* Even though the TAM has been widely quoted by many scholars in relation to technology acceptance, as applied by Davis (1989) and Mbogo (2010), it has equally received some critiques for

dwelling mostly on factors emanating from an individual technology adoption point of view, (Bagasse, 2007).

## 2.1.2 Unified theory of acceptance and use of technology

The use of Unified Theory of Acceptance and Use of Technology (UTAUT) in some of the information adoption research is an extension of TAM. Venkatesh (2003) incorporates more constructs of motivation, price value, and habit to the constructs of TAM namely attitude, perceived usefulness and perceived ease of use. The effects of the constructs on behavioural intention and technology use, it is hypothesized, are moderated by Individual differences such as age, gender, and experiences, (Venkatesh, 2003).

Bagozzi (2007) indicates a gap that needs to be addressed in our study in that the use only of TAM and UTAT which is at the individual level needs to be strengthened by other frameworks of Information Technology adoption. Both TAM and UTAUT therefore can be argued as to be best applied when handling research from a user level perspective rather than at firm (SME) level perspective.

## 2.1.3 Diffusion of Innovation

The diffusion of Innovation looks at the rate at which new innovation is spreading, how the new innovation is spreading and why it is spreading in order to investigate the factors affecting the adoption of new information technology innovation both at individual and SME levels, (Oliveira and Martins, 2011). The various factors to be looked into therefore are attached to both firm and individual's role in adapting to new technology.

## 2.1.4 Technology, Organization and Environment (TOE)

The theory of Technology, Organization and Environment (TOE) on the other hand looks at three major factors that are further broken down to smaller constructs when looking at how information technology is adopted at firm level , (Oliveira and Martins, 2011),these factors include technological context within the SME, organizational context within the SME, and environmental context (Figure 2.1). All these do not take in to account the firm level decision making process as opposed to Technology, Organization and Environment

(TOE) theory of technology acceptance.
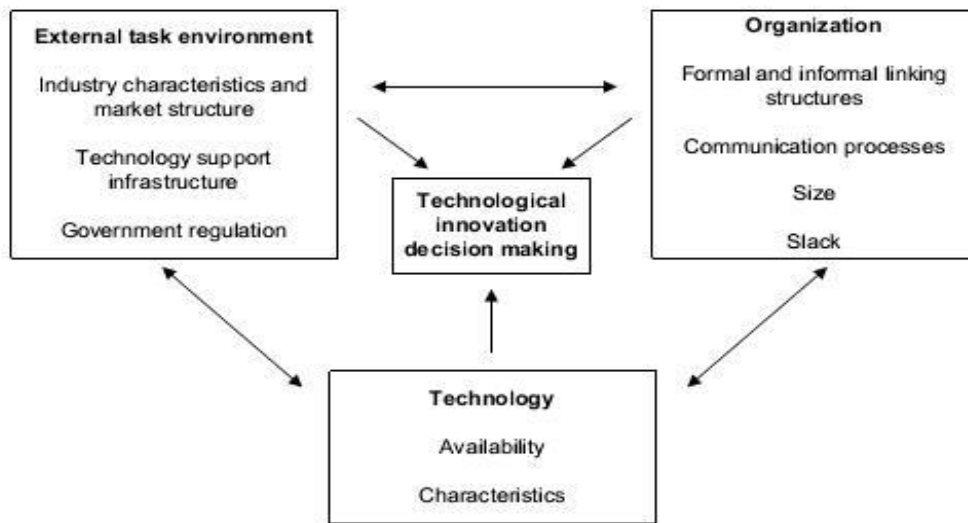


**Figure 2.1**: Relationships between Technology, organization, and environment framework (Oliveira and Martins 2011)

## 2.2 Theoretical approach

As Oliveira and Martins (2011) indicates, unified theory of acceptance and use of technology (UTAUT) and Technology Acceptance Model (TAM) are widely associated with individual acceptance of newer technology as opposed to Technology, Organization and Environment (TOE) and Diffusion of Innovation (DOI) which embraces firm level constructs. The usage of TOE and DOI is more appropriate despite the fact that TAM being widely cited in many scholarly works, (Korpelainen, 2011).

Rosli *et. al.* (2012) in their study, helped in identifying the importance of using TOE in the study of adoption of Information Technology at firm level, and this is further enhanced by Ghobakhloo *et al.* (2012), who likewise, recognizes the uniqueness of each organization therefore proposing a more detailed study of drivers, enablers and inhibitors of information systems adoption framework. In their conclusion, they highlighted the use of DOI as one important framework to be used but also encouraged use of other framework in determining the constraints that come in to play when decision makers decide on whether to adopt a particular information technology or not.

Technology, Organization and Environment (TOE) and Diffusion of Innovation (DOI) seems

the appropriate theory option in studies dealing with Small and Medium sized Enterprise (SMEs) acceptance of Mobile payment and how the adoption impacts on their growth. Awa *et al. al*. (2012) has also used a combination of TAM and TOE in their studies on expanding of the constructs for e-Commerce adoption by SME.

## 2.3 Small and Medium Enterprises (SME's) adoption of mobile payment methods conceptual framework

The SME's adoption of mobile payment technology was guided by all the constructs put together in the frame work. Thus if we consider all the factors in total, it would influence how the SME make decision on the adoption of the mobile payment method.

The overall conceptual framework for the eventual adoption of mobile payment methods by SME can be demonstrated by associating the constructs with the factors playing a role to the adoption of mobile payment arising from the TOE platform, Figure 2.2.

This study therefore was aimed at identifying the Technological, Organizational and Environmental factors that influence the SME decision makers into choosing mobile payment as a means of payment in their transaction.

**Technological Context**
- Perceived benefits **(+ve)**
- Operational friendliness **(-ve)**
- Security concerns **(-ve)**

**Organizational Context**
- Top management support **(+ve)**
- Organization size **(+ve)**
- Organization readiness (Formative)
  - IT sophistication **(+ve)**
  - Financial capacity **(+ve)**
- Firm scope **(+ve)**

**Environmental Context**
- Mimetic pressure from competitors (formative)
  - Perceived extent of adoption by competitors **(+ve)**
  - Perceived success of adopted competitors **(+ve)**
- Coercive pressure from clients **(+ve)**
- Normative Pressure (formative)
  - Perceived extent of adoption by customers **(+ve)**
  - Perceived adoption by suppliers **(+ve)**
  - Participation in Professional and Trade association **(+ve)**
- Intensity of competition **(+ve)**

**Adoption of Mobile Payment**
- Adoption of Mobile Payment

**Figure 2.2:** Conceptual framework of the adoption of Mobile payment methods Technology by SMEs

## 2.4 Research Hypothesis and Framework

Various theories have been formed on how technology is being accepted by individuals and individuals as seen in the literature review section. Thus here we use the Technology, Organization and Environment constructs to study the impact the adoption of mobile payment methods by SME. But first we look at the various constructs in details.

### 2.4.1 Technology factor, (Benefits, Operational friendliness, Security concerns)

**Benefits of using mobile payment as a form of payment method in Small and Medium Enterprises**

Every firm will try and analyze the cost of adopting a technology in verses the benefits the

technology will accrue for the firm. In doing the cost benefit analysis, the firm may make a decision regarding the adoption of the technology, (Cris & Joe, 2004). SME also may be guided by the cost benefit analyses outcome in determining whether to adopt the mobile payment technology or not. The eventual adoption may further determine the growth of the SME. This led us to the following hypothesis.

**H1:** Perceived benefits of mobile payments lead to adoption of Mobile Payment

### Operational friendliness due to non-real-time transactions

In real-time payment processes, the clients are supposed to get their requested product or services immediately without necessarily going through other steps such as going to the merchant or the SME. The same can be said also from the firm's point. This is such that when the firm has to employ physical staff to deal with responding to clients as soon as payment is processed may seem to be an extra cost and effort by the firm. With this in mind, it could be argued that any effort needed to complete a client request may be a discouraging phenomenon to the firm's adopting the mobile payment option. This led us to the following hypothesis.

**H2:** Lower operational friendliness due to non-real-time transactions of mobile payments platform hinder adoption of Mobile Payment

### Security concern on Mobile Payment platform

Security setup is key to any firm success. This is even more so if there is some sort of exchange of client data while making online payments. Many studies on technology adoption have used this construct to determine whether security is key to decision making process. Yoon (2009) for example applied the security concern in a study that was empirically investigating factors affecting organizational adoption. We also had it as part of our construct this formulated the following hypothesis.

**H3:** Greater security concerns hinder the adoption of Mobile Payment


**2.4.2 Organizational factors, (Top managerial support, Organizational size, Organizational readiness, Firm scope)**


### Top Managerial Support

Top management attitude has been found to be one of the determinant factors in a Firm's adoption of newer technology, (Sargent *et.al*, 2012). Therefore we can argue that in SME, the perception of the top management and there consequent support could have a positive effect on the growth of the SME through adoption of the Mobile payment method. This leads to the following hypothesis:


**H4:** Greater top management support leads to adoption of Mobile Payment


### Organization Size

The firm's capability with regards to financial as well as technical resources may be considered to positively or negatively influence how it makes decision on adoption of mobile payment technology. Resource capability is affects the readiness of the technology acceptance, (Rosli *et.al*, 2012). This leads to the following hypothesis:


**H5:** Larger organizational size leads to adoption of Mobile payment more than smaller Organizational size


### Organizational readiness

Yoon (2009) indicated how organization readiness could be split in to two main constructs of financial and technical readiness. The organizational readiness, the study indicated could be separated as formative, and sub constructs derived from them. Our research employed the same constructs and thus we generated the following hypothesis.


**H6:** Higher organizational readiness leads to adoption of Mobile Payment


### Firm scope

Firm scope was also felt to be very vital since it could have a key indicator within the firm's profile. Firm scope has also been used as a construct by other researches such as Yoon (2009). In our research, respondents were on the issues ranging from local to global presence to define how the scope would affect their decision to adopt or not to adopt mobile payment platform.

**H7:** Greater firm scope leads to adoption Mobile Payment

## 2.4.3 Environmental factor, (Mimetic pressure, Normative pressure, Client attitude, Competitive pressure)

### Mimetic pressure

According to Yoon (2009), mimetic pressure such as competition from other firms in the same market or otherwise could be an indicator of what could influence firms to adopt or not to adopt mobile payment platform. Thus we came up with the following hypothesis.

**H8:** Greater mimetic pressure from competitors leads to adoption of Mobile Payment

### Client Attitude

Intention to use a technology has been used as a predictor of actual usage of the technology at user's level of technology usage, (Venkatesh *et al*, 2012). The behavioural intention therefore has been found to significantly influence actual usage. Yoon (2009), added that client attitude can be said to constitute a form of coercive pressure. This leads to the following hypothesis:

**H9:** Greater coercive pressure from clients leads to adoption of Mobile Payment

### Normative Pressure

Normative pressure, according to Yoon (2009), could be said to be pressures emerging from peer trade, professional, clients as well as supplier. Yoon (2009) went further to have sub constructs for the normative pressure during operationalization. We thus had the following hypothesis.

**H10:** Greater normative Pressure leads to adoption of Mobile Payment

**Competitive pressure**

Ferguson *et.al* (2013), have since establish that there is a relationship between competitive pressures experienced by firms in an economic zone to the adoption of Information Technology. These relationships could either be financial or market pressure making them bow to pressure in either adopting or not adopting the information technology. This leads to the following hypothesis:

**H11:** Greater intensity of competition leads to adoption of Mobile Payment

# CHAPTER 3
# RESEARCH METHODOLOGY AND DESIGN

## 3.1 Research Design

Our Research applied the cross-sectional survey design. Qualitative research that is explanatory in nature has been deemed appropriate to use case study research methodology among other methodologies such as Grounded Theory (GT), Arshad, Ahlan & Ibrahim (2013).

Research design is important in that it gives a strategy that one will use in data collection that will help in giving answer to the research questions (Yoon, 2009). It had been suggested that research on Information System use could be considered as a Social Science domain, (Cecez-Kecmanovic 2007; Urquhart, Lehmann, & Myer 2009; &Lisle 2011). Therefore it would be argued that the best approach would be a qualitative research design.

Cathy *et al* (2010) further indicated the benefits of using Explanatory or Causal research design when applying the grounded theory which had a net effect of increasing the degree of conceptualization and theory scope in grounded theory research projects as the research methodology as was the case in our research.

Qualitative research when descriptive statistics were used, gave a general overview rather than the causal aspect of behavioural study, (Kaplan and Maxwell, 2005). Therefore, we could argue that in the context of research where we studied the reasons contributing to particular behaviours or actions, the best appropriate research design was considered to be that of Explanatory.

Explanatory research had been used in qualitative research undertakings, (Ahmad *et al* 2012), and was considered as an extension of Descriptive design which did not go deeper into phenomenal occurrences, (Blutner R, 2010).

As seen in a study by Lawrence (2010), only the institutions that fall under the category of SME were be chosen randomly for participation.

The research was conducted using structured questionnaire that was divided into 6 main sections; See Appendix 2 and 3.

1. Profile under demographic data section
2. Guide to which section to proceed with
3. Matrix to determine adoption of mobile payment
4. Timeline for adoption of mobile payment if not already adopted and intending to adopt
5. Inhibitory factors to adoption
6. Other additional optional data

The questionnaire was sent to the respective decision makers within the SME.

Questionnaires have been successfully applied in qualitative research. Kinnuthia (2014) observed that questionnaire was a more objective option and relatively a quicker way to collect information. They also observed that questionnaire was an affordable way of collecting information emanating from a large group. Due to limited resources ant time, we employed the questionnaire as a means of data collection.

The questionnaire was both close ended questions that were geared towards answering questions emanating from H1 to H11 as well as open ended questions that were to assist in drawing any pattern in order that we may see if there may be any improved or newer theory of acceptance at Firm level. This model of questionnaire has previously been numerously adopted by many qualitative researchers.

Kaplan et al, (2005) gave two distinctive features of open-ended question. In their study, they underpinned the goal of eliciting the respondent's views and experience in their own objective terms rather than a preconceived response. In addition, open-ended questions they argued, would give the respondent a chance to give deeper answers and expound on the

subject thereby giving the researcher an opportunity to get a more concrete response that the closed-end question would not have given.

Wanjau, K., Macharia, N. R. & Ayodo E. M. A. (2012) also incorporated both open-ended and closed-ended questions in their studies to gather information. In support to our reason to adopt the questionnaire as pointed earlier, some of the reasons they gave for the strategy was that the strategy was quicker to administer, it was none-biased from the researcher point of view since it was above the researcher's influence and variability, in terms of cost it is much cheaper and it also gives the respondents ample freedom to respond without any prejudice or disadvantage of time constraints.

## 3.2 Research Methodology

Various theories of analyzing data are available for use in case study scenarios. Lawrence (2010) highlights the need to use grounded theory approach for studies that elicit large quantity of data. Lawrence (2010) further argues that the data is usually non structured and unpredictable in many occasion hence the need for the grounded theory. In their study, Ahmad & Yunos (2012) also advanced this approach by using mixed approach. They argued that since their first stage of research was explanatory, data analyses were best done by Grounded Theory (GT) approach.

Equally, Structured Equation Model (SEM) has been applied in many scholarly works to analyze data using the Technology, Organization and Environment (TOE) platform to study factors affecting adoption of information technology by firms. The use of SEM emphasizes the usefulness of the TOE research model and theoretical framework for studying e-business (Zhu et.al, 2004).

Since our study focused on the interrelationships between variable, and also attempt to offer verification of the model compatibility to be used, the approach taken by Ahmad *et al* (2012) on qualitative research nature presented a much stronger case for using GT method even though SEM could have been argued to be the most appropriate model, (Tobbin & Kuwornu, 2011) and also despite Oliveira *et. al*. (2011), indicating that a majority of studies that focus

on adoption studies at firm level tended to use SEM.

Despite the strong case for GT as stated above, our decision to apply SEM eventually were more convincing when considering SEM had successfully been used by most Firm Level adoption research studies with Technological, Organizational and Environmental variables.

The unit of analysis as the Small and Medium Enterprises (SME) in Kenya, whereby a stratified random sampling technique was used in selected amongst a group of participating SME that fell in three major strata that have generally been perceived to be having a greater number of clients;

1. Hotels and Restaurant
2. Tours and travel
3. Supermarkets and Retail outlets.

**The pilot study**

Before conducting the study, we first carried out a pilot study in which 20 SMEs from the three strata. Data was collected using the questionnaire to test the instrument's validity and reliability and to determine the logic, clarity and objectivity of instructions and questions that appeared in the questionnaire. We also used the pilot data to check whether the indicated variables were easy to be analysed and interpreted for reporting and presenting the study findings.

Information collected from the pilot study was not used in the final data analysis of the study but it helped us make changes on the questionnaire, the strategy used in dissemination of the questionnaire and on the analysis technique adopted for the study. SMEs used for the pilot study were not included in the study sample of the main study.

**The stratified sample size calculation**

In order to arrive at the Population of the target group, various databases were selected online that form professional or economic groupings of the said stratified groups such as Hotel owners and Keepers website database for hotels and restaurants, Tour Operators

Associations website database for tours and travel and Business listing for Supermarkets and Retails business entities.

The choices of the databases was strategic in that they gave a view of countrywide, regional and in some cases global reach of the selected population target such that the study would eventually be considered representative.

For the Hotels and restaurants, the population was derived to be 218 registered, whereas the Tours and travel database indicated an estimated membership of 600 registered. Supermarkets and Retail database indicated an estimated total of 766 registered. This gave a total population of the target group as 1584.This study took 20% of the target population to conduct the study on 317 SMEs in Kenya.

For purposes of this study and in an attempt to improve on accuracy in the data collection and analysis exercise, the target population was divided into three strata: (i) Hotels and restaurants; (ii) Tours and travel; and (iii) Supermarkets and retail. Stratification aims to reduce standard error by providing some control over variance. Mugenda and Mugenda (2003) indicated a sample size of 10% or 20% will be sufficient for a study. This study took 20% of the population to select a sample size of 317 of the study population. From each stratum the study proportionally used simple random sampling to select 317 respondents.

The sampled size was proportionally specified using the formula below for each stratum sample size.

$$\frac{N_s}{N} \times n_p = n_s$$

Where: $N_s$ is the stratum population size, in this study 218, 600, and 766.

N is the overall population size, in this study 1,584.

$n_p$ is the overall sample size, in this study 317.

$n_s$ is the stratum sample size being calculated.

**(i) Hotels and restaurants**

$$\frac{218}{1584} \text{ X } 317 = 44$$

**(ii) Tours and travel**

$$\frac{600}{1584} \text{ X } 317 = 120$$

**(iii) Supermarkets and retail**

$$\frac{766}{1584} \text{ X } 317 = 153$$

SMEs were then randomly selected from the three strata with respect to the target size shown above to attain the target overall sample size of 317 SMEs.

**3.2.1 Structured Equation Model**

In this study, the study constructs and their inter-relationship patterns were specified a priori. SEM was considered the best approach in our case. Sample size, fit indices, standardized paths unidimesionality test and numerous other approaches were some of the key considerations that researches have been urged to take cognizant of, (Hoe, 2008).

SEM has been argued to be beneficial when dealing with our scenario in the previous paragraph. Hoe (2008) argued that SEM was mostly employed when there is need to test explanatory or causal relationships among constructs.

Tobbin et al (2011) further agreed with the fact that SEM was best when assessment of causal relationship amongst the variables. This was also in conjunction with verifying the applicable model compatibility.

Hoe (2008) further highlighted on the important aspect of sample size. McQuitty (2004), as quoted in Hoe (2008), likewise underpinned the importance of a minimum sample size determination requirement in order that achievement of the statistical power level with a particular model in advance of data collection is achieved.

According to Schreiber et al (2006), as cited by Hoe (2008), 10 respondents per free parameters was a generally agreed value. However, it was equally argued that 200 would be considered a critical sample size on consensus, (Hoe 2008).

In a research that there are many variations in any variables, SEM has been considered be used to test a modelled hypothesis by applying a linear equation system. Various kind of software was considered to be available which our research would have employed to generate iterations, goodness-of-fit and standard paths. For instance, Hoe (2008) suggest using software programs like EQS, while Tobbin *et al* (2011) applied the use of AMOS version 18 to test their research hypotheses. Mayhew et al (2009), while using Structured Equation Model (SEM) to analyze their data also used different primary statistical software known as LISREL. All the software above have been successfully used, however, our research used the Stata statistical software to test the validity of the hypothesized models as well as being employed to illustrate the Frequencies, means, standard deviations and the Structural Equation Model (SEM) analysis as well as the relationship between variables and the final analysis of the data therein.

### 3.2.2 Grounded Theory

Many qualitative researches had been found to utilize Grounded theory (GT) as one of the methodological approach. In qualitative research, GT has been considered as a unique and popular approach of research. GT has been mostly beneficial not when there is need to test and verify existing theories but when there is need to explain a process through the study social interactions or experiences, (Lingard, Albert & Levinson, 2008).Lingard et al (2008) further indicates that GT has key unique feature like; its iterative nature initial data query can be refined and cumulatively defines a pattern, theoretical sampling where the sample is not on outset set while participants are chosen on the basis of their ability to affirm or challenge

the theory that could emerge and system of analysis whereby emerging theoretical constructs are constantly being refined via comparisons with fresh data elicited from the on-going study.

Since our study is based on a case study of Small and Medium-sized Enterprises (SME), one question that may be asked is why we opted not to combine both GT and case study in one research. This question has been partially answered by Arshad, Ahlan & Ibrahim (2013) who concluded in their study that when grounded theory and cases study are used together, the result is a robust, vibrant, rigorous and valid generalization of findings through the data collection and analysis. Arshad et al (2013) further argues that the combination of both grounded theory and case study are best suited to generate an emerging theory. They even went ahead to recommend advance application of the two qualitative methods. By the look of the iterations required to generate newer theories, we reasoned that the kind of research would require enormous data that would be beyond our scope at this stage of the research. Thus we settled for using on Structured Equation Model of data analysis.

Cecez-Kecmanovic (2007) on the other hand raised a very important issue different school of thought when it comes to interpretive research where researchers differ in the way empirical data are interpreted and explanations and theories derived.

**Data Analysis**
Completed questionnaires were first edited for consistency and completeness before commencing the data analysis process. The data collected from the respondents was then coded for easier analysis and responded grouped in themes for specificity in classification and clarity in reporting.

This data was then entered in a tabulated Excel spread sheet clearly showing the coded information shared by respondents for further analysis. From this spread sheet, data was described by use of measures like the mode, median, frequency and mean to analyse the nature and the profile of SMEs which formed the study. Data which responded to the Likert scale questions was then uploaded to Stata for further analysis using the Structural Equation Model (SEM), regression, correlation and variance analysis to test the stated hypothesis identified under the literature review on adoption of mobile payment platforms by SMEs in

Kenya.

After the analysis and the interpretation exercise, an interpretation and presentation of the results was done as shown in the next chapter.

# CHAPTER 4
# RESULTS AND DISCUSION

This chapter presents an analysis and findings of the study as set out in the previous chapter, the research methodology. Data was gathered exclusively from the questionnaire, as the research instrument, which brought out information on the profiles of the SMEs and as shared by the respondents who formed this study. The chapter included hypotheses testing to assess the strength of relationships between observed and unobserved variables. Frequencies, means, standard deviations and the Structural Equation Model (SEM) analysis are presented, interpreted and findings discussed.

**Questionnaire reliability**

To test the degree to which questions within the data collection instrument agree with each other, we used Cronbach's alpha on Stata to test the reliability of the questionnaires used for the pilot study. Cronbach's alpha has been used in much statistical research to test the internal reliability of questions within a questionnaire.

Boermans and Kattenberg (2011) for example indicated that one of the best ways of determining reliability of a set of question was to use Cronbach's alpha test. With a value of beyond 70%, the result would mean that the questions within a questionnaire are reliable for administration.

From the result below on tests done under technological, organizational and environmental factors, with 70.42%, 76.24% and 87.22% coefficient indicate that the items have relatively high internal consistency as they were all above 70%.

- **Alpha t1 t2 t3 t4 t5 t6 t7 t8 t9**

n=20

Test scale = mean (unstandardized items)

Average interitem covariance:     .1734401

Number of items in the scale:        9

Scale reliability coefficient:     0.7042

- **Alpha o1 o2 o3 o4 o5 o6 o7**

n=20

Test scale = mean (unstandardized items)

Average interitem covariance:     .1632401

Number of items in the scale:        7

Scale reliability coefficient:     0.7624

- **Alpha e1 e2 e3 e4 e5 e6 e7 e8 e9 e10 e11 e12 e13 e14 e15 e16 e17 e18**

n=20

Test scale = mean (unstandardized items)

Average interitem covariance:     .5221432

Number of items in the scale:        18

Scale reliability coefficient:     0.8722

We however revised the questionnaire to include clear instructions and upon performing the Cronbach's alpha test, the following results were achieved. From the result below on the test done under technological, organizational and environmental factors, with 71.63%, 80.00% and 97.47% coefficient indicate that the items have relatively high internal consistency as they were all above 70%. The questionnaire adopted for this study could therefore enable a respondent to respond to similar questions in a similar way.

- **Alpha t1 t2 t3 t4 t5 t6 t7 t8 t9**

n=232

Test scale = mean (unstandardized items)

Average interitem covariance:     .5448238

Number of items in the scale:        9

Scale reliability coefficient:     0.7163

- **Alpha o1 o2 o3 o4 o5 o6 o7**

n=232

Test scale = mean (unstandardized items)

Average interitem covariance:     .1844003

Number of items in the scale:          7

Scale reliability coefficient:     0.8000

- **Alpha e1 e2 e3 e4 e5 e6 e7 e8 e9 e10 e11 e12 e13 e14 e15 e16 e17 e18**

n=232

Test scale = mean (unstandardized items)

Average interitem covariance:     .6202677

Number of items in the scale:          18

Scale reliability coefficient:     0.9747

## 4.1 Analysis of Response Rate

From the 317 sampled respondents, 232 respondents representing the three categories of SMEs under this study filled and returned the questionnaires thus attaining a response rate of 73%. The researcher achieved this through the use of an introduction letter which comprehensively explained the purpose of the survey, and constant reminders to the respondents via e-mail, phone calls and physical visits. Table 4.1 shows a summary of the response rates per SME industry.

| Type of SME | Total Population | Target Sample | Response | Response rate (%) |
|---|---|---|---|---|
| Hotel and restaurant services | 218 | 44 | 34 | 77 |
| Supermarket and retail services | 600 | 120 | 101 | 84 |
| Tours and travel | 766 | 153 | 97 | 63 |
| **Total** | **1,584** | **317** | **232** | **73** |

**Table 4.1:** - Response rate

Figure 4.2 shows the distribution of SMEs as indicated by nature of business in the three industries under this study. A majority of the respondents were from Supermarket and retail services and Tours and travel services with 43% and 42% respectively, and the least from Hotel and restaurant services with 15%. This shows that all respondents were from the three SME industries under this study and therefore information received is sufficient for further analysis.
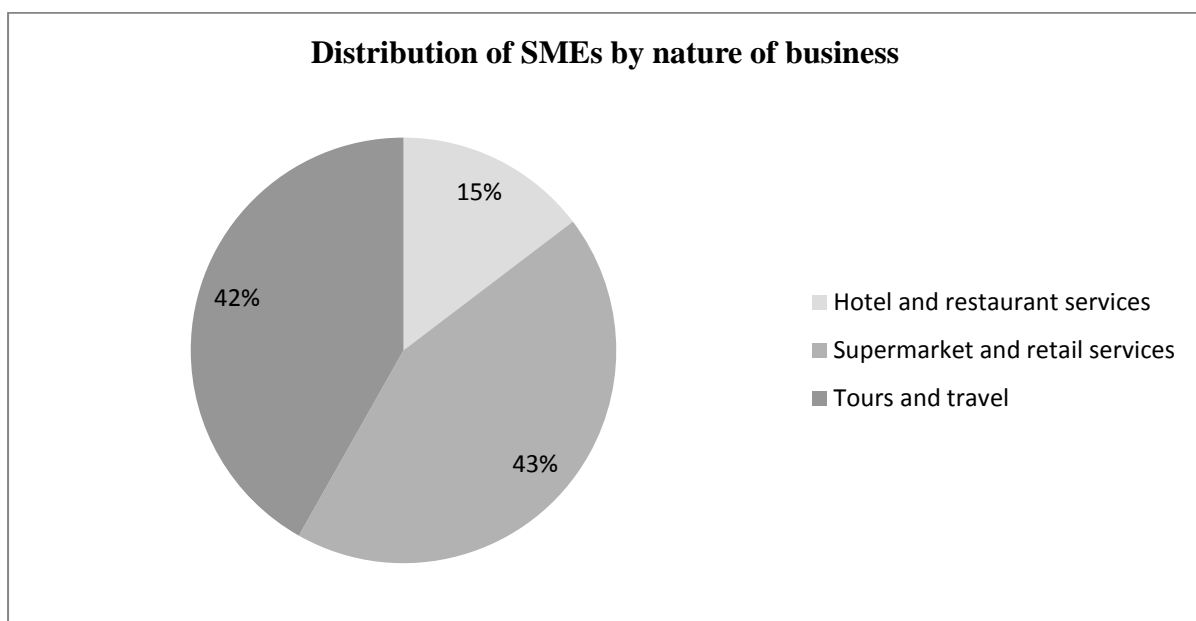


**Figure 4.1:** Distribution of SMEs by nature of business

## 4.2 Profiles of the SMEs under this study.

Section A of the questionnaire covered aspects of the annual revenue of the firm, the number of years the firm has been in business, number of employees employed by the firm and the IT operating budget as a percentage of the total generated budget. Distribution of the SMEs by the estimated revenue generated annually is shown in Table 4.2. Respondents were asked to indicate the estimated annual revenue generated by their respective firms. From the table below majority of the respondents were from SMEs with estimated annual revenue of Sh. 5,000,001 to 10,000,000 with 40.5% and the least with 3.9% did not have this information.

| Annual Revenue scale | Frequency | Percent (%) |
|---|---|---|
| Below 500,000 | 11 | 4.7 |
| 500,001 – 1,000,000 | 19 | 8.2 |
| 1,000,001 – 5,000,000 | 32 | 13.8 |
| 5,000,001 – 10,000,000 | 94 | 40.5 |
| Above 10,000,001 | 67 | 28.9 |
| Information not available | 9 | 3.9 |
| **Total** | **232** | **100.0** |

**Table 4.2:** Distribution of SMEs by estimated annual revenue.

Regarding the SMEs annual operational budget as a per cent of the annual revenue, most firms' operational budget is more than 8% of the revenue with 50.9% as shown in the table below. Table 4.3 shows the distribution of SMEs by per cent of the operational budget on the annual revenue.

| Operational budget scale | Frequency | Percent (%) |
|---|---|---|
| 2% or less | 1 | 0.4 |
| 2.1% - 3% | 0 | 0 |
| 3.1% - 4% | 1 | 0.4 |
| 4.1% - 5% | 14 | 6.0 |
| 5.1% - 6% | 26 | 11.2 |
| 6.1% - 7% | 34 | 14.7 |
| 7.1% - 8% | 29 | 12.5 |
| Above 8% | 118 | 50.9 |
| Information not available | 9 | 3.9 |
| **Total** | **232** | **100.0** |

**Table 4.3:** Distribution of SMEs by operational budget as a per cent of the revenue

Respondents were also asked to indicate the number of years their respective SMEs have been in business since establishment. Table 4.4 shows the distribution of SMEs by the respective number of years they have been in business.

| Years of operation | Frequency | Percent (%) |
|---|---|---|
| Less than 1 year | 0 | 0 |
| Above 1 year – 5 years | 15 | 6.5 |
| Above 5 years – 10 years | 27 | 11.6 |
| Above 10 years – 20 years | 83 | 35.8 |

| | | |
|---|---|---|
| More than 20 years | 106 | 45.7 |
| Information not available | 1 | 0.4 |
| **Total** | **232** | **100.0** |

**Table 4.4:** Distribution of SMEs by duration of operation

Respondents also indicated the total number of employees working for their respective SMEs. Most SMEs, as shown in Table 4.5 below, employs 101 to 200 employees. The least of the respondents indicated working for SMEs that hire more than 400 employees.

| Number of employees | Frequency | Percent (%) |
|---|---|---|
| Below 100 | 47 | 20% |
| 101 – 200 | 73 | 31% |
| 201 – 300 | 44 | 19% |
| 301 – 400 | 38 | 16% |
| Above 400 | 21 | 9% |
| Information not available | 9 | 4% |
| **Total** | **232** | **100.0** |

**Table 4.5:** Distribution of SMEs by number of employees

The final question under this section required respondents to indicate the annual IT budget as a per cent of the firms' total annual budget.
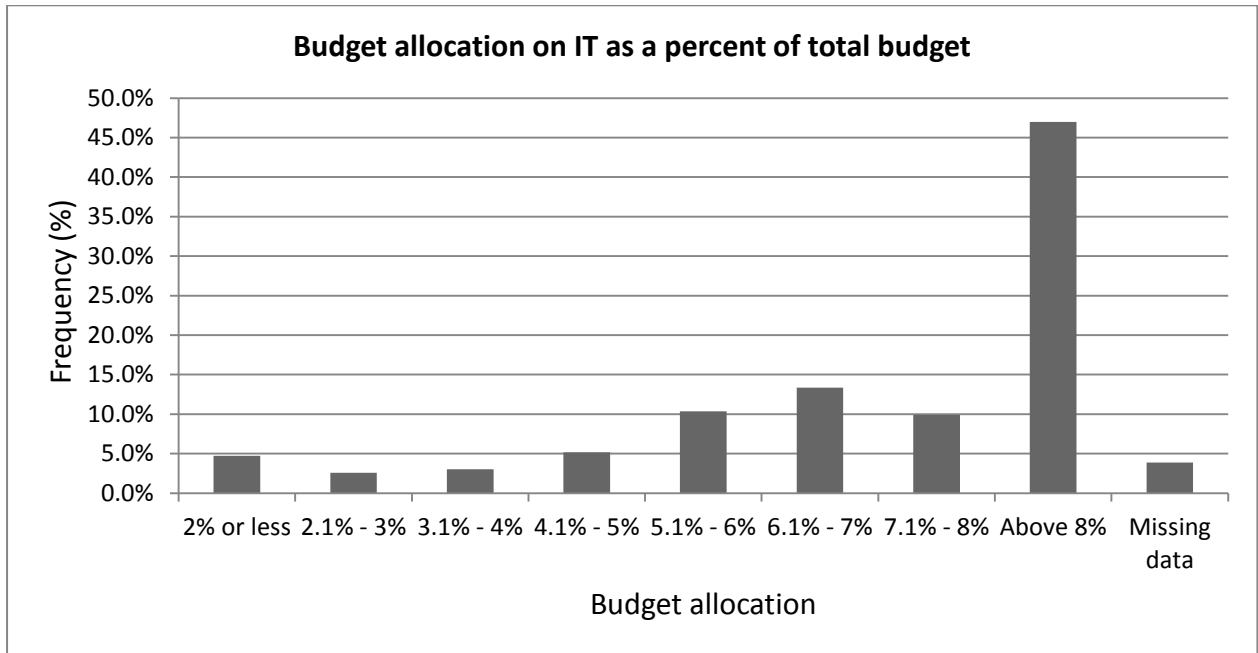
**Figure 4.2:** Distribution of SMEs by per cent annual budget under IT

## 4.3 Adoption of Mobile Payment status

The status of adoption of mobile payment system by SMEs in the country was assessed from the data collected in section B of the questionnaire which required respondents to indicate their SMEs status of adoption. The respondents were to either select (i) our firm has already adopted mobile payment, (ii) our firm intends to adopt mobile payment or (iii) our firm does not intend to adopt mobile payment. Figure 4.3 shows distribution of the sampled SMEs by adoption of mobile payment in Kenya.
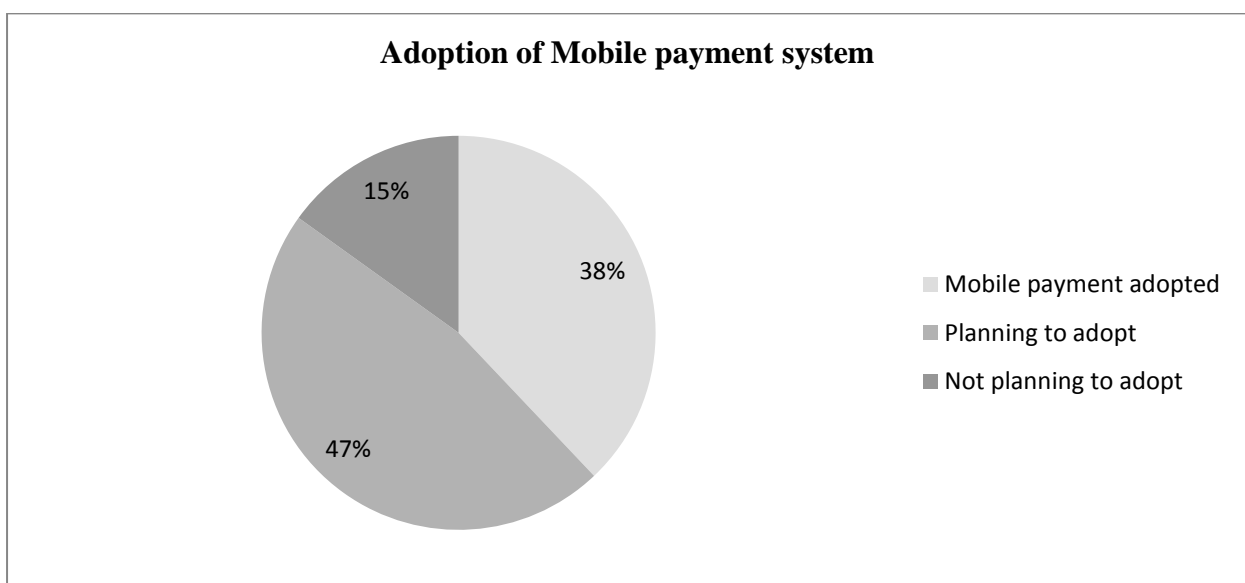


**Figure 4.3:** Adoption of mobile payment system in Kenya

32

From the analysis in Figure 4.3, most SMEs in Kenya are planning to adopt mobile payment systems with 47%. The analysis also shows that only 15% of SMEs in the three industries are not planning to adopt the mobile payment systems.

## 4.4 Adoption of Mobile Payment platforms by SMEs in Kenya

Our choice of targeting decision making IT officers in the survey was strategic in assessing how technology, organization and business environment affects adoption of mobile payment system technology. These sections, A, B, C, D and F was used to collect information which has been used to describe our findings. Part C of the questionnaire was completed by 85% of the 232 respondents (those whose firms had adopted or were planning to adopt the mobile payment platforms,) adopted a seven point Likert scale where and respondents were to indicate whether they: 1. Strongly disagree; 2. Quite disagree; 3. Slightly disagree; 4. Neither Agree nor Disagree; 5. Slightly Agree; 6. Quite Agree; and 7. Strongly Agree for each statement that appeared in the section. The three main factors assessed are discussed under 4.41, 4.42 and 4.43 below.

### 4.4.1 Technological factors

Benefits of adopting mobile payment technology were assessed to determine if technological benefits affected adoption of the mobile payment platform. This section had 9 questions which were coded t1, t2, t3, t4, t5, t6, t7, t8 and t9 for analysis. See Appendix 5. Data collected was analyzed using SEM model in STATA to illustrate regression and the correlation between the latent variables (benefits, friendliness and MgtSupport) and the observed variables ti where i=1 to 9 as listed above.
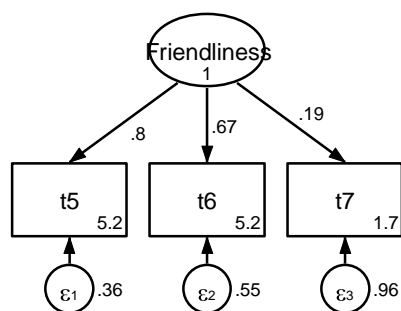
n=197
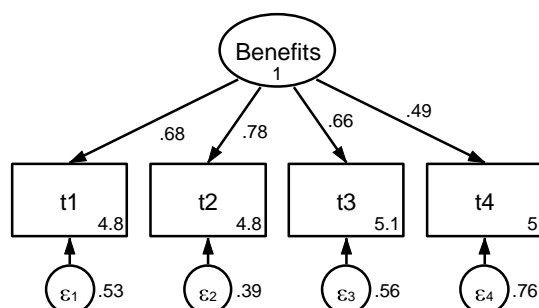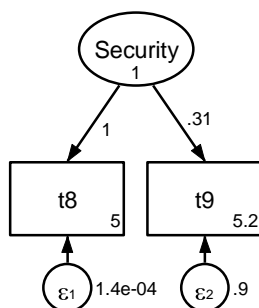


**Figure 4.4:** SEM model of effects of benefits of technology on adoption of mobile payment platforms by SMEs in Kenya

33

Structural equation model                 Number of obs    =    197

Estimation method  = ml

Log likelihood    = -1340.2286


( 1)  [t1]Benefits = 1


OIM

Coef.  Std. Err.         z        P>|z|    [95% Conf. Interval]


a) Measurement

| t1 <- | | | | | | |
|---|---|---|---|---|---|---|
| Benefits | 1 (constrained) | | | | | |
| _cons | 5.706897 | .0778335 | 73.32 | 73.32 | 5.554346 | 5.859447 |
| t2 <- | | | | | | |
| Benefits | 1.133734 | .1346014 | 8.42 | 0.000 | 8699202 | 1.397548 |
| _cons | 5.663793 | 0775594 | 0775594 | 0.000 | 5.51178 | 1.397548 |
| t3 <- | | | | | | |
| Benefits | .8922676 | .1152587 | 7.74 | 0.000 | .6663647 | 1.118171 |
| _cons | 5.62069 | .071948 | 78.12 | 0.000 | 5.479674 | 5.761705 |
| t4 <- | | | | | | |
| Benefits | .6842614 | .1098564 | 6.23 | 0.000 | .4689468 | .8995761 |
| _cons | 5.702586 | .0744678 | 76.58 | 0.000 | 5.556632 | 5.84854 |


b) Variance

| e.t1 | .7465861 | .0954897 | .0954897 | .9592905 |
|---|---|---|---|---|
| e.t2 | .5486875 | .5486875 | .3899727 | .7719975 |
| e.t3 | .6763866 | .082701 | .5322547 | .8595486 |
| e.t4 | .9780466 | .1006383 | .7994168 | 1.196591 |
| Benefits | .6588835 | .128596 | .4494459 | .9659171 |


LR test of model vs. saturated: chi2(2)   =     1.87, Prob> chi2 = 0.3921


**Figure 4.5 a and b:** STATA results for the SEM model in figure 4.4

As shown in the figures above, all the indicators regress on Benefits of mobile payment and there exists a strong positive correlation between the latent variable and the observed variables. With a p value of significantly less than 0.05 we concluded that the latent variable (Benefits) is significant to explain all the four indicators. To test for fitness of the model, we used the chi square test and at $0.3921 < 0.5$ we thus adopted the model shown in figure 4.4. We could therefore not reject the stated hypothesis.

H1: Perceived benefits of mobile payment lead to adoption of mobile payment.



**Figure 4.6:** SEM model of effects of operational friendliness on adoption of mobile payment platforms by SMEs in Kenya.

Structural equation model        Number of obs    =    197

Estimation method   = ml

Log likelihood     = -1274.0797

( 1) [t5]Friendliness = 1

OIM

Coef.  Std. Err.       Z     P>|z|    [95% Conf. Interval]

a) Measurement

| t5 <- | | | | | | |
|---|---|---|---|---|---|---|
| Friendliness | 1(constrained) | | | | | |
| _cons | 5.672414 | .0722678 | 78.49 | 0.000 | 5.530771 | 5.814056 |
| t6 <- | | | | | | |
| Friendliness | .8275 | .3722291 | 2.22 | 0.026 | .0979443 | 1.557056 |
| _cons | 5.655172 | .0708804 | 79.78 | 0.000 | 5.516249 | 5.794096 |

| t7 <- | | | | | | |
|---|---|---|---|---|---|---|
| Friendliness | .7722818 | .383491 | 2.01 | 0.044 | .0206533 | 1.52391 |
| _cons | 6.051724 | .2281382 | 26.53 | 0.000 | 5.604582 | 6.498867 |

b) Variance

| e.t5 | .4418169 | .3446964 | .095753 | 2.038601 |
|---|---|---|---|---|
| e.t6 | .6384267 | .2417359 | .3039551 | 1.34095 |
| e.t7 | 11.61577 | 1.097644 | 9.651897 | 13.97922 |
| Friendliness | .7698359 | .3579191 | .3094923 | 1.914902 |

LR test of model vs. saturated: chi2(0)  =      0.00, Prob> chi2 =      .

**Figure 4.7 a and b:** STATA results for the SEM model in figure 4.6

As shown in the figures above, all the indicators regress on operational friendliness of mobile payment and there exists a strong positive correlation between the latent variable (Friendliness) and the observed variables. This means that lower operational friendliness would also lower the rate of adoption of mobile payment platforms. With a p vale of less than 0.05 the researcher concluded that the operational friendliness is significant to explain all the three indicators t5, t6 and t7. To test for fitness of the model, the researcher used the chi square test which was nil and thus fit. The researcher could therefore not reject the stated hypothesis.

H2: Lower operational friendliness due to non-real-time transactions of mobile payments platform hinder adoption of mobile payment.
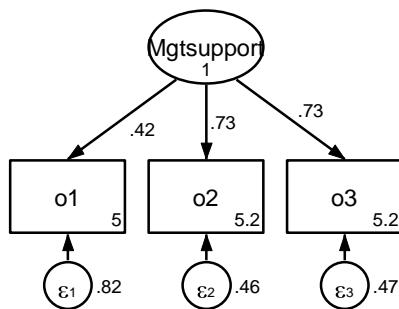
n=197



**Figure 4.8:** SEM model of effects of Security on adoption of mobile payment platforms by SMEs in Kenya.

Structural equation model          Number of obs    =    197

Estimation method  = ml

Log likelihood     = -698.27405


 ( 1)  [t8]Security = 1


OIM

Coef.  Std. Err.    z   P>|z|    [95% Conf. Interval]


a) Measurement

| t8 <- | | | | | | |
|---|---|---|---|---|---|---|
| Security | 1  (constrained) | | | | | |
| _cons | 5.702586 | .0744731 | 76.57 | 0.000 | 5.556622 | 5.848551 |
| T9 <- | | | | | | |
| Security | .2995076 | 3.51313 | 0.09 | 0.932 | -6.586102 | 7.185117 |
| _cons | 5.672414 | .0722678 | .0722678 | 0.000 | 5.530771 | 5.814056 |


b) Variance

| e.t8 | 0001819 | 15.09089 | | |
|---|---|---|---|---|
| e.t9 | 1.096244 | 1.357546 | .0967859 | 12.41658 |
| Security | 1.286545 | 15.09091 | 1.33e-10 | 1.24e+10 |

LR test of model vs. saturated: chi2(-1) =      0.00, Prob > chi2 =      .

**Figure 4.9 a and b:** STATA results for the SEM model in figure 4.8


As shown in the figures above, both indicators regress on latent variable and there exists a strong positive correlation between the latent variable (Security) and the observed variables. Security concerns lower the adoption of mobile payment platforms. With a p vale of less than 0.05 security is significant unobserved variable to explain the two indicators t8 and t9. To test for fitness of the model, we used the chi square test which was nil and we therefore adopted the model for further analysis of the hypothesis. We therefore could not reject the stated hypothesis.

H3: Greater security concerns hinder the adoption of Mobile Payment.

## 4.4.2 Organizational factors

Top managerial support, organization size and organizational readiness (coded as Mgtsupport, Size and Ready respectively) were assessed to test H4, H5 and H6. This section had 11 questions in sections A and C. The codes adopted for the 11 questions were os1, os2, os3, os4, o1, o2, o3, o4, o5, o6 and o7. **See Appendix5**. Data collected was analyzed using means, frequencies and SEM model in STATA to illustrate regression and the correlation between the latent variables (organization size, top managerial support and organization readiness) and the observed variables osi where i=1 to 4 and oi where i=1 to 7 as listed above, and to test the significance of organizational factors to explain the observed variables.
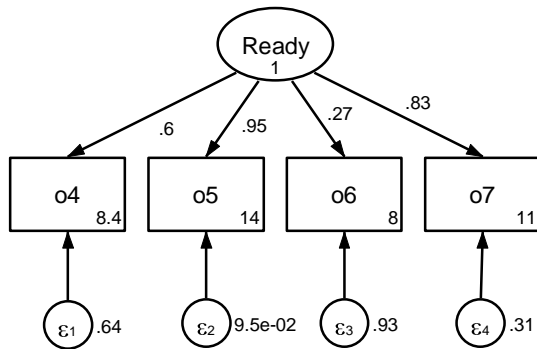
n=197



**Figure 4.10:** SEM model of effects of top managerial support on adoption of mobile payment platforms by SMEs in Kenya

Structural equation model  Number of obs  =  197

Estimation method  = ml

Log likelihood  = -1002.2836

( 1)  [o1]Mgtsupport = 1

OIM

Coef.  Std. Err.  z  P>|z|  [95% Conf. Interval]

a)  Measurement

| o1 <- | | | | | | |
|---|---|---|---|---|---|---|
| Mgtsupport | 1  (constrained) | | | | | |
| _cons | 5.702586 | .0744678 | 76.58 | 0.000 | | |
| o2 <- | | | | | | |
| Mgtsupport | 1.694741 | .3578153 | 4.74 | 0.000 | .9934359 | 2.396046 |

| | | | | | | |
|---|---|---|---|---|---|---|
| _cons | 5.672414 | .0722678 | 78.49 | 0.000 | 5.530771 | 5.814056 |
| o3 <- | | | | | | |
| Mgtsupport | 1.65323 | .3478017 | 4.75 | 0.000 | .9715516 | 2.334909 |
| _cons | 5.655172 | .0708804 | 79.78 | 0.000 | 5.516249 | 5.794096 |

b) Variance

| | | | | |
|---|---|---|---|---|
| e.o1 | 1.059177 | .1078654 | .8675272 | 1.293165 |
| e.o2 | .5586183 | .1374399 | .3448969 | .9047758 |
| e.o3 | .5441409 | .1312338 | .3391734 | .8729733 |
| Mgtsupport | .2273681 | .0810034 | .1131034 | .4570705 |

LR test of model vs. saturated: chi2(0)   =      0.00, Prob > chi2 =      .

**Figure 4.11 a and b:** STATA results for the SEM model in figure 4.10

As shown in the figures above, all the indicators regress on top managerial support for mobile payment and there exists a strong positive correlation between the latent variable and the observed variables. We tested fitness of the model using chi square which was nil as shown in the results above and thus adopted the model for further analysis. With a p vale of less than 0.05 the researcher concluded that top managerial support is significant to explain all the three indicators o1, o2 and o3. The researcher could therefore not reject the stated hypothesis.

H4: Greater top management support leads to adoption of mobile payment.

From the filled questionnaires, 87% of SMEs which do not plan to adopt mobile payment platforms: i) have an annual revenue of less than Sh.500,000; ii) have an operational budget of less than 8%; iii) have been operational for less than 10 years; and iv) hire less than 100 employees. With these observations on the profiles of the SMEs under this study as discussed in part 4.3 of this chapter, we could not reject the following hypothesis.

H5: Larger organizational size leads to adoption of Mobile payment more than smaller organizational size.
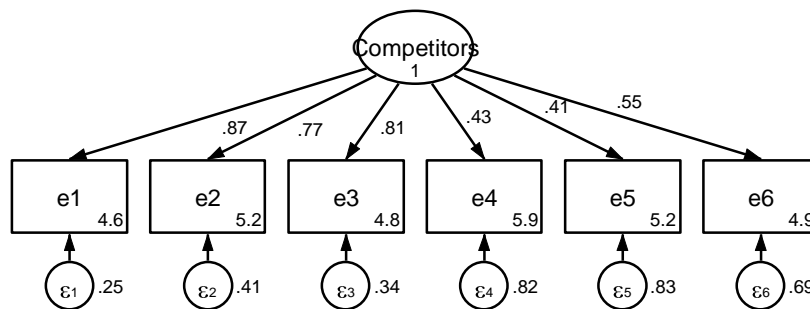
n=197



**Figure 4.12:** SEM model of effects of organizational readiness on adoption of mobile payment platforms by SMEs in Kenya

Structural equation model        Number of obs    =    197

Estimation method  =mlmv

Log likelihood     = -579.21649

( 1)  [o4]Ready = 1

OIM

Coef.  Std. Err.        z      P>|z|    [95% Conf. Interval]

a) Measurement

| o4 <- | | | | | | |
|---|---|---|---|---|---|---|
| Ready | 1  (constrained) | | | | | |
| _cons | 4.534483 | .0354718 | 127.83 | 0.000 | 4.464959 | 4.604006 |
| o5 <- | | | | | | |
| Ready | 1.326372 | .1362295 | 9.74 | 0.000 | 1.059367 | 1.593377 |
| _cons | 6.284483 | .0296206 | 212.17 | 0.000 | 6.226427 | 6.342538 |
| o6 <- | | | | | | |
| Ready | .6047505 | .1622284 | 3.73 | 0.000 | .2867887 | .9227123 |
| _cons | 5.75 | .047119 | 122.03 | 0.000 | 5.657648 | 5.842352 |
| o7 <- | | | | | | |
| Ready | 1.270865 | .1331301 | 9.55 | 0.000 | 1.009935 | 1.531796 |
| _cons | 5.37931 | .0324339 | 165.85 | 0.000 | 5.315741 | 5.44288 |

b) Variance

| e.o4 | .1871512 | .0183106 | .1544943 | .2267111 |
|---|---|---|---|---|
| e.o5 | .0192465 | .0119123 | .0057215 | .0647426 |

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| | | | |
|---|---|---|---|
| e.o6 | .4767719 | .0450127 | .3962302 | .5736853 |
| e.o6 | .0748519 | .0129222 | .0533647 | .1049908 |
| Ready | .1047632 | .0215868 | .0699545 | .1568923 |

LR test of model vs. saturated: chi2(2) = 11.90, Prob> chi2 = 0.0026

**Figure 4.13 a and b:** STATA results for the SEM model in figure 4.12

From the figures above, all the indicators regress on top managerial support for mobile payment and there exists a strong positive correlation between the latent variable and the observed variables. The researcher tested fitness of the model using chi square which was at 0.0026 as shown in the results above and thus adopted the model. With a p vale of less than 0.05 the researcher concluded that higher organizational readiness is significant to explain all the four indicators o4, o5, o6 and o7. The researcher could therefore not reject the stated hypothesis.

H6: Higher organizational readiness leads to adoption of mobile payment.

From the filled questionnaires, 85% of SMEs which do not plan to adopt mobile payment platforms only operate their business within Nairobi. With these observations on the profiles of the SMEs under this study as discussed in part 4.3 of this chapter, we could not reject the following hypothesis.

H7: Greater firm scope leads to adoption of Mobile payment.

**4.4.3 Environmental Factors**

Pressure from the competition, clients and associations was assessed to test H8, H9, H10 and H11. This part of the questionnaire had 18 questions. The codes adopted for the 18 questions were ei with i= 1 to 18. **See Appendix 5**. Data collected was analyzed using means, frequencies and SEM model in STATA to illustrate regression and the correlation between the latent variables (mimetic pressure from competition, coercive pressure from clients, normative pressure, intensity of market pressure and firm scope) and the observed variables and to test for significance of the unobserved variable in explaining the observed variables. In the SEM models we labelled the latent variables as Competition, Clients, Normative, Market and Scope respectively and are discussed below.

n=197



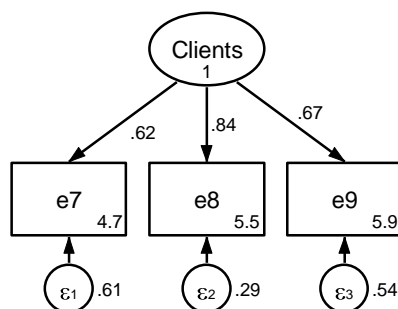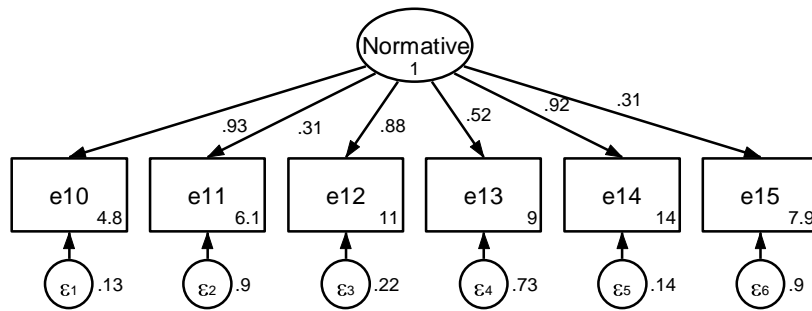**Figure 4.14**: SEM model of effects of competition on adoption of mobile payment platforms by SMEs in Kenya

Structural equation model        Number of obs    =     197

Estimation method   = ml

Log likelihood     = -239.12804


 ( 1) [e1]Competitors = 1

OIM

Coef.      Std. Err.     z    P>|z|     [95% Conf. Interval]


a) Measurement

| e1 <- | | | | | | |
|---|---|---|---|---|---|---|
| Competitors | 1 (constrained) | | | | | |
| _cons | 5.482759 | .2214464 | 24.76 | 0.000 | 5.048732 | 5.916786 |
| e2 <- | | | | | | |
| Competitors | .819943 | .2167344 | 4.76 | 0.000 | .4820392 | 1.157847 |
| _cons | 5.758621 | .2049052 | 28.10 | 0.000 | 5.357014 | 6.160228 |
| e3 <- | | | | | | |
| Competitors | .942753 | .2167344 | 4.35 | 0.000 | .5179614 | 1.367545 |
| _cons | 5.724138 | .2229227 | 25.68 | 0.000 | 5.287217 | 6.161058 |
| e4 <- | | | | | | |
| Competitors | .4224201 | .1984626 | 2.13 | 0.033 | .0334406 | .8113995 |
| _cons | 6 | .1888698 | 32.77 | 0.000 | 5.629822 | 6.370178 |
| e5 <- | | | | | | |
| Competitors | .4341793 | .1998198 | 2.17 | 0.030 | .0425397 | .825819 |
| _cons | 5.758621 | .2049052 | 28.10 | 0.000 | 5.357014 | 6.160228 |
| e6 <- | | | | | | |
| Competitors | .6277049 | .2189672 | 2.87 | 0.004 | .1985371 | 1.056873 |
| _cons | 5.724138 | .2175234 | 26.32 | 0.000 | 5.2978 | 6.150476 |

b) Variance

| | | | | |
|---|---|---|---|---|
| e.e1 | .353931 | .1916408 | .1224684 | 1.022853 |
| e.e2 | .4994501 | .1684415 | .257882 | .9673044 |
| e.e3 | .4917561 | .2080356 | .2146111 | 1.126801 |
| e.e4 | .8438771 | .2321709 | .4921451 | 1.446989 |
| e.e5 | 1.016233 | .2755844 | .5972584 | 1.729115 |
| e.e6 | .9512966 | .2729119 | .5421503 | 1.669215 |
| Competitors | 1.068186 | .3986538 | .5140113 | 2.219835 |

LR test of model vs. saturated: chi2(2)  =     11.39, Prob > chi2 = 0.2499

**Figure 4.15:** STATA results for the SEM model in figure 4.14

The figures above show that all the indicators regress on the latent variable and there exists a positive correlation between the unobserved variable and the observed variables. We tested fitness of the model using chi square which was at 0.2499 as shown in the results above and we thus adopted the model. With a p vale of less than 0.05 across all the results, as shown above, we concluded that our latent variable (competitors) significant to explain all the six indicators and we therefore could not reject the hypothesis.

H8: Greater mimetic pressure from competitors leads to adoption of mobile payment.



**Figure 4.16:** SEM model of effects of pressure from clients on adoption of mobile payment platforms by SMEs in Kenya

Structural equation model                 Number of obs    =      197
Estimation method  = ml
Log likelihood     = -120.64974

 ( 1)  [e7]Clients = 1

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OIM

Coef.    Std. Err.    z     P>|z|     [95% Conf. Interval]

a) Measurement

| e7 <- | | | | | | |
|---|---|---|---|---|---|---|
| Clients | 1 (constrained) | | | | | |
| _cons | 5.689655 | .2240236 | 25.40 | 0.000 | 5.250577 | 6.128733 |
| e8 <- | | | | | | |
| Clients | 1.2 | .4638941 | 2.59 | 0.010 | .2907842 | 2.109216 |
| _cons | 5.862069 | .1994293 | 29.39 | 0.000 | 5.471195 | 6.252943 |
| e9 <- | _cons \| | | | | | |
| Clients | .9109948 | .3337269 | 2.73 | 0.006 | .256902 | 1.565087 |
| _cons | 6 | .1888698 | 31.77 | 0.000 | 5.629822 | 6.370178 |

b) Variance

| e.e7 | .8876338 | .2961534 | .4615681 | 1.706993 |
|---|---|---|---|---|
| e.e8 | .3357907 | .2774363 | .0664953 | 1.695691 |
| e.e9 | .5632786 | .2118131 | .2695508 | 1.17708 |
| Clients | .5677765 | .3537173 | .1674519 | 1.925151 |

LR test of model vs. saturated: chi2(0)   =     0.00, Prob > chi2 =     .

**Figure 4.17 a and b: STATA results for the SEM model in figure 5.7**

As shown in the above figures, all the indicators regress on the latent variable and there exists a positive correlation between the unobserved variable and the observed variables. We tested fitness of the model using chi square which was nil as shown in the results above and we thus adopted the model. With a p value of less than 0.05 across all the results, as shown above, we concluded that our latent variable (coercive pressure from clients) is significant to explain all the six indicators and we therefore could not reject the hypothesis.

H9: Greater coercive pressure from clients leads to adoption of Mobile Payment.

**Figure 4.18:** SEM model of effects of normative pressure on adoption of mobile payment platforms by SMEs in Kenya

Structural equation model          Number of obs    =       197

Estimation method  = ml

Log likelihood     = -128.06164

 ( 1) [e10]Normative = 1


OIM

Coef.  Std. Err.    z   P>|z|    [95% Conf. Interval]


a) Measurement

| e10 <- | | | | | | |
|---|---|---|---|---|---|---|
| Normative | 1  (constrained) | | | | | |
| _cons | 5.413793 | .2098481 | 25.80 | 0.000 | 5.002498 | 5.825088 |
| e11 <- | | | | | | |
| Normative | .2610929 | .1601834 | 1.63 | 0.103 | -.0528607 | .5750466 |
| _cons | 5.448276 | .1659922 | 32.82 | 0.000 | 5.122937 | 5.773615 |
| e12 <- | | | | | | |
| Normative | .4049818 | .052039 | 7.78 | 0.000 | .3029872 | .5069764 |
| _cons | 5.37931 | .0901022 | 59.70 | 0.000 | 5.202713 | 5.555907 |
| e13 <- | | | | | | |
| Normative | .2452475 | .085614 | 2.86 | 0.004 | .0774471 | .4130479 |
| _cons | 4.517241 | .0927925 | 48.68 | 0.000 | 4.335372 | 4.699111 |
| e14 <- | | | | | | |
| Normative | .3914245 | .0468794 | 8.35 | 0.000 | .2995425 | .4833065 |
| _cons | 6.275862 | .0829961 | 75.62 | 0.000 | 6.113193 | 6.438531 |
| e15 <- | | | | | | |
| Normative | .2152939 | .1266291 | 1.70 | 0.089 | -.0328947 | .4634824 |
| _cons | 5.758621 | .1349256 | 42.68 | 0.000 | 5.494171 | 6.02307 |


b) Variance

| e.e10 | .1618015 | .0826611 | .0594458 | .4403968 |
|---|---|---|---|---|
| e.e11 | .7230227 | .1920155 | .429631 | 1.216769 |

| | | | |
|---|---|---|---|
| e.e12 | .0525216 | .0185764 | .0262589 | .105051 |
| e.e13 | .1826245 | .0507653 | .1059121 | .3149001 |
| e.e14 | .0288913 | .0139742 | .0111958 | .0745553 |
| e.e15 | .4762495 | .1261875 | .2833344 | .8005154 |
| Normative | 1.11525 | .3401396 | .6134292 | 2.027588 |

LR test of model vs. saturated: chi2(2)   =    34.44, Prob > chi2 = 0.0001

**Figure 4.19 a and b:** STATA results for the SEM model in figure 4.18

The SEM model shows that all observed variables regress on the latent variable and there exists a positive correlation between the unobserved variable and the observed variables. We tested fitness of the model using chi square 0.0001 as shown in the results above and we thus adopted the model. With a p value of less than 0.05 across all the results, as shown above, we concluded that our latent variable (Normative pressure) is significant to explain all the six indicators and we therefore could not reject the hypothesis.

H10: Greater normative pressure leads to adoption of Mobile Payment.
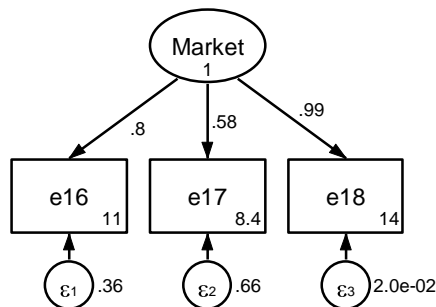


**Figure 4.20:** SEM model of effects of intensity of competition on adoption of mobile payment platforms by SMEs in Kenya

Structural equation model                    Number of obs    =    197

Estimation method  = ml

Log likelihood     = -334.57036

( 1 ) [e16]Market = 1

OIM

Coef.      Std. Err.        z     P>|z|       [95% Conf. Interval]

   a)  Measurement

| e16 <- | |
|---|---|
| Market | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| _cons | 5.37931 | .0324339 | 165.85 | 0.000 | 5.315741 | 5.44288 |
| e17 <- | | | | | | |
| Market | .7988215 | .0835696 | 9.56 | 0.000 | .6350281 | .962615 |
| _cons | 4.534483 | .0354718 | 127.83 | 0.000 | 4.464959 | 4.604006 |
| e18 <- | | | | | | |
| Market | 1.129762 | .0967977 | 11.67 | 0.000 | .9400418 | 1.319482 |
| _cons | 6.284483 | .0296206 | 212.17 | 0.000 | 6.226427 | 6.342538 |

b) Variance

| | | | | |
|---|---|---|---|---|
| e.e16 | .0877603 | 0136256 | .0647352 | .1189749 |
| e.e17 | .1921804 | .019156 | .1580752 | .233644 |
| e.e18 | .004064 | .0139439 | 4.88e-06 | 3.384373 |
| Market | .1562944 | .0237979 | .1159677 | .2106445 |

LR test of model vs. saturated: chi2(0)   =      0.00, Prob > chi2 =      .

**Figure 4.21 a and b:** STATA results for the SEM model in figure 4.20

All the observed variables regress on the latent variable and there exists a positive correlation between the unobserved variable and the observed variables. We tested fitness of the model using chi square which was nil as shown in the results above and we thus adopted the model for further analysis. With a p value of less than 0.05 across all the results, as shown above, we concluded that our latent variable (intensity of competition which we referred to as Market) is significant to explain all the 3 indicators and we therefore could not reject the hypothesis.

H11: Greater intensity of competition leads to adoption of Mobile Payment.

**4.5 SMEs with plans to adopt mobile payment platforms.**

The study further did an analysis of the target dates for adoption of mobile payment systems by SMEs which were planning to adopt the technology. As shown in the table below, 60% of SMEs would have adopted the technology within the next 12 months although this projection is also reliant on the three factors analyzed under section 4.4 of this chapter.

| Target Time | Frequency | Per cent (%) |
|---|---|---|
| Less than 6 months | 36 | 33% |
| Above 6 months - 12 months | 29 | 27% |
| Above 12 months - 18 months | 23 | 21% |
| Above 18 months - 24 months | 17 | 16% |
| Information not available | 4 | 4% |
| Not Applicable | 0 | 0% |
| TOTAL | 109 | 100% |

**Table 4.6:** Target time for adoption of mobile payment by SMEs

## 4.6 Additional factors that affect adoption of mobile payment platforms

Respondents from SMEs which do not intend to adopt mobile payment platforms outlined factors that hinder them from adopting the technology. The outlined factors were grouped into the following three major categories:

i)      Poor marketing strategies by service providers;

ii)     Lack of technical consultations by service providers; and

iii)    Fear for loss of jobs, especially frontline staff, if the technology is adopted.

Respondents were also required to outline any other factors that would promote adoption of mobile payment platforms. The outlined factors were grouped into the following three major categories;

i)      Incentives from service providers;

ii)     Free after sales service by service providers; and

iii)    Intense marketing and training conducted by service providers.

## 4.7 Discussion

A majority of SMEs in Kenya regardless of the nature of business or size in terms annual revenue and number of employees are planning to adopt mobile payment systems within the next 12 months. This shows that despite the experienced factors as highlighted by 15% of the sampled SMEs as reasons to why they do not consider adopting mobile payment systems, most SMEs, 38% and 47% of SMEs have adopted and are planning to adopt mobile payment platforms. These 85% of the sampled SMEs have invested in IT personnel and systems in

order to realize all the beneficial factors discussed in chapter four.

All the hypotheses discussed in chapter three and tested under (i) technology, (ii) organization and (iii) environment as factors influencing adoption of mobile payment platforms could not be rejected since the latent variables generated from the above mentioned factors were strongly significant to explain all the observations indicated by the respondents. This implies that technology, organization and environment strongly affect adoption of mobile payments by SMEs in Kenya.

### 4.7.1 Technological, Organizational and Environmental factors effect on Adoption of Mobile Payment

**Technological**

Our findings indicate that technology considerations such as security concerns were one of the factors that hinder the adoption of the mobile technology. Security in general has been found to be a hindrance factor in adoption of technology and the more the concern is the less the adoption rate. Vasileiadis (2014) for example while studying the adoption of m-commerce found out that in deed security was a factor in the adoption of the m-commerce. This is in line with our finding.

Ease of use is also a factor that many studies have found to be playing a role in adoption of technology. In many studies, the more difficult and cumbersome a platform is, the less adoption will be considered. Vasileiadis (2014) also found this to be true in the study. This means that our findings on positive correlation between ease of using the mobile payment by firms is significant to explain the adoption of mobile payment platform.

Vasileiadis (2014) also confirmed that benefits of technology would drive the intent to adopt that technology. In our findings, we accepted the hypothesis that indicated that perceived benefits would encourage usage and adoption of mobile payment technology by firms. These findings are further supported by Paquet (2013) who also found out that perceived benefits drives the intention to adopt positively.

**Organizational**

Our findings also found organizational factors such as Scope, Size, Organization readiness and Management support as having a positive correlation with the intent to adopt; these findings are in synch with those of Yoon (2009). In the study that was done to determine the adoption of virtual worlds, the findings found a correlation of the Scope, Size, Organization readiness and Management support as positive.

**Environmental**

Yoon (2009) also found a positive correlation with the mimetic pressure as a factor that contributes to adopt or not to adopt mobile payment as well as that Client attitude with regards to intent to adopt. This was also supported by the findings of Perdana and Achjari (2011), where they found a positive correlation between mimetic pressure and intent to adopt. Khalifa and Davison (2006) covered mimetic, normative and coercive pressure and also found a positive correlation just like our findings.

### 4.7.2 Factors and Inhibitors to Adoption of Mobile Payments

There were other reasons for the firms not to adopt, the Mobile payment technology. This was a very important parameter because it gave us a glimpse of what firms consider when deciding not to adopt any particular technology. Many firms that indicated unwillingness to adopt mobile payment platform gave the reason of marketing strategy. It was also clear that technical consultations by services providers were very crucial for those who opposed the adoption; this could be attributed to the need for the service providers to have their customised inputs to the mobile payment platform. With technological advancement, there is always a perceived risk of loss of jobs, this was also given as a major reason of firms not being able to adopt the mobile payments because of organizational resistance by those who were to make the decision while at the same time benefit from the manual payment systems by a few firms who did not want to adopt the mobile payment platform.

### 4.7.3 Prospects of new theory for Adoption of Mobile payment

It was not possible, from this study, to identify a pattern of factors that inhibit or explains

adoption for those who filled the question on any other extra reasons they would consider to adopt or not to adopt the Mobile Payment technology in their firm. Because of this reason, we are unable to make any conclusive decision to consider coming up with a new model or theory for Technology Adoption at firm level.

## 4.8 Application of the study

The application for this study is very significant and can be categorised in the firms' dimension, the mobile payment service provider dimension and policy making dimension.

### Firms' dimension

It is evident that most firms feel that with the adoption of the mobile payment, there are prospects of increasing visibility and success within the competitive environment. It is therefore important that the firms consider looking at other prospects of encouraging their users to have mobile banking so as to encourage increase use of mobile payment.

### Mobile Payment service providers dimension

With the response regarding security and interaction with mobile payment service providers, it is important that the service providers find ways of easing interactions between the firms who adopt mobile payments and their IT infrastructures. The service providers can look for ways of having secure Application Programmable Interfaces (API) that enable direct interactions and real-time transaction on mobile payments. This would increase the firms' interest in mobile payment.

### Stakeholder policy dimension

This study also gives policy makers a food for thought on how best to draft regulatory framework that will guide the interactions between the Users, Firms and Service providers so as to have a conducive environment to uplift the Economy by increasing faster and secure mobile payment processes

# CHAPTER 5

# CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH

This chapter gives a summary of findings of the study, conclusions, suggestions for further research and recommendations to SMEs and service providers regarding the projected future of adoption of mobile payment platform in Kenya.

## 5.1 Conclusion

This case study of SMEs in Kenya on adoption of mobile payments aimed at researching on the effects of (i) technology, (ii) organization and (iii) environment on the status and rate of adoption of mobile payments. On successfully concluding the study, we found out that indeed there is a greater correlation between the three construct and adoption of Mobile payment. This is a clear indication that indeed the Technology, Organization and Environment model (TOE) of Technology Adoption Model (TAM) is still applicable in firm setup. Our conclusion can therefore be summarised as follows;

- For the research question of whether there is any technological, organizational and environmental effect on decision to adopt the Mobile payment by firm, the answer is yes. The correlations were so strong as per the results and discussion above.

- For the question as to whether there could be any factors that can make a firm reject the mobile payment technology, we can conclude that yes, some firm, due to size and the incapacity to do proper advertisement as well as the risk of losing job for those who are at a position to adopt the mobile technology, would opt not to adopt the technology.

- For the question as to whether there are other factors that would make a firm adopt a technology, we can conclude that yes there are, however the significance is statistically low for us to define a new theoretical construct or model. Therefore Since we had also an objective of identifying if there is any other pattern out of the

constructs so far used in Technology Adoption, we would like to indicate that there was no significant pattern to that effect thus we would not be in a position to propose any newer model.

**5.2 Areas for further study**

As with the norm with any research report, it would be great to highlights areas we felt needed further investment with regards to knowledge search. These areas include using the mixed model of Technology Diffusion and TOE. It would be interesting to find out how the constructs derived from the two models would generate the concept of mobile payment technology adoption.

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# APPENDICES

**Appendix 1:**

**Introduction Letters**

## UNIVERSITY OF NAIROBI
### COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES
### SCHOOL OF COMPUTING AND INFORMATICS

Telephone:      4447870/4446543/4444919                    P. O. Box 30197
Telegrams:     "Varsity" Nairobi                            00100 GPO
Telefax: +254-20-4447870                                    Nairobi, Kenya
Email:          director-sci@uonbi.ac.ke

Our Ref:  UON/CBPS/SCI/MSC(IS)/2013                         22 September 2014

To Whom It May Concern

Dear Sir/Madam

ERICK OCHIENG OTIENO – REG NO. P56/61521/2013

The above named is a bona fide student pursuing a Master of Science in Information Systems degree at the School of Computing and Informatics, University of Nairobi. He is currently carrying out his research on the project entitled "**Adoption of Mobile Payments in Kenyan Businesses:  A Case Study of Small and Medium enterprises (SMEs) in Kenya** ".

We would be grateful if you could assist Mr. Otieno as he gathers data for his research.  If you have any queries about the exercise please do not hesitate to contact us.

Yours sincerely

School of Computing & Informatics
University of NAIROBI
P. O. Box 30197
NAIROBI

**PROF. W. OKELO-ODONGO**
**DIRECTOR**
**SCHOOL OF COMPUTING AND INFORMATICS**

ERICK OCHIENG OTIENO <e.otieno@students.uonbi.ac.ke>

# RESEARCH INFORMATION REQUEST FOR A MASTERS PROJECT

1 message

ERICK OCHIENG OTIENO <e.otieno@students.uonbi.ac.ke>Tue, Sep 23, 2014 at 2:05 PM
To: ERICK OCHIENG OTIENO <e.otieno@students.uonbi.ac.ke>
Bcc: nssshq@naivas.co.ke, nakumatt@nakumatt.net, customerservice@uchumi.com, customercare@tuskys.com

Dear Sir/Madam

I am a postgraduate student undertaking a Master of Science in Information Systems at the School of computing and Informatics at the University of Nairobi – Chiromo Campus.

As a partial fulfillment of the requirements for the award of the MIS degree, I am conducting a survey on "Adoption of Mobile Payments in Kenyan Businesses: A case study of Small and Medium Enterprises (SME) in Kenya". You are one of the key respondents and I would like to kindly request for information regarding factors that led or would lead to your firm's decision to adopt or not to adopt the Mobile Payments in to your business functions.

The information you provide in this study will not be used for any other purpose apart from its intended academic use. I hereby undertake not to make any reference to your name in any presentation or report hitherto the study.

I am aware that filling the questionnaire is time consuming and I will greatly appreciate your assistance which should take no more than 15 minutes. Any additional information in form of suggestions and comments that you deem necessary to make my research findings more conclusive, relevant and reflective of the study area will be highly appreciated.

Attached is the Approved Official Introduction letter from my University and the questionnaire that can be filled by any person who has the information on the processes of adoption of technology by your firm and may include any staff.

In case you are not the correct contact person for this request, any redirection to whom I can contact to assist me from your organization would be very helpful and I would really appreciate.

We would be glad to send you a copy of this study as as a show of appreciation for your worthy support.

Thank you in advance.

Yours faithfully,

Otieno Erick

**Appendix 2:**

**Revised Questionnaire**

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Introduction

This questionnaire is targeted to The Management, IT Managers, IT staff, or any one who has the capacity to make decision on whether to Adopt or not to Adopt a particular technology on behalf of the firm.

The term Mobile Payment here refers to any form of payment done through mobile phone, like M-pesa, Airtell money,Orange Money or Lipa na M-pesa.

The Questionnaire should take no more than 15 minutes of your time and is easy to answer. Just do the following process;

(OPEN in any PDF reader > FILL the Questionnaire > SAVE AS - RESULTS.pdf > RETURN by sending back the filled Questionnaire)

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section A:

Demographic Data

### 1. Which of the following best describe your organization type?

○ Hotel & Restaurant Services    ○ Supermarket & Retail Services    ○ Tour & Travels

### 2. What is estimated Annual revenue for your firm?

○ Less than 500,000 Kshs          ○ 5,000,0001 – 10,000,000

○ 500,0001 – 1,000,000            ○ Greater than 10,000,000

○ 1,000,0001 – 5,000,000          ○ I do not know

### 3. About what is your firm's operating budget as a percentage of revenue

○ 2% or less        ○ 4.1 % - 5%        ○ 7.1% - 8%

○ 2.1 % -3%         ○ 5.1 % - 6%        ○ More than 8%

○ 3.1% - 4%         ○ 6.1 % - 7%        ○ I do not know

### 4. How long has you firm been in existence as a business?

○ Less than 1 year      ○ Above 5 years – 10 years     ○ More than 20 years

○ 1 year – 5 years,     ○ Above 10 years – 20 years

### 5. How many employees does the firm have?

○ Below 100        ○ 201 – 300        ○ Above 400

○ 100 – 200        ○ 301 – 400

### 6. What do you think is the estimated firm's total annual IT operating budget as a per cent of the total generated budget?

○ 2% or less        ○ 4.1 % - 5%        ○ 7.1% - 8%

○ 2.1 % -3%         ○ 5.1 % - 6%        ○ More than 8%

○ 3.1% - 4%         ○ 6.1 % - 7%        ○ I do not know

### 7. How true or false are the statements below? (Mark only the one that applies to your case in each statement)

|  | True | False |
|---|---|---|
| • We have branches within Nairobi in Kenya | ○ | ○ |
| • We have branches outside Nairobi in Kenya | ○ | ○ |
| • We are a Regional firm | ○ | ○ |
| • We are a global firm | ○ | ○ |

## Adoption of Mobile Payments in Kenyan businesses Questionnaire

### Section B:

(This question is geared towards directing you to the appropriate questions further down. Kindly tick the most appropriate answer for your case.)

**8. Select which one best represent your case below**

&#9675;  Our Firm has already adopted Mobile Payment

&#9675;  Our firm intends to adopt the Mobile payment in the future

&#9675;  Our firm does not intend to adopt Mobile Payment in the future

If your answer to question 8 (a) is true please go to section C
If your answer to question 8 (b) is true please go to section C and D
If your answer to question 8 (c) is true please go to section E

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section C:

Adoption of Mobile Payment technology by your firm

Answer this section if you selected Q - 8 (a) or 8 (b).

Please indicate to what extent you agree or disagree with the statements below based on the scale ranging from 1- (strongly Disagree) to 7 – (strongly agree)

**9. On a scale from 1 (Strongly disagree) to 7 (Strongly agree), please rate to what extent would you agree or disagree with the following views regarding technological context of your firm?**

| | Strongly disagree 1 | Quite Disagree 2 | Slightly Disagree 3 | Neither Agree nor Disagree 4 | Slightly Agree 5 | Quite Agree 6 | Strongly agree 7 |
|---|---|---|---|---|---|---|---|
| • Mobile payment enables our customers make payment with ease | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile payment increases firm's profitability | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile payment reduces costs of operations | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile payment allows for greater customer interaction | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • It is difficult to work with transactions whose products or services are required immediately | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Clients need their products immediately they do purchases | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Clients get disoriented if they have to wait for products downloads to be enabled | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • In Mobile Payment there is enough security for mobile transactions | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile service providers are too strict on Security to allow us have develop an API for Mobile payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**10. On a scale from 1 (Strongly disagree) to 7 (Strongly agree), please rate to what extent would you agree or disagree with the following views regarding your firm's internal context?**

| | Strongly disagree 1 | Quite Disagree 2 | Slightly Disagree 3 | Neither Agree nor Disagree 4 | Slightly Agree 5 | Quite Agree 6 | Strongly agree 7 |
|---|---|---|---|---|---|---|---|
| • Top management in my firm fully support adoption of Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Top Management in my firm considers Mobile Payment important | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Top Management in my firm is aware of the benefits of technology | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our Firm has a ready infrastructure to adopt Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our firm is ready to handle any Mobile Payment issue arising | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our Firm has the technical capability to maintain Mobile Payment system | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our firm has the financial capability to manage Mobile Payment platform | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**11. On a scale from 1 (Strongly disagree) to 7 (Strongly agree), please rate to what extent would you agree or disagree with the following views regarding your firm's business and operational environmental context?**

| | Strongly disagree 1 | Quite Disagree 2 | Slightly Disagree 3 | Neither Agree nor Disagree 4 | Slightly Agree 5 | Quite Agree 6 | Strongly agree 7 |
|---|---|---|---|---|---|---|---|
| • Many of our competitors have adopted Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our competitors will be adopting Mobile Payment in the near future | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our key competitors are adopting Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our competitors that have adopted Mobile Payment are benefiting greatly | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our competitors that have adopted Mobile Payment are perceived favorably in our industry | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our competitors that have adopted Mobile Payment are perceived favorably by their clients | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our very important clients expect us to use Mobile Payment options | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • We may not be in a position to retain our vital client segment if we do not adopt Mobile Payments | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our crucial client segment encourage us to incorporate Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients have Mobile Payment services in their phones | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients have M-Banking subscriptions with their banks | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients will be having Mobile Payment services in their phones in the future | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients will be having M-Banking subscriptions with their banks in the future | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our supplies have adopted Mobile Payment platforms | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our suppliers will be adopting Mobile | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| • Our firm actively participate in industry, trade, or professional association where Mobile Payment adoption is highly sensitized | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our client can easily move to the competitor for similar products or services | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • The market is saturated with the same service or/and products that are different from ours but with the same core functions | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • There is a very intense rivalry within firms in our industry that is very high | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

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# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section D:

Please answer this section if you selected Q - 8 (b).

**12. If your firm intends to adopt the Mobile Payment in the future, how soon do you think your firm will adopt Mobile Payment?**

- ○ Less than 6 months
- ○ 6 to 12 months
- ○ 13 to 18 months

- ○ 19 to 24 months
- ○ I do not know
- ○ Not applicable to our firm

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section E:

Please answer this section if you selected Q - 8 (c).

**13. If your firm does not intend to adopt the Mobile Payment in the future, what could be any inhibitory reasons for your firm's decision if any? (Any answers given will be highly appreciated)**

## Section F:

This section is open for you to give any other final comments related to adoption of Mobile Payment.

**14. Are there any other factor(s) apart from the ones above that would make your firm to adopt the Mobile payment technology for your firm operations?**

**15. The name of your Firm (This will not be published and it is optional)**

Thank you very much for your time to assist.

--- End of Questionnaire ---

**Appendix 3:**

**Pilot Questionnaire**

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section A:

Demographic Data

### 1. Which of the following best describe your organization type?

○ Hotel & Restaurant Services      ○ Tour & Travels

○ Supermarket & Retail Services      ○ Advertisement agency

○ Health & Pharmaceutical Services

Other (please specify)

[                                        ]

### 2. What is estimated Annual revenue for your firm?

○ Less than 500,000 Kshs      ○ 5,000,0001 – 10,000,000

○ 500,0001 – 1,000,000      ○ Greater than 10,000,000

○ 1,000,0001 – 5,000,000      ○ I do not know

### 3. About what is your firm's operating budget as a percentage of revenue

○ 2% or less      ○ 4.1 % - 5%      ○ 7.1% - 8%

○ 2.1 % -3%      ○ 5.1 % - 6%      ○ More than 8%

○ 3.1% - 4%      ○ 6.1 % - 7%      ○ I do not know

### 4. How long has you firm been in existence as a business?

○ Less than 1 year      ○ 5 years – 10 years      ○ More than 20 years

○ 1 year – 5 years,      ○ 10 years – 20 years

### 5. How many employees does the firm have?

○ Below 100      ○ 201 – 300      ○ Above 400

○ 100 – 200      ○ 301 – 400

### 6. What do you think is the estimated firm's total annual IT operating budget as a per cent of the total generated budget?

○ 2% or less      ○ 4.1 % - 5%      ○ 7.1% - 8%

○ 2.1 % -3%      ○ 5.1 % - 6%      ○ More than 8%

○ 3.1% - 4%      ○ 6.1 % - 7%      ○ I do not know

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Introduction

This questionnaire is targeted to The Management, IT Managers, IT staff, or any one who has the capacity to make decision on whether to Adopt or not to Adopt a particular technology on behalf of the firm.

The Questionnaire should take no more than 15 minutes of your time and is easy to answer. Just do the following process;

(OPEN > FILL > SAVE AS - RESLUTS.pdf > RETURN)

## Adoption of Mobile Payments in Kenyan businesses Questionnaire

### Section B:

(This question is geared towards directing you to the appropriate questions further down. Kindly tick the most appropriate answer for your case.)

### 7. Select which one best represent your case below

○ Our Firm has already adopted Mobile Payment

○ Our firm intends to adopt the Mobile payment in the future

○ Our firm does not intend to adopt Mobile Payment in the future

If your answer to question 7 (a) is true please go to section C
If your answer to question 7 (b) is true please go to section C and D
If your answer to question 7 (c) is true please go to section E

## Section C:

Adoption of Mobile Payment technology by your firm

Answer this section if you selected Q - 7 (a) or 7 (b).

Please indicate to what extent you agree or disagree with the statements below based on the scale ranging from 1- (strongly Disagree) to 7 – (strongly agree)

**8. On a scale from 1 (Strongly disagree) to 7 (Strongly agree), please rate to what extent would you agree or disagree with the following views regarding technological context of your firm?**

|  | Strongly disagree 1 | Quite Disagree 2 | Slightly Disagree 3 | Neither Agree nor Disagree 4 | Slightly Agree 5 | Quite Agree 6 | Strongly agree 7 |
|---|---|---|---|---|---|---|---|
| • Mobile payment enables our customers make payment with ease | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile payment increases firm's profitability | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile payment reduces costs of operations | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile payment allows for greater customer interaction | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • It is difficult to work with transactions whose products or services are required immediately | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Clients need their products immediately they do purchases | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Clients get disoriented if they have to wait for products downloads to be enabled | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • In Mobile Payment there is enough security for mobile transactions | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Mobile service providers are too strict on Security to allow us have develop an API for Mobile payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**9. On a scale from 1 (Strongly disagree) to 7 (Strongly agree), please rate to what extent would you agree or disagree with the following views regarding your firm's internal context?**

| | Strongly disagree 1 | Quite Disagree 2 | Slightly Disagree 3 | Neither Agree nor Disagree 4 | Slightly Agree 5 | Quite Agree 6 | Strongly agree 7 |
|---|---|---|---|---|---|---|---|
| • Top management in my firm fully support adoption of Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Top Management in my firm considers Mobile Payment important | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Top Management in my firm is aware of the benefits of technology | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our Firm has a ready infrastructure to adopt Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our firm is ready to handle any Mobile Payment issue arising | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our Firm has the technical capability to maintain Mobile Payment system | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our firm has the financial capability to manage Mobile Payment platform | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**10. How true or false are the statements below? (Mark only the one that applies to your case in each statement)**

| | True | False |
|---|---|---|
| • We have branches within Nairobi in Kenya | ○ | ○ |
| • We have branches outside Nairobi in Kenya | ○ | ○ |
| • We are a Regional firm | ○ | ○ |
| • We are a global firm | ○ | ○ |

**11. On a scale from 1 (Strongly disagree) to 7 (Strongly agree), please rate to what extent would you agree or disagree with the following views regarding your firm's business and operational environmental context?**

| | Strongly disagree 1 | Quite Disagree 2 | Slightly Disagree 3 | Neither Agree nor Disagree 4 | Slightly Agree 5 | Quite Agree 6 | Strongly agree 7 |
|---|---|---|---|---|---|---|---|
| • Many of our competitors have adopted Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our competitors will be adopting Mobile Payment in the near future | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our key competitors are adopting Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our competitors that have adopted Mobile Payment are benefiting greatly | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our competitors that have adopted Mobile Payment are perceived favorably in our industry | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our competitors that have adopted Mobile Payment are perceived favorably by their clients | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our very important clients expect us to use Mobile Payment options | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • We may not be in a position to retain our vital client segment if we do not adopt Mobile Payments | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our crucial client segment encourage us to incorporate Mobile Payment | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients have Mobile Payment services in their phones | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients have M-Banking subscriptions with their banks | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients will be having Mobile Payment services in their phones in the future | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our clients will be having M-Banking subscriptions with their banks in the future | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our supplies have adopted Mobile Payment platforms | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Many of our suppliers will be adopting Mobile | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

| Payment platforms | | | | | | | |
|---|---|---|---|---|---|---|---|
| • Industry peer sources (e.g industry and trade associations) are pressurizing us to adopt Mobile Payment method | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our firm actively participate in industry, trade, or professional association where Mobile Payment adoption is highly sensitized | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • Our client can easily move to the competitor for similar products or services | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • The market is saturated with the same service or/and products that are different from ours but with the same core functions | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| • There is a very intense rivalry within firms in our industry that is very high | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section D:

Please answer this section if you selected Q - 7 (b).

**12. If your firm intends to adopt the Mobile Payment in the future, how soon do you think your firm will adopt Mobile Payment?**

○ Less than 6 months

○ 6 to 12 months

○ 13 to 18 months

○ 19 to 24 months

○ I do not know

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section E:

Please answer this section if you selected Q - 7 (c).

**13. If your firm does not intend to adopt the Mobile Payment in the future, what could be any inhibitory reasons for your firm's decision if any? (Any answers given will be highly appreciated)**

# Adoption of Mobile Payments in Kenyan businesses Questionnaire

## Section F:

This section is open for you to give any other final comments related to adoption of Mobile Payment.

**14. Are there any other factor(s) apart from the ones above that would make your firm to adopt the Mobile payment technology for your firm operations?**

**15. The name of your Firm (This will not be published and it is optional)**

Thank you very much for your time to assist.

--- End of Questionnaire ---

**Appendix4:**

**Operationalization of construct**

| Constructs | Operationalization Type | Sub-construct | Operational Type | Hypothesis |
|---|---|---|---|---|
| Adoption of Mobile Payment | Reflective | | | |
| Technological Context | | | | |
| Perceived Benefits | Reflective (+**ve**) | | | **H1:** Perceived benefits of mobile payments lead to adoption of Mobile Payment |
| Operational Friendliness | Reflective (-**ve**) | | | **H2:** Lower operational friendliness due to non-real-time transactions of mobile payments platform hinder adoption of Mobile Payment |
| Security Concern | Reflective (-**ve**) | | | **H3:** Greater security concerns hinder the adoption of Mobile Payment |
| Organizational Context | | | | |
| Top Management Support | Reflective (+**ve**) | | | **H4:** Greater top management support leads to adoption of Mobile Payment |
| Organization Size | Reflective (+**ve**) | | | **H5:** Larger organizational size leads to adoption of Mobile payment more than smaller |

| Constructs | Operationalization Type | Sub-construct | Operational Type | Hypothesis |
|---|---|---|---|---|
| Organization Readiness | Formative | IT Sophistication | Reflective (+**ve**) | **H6:** Higher organizational readiness leads to adoption of Mobile Payment |
| | | Financial Resources | Reflective (+**ve**) | |
| Firm Scope | Reflective (+**ve**) | | | **H7:** Greater firm scope leads to adoption Mobile Payment |
| Environmental Context | | | | |
| Mimetic Pressure - Competitors | Formative | Perceived extent of adoption by competitors | Reflective (+**ve**) | **H8:** Greater mimetic pressure from competitors leads to adoption of Mobile Payment |
| | | Perceived success of adopted competitors | Reflective (+**ve**) | |
| Coercive Pressure – Clients | Reflective (+**ve**) | | | **H9:** Greater coercive pressure from clients leads to adoption of Mobile Payment |
| Normative Pressure | Formative | Perceived extent of adoption by customers | Reflective (+**ve**) | **H10:** Greater normative Pressure leads to adoption of Mobile Payment |
| | | Perceived adoption by suppliers | Reflective (+**ve**) | |
| | | Participation in Professional and Trade | Reflective (+**ve**) | |

| Constructs | Operationalization Type | Sub-construct | Operational Type | Hypothesis |
|---|---|---|---|---|
| | | association | | |
| Intensity of competition | Reflective (+**ve**) | | | **H11:** Greater intensity of competition leads to adoption of Mobile Payment |

Adopted from Yoon (2009)

**Appendix 5:**

**Hypothesis and Key Indicators coding**

| Hypothesis | Key Indicators and Coding |
|---|---|
| | |
| **H1:** Perceived benefits of mobile payments lead to adoption of Mobile Payment | • Mobile payment enables customers make payment with ease **(T1)**<br><br>• Mobile payment increases firm's profitability**(T2)**<br><br>• Mobile payment reduces costs of operations**(T3)**<br><br>• Mobile payment allows for greater customer interaction**(T3)** |
| **H2:** Lower operational friendliness due to non-real-time transactions of mobile payments platform hinder adoption of Mobile Payment | • It is cumbersome to work with transactions that are not real time **(T4)**<br><br>• Clients need their products immediately they do purchases **(T5)**<br><br>• Clients get disoriented if they have to wait for products downloads to be enabled **(T6)** |
| **H3:** Greater security concerns hinder the adoption of Mobile Payment | • In Mobile Payment there is enough security for mobile transactions **(T7)**<br><br>• Mobile service providers are too strict on Security to allow us have develop an API for Mobile payment **(T8)** |
| **H4:** Greater top management support leads to adoption of Mobile Payment | • Top management in my firm is fully support adoption of Mobile Payment **(O1)**<br><br>• Top Management in my firm considers Mobile Payment important**(O2)**<br><br>• Top Management in my firm is aware of the benefits of technology **(O3)** |
| **H5:** Larger organizational size leads to adoption of Mobile payment more than smaller H6: organizational size | • What is your estimated revenue? **(OS1)**<br>• Operating budget as a percentage of revenue **(OS2)**<br>• Age of the institution **(OS3)**<br>• Number of employee **(OS4)** |
| **H6:** Higher organizational readiness leads to adoption of | • Our Firm has a ready infrastructure to adopt Mobile Payment **(O5)** |

| Hypothesis | Key Indicators and Coding |
| --- | --- |
| Mobile Payment | • Our firm is ready to handle any Mobile Payment issue arising **(O6)**<br><br>• Our Firm has the technical capability to maintain Mobile Payment system**(O7)**<br><br>• Our firm has the financial capability to manage Mobile Payment platform **(O8)**<br><br>• What approximately is your firm spending in terms of revenue on Information Technology? (1-100%) **(OR-FR2)** |
| **H7:** Greater firm scope leads to adoption Mobile Payment | • We have branches within Nairobi in Kenya **(FS1)**<br><br>• We have branches outside Nairobi in Kenya **(FS2)**<br><br>• We are a Regional firm **(FS3)**<br><br>• We are a global firm **(FS4)** |
| **H8:** Greater mimetic pressure from competitors leads to adoption of Mobile Payment | • Many of our competitors have adopted Mobile Payment **(E1)**<br><br>• Many of our competitors will be adopting Mobile Payment in the near future **(E2)**<br><br>• Our key competitors are adopting Mobile Payment **(E3)**<br><br>• Our competitors that have adopted Mobile Payment are benefiting greatly **(E4)**<br><br>• Our competitors that have adopted Mobile Payment are perceived favourably in our industry**(E5)**<br><br>• Our competitors that have adopted Mobile Payment are perceived favourably by their clients **(E6)** |
| **H9:** Greater coercive pressure from clients leads to adoption of Mobile Payment | • Our very important clients expect us to use Mobile Payment options **(E7)**<br><br>• We may not be in a position to retain our vital client segment if we do not adopt Mobile Payments **(E8)**<br><br>• Our crucial client segment encourage us incorporate Mobile Payment **(E9)** |
| **H10:** Greater normative Pressure leads to adoption of Mobile Payment | • Many of our clients have Mobile Payment services in their phones **(E10)**<br><br>• Many of our clients have M-Banking subscriptions with their |

| Hypothesis | Key Indicators and Coding |
|---|---|
| | banks **(E11)** |
| | • Many of our clients will be having Mobile Payment services in their phones in the future **(E12)** |
| | • Many of our clients will be having M-Banking subscriptions with their banks in the future **(E13)** |
| | • Many of our supplies have adopted Mobile Payment platforms **(E14)** |
| | • Industry peer sources (e.g industry and trade associations) are pressurising us to adopt Mobile Payment method **(E15)** |
| **H11:** Greater intensity of competition leads to adoption of Mobile Payment | • Our client can easily move to the competitor for similar products or services **(E16)** |
| | • The market is saturated with the same service or/and products that are different from ours but with the same core functions **(E17)** |
| | • There is a very intense rivalry within firms in our industry that is very high **(E18)** |

**Appendix 6:**

**Project Time Schedule**

| Activity | Timeline | | |
|---|---|---|---|
| | Start Date | | End Date |
| Consultation & picking of project titles | 01-06-2014 | | 06-06-2014 |
| Preparing the proposal | 06-06-2014 | | 29-06-2014 |
| Presenting the final Proposal | 30-06-2014 | | 30-06-2014 |
| Milestone one presentation | 07-07-2014 | | 18-07-2014 |
| Conducting research, Literature review, working on corrections and analysis | 19-07-2014 | | 19-10-2014 |
| Progress Presentations | 20-10-2014 | | 31-10-2014 |
| Working on finalization Literature review, working on corrections and analysis | 01-11-2014 | | 23-11-2014 |
| Milestone three presentations | 24-11-2014 | | 12-05-2014 |