

**THE ROLE OF M-COMMERCE IN DEVELOPING COUNTRIES AND THE  
IMPACT ON INTERNATIONAL TRADE: A CASE STUDY OF M-PESA IN  
KENYA**

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**A Research Project Submitted in Partial Fulfillment of the Requirement for the  
Award of Masters of Arts in International Studies Degree at the Institute of  
Diplomacy and International Studies in the University of Nairobi**

**OCTOBER 2012**

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**DECLARATION**

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

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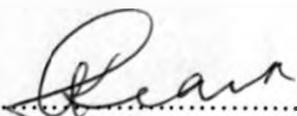
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## FOREWORD

I would like to thank my wife, Caroline Katunge Kyalo for her love and support throughout the period of writing this. Thank you for constantly reminding me that it was possible to meet all deadlines.

Thanks to Ronald (Safaricom), Charles Kiarie and George Wakaria (Citibank), Hunter Josiah (GE Corporate) and Josephine for all your help in providing valuable time and information.

Finally, my entire family and God for enabling me to accomplish this task.

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## ABSTRACT

Mobile commerce is defined as the transfer of money through the use of handheld devices with the most common of this being the use of the mobile phones.

It is a fast growing phenomenon which in some parts of the world like Kenya has witnessed a major revolution.

That mobile commerce has brought about huge economic developments/impact is not in doubt. Due to its rapidly evolving nature and different characteristics, it is proving to be a rich area of study especially potential benefits for different stakeholders.

This study highlights a number of the economic developments both within Kenya and other developing countries. The study uses Kenya as a case study; to show how the industry has been before, as well as a review and analysis of current statistics within the industry and also information from interviews with key stakeholders.

But most importantly, the study seeks to explore links between the economic developments brought about by M-commerce and international relations through international trade. It examines activities of different actors in the mobile commerce phenomenon, international trade and linkages brought about by M-commerce and show the hitherto un-researched link in academia.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

Mobile commerce is actually not a new phenomenon but a field that has in the recent past received a lot of attention by both academics and policy makers because of the impact it has had and the changes it is bringing to the world and the simplicity it has brought to the hitherto complicated world of money and banking.

Mobile Commerce has gained increasing acceptance amongst various sections of the society in previous years.<sup>1</sup> The main reasons for its growth can be traced back to technological and demographical developments that have influenced many aspects of the socio-cultural behavior in today's world. Wireless technology has accelerated the pace and effectiveness of business transactions to an unprecedented pace.<sup>2</sup>

M-Commerce can simply be defined as a phenomenon that basically describes trading, buying goods and services, or making payments through various hand held devices. Mobile usage internationally has been growing steadily. Whereas in 1997 only 215 million people were using mobile communication devices worldwide, by 2001 this had grown to a massive 961 million, further to 1.16 billion by 2003<sup>3</sup>. This rapid growth can be attributed to the advantages m-commerce brings to the global market such as ubiquity, personalization, flexibility and distribution hence mobile commerce promises exceptional business market potential, greater efficiency and higher fruitfulness. Indeed the World

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<sup>1</sup> T

iwari and Buse (2007)

<sup>2</sup> Tim M and Buse G(2007) The rise of M-commerce. Journal of commerce voll 21 no 3 pp 6-12

<sup>3</sup> www.unesco.org

Bank's World economic report 2010 predicted that mobile phones and other hand held devices should have been firmly established as an alternative form of payment in most technologically advanced societies and economies.

Mobile commerce is said to have started around the year 1997 when Coca Cola vending machines were installed in the Helsinki area in Finland with allowance for use of mobile payment. The machines accepted payment via SMS text messages<sup>4</sup>. The first mobile phone-based banking service was also launched in 1997 by Merita Bank of Finland, also using SMS. Japan was later to follow cue in M-commerce by launching its first products in M-commerce in 1999. World Bank estimates of 2011 indicated that the Japanese m-commerce market was worth more than \$13 billion in 2010 and by far the largest m-commerce market in the world, accounting for 57% of global m-commerce revenues.

<sup>5</sup>The Japanese market stands out against all other markets as the leader and innovator in the consumer mobile sector; for example, mobile contactless payment is a standard service in Japan. It is believed that more than 15% of all e-commerce transactions in Japan are made using a mobile device, putting the country years ahead compared to other advanced countries.

However, M-commerce development in Africa is generally linked to the development of M-pesa system in Kenya which it is acknowledged was a pioneer project that revolutionized M-commerce in Africa. M-pesa was developed in 2007. Though there have been other developments in South Africa on M-commerce since early 2000, much of the

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<sup>4</sup> [www.wikipedia.org](http://www.wikipedia.org)

<sup>5</sup> Ibid

m-commerce in has been credited to the M-pesa revolution.<sup>6</sup>This is because most of the projects in South Africa were considered pilot projects with most not succeeding at first.

### **1.1.1 M-commerce in Kenya**

The growth of M-commerce in Kenya dates back to the year 2006 and 2007 when the Kenya government published regulatory frameworks to promote electronic commerce and other electronic services such as mobile banking and mobile transactions. As a result of these regulatory frameworks, M-pesa, a leading innovation was developed by Safaricom in 2007. Currently, Safaricom is the leading in the sector with other providers such as Mobile money(airtel) and orange money(orange). It is interesting to note that there today more Kenyans with M-Pesa accounts than bank accounts. Information available from CCK indicates that MPESA had over 17 million registered users by December 2011 with over 28,000 Agents (CCK, 2011). Other mobile commerce modules that are popular in Kenya are Mamamikes, M-payer, KopoKopo, M-Kesho and Myorder Africa. This study thus seeks to explore the role of M-commerce in developing countries and the impact on the international trade.

### **1.2 Problem Statement**

The introduction of the M-pesa in Kenya has been recognized by various stakeholders as a key strategy for economic development and poverty reduction in the country. Most economies have been promoting the development of their economies as a means for economic growth since independence. More recently, due to the increase of

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<sup>6</sup> Elliot, G. and Phillips, N.( 2004)Mobile commerce and wireless computing systems: Edinburgh Gate, Pearson Education Limited.

unemployment and poverty, there has been a renewed focus on the promotion of economic growth and development in Kenya and in many developing countries. Such renewed focus has led to a shift in understanding the areas of development and economic growth in Kenya.

Over the past few years there has been an increase on interest of ICT development in Kenya, with growing focus on the role of internet and mobile services on development in Kenya. Though the internet penetration in Kenya in the 1990's marked a new dimension in Kenya development, much has not been said on the role of internet on development like it has been said on the role of Mobile services on development, with focus on M-pesa.

M-pesa has contributed to economic growth in Kenya by first facilitating business transactions in levels that never used to be there before. This has done by eliminating barriers that before stood in such attempts. M-Pesa has also created thousands of jobs as many people have been employed throughout the whole country as agents in the industry. This is in addition to the many employees who have now been employed by the telecommunications companies, and besides this, it has also encouraged the saving culture amongst Kenyans.

The role of M-pesa in handling money remittance cannot be forgotten. This has facilitated the transfer of remittances from people living in the diaspora to locals at home. This has been made possible through the partnership of M-pesa with Western Union,

moneygram and other banks to facilitate money transfers to both account holders and non-account holders through the many products that these partnerships have now created.

M-Pesa has changed the patterns of remittances by the Kenyans living in Diaspora. On the economic and social impacts of M-Pesa in Kenya it is evidenced that M-Pesa has changed the savings behavior, the pattern of remittances, and has increased rural livelihoods.

While most studies and reports provide suggestive evidence of the impacts of M-Pesa, they are generally unable to quantify the contribution of M-pesa to spurring growth of international trade between Kenya and other countries. This is because most studies and reports that have been done have showed the impacts of M-pesa on the economy of Kenya only as it has been the epicentre of the revolution. These studies have fallen short of establishing to what extent has M-pesa contributed to the development of international trade and international relations. In order to address this gap there is need fully establish if a relationship exists between M-pesa and international trade and relations. Hence this study will contribute in attempting to fill this gap by trying to answer the the question of the impacts of M-pesa on international trade and thus by extension international relations.

### **1.3 Research Objective**

While most studies and reports provide suggestive evidence of the impacts of M-Pesa, they are generally unable to quantify the contribution of M-pesa to spurring growth of international trade between Kenya and other Countries. This is because most studies and reports that have been done have showed the impacts of M-pesa on the economy of

Kenya .These studies have failed short of establishing to what extent M-pesa has contributed to the development of international trade and international relations. In order to address this gap there is need foo establish if a relationship exists between M-pesa and international trade and relations.Hence this study will contribute in attempting to fill this gap by trying to answer the the question of the impacts of M-pesa on international trade and International relations.

The main objective of the research is to understand the role of m-commerce in international relations and international trade.

#### **Specific Objectives**

- To determine the impact that M-pesa has had on international trade
- To determine M-pesa's contribution to Kenya's relations with other countries
- To determine the relationship between growth in m-commerce and Kenya's International trade.

#### **1.4 Justification of Study and Significance of the study**

The evolution of mobile commerce has indeed contributed to the revolution of business and economy worldwide. One such success story is the story of M-Pesa which is a mobile money transfer system. The M-pesa system has brought Kenya to the fore in M-commerce, with particular focus on Mobile money which has been premiered successfully by Safaricom in Kenya. However, with attention focusing on Kenya on its success story of M-pesa the question remains: What has been its contribution to the

Kenya's economy with particular focus on international trade. The study attempts to provide answers on how the M-pesa has affected international trade.

More specifically, the study will zero in on if and how the economic developments brought about by mobile commerce have had on international trade. The developing countries adopting the various forms of mobile commerce indeed engage in international relations through commercial linkages, international trade, regional economic blocs and other aspects. This study contributes to a body of knowledge on the role of M-commerce in promoting international trade and relations. This will be of help to trade experts and practitioners who may use the knowledge for good and welfare of nation states.

This study is expected to be very important to the various stakeholders like government, international organizations, multinational companies, local players in formulation of policies and strategies through its illumination of new potential areas for exploitation. The study contains recommendations that will be of help to various stakeholders interested in how best the M-commerce can further developed for more benefits in the economy. The significance of the study to some stakeholders can be seen in the following areas:

#### **Government(s)**

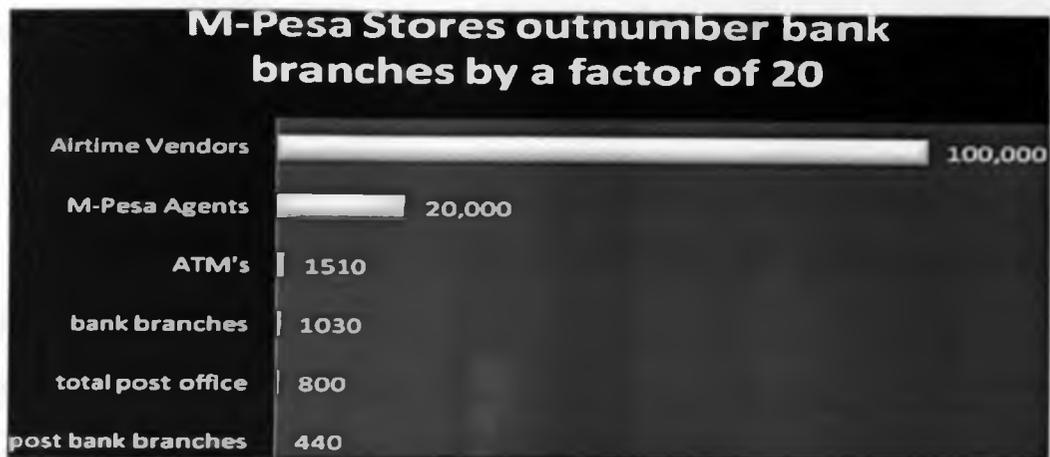
This study is important to the government of Kenya and any others, which are embracing m-commerce, as it highlights the immense opportunities created by M-Pesa for economic growth as well as solutions for the rural poor, a large percentage of the population in

many developing countries. It will be especially useful for departments in government that deal with fiscal and monetary activities, those that deal with finance and regulation (Ministry of Finance), those that deal with innovation and information technology [Ministry of Information] and also Communication. The study demonstrates how m-commerce can facilitate money circulation as the spread of mobile money transfer may have increased the volume of remittances and spurred local economies in poor areas and increased consumption.

### **Banking Industry**

The study should also be of interest to the banking sector, which originally targeted the urban population with modern banking products, without adequate attention to population. By revealing a new target market that they can address. The introduction of m-commerce created huge competition for the banking sector as use of non-bank financial institutions has more than doubled from 7.5% in 2006 to 17.9% in 2009 which can be attributed to the new M-Pesa service in Kenya.

Figure 1.1: M-PESA in Kenya, Bill and Melinda Gates Foundation.



**Source: Mas, Ignacio and Dan Radcliffe, 2010, Mobile Payments Go**

**Viral:**

Potential partnership opportunities are revealed for banks and other service providers to form strategic alliances in which mobile services are utilized to develop banking services through creating complementary service such as payment of utility bills or utilizing m-commerce to make the banking experience easier in which a client can deposit money into their account through their mobile phone. It emphasizes the need for banks to work in conjunction with m-pesa instead of actively competing against it as it provides lucrative opportunities for banks to explore.

**Mobile Service Providers**

This study demonstrates the importance m-commerce plays to the mobile service providers as it reveals the growth of m-commerce in Kenya, while also revealing the threats and opportunities facing the mobile commerce sector in the country. Weaknesses

of the m-pesa facility are highlighted which provides these mobile service providers with the opportunities to improve on the service as well as magnifying the trends in the sector that indicate areas they can invest in to come up with more innovative m-commerce uses and solutions.

### **Partnering countries**

Having been operational in Kenya for a while, M-pesa has led to the increase of transactions that have grown rapidly and has opened up to institutional payments – enabling companies to pay salaries and collect bill payments. In the future, Safaricom envisions increased use of M-PESA for in-store purchases. Thus, Safaricom intends for M-PESA to become a more pervasive retail payments platform<sup>7</sup>. This study provides a framework other countries, particularly developing countries, can integrate in improving their economies through adoption of m-commerce by emphasizing the role m-pesa played in reaching out to the rural poor whom where formally neglected. It also adds knowledge to existing studies on M-PESA by emphasizing how the growth in m-commerce can affect the relationship's countries have with each other.

### **1.5 Literature Review**

This chapter reviews mobile commerce as a concept, a background of its adoption, the evolution of M-pesa and the m-commerce role on Kenya's economy and its international relations.

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<sup>7</sup> To read more on M-PESA'S future read "Mas, Ignacio and Dan Radcliffe, 2010, *Mobile Payments Go Viral: M-PESA in Kenya*, Bill and Melinda Gates Foundation."

### 1.5.1 Mobile Commerce

Mobile commerce or m-commerce is defined by Wu and Wang (2005) as any direct or indirect transaction with a potential monetary value conducted via wireless telecommunication networks. Using mobile services, users can send or receive emails, download music or graphics, shop for goods and services, trade stocks, conduct financial and banking transactions and so on. One of the main benefits of using m-commerce services is the ability to carry out tasks anywhere, anytime. Given such uniqueness, mobile commerce has been a huge success in some markets<sup>8</sup>. For mobile commerce to happen, at the minimum the device and the network should be configured to enable communications, information exchange and payments.

M-commerce is carried out over wireless networks that allow users to transmit data between mobile and other computing devices without requiring a wired connection (Peck, 2001)<sup>9</sup>. In addition to the advancement of wireless networks, several products have been introduced to the market that provide extended capabilities by leveraging and combining features of previously distinct wireless devices, such as mobile phones, wireless PDAs, and wireless laptops, into a single hybrid wireless device (Pocket 2001)<sup>10</sup>. The convergence trend is expected to continue in the foreseeable future to support consumer demands for mobile devices that can provide a wider range of capabilities<sup>11</sup>.

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<sup>8</sup> Wu, J.-H. and S.-C. Wang. What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. *Information & Management*, 2005. 42(5): p. 719-729.

<sup>9</sup> Peck, A. (2001). WAP's summer of discontent. *M-commerce World*. <http://www.internetworld.co.uk/mcomm/>

<sup>10</sup> Pocket Directory (2001). Smart phones. *Pocket Directory*: <http://www.pocketdirectory.com/hardware/hproduct>

<sup>11</sup> Keyte, C. (2001). It's not about the phones! *M-commerce World*. <http://www.internetworld.co.uk/mcomm/>

Michael Becker in his article *Developing and Understanding of Mobile Commerce* observed that over the decade preceding 2006, the mobile channel, used for marketing, services and content distribution ;and commerce had matured dramatically and significantly and had drawn much attention from a wider range of constituencies/stakeholders like brand, content owners, retail and media, marketing practitioners, network providers ,industry analysts, government regulators, consumer activists and consumers amongst many more<sup>12</sup>.

He argued that the probable cause for this much renewed attention was the clear consumer demand for mobile content and services but most importantly the apt recognition that the mobile phone could also be a viable tool for facilitating payment for goods and services, that the mobile phone was not only good for paying for content and services consumed on the phone but also for non-digital payment transactions acceptance of the mobile channel.

He further argued that the proliferation of new technologies and the increasingly changing dynamics of industry completion have indeed spurred growth in innovative production, marketing as well as consumption. Also, he noted, the need for convenience had fuelled enormous interest in the use of mobile payment innovations.<sup>13</sup>

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<sup>12</sup> Michael Becker in his article *Developing and Understanding of Mobile Commerce*

<sup>13</sup> Ibid

In his article, he forecast that the mobile phone content and data services market would reach USD 50 billion by 2010 and that non-digital transactions would be more prevalent in the foreseeable future. He decried that in as much as there were various academic studies proposing conceptual models for mobile commerce with a look also for consumer acceptance of the mobile channel; there were no notable empirical studies that evaluate consumer acceptance and usage of bill to phone payment methods. He further mulled that much of the mobile commerce literature tends to look to the internet e-commerce literature for guidance, or it notable employs the value system or value chain analysis as a lens to develop conceptual models and theories to understand mobile commerce.

He further argued that mobile commerce and usage of mobile for marketing activities was indeed extremely complex, and that little is understood or has been proven about how it really works or what influences consumer response and acceptance to use the medium. He concluded that in as much as there were many unanswered queries on mobile commerce, it was quite evident that the market for mobile content and services was growing rapidly, as was the use of the mobile channel for processing and billing for both goods as well as services consumed on the mobile phone and non-digital content products and services. He emphasized that there was needed specific empirical studies backed by theory in order to develop applicable generalization that can be used by industry practitioners to develop and refine their services.

### 1.5.2 Early Stages

In their book *Innovation Policy in a global Economy*, Daniel Archibugi, Jeremy Howells and Jonathan Michie argue that new technologies are a fundamental part of modern economic life. They state that it is critical to understand technological developments and their dissemination throughout the economy and society. They argue that the issue of technological change has been at the core of globalization over the last two decades. Their take on technology and globalization was that there have been visible positive trends towards increased globalization, and that these changes brought about by innovation have had an adverse impact on the economic performance of many countries and thus an increasing need for intervention by nation states to improve economic performance in an increasingly integrated world economy. They further note that the world today is dominated by an increasing rate of technological change. Those economic agents, including firms and governments are forced to quickly adapt to technological change in order to survive in a competitive environment.<sup>14</sup>

In the book, the authors have tried to explain how and why innovation matters to the growth and competitiveness of various firms and eventually to the trade balances of national economies. They have elaborated that with globalization, innovation was bound to exercise an increasing influence on economic performance.<sup>15</sup>

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<sup>14</sup>, Daniel Archibugi, Jeremy Howells and Jonathan Michie(2009) *Innovation Policy in a global Economy*. Journal of international development studies vol 13 no 3.pp 11-14

<sup>15</sup> Ibid

This gap, they predicted, would be filled by technological advancements in the telecommunications industry and later morphose into mobile commerce with even more unforeseen social and economic benefits. In their publication, they underscored the fact that investments in telecommunications did not simply imply developments on the social front, but that there were far much more economic benefits on the economic front. They noted well that early development of mobile payment was largely triggered by the high penetration rate of mobile phone and other hand-held devices in most emerging markets. Mobile phones, in the present day clearly outnumber every other mobile device.

They indeed took note that in the 1970's and 80's ,oil surplus developing countries like Saudi Arabia, Nigeria and Iran then undertook large investment programs in telecommunications which had an impact in their economies. Additionally, they argued that once-developing countries such as Korea, Singapore and Hong Kong had used telecommunications as a key part of their overall economic strategy to build up what is now a highly competitive position in the world market for high-technology industries and services.

On the other hand, they noted that in other countries that did not recognize in good measure the importance of telecommunications then, like Egypt and India, had then embarked on large investment programs to overcome what they had now come to regard as a significant constraint on their economic growth and the decentralization of economic activity outside major urban areas.

Jack and Turi in their publication *The economics of Mpesa 2010* addressed the question of economic impact and relevance of M-commerce to households and a country's economy.<sup>18</sup> They reiterated that in alongside the fact that it greatly facilitates trade, mobile commerce makes it easier for people to pay for and to receive payments for goods and services. They also contend that by providing a safe storage mechanism, mobile commerce increases net household savings.

As depicted in *The Economist* (2011), workers in even the poorest economies can now scrape together the money for communication through mobile phones. Indeed, ownership of mobile phones in the developing world is fast approaching the levels of the developed world. But very few of these users can produce the paperwork needed to open a bank account or have the skills to use a PC in an internet café<sup>19</sup>. As a result, the humble mobile phone has become much more than a phone to users in poor, rural locations. For a person earning a US\$1.00 a day, the US\$70 needed to open a bank account, not to mention the paperwork needed to prove one's identity, are a huge barrier, with the result that huge numbers of the world's poor are unbanked.

This has allowed the poor to use a phone to tap into an m-commerce banking scheme which allows them to send or receive cash via a simple text which cuts straight through the bureaucracy and heavy fees of banking in the developing world .

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<sup>18</sup> Jack & Turi(2010).*The economics of Mpesa,analytical paper pp 12-23*

<sup>19</sup>Africa: M-commerce finds a home (July,2011) The Economist

### 1.5.3 Benefits of Mobile Commerce

Conversion to an e-commerce system or m-commerce system enables organizations to reduce the cost of doing business, speed the flow of goods and information, increase the accuracy of order processing and order fulfillment and improve the level of customer service. M-commerce also offer enormous opportunities by allowing manufacturers to buy at a low cost worldwide.<sup>20</sup>

It also offers enterprises the chance to sell to a global market right from the start of their business. Moreover, they offer great promise for developing countries, helping them to enter the prosperous global marketplace, and hence helping reduce the gap between rich and poor countries. People and companies can get products and services from around the world.

Risk sharing has also been regarded as a benefit. The informal risk sharing networks were generally found to be an important means by which individuals share risk by way of making state-contingent transfers among group members as well as enabling them to make more efficient investment decisions<sup>21</sup>.

They pressed that by expanding geographical reach of the networks-commerce allows more efficient risk sharing although they also noted that the risk reducing benefits might be mitigated due to issues they termed of observability and moral hazards when the parties are separated by large distances.

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<sup>20</sup> Kruegger M(2001).*Mobile Payments,a Challenge for Banks*. Pp 12-14

<sup>21</sup> Jack and Suri (2011)

Mobile commerce, on account of its earlier discussed features, can provide users with additional, value added utility, particularly in following situations: *Context-specific services, Time-critical situation, Spontaneous decisions and needs, Efficiency increase.* This shows that Mobile Commerce has the potential to offer some new, hitherto unknown services to users on account of its unique features.

Other benefits of mobile commerce are convenience that the mobile can be anywhere at any time; flexible accessibility that the user can access via mobile phone as well as online through mobile messengers and other networking platforms; easy connectivity as long as the network signal is available with no need for modem or WI-FI connectivity set up; personalization as each mobile device is usually dedicated to a specific user; time efficient as the user does not require to plug anything like personal computer or wait for the laptop to load<sup>22</sup>.

Mobile phone technology has reduced communication costs in many parts of the developing world from prohibitive levels to amounts that they say are, in comparison, virtually trivial. Mobile money had drastically reduced transaction costs in undertaking social and economic activities in the studied Kenyan context.

Mobile commerce also has noted that there was a significant increase in the number of important social benefits which include higher personal security as there is reduced need to carry large amounts of cash added to improved financial security for women by

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<sup>22</sup> The Advantages of M-commerce by Bharati Ahuja (2011): <http://blog.webpro.in>. Webpro Technologies Ahhmedabad India

providing them an independent place to store and manage funds as described by *Jack and Suri* in their publication. Economic gains for the countries operating M-commerce have emerged from recent writings which report tangible economic gains.

### **1.6 Theoretical Frameworks and Models**

This section seeks to highlight the key ideas and models behind the general understanding of mobile commerce as thought out by various academics and stakeholders. The use of two theories will apply in this understanding; these two theories are Diffusion of innovation theory, and the technology acceptance model theory. Diffusion of innovation theory is a theory that tries to understand how innovation move across a social system while the TAM theory tries to explain what factors led to the acceptance of any innovation that has benefit to the society. The two theories are used for the following reasons:

The TAM model will be used to try and understand how the M-pesa innovation has been of help to Kenya, with focus on how it has improved international trade while Diffusion of innovations theory will help in understanding how the innovation has been replicated across the international system hence promoting international relations.

### 1.6.1 Diffusion of Innovations Theory<sup>23</sup>

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion is a special type of communication concerned with the spread of messages that are perceived as new ideas.

An innovation, in simple terms is "an idea perceived as new by the individual." An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. The characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption. To understand this concept better, I will briefly discuss four main elements in the diffusion of new ideas: The innovation; Communication channels; Time; The social system (context).

This theory seeks to explain why certain innovations spread more quickly than others. The innovation, to spread and be adopted should show: The characteristics which determine an innovation's rate of adoption are: Relative advantage, Compatibility, Complexity, Trialability, Observability to those people within the social system. Communication can be described as the process by which participants create and share information with one another in order to reach a mutual understanding. A communication channel is the means by which messages get from one individual to another. Mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject a new idea.

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[http://www.tcw.utwente.nl/theorieenoverzicht/Theory%20clusters/Communication%20and%20Information%20Technology/Diffusion\\_of\\_Innovations\\_Theory.doc/](http://www.tcw.utwente.nl/theorieenoverzicht/Theory%20clusters/Communication%20and%20Information%20Technology/Diffusion_of_Innovations_Theory.doc/) Diffusion of innovation model. Source: Rogers (1995)

Studies show that most individuals evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation, for example the recent evolution of iPhones and iPads by the legendary Steve jobs.

The time dimension is involved in diffusion according to this theory in three ways as described below:

First, time is involved in the innovation-decision process. The innovation decision process is the mental process through which an individual (or other decision making unit) passes from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and finally to confirmation of this decision. An individual seeks information at various stages in the innovation-decision process in order to decrease uncertainty about an innovation's expected consequences. I will discuss briefly the 5-step process below for better understanding.

#### **5-Step Process:**

1. Knowledge – this is where a person becomes aware of an innovation and has some idea of how it functions
2. Persuasion –Here, person forms a favorable or unfavorable attitude toward the innovation
3. Decision – a person in this stage engages in activities that lead to a choice to adopt or reject the innovation

4. Implementation – person puts an innovation into use, practically putting to use the concept.
5. Confirmation –Finally, the person evaluates the results of an innovation-decision already made

Secondly, according to this theory, time is also involved in diffusion in the innovativeness of an individual or other unit of adoption. Innovativeness is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system.

The third way in which time is involved in diffusion is in rate of adoption. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system. The rate of adoption is usually measured as the number of members of the system that adopt the innovation in a given time period. As shown previously, an innovation's rate of adoption is influenced by the five perceived attributes of an innovation.

We will later see this practically by examining the MPESA payment system

The fourth main element in the diffusion of new ideas is the social system. A social system is defined as a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal. The members or units of a social system may be individuals, informal groups, organizations, and/or subsystems. The social system constitutes a boundary within which an innovation diffuses. How the system's social structure affects diffusion has been studied. A second area of research involved how norms affect

diffusion. Norms are the established behavior patterns for the members of a social system. A third area of research has had to do with opinion leadership, the degree to which an individual is able to influence informally other individuals' attitudes or overt behavior in a desired way with relative frequency. A change agent is an individual who attempts to influence clients' innovation-decisions in a direction that is deemed desirable by a change agency.

A final and crucial concept in understanding the nature of the diffusion process is the critical mass, which occurs at the point at which enough individuals have adopted an innovation that the innovation's further rate of adoption becomes self-sustaining. The concept of the critical mass implies that outreach activities should be concentrated on getting the use of the innovation to the point of critical mass. These efforts should be focused on the early adopters; the 13.5 percent of the individuals in the system to adopt an innovation after the innovators have introduced the new idea into the system. Early adopters are often opinion leaders, and serve as role-models for many other members of the social system. Early adopters are instrumental in getting an innovation to the point of critical mass, and hence, in the successful diffusion of an innovation.

The Diffusion of Innovation theory as a theory will be of help in trying to understand how the M-pesa innovation has been copied and used in other countries in the international system. It will help in understanding what are some of the factors that have helped others players in the international system to readily accept and apply the model in their own countries.

### 1.6.2 Technology Acceptance Model

In 1985, Fred Davis proposed the Technology Acceptance Model, that system use is a response that can be explained or predicted by user motivation, which in turn is directly influenced by an external stimulus consisting of the actual system's features and capabilities.

By relying on prior work by Fishbein and Ajzen who formulated the theory of reasoned action and other related research studies<sup>24</sup>, Davis further refined his conceptual model to propose the Technology Acceptance Model<sup>25</sup>. In the proposal, Davis suggested that users' motivation can be explained by three factors: perceived ease of use, perceived usefulness and attitude toward using the system. He hypothesized that the attitude of a user toward a system was a major determinant of whether the user, in turn, was considered to be influenced by two major beliefs: perceived usefulness and perceived ease of use, with perceived ease of use having a direct influence on perceived usefulness. Finally, both these beliefs were hypothesized to be directly influenced by the system design characteristics.<sup>26</sup> The Theory of Technology Acceptance Model is a model that explains how users come to acknowledge, accept, and hopefully use new technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness and Perceived ease-of-use.

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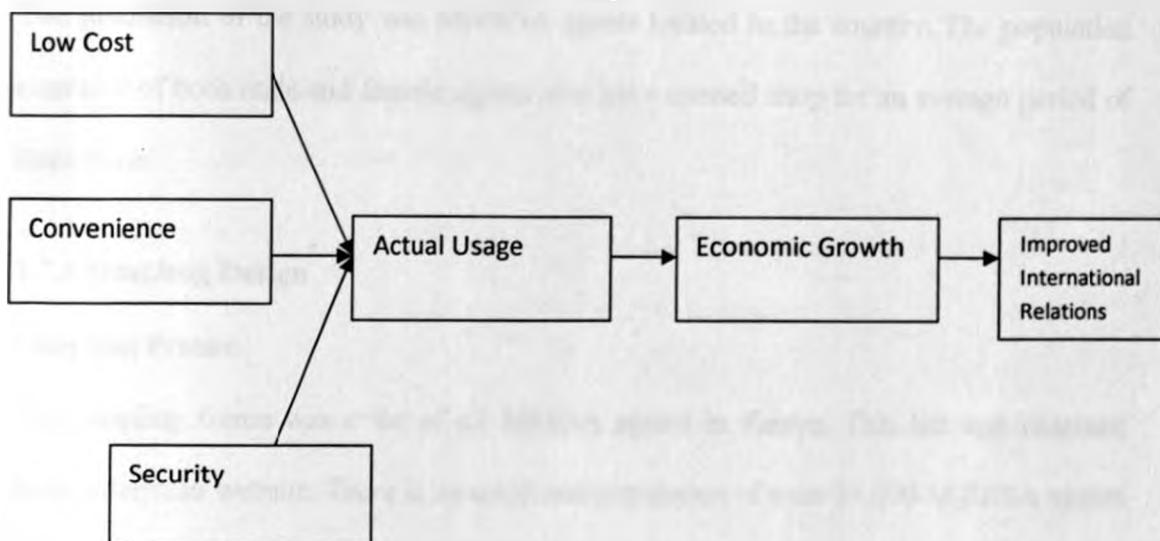
<sup>24</sup> Fishbein and Ajzen (1975)

<sup>25</sup> Davis (1985)

<sup>26</sup> Technology Acceptance Model

The theory has been widely used to determine the rate of success of new technology as it helps determine whether a technology will be found useful and will eventually be use. This is why it has been chosen for this study to understand the factors behind the success of M-pesa. However, it is modified to suit the objectives being sought by this study. The figure below presents the modified research framework for this study that incorporates the TAM model.

**Figure 1.2: Technology acceptance knowledge**



### 1.7 Research Methodology

This includes the description of the design adopted in the investigation, target population and sampling techniques used, a description of the instruments of data gathering employed and methods of data analysis that were applied.

### 1.7.1 Research Design

The research design was a combination of a case study and descriptive research. Descriptive design was carried out by collecting raw data using questionnaires and interviews from the sample chosen. Thereafter the data was summarized into usable information.

### 1.7.2 Population and Sampling Design

#### Population

The population of the study was M-PESA agents located in the country. The population consisted of both male and female agents who have opened shop for an average period of three years.

### 1.7.3 Sampling Design

#### Sampling Frame

The sampling frame was a list of all MPESA agents in Kenya. This list was obtained from Safaricom website. There is an estimated population of over 23,000 M-PESA agents country wide, with description of their location in the country.

#### Sampling techniques

The sampling technique used was stratified random sampling. The elements were grouped into 8 strata that represented the eight provinces and randomly picked three agents in each province. The total sample size used was 24 MPESA agents.

Population Size	Sample Size	Percentage
23,000MpesaAgents	24	0.1%

#### **1.7.4 Data collection Methods**

The primary data was collected by conducting face to face interviews and distribution of questionnaires to the M-PESA agents. Face to face interviews were used to ensure clarity of the questions. Data sheets were also used to collect statistical information on the revenue collected from MPESA shops. These data sheets were gotten from the Safaricom headquarters. Secondary data was also used to supplement the collected primary data. The secondary data was collected from the internet, books and journals acquired in the period of research.

#### **1.7.5 Data Analysis and Presentation**

Tables and charts were used to present and analyze the data collected. Measures of central tendency such as the mean, the correlation of variances were used to derive the relationships in the data and to find conclusions on the research.

#### **1.8 Scope and Delimitations of the Study**

This study sought to cover a broad spectrum of different stakeholders in the M-commerce industry across the fields of Finance, economics, information technology and international relations. It required expert analysis and reviews on developments of M-commerce, the effects and anticipated future advancements in M-commerce and subsequent impact on the respective fields.

The role of Government was also highlighted as the government is the overall controller of company operations in Kenya, through establishing legal frameworks that make the functioning of M-commerce smooth and effective.

Information sought from retail agents is limited to M-Pesa agents in Nairobi because Mobile money usage is highest among urban Kenyans in comparison to rural residents and also for purposes of convenience. The urban areas also have a higher concentration of agents as other regions have few cell phone towers and M - PESA agent coverage as the remote northern and eastern parts of the country. To improve reliability of the information sought from this agent, only agents that have been in operation for a duration not less than 3 years were selected. The study faced a challenge of getting the latest statistics on Mobile money transfer in the world, which is a recent revolution having only started in Kenya in 2007 after which other countries borrowed the concept.

Mobile service provider Safaricom comprised a major source of information as the study is based on the M-Pesa phenomenon which is owned by the company. Other mobile service providers such as Airtel are not included in this research as they do not operate the M-PESA service but have similar services under different names. However, their services have been summarized alongside other M-commerce products in Kenya.

One of the greatest limitations of this research was the unwillingness of money transfer retail agents to participate in the study, which they found time consuming. Another limitation encountered was the restrictions on the amount of information released by the mobile service provider, Safaricom, as the threat of competition loomed large.

Relevant government offices hampered the effective development of the study as information needed was hard to come by due to a lot of bureaucracy and red tape. Time

and financial constraints did not make it possible to interview as many stakeholders that would have improved the quality of the research.

### **1.9 Hypothesis of the Study**

1. M-pesa has led to improvement of international trade
2. International relations have improved with the innovation of M-pesa
3. There exists a relationship between M-pesa business and international trade

## CHAPTER TWO: MOBILE COMMERCE IN KENYA

### 2.1 Review of Mobile Commerce in Kenya

In the first decade of the new millennium, Kenya has undergone a remarkable ICT revolution. Since 2000, the sector has outperformed all other segments of the economy, growing on average by 20 percent annually and propelling the combined transport and communications sector into the economy's second largest.<sup>27</sup> This is by far more progressive than all its neighbours and economic peers. What began as a regulatory framework to allow multiple service providers morphed into one of the most competitive markets in the region.

As per the *Kenya Economic update December 2010*, since the year 2000, Kenya's economy grew at an average of 3.7 percent. Without ICT, growth would have been a lacklustre 2.8 percent, similar to the population growth rate and income per capita would have stagnated. ICT has had a transformative impact on the financial sector and has contributed to important indirect economic effects in other sectors, such as health care and public information.<sup>28</sup>

At the close of the 1990s, less than 3 percent of Kenyan households owned a telephone, and less than 1 in 1000 Kenyan adults had mobile phone service. By the end of 2011 there were nearly 90 mobile phone subscriptions for every 100 Kenyan adults<sup>29</sup>. There

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<sup>27</sup> World Bank report (2011)

<sup>28</sup> Ibid

<sup>29</sup> KENYA ECONOMIC UPDATE; Kenya at the tipping point? With a special focus on ICT and mobile money (DEC, 2010); World Bank. Edition No. 3

are several models of m-banking and m-payment that are being developed throughout the developing world.

The M-Pesa model is a model that was developed by Safaricom that is a service allowing transfer of money using a mobile phone. Kenya is the first country in the world to use this service, which is offered in partnership between Safaricom and its parent company Vodafone.

The service is an affordable, fast, convenient and a safe way to transfer money by SMS anywhere in Kenya and as of 2012 developing capabilities for international transfers( the ability to receive and send money to and from UK has already been tested in 2012). Apart from M-Pesa, there are other firms involved in m-banking such as Equity Bank Ltd, Jamii Bora and Sokotele, while the Commercial Bank of Africa only allows customers to access their accounts information, but not allowing financial transactions.

More recently, all other mobile network providers in Kenya introduced their respective money transfer services namely Airtel Money (Airtel Network), Iko pesa (Orange Telkom) and Yu-Cash (Essar Telkom).<sup>30</sup>

Among the many uses to which cell phones have been put in Kenya, the most innovative is mobile money. Starting with the M-PESA system launched by Safaricom in 2007 and later joined by Zain's Zap system and Yu's yuCash in 2009, and Orange Money in 2010

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<sup>30</sup> EBK & Orange Kenya. (2010). *Orange Money is launched in Kenya: Partnership with Equity Bank aimed at deepening financial access to majority of Kenyans*. Nairobi, Kenya

mobile money has rapidly become a fixture in the lives of Kenyans, extending a sophisticated form of financial access to a wide population that was hitherto financially excluded.<sup>31</sup>

In the last decade, Kenya has undergone a transformation in ICT which has also had an impact on Kenya's social and economic structures. In 1999 less than 1 in 1000 Kenyan adults had mobile phone service. By mid-2011, there were 21 million active mobile Phone numbers, equivalent to one per adult. The increase in mobile phone usage laid foundation for m-commerce developments. According to a sector analysis review by the industry regulator, CCK dated 2012, the population that has access to mobile telephony in Kenya has continued to grow with the first quarter 2012 review recording a mobile telephony penetration of 75.4 per 100 inhabitants.

M-Commerce started in earnest in March 2007 with the introduction of M-pesa<sup>32</sup> in the country when, the leading cell phone company in Kenya, Safaricom, formalized this procedure with the launch of, an SMS-based money transfer system that allows individuals to deposit, send and withdraw funds using their cell phone. M-PESA has grown rapidly, reaching approximately 65 percent of Kenyan households by the end of 2009 to approximately 19.5 million subscribers as at first quarter 2012 according to the industry regulator. It is widely viewed as a big success story to be emulated across the developing world<sup>33</sup>.

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<sup>31</sup> Gachenge, B. (2009.). *KTDA chief uses technology to transform sector. Business Daily. Digital Business* . Nairobi: Nation Media Group.

<sup>32</sup> Mobile based money transfer service( pesa means money in Swahili)

<sup>33</sup> Jack and Suri(2010) economics of M-Pesa pp 4-6

The service targeted mainly the unbanked population and is operated by mobile phone company Safaricom in partnership with Vodafone. Almost half (47.5% of all Kenyan adults owned a mobile phone (up from 26.9% in 2006), with the rate of ownership rising to 72.8% in rural areas (up from 52.3% in 2006) and 80.4% in Nairobi (up from 63% in 2006)<sup>34</sup>. According to recent data(2012), 9 in every 10 adults in Kenya now have access to a mobile phone.

Statistics indicates that only 19% of Kenyans have bank accounts while many more have access to a mobile phone and the gap is widening<sup>35</sup>. These disparities have enabled mobile phone companies to prosper via the introduction of mobile money transfer, which has in turn affected Kenya's fiscal and monetary policies and the general economy as a whole.

According to Fin Access National Survey the continued success of M-pesa, and in turn M-commerce, can be attributed to the fact that it is perceived to be easiest means of money transfer and least expensive by 47.6% and 31.7% of the population respectively<sup>36</sup>.

Currently, Kenya is one of the leading global success stories in adoption of Mobile Commerce. The growth of M commerce was set forth by licensing of two mobile operators to provide mobile services to Kenya in 1999. Thereafter the number of mobile subscribers in Kenya has risen from 15,000 in 1999 to 20 Million in 2011. The upward trend continues with statistics released by CCK showing that subscribers have risen up to

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<sup>34</sup> (FinAccess National Survey, 2009) [www.fsdkenya.org](http://www.fsdkenya.org)

<sup>35</sup> Ibid

<sup>36</sup> Ibid

27 million in 2012 (CCK, 2012).<sup>37</sup> The growth in the M-Commerce was primarily as a result of the friendly regulatory policies created in 1998 in Telecommunication sector. However, most of the rules and regulations did not address electronic commerce, mobile commerce, or mobile banking. In 2006 and 2007, the Kenya government published regulatory frameworks to promote electronic commerce and other electronic services such as mobile banking and mobile transactions.<sup>38</sup>

## 2.2 Mobile Money

Mobile money systems consist of electronic money accounts that can be accessed via mobile phone. There are several mobile money systems in Kenya, each run by a mobile phone operators: Safaricom's M-PESA, which was introduced in March, 2007; Zain's Zap, initiated in January, 2010; yuCash, started in December, 2009, by Essar; and, Orange Money (Iko Pesa), which was launched in November 2010 by Telkom Kenya. M-PESA is by far the largest system, accounting for more than 90percent of mobile money subscriptions.

These companies have since partnered with banks and other institutions to offer more innovative mobile commerce solutions. To explore the various mobile money transfer opportunities for their own benefit, the banks require a positive and dynamic engagement with the mobile service providers. This they have aggressively done in recent times.

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<sup>37</sup> CCK report 2012

<sup>38</sup> Ratemo, J. (2011). *Kenya unveils new mobile money transfer service*. analytical report

### 2.2.1 M-pesa

M-PESA was developed by mobile phone operator Vodafone and launched commercially by its Kenyan affiliate Safaricom in March of 2007. To access the service, customers must first register at an authorized M-PESA retail outlet.<sup>39</sup>

The registration is simple and only requires one to produce a copy of their national ID or passport and unlike the formal banking requirements. They are then assigned an individual electronic money account that is linked to their phone number and accessible through a SIM card-resident application on the mobile phone. Customers can deposit and withdraw cash to/from their accounts by exchanging cash for electronic value from the agents.

These agents are paid a fee by Safaricom each time they exchange these two forms of liquidity on behalf of customers. Once customers have money in their accounts, they can use their phones to transfer funds to other M-PESA users and even to non-registered users, pay bills, and purchase mobile airtime credit. All transactions are authorized and recorded in real time using secure SMS.

Ideally, in exchange for cash deposits, Safaricom a commodity called e-float or e-money measured just in the same units as money which is held in an account under the user's name. This account is operated by Mpesa and records the units of e-float owned by a customer at a given time. Currently, there is no charge for depositing funds in the Mpesa,

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<sup>39</sup> [www.safaricom.org](http://www.safaricom.org)

but there are charges applicable for withdrawing money from Mpesa (a gradual scale dependent on the amount).

E-float can ideally be transferred from one customer's M-PESA account to another using SMS technology, or can be sold back to Safaricom in exchange for money. Originally, transfers of e-float sent from one user to another were expected to primarily reflect unrequited remittances, but nowadays, while remittances are still a very important and remain the main use of M-PESA, e-float transfers are often used to pay directly for goods and services, from electricity bills to taxi-cab fares and all types of utility payments in Kenya<sup>40</sup>

Transfers are, of course, subject to availability of mobile network coverage, which has expanded consistently over the past decade. There are now nearly 2,000 Safaricom towers across the country (in addition to towers operated by competing providers), concentrated in areas of high population density<sup>41</sup>.

### **2.2.2 The Agents**

To facilitate purchases and sales of e-float, M-PESA maintains and operates an extensive network of over 35,000 agents across Kenya to date<sup>42</sup>. The M-PESA agents ideally hold e-float balances on their own cell-phones, purchased either from Safaricom or from customers, and maintain cash on their premises. Agents therefore do face a non-trivial

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<sup>40</sup> (Jack and Suri, 2011)

<sup>41</sup> Ibid

<sup>42</sup> Ibid

inventory management problem, having to predict the time profile of net e-float needs, while maintaining the security of their operations.

In practice, agents are organized into various groups. Originally, M-PESA required that agent groups operated in at least three different physical locations, so that the probability of imbalances arising within the group could be minimized. There are currently three agent group models in operation.

In the first group, one member of the agent group (the so-called "head-office") deals directly with M-PESA, while subsidiary agents, who are owned by the head office agent, manage cash and e-float balances through transactions with the head-office. Both the head office and the agents can transact directly with M-PESA users.

The second model under which agents are organized into groups is called the Aggregator model. This model is similar to the first, where the aggregator is acting as a head office, dealing directly with Safaricom and managing the cash and e-float balances of agents. However, the agents can be independently owned entities, with which the aggregator has a contractual relationship.

The final and more recent model allows a bank branch, referred to as a "super-agent," to perform as purely an agent for agents. The said bank branch can trade cash and e-float with all M-PESA agents, but unlike the regular and aggregator models, the bank does not

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trade e-float directly with M-PESA customers. The super-agent model is one example of the integration of M-PESA services into the banking system.

The cash collected by M-PESA in exchange for e-float is deposited in bank accounts, called M-PESA trust accounts with local banks. Originally, all funds were held in just one trust account at the Commercial Bank of Africa, but recently Safaricom has opened an account at two other commercial banks to diversify its risk. These accounts are very much like regular current accounts, with no restrictions on Safaricom's access to funds. In turn, the banks face no special reserve requirements with regard to M-PESA deposits, which are treated as any other current account deposit in terms of regulatory policy of the Central Bank. This though will change with the impending national payments bill legislation which will among other things seek to regulate the use of the trust funds held under the e-float arrangement for M-pesa or any other mobile money platform.

M-PESA is becoming an increasingly useful instrument as a retail payment platform because it has extensive reach into large segments of the population. M-PESA's original core offering was the P2P payment enabling customers to send money to anyone with access to a mobile phone. It has opened up market for transactions which previously were handled largely informally through personal trips, friends, and public transport networks. Many P2P transactions can be characterized as scheduled payments, such as sending a portion of salary earned at the end of the month to relatives back home, but many represent a basic form of finance, where people can draw on a much broader network of family members, friends, and business associates to access money as and when required.

Thus, M-PESA not only introduces a large measure of convenience to transactions that were already occurring, but it also enables a basic form of financial protection for a large number of users by enabling a network for instant, 'on demand' payments.

Since the launch of the Mpesa service, wary of regulation by the Central bank of Kenya, the mobile provider Safaricom has for a long time been a pain to stress especially to a worried banking sector that M-pesa is not a bank.

But conversely on the other hand, the availability of mobile phones to all people of Kenya from urban to rural, coupled with the lack of banking access to the rural poor, led to hopes that the M-pesa accounts could actually substitute for actual bank accounts especially reaching the unbanked population.

In recent months, Safaricom has increasingly opened up M-PESA to institutional payments – enabling companies to pay salaries and collect bill payments. In future, Safaricom envisions increased use of MPESA for in-store purchases. Thus, Safaricom intends for M-PESA to become a more pervasive retail payments platform.

## **2.3 Factors That encouraged the growth of M-Pesa**

### **2.3.1 Rural to Urban Migration**

Safaricom based the initial launch of the M-PESA service on the '*send money home*' proposition, even though it also allows the user to buy and send airtime, store value and, more recently, to pay bills. This principle was based on a concept that was hinged to

communal ties between the urban and the rural which has made it possible for money to be sent by those in urban to the rural.

The demand for domestic remittances is related to urbanization ratios which is as a result of rural to urban migration<sup>43</sup>. In Kenya, migrants' ties with rural homes are reinforced by an ethnic rather than national conception of citizenship. These links are expressed through burial, inheritance, cross-generational, social insurance and other ties, even in cases where migrants reside more or less permanently in cities. These links between the rural and the urban provided an important launching pad that facilitated the growth of M-Pesa.

### **2.3.2 Inaccessibility and Poor Quality of Other Such Services**

Before M-Pesa, most common channel for sending money within the country was informal bus and matatu companies for in-country transfers and through Western Union for external money transfer services. These companies were not licensed to transfer money, resulting in considerable risk that the money will not reach its final destination. Besides the informal means there was the postal service which were always inaccessible due to few post office across the countries. They also faced accusation of poor services due to their monopoly in handling remittances. These provided safaricom with an opportunity to exploit the citizens desire for better services and services which are readily available across the country.

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<sup>43</sup> Ratan (2008)

### **2.3.3 The impact of M-pesa on Banking Operations**

At the time of M-Pesa roll-out in the country there were no laws or regulations controlling such services in the country. However, CBK did not put stumbling blocks on the idea but provided supportive role to Safaricom innovation. In the case of M-PESA, Safaricom had a good working relationship with the Central Bank of Kenya (CBK) and was given regulatory space to design M-PESA in a manner that fit its market. The CBK and Safaricom worked out a model that provided sufficient prudential comfort to the CBK. The CBK insisted that all customer funds be deposited in a regulated financial institution, but later CBK supported M-PESA's development, even in the face of pressure from banks which were lobbying that M-Pesa be closed because of fears that it was a threat to their business.

Currently, banks have embraced MPESA and by extension all other mobile money transfer systems by developing various products for use to and from their bank held accounts to and from their mobile money accounts. Banks view this as an enabler of faster access to banking. They have thus employed the mobile providers' infrastructure as a channel, wallet or bank account cards to their customers. As at the time of writing this project, Safaricom had partnered with one of the local banks I&M bank to offer an ATM card specifically to access cash held through MPESA. Different banks are still coming up with varied products. One of the challenges the banks have faced coming up with these products is strict demands from the central bank of Kenya with legal constraints still due to a lack of a proper legal framework to regulate the sector. I will seek to address the issue of legislation later on in this paper.

Banks thus have had to aggressively market their money transfer services as they face stiff competition now with MPESA and other mobile money providers in the country. This has ultimately led to a reduction of charges that banks charge and has further led to stiffer competition in the industry. This scenerio is gradually evolving. Banks though are still left with a unique role of credit creating and financing which the technology companies have not devlved into, and the regulators are keen to ensure this is still protected. There has even been speculation that Safaricom and MPESA would morphose into a full bank, but this still remains to be seen.

#### **2.3.4 Safaricom Dominant Position**

The chances of a mobile money scheme taking root depend also on the strength of the mobile operator within its market. Market share is an important asset because it is associated with a larger customer base for cross-selling the mobile money service, a larger network of airtime resellers, stronger brand recognition and trust among potential customers, and larger budgets to finance the heavy up-front market investment needed to scale a deployment.

According to the sector analysis report by the ndustry regulator CCK, the latest data shows that Safaricom has the lion's share of the kenyan market with 95% market share as of first quater 2012. MPESA has the largest share in all respects i.e number of customers, number of agents and volume of transactions. Their wide network covering the whole country and effective high budget advertisements have enhanced brand loyalty and competitiveness and unparalled sucess of MPESA.

## **2.4 Role of M-commerce to the Kenyan Economy**

### **2.4.1 Impacts of M-Pesa Service**

#### **Increased mobile penetration**

The development of M-Pesa suddenly led an upsurge also in mobile penetration because most people who did not have phone had now the desire to have mobile phones through which they could receive money. This is fundamentally because the mobile phone is quickly becoming a ubiquitously deployed technology, even among poor segments of the population. Mobile penetration in Africa has increased from 3 percent in 2002 to 48 percent today, and is expected to reach 72 percent by 2014. And, happily, the mobile device mimics some of the key ingredients needed to offer banking services. The SIM card inside GSM phones can be used to authenticate users, thereby avoiding the costly exercise of distributing separate bank cards to low-profitability poor customers. Because of the increase in mobile penetration among the rural poor some services have been made available to the rural poor through mobile phone. Some of these services include health, agriculture among others.

#### **Encouraged saving culture among the rural poor**

M-pesa has provided an opportunity for the rural poor to bank and keep their money at no cost services which were becoming hard for the rural poor. This was because banks make most of their money by collecting and reinvesting deposits, they tend to distinguish between profitable and unprofitable customers based on the likely size of their account balances and their ability to absorb credit. Banks thus find it difficult to serve poor customers because the revenue from handling small value deposits is unlikely to offset

the cost of serving these customers. In contrast, mobile operators in developing countries have developed a usage-based revenue model, selling prepaid airtime to poor customers in small increments, such that each transaction is profitable on a stand-alone basis. Jack and Suir stated that because individuals do not need to withdraw or send balances immediately, they are able to accumulate savings on their M-PESA accounts over time. Thus M-PESA has become a savings instrument, as well as a means to send money. This identification of M-PESA as a tool to save funds by mobile users caused a revolution of the traditional means of saving with banks. Jack and Suri further identified that individuals with bank accounts were more likely to save with M-PESA than those without bank accounts in a two part survey they carried out.

**Table 2.1: Probability of saving on M - PESA across households with and without a bank account**

	ROUND 1	ROUND2
<b>No bank account</b>	0.65	0.68
<b>Bank account</b>	0.80	0.88
<b>Total</b>	0.76	0.81

Source: Ibid

### **M-PESA has broadened the reach of Financial Services to the citizens**

Once a customer is connected to an M-pesa system, he/ she can use this capability to store money in a savings account, send and receive money from friends and family, pay bills and monthly insurance premiums, receive pension or social welfare payments, or receive

loan disbursements and repay them electronically. In short, when a customer is connected to an e-payment system, her/his range of financial possibilities expands dramatically. M-Pesa has also partnered with most financial institutions to provide services to the citizens which were heretofore a preserve of only the able in the society.

### **Contribution to the country's Economic growth and Development**

M-PESA facilitates the safe storage and transfer of money. As such, it has a number of potential economic effects. In a presentation made by Omwansa the various opportunities presented by ICT to the Kenyan population were identified: Significant economic benefits; increased competitiveness; extending financial services; cross boarded banking; simulating more changes in the financial sector and m-commerce. This indicates that resultant changes brought about by a revolution in the ICT sector to the Kenyan economy.<sup>44</sup>

In a country with an unemployment rate of 40% and a 50% population living below the poverty line<sup>45</sup>, the M-PESA facility was able to enlist 12.6 million customers and 20,000 agents by August 2010. In a presentation made by the Michael Joseph the former CEO of Safaricom, it was estimated that 9000 agents employed over 15,000 individuals to work within the M-PESA outlet while Safaricom, the parent company had at 2009 employed 300 staff members dedicated to the M-PESA service<sup>46</sup>. This includes technical

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<sup>44</sup> M-commerce has been improving economies globally; read Boadi and Sheik (2006) M-commerce breakthrough in developing countries, a case study of the improvements to the Ghanaian economy as a result of ICT.

<sup>45</sup> A global comparison of different global economic statistics can be gained at; <https://www.cia.gov/library/publications/the-world.../geos/ke.html>

experts and service personnel.<sup>47</sup> This is may not have alleviated the unemployment crisis within the country but has certainly caused a positive impact by reducing unemployment.

M-commerce plays a vital role in revenue generation for the country as each P-2-P M-PESA transaction is taxed. As at mid 2009, 135.3 B KShs. (\$1.7B) moved in P2P transfers since launch. M-PESA is contributing to poverty alleviation with the average taxation per customer transaction almost reaching the kshs.3000 as at March, 2009 as presented by the former Safaricom CEO<sup>48</sup>.

The World Bank estimated that by end of 2010, 15 million Kenyans should have used mobile money, transferring an estimated US\$7 billion annually (20 percent of GDP) by phone. M-commerce is therefore seen as a growing driver of the country's GDP. In addition, this facility is greatly responsible for money circulation within the country as it is utilized for remittance.<sup>49</sup> The World Bank further noted that the spread of mobile money may have increased the volume of remittances and spurred local economies in poor areas. There were more remittances flowing into rural areas, which were perceived to have increased local economic activity in those areas.

A study conducted by Mbogo found that Micro-businesses<sup>50</sup> have embraced the use of mobile payment technology in their operations<sup>51</sup>. They view this mode of payment as an easier form of cash delivery to their suppliers and business partners, a system which is

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<sup>47</sup> More Employment statistics can be gained from World Bank Kenya (2010) and Joseph (2009).

<sup>48</sup> (Michael Joseph on 25<sup>th</sup> May,2009)

<sup>49</sup> transfer of funds from urban to rural or richer to poorer areas

<sup>50</sup> The Small and medium enterprise statistics in Kenya; [www.knbs.or.ke](http://www.knbs.or.ke)

<sup>51</sup> Mbogo(2010)

relatively affordable, personal and can be used anywhere and at any time. Various transactions are carried out using mobile payments such as paying suppliers for goods and services, paying bills, sending money to friends and relatives, withdrawing cash and topping up airtime accounts. In a country with a growing number of small and medium enterprises, the introduction of M-commerce has boosted their growth as they utilize the mobile operations for a variety of operations mainly because of the low costs of transactions the facility offers. This M-commerce support has contributed to the growth of the SME sector in Kenya, which subsequently has improved the economic status of the country.

M-commerce in particular M-PESA is characterized by low transaction costs and ease of use. Because it is cheaper for people to use M-PESA to make payments, they are able to make more payments and more purchases in a day. It is also more portable, does not require time making change, cannot be easily stolen, and is not forgotten at home.

By making transfers across large distances trivially cheap, M-PESA improves the investment in, and allocation of, human capital as well as physical capital. Households may be more likely to send members to high-paying jobs in distant locations (e.g., the capital), either on a permanent or temporary basis, and to invest in skills that are likely to earn a return in such places but not necessarily at home.

These all increase the benefit to the business owners and customers. This translates into increased demand for products and new, faster, more convenient methods. They have

access to this technology within their basic device; a mobile phone. This obviously encourages economic growth as there are more transactions, lowered costs and clearer communication.

## **CHAPTER THREE: M-COMMERCE POLICY AND REGULATORY FRAMEWORK**

### **3.1 Policy Framework of Mobile Commerce through ICT**

Little literature has addressed the need for regulation and checks and growth of mobile commerce. The World Bank report (2011) addressed this by urging caution in the sector as it seeks to grow and push innovation especially in Kenya. The World bank report urges that there need to be stringent consumer protection regulations and financial literacy tailored to mobile money use as well as tiered KYC (Know your customer) regulations that are able to permit immediate account opening with minimum barriers for poor people with proposed progressive tightening of the said regulations as their respective usage of financial services grow.

Still on the subject of checks and balances, the authors of the World Bank report urged the creation of regulatory space for a class of non-bank electronic money issuers authorized to raise deposits and process payments but with a caution not to intermediate funds. They emphasized the aim of the checks and balances was ideally to have an optimal regulatory regime that has rules tight enough to protect consumers and discourage fraud but as well be loose and open enough to encourage innovation and development of new products and services.

Mobile phones are a necessity as an ICT policy as they help connect remote and rural areas in Africa with the advancement in technologies to bring forth an increase in commerce as well as social and cultural connection to more central areas within a specific

and country and then with the world. This further reduces the digital divide and consequently the global digital divide. Thus, the impact is enormous as these devices are easy accessible and services offered have lower costs and easy to use.<sup>52</sup> In Kenya, adaptation of ICT policies in Kenya stems her mobile commerce policy from the root; ICT Policy in Kenya<sup>53</sup>.

These objectives were to be achieved with the help of stakeholders such as The Government, Financial Institutions, Schools, Universities and NGO's, ICT bodies in Kenya, Telecommunication Industry, Sponsors and International Telecommunication Regulators. Indeed the approach taken is from an informative approach to enable the local user of ICT's to have basic knowledge in how to use the modern technology. Such a policy would enable coherence in use to technology infrastructure and regulate privatization of technology services in respect to competition of companies and ensure consumer protection.

The ICT Convention Kenya of March 2005 gave face to ICT policy in Kenya since the formation of the first ICT policy in 2003. The ICT policy drawn in admittance to poor ICT policy in Kenya concluded that interests groups should be engaged to making sure that the ICT policy comes alive. In identifying the roles of these interest groups which are the aforementioned stakeholders, the roles were constructed as follows:<sup>54</sup>

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<sup>52</sup> MOBILE COMMERCE IN AFRICA : An overview with specific reference to South Africa, Kenya and Senegal. UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL (28<sup>TH</sup> APRIL- 1<sup>ST</sup> MAY 2009)

<sup>53</sup> John M Kandiri, ICT POLICY IN KENYA AND WAYS OF IMPROVING THE EXISTING ICT POLICY. Presented to Management Science Students Association (MASSA) <http://www.strathmore.com>

<sup>54</sup> REPUBLIC OF KENYA NATIONAL INFORMATION & COMMUNICATIONS TECHNOLOGY [www.ist-afrcia.org](http://www.ist-afrcia.org)

- i) Government would domesticate policies into law and make it conducive to private sector investment.
- ii) Development Partners would build capacity in collaboration with GOK
- iii) Civil Society would inform the policy making process on access, learning, poverty and governance
- iv) Consumers would participate in development, application, setting standards
- v) Regulators would ensure the issuance of tariffs, interconnection, standards and frequency management.
- vi) Investors, Operators and Service providers would help develop an efficient ICT sector with high quality standards and ensure commercial integrity. They would enhance strong corporate governance and ensure universal access of ICT.<sup>55</sup>

### **3.1.1 Legislation of Mobile Commerce in Kenya**

Apart from its technical and business obstacles, the implementation of mobile commerce has its legal concerns, too. Application of the traditional law to the mobile Internet is not always a straight forward process. Legal issues plaguing mobile commerce are similar to those facing e-commerce. Some of them are how to maintain privacy, how to deal with defamation, how to protect intellectual property, and how to treat internet taxation.<sup>56</sup>

Mobile Commerce, similar to Electronic Commerce, requires transparent and clear regulations as the contracting parties do not necessarily know each other and there is hardly, if any, face to face contact while negotiating an agreement .

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<sup>55</sup> Ibid footnote 24

<sup>56</sup>Kimenyi, Mwangi and S. Ndung'u(2009). Expanding the Financial Services Frontier: Lessons from Mobile Phone Banking in Kenya.policy brief pp 12-15

In Kenya, mobile financial services have evolved in a largely undefined regulatory space. The CBK, while acknowledging this, has provided oversight and deliberate guidance from the very beginning of the industry. The relationship between the CBK and M-PESA has evolved through willing collaboration and innovation in an entirely new domain in financial services. In this context, the CBK and M-PESA have addressed emerging challenges with regard to introduction of mobile payments services as well as consumer protection that have attracted international interest and recognition. However, the consumer protection measures that exist are as yet not codified in law or regulation in the industry.<sup>57</sup>

Prior to the launch of M-PESA services in Kenya, Safaricom sought authorization from the Central Bank of Kenya (CBK) to undertake the money transfer service. In evaluating the proposal, the CBK considered the request on the basis of safety, reliability and efficiency of the service. Two CBK departments were notably involved in this effort. The Financial Institutions Supervision Department (FISD) that is responsible for the prudential regulation of banks and deposit-taking MFIs.

Its primary concern regarding M-PESA was whether the operator (Safaricom) was stretching or even breaking the rules for the business of banking.<sup>58</sup>

By contrast, the National Payment System (NPS) Division of the Banking department of the CBK viewed M-PESA as a payment service provider. The NPSD were more willing than the FISD to permit experimentation with the non-bank based model of m-banking. (CGAP, 2007). Interestingly, in Kenya telecommunications regulations required that a

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<sup>57</sup> Morawczynski, Olga(2010). "Examining the Usage and Impact of Transformational M-- - Banking in Kenya." *Internationalization, Design and Global Development* pp 495-- - 504.

<sup>58</sup> Ibid

mobile network operator offer only the telecommunication services listed in its license and hence there was need for more legislation if safaricom was to be allowed to offer mobile tranfer services.<sup>59</sup>

In light of this, precautionary measures were put in place to ensure that the services did not infringe upon the banking services regulatory framework as provided for under section 2(1) of the Banking Act. Specifically, the proceeds from issuing e-money are held by M-PESA Trust Company Limited in trust for the clients in a pooled account with the Commercial Bank of Africa. Any interest earned on this pooled account cannot benefit Safaricom without triggering the definition of "banking business"; use of interest proceeds is currently under consideration.

Kenya has no laws or regulations that address specifically the activities of non-bank companies that offer mobile financial services. The CBK has taken the view that M-pesa activities are not covered under the legal definition of banking business as long as the mobile financial service payment(MFSP) does not place the subscribers funds at risk and does not earn interest on the funds.<sup>60</sup> As a safeguard, however, CBK exercises full supervisory oversight over the trust accounts for mobile financial services providers which are held at commercial banks. By mutual agreement with the CBK, the M-pesa float is held in trust by commercial banks. This effectively guards the float and protects it against any eventual financial failure of M-pesa. This also precludes M-Pesa from

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<sup>59</sup> Sen, Amartya(2010). "The Mobile and the World." Information Technology and International Development. Open Publishers, pp 12-23

<sup>60</sup> Ibid

earning the interest on the float. Consequently, the CBK Banking Supervision Department exercises no formal licensing or regulatory authority over M-pesa as a non-bank MFSP.

The CBK does have a broad mandate to “formulate and implement such policies as best promote the establishment, regulation and supervision of efficient and effective payment, clearing and settlement systems.” Acting on this mandate, the National Payment System Division (NPSD) of the CBK has provided oversight to M-PESA and the other MFSPs. As noted previously, the NPSD’s oversight of the MFSPs has been based largely on moral suasion and mutual cooperation. The NPSD does not issue regulations for the Mobile-commerce players and does not have the authority to inspect them.<sup>61</sup>

It is important to note that NPSD oversight is focused mainly on the integrity of the information technology platform and the service delivery systems. In this regard, the NPSD adheres to a traditional interpretation of Bank of International Settlement standards for payment systems oversight. Consistent with those standards, the NPSD stresses the importance of evaluating the operating capacity and technology platform during the approval process, and monitoring transaction flows and operations on a continual basis. The NPSD also watches that the mobile services do not evolve over time into banking services, particularly credit and savings.<sup>62</sup>

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<sup>61</sup> [whiteafrican.com/tag/innovation](http://whiteafrican.com/tag/innovation)

<sup>62</sup> [www.bankablefrontier.com](http://www.bankablefrontier.com)

In the particular case of the Mobile commerce industry, it is very important to distinguish between the state of regulation and the state of practice. As already noted, neither the regulations nor the authority to regulate the sector are formally established in law. The CBK and the Mobile commerce players have worked under the understanding that the regulatory structure of the industry will be clarified in the future with the expected passage of the National Payments Bill 2012 and subsequent regulation. In the meantime, M-PESA and CBK in particular, have developed their respective approaches to disclosure, fair conduct and dispute resolution with deliberate but nevertheless informal guidance of the CBK. However, it is believed that it is important to note that the lack of formality in the currently regulatory framework also has implications for consumers.<sup>63</sup>

The MFSP sector, mostly driven by rapid advances in technology and sustained uptake by the massive mobile telephony subscriber base, is evolving in ways that will become increasingly problematic in the absence of more formal and comprehensive legislation and regulation. The regulatory authorities are challenged to maintain consistent application of policy as the sector becomes populated with new entrants with different products, systems and capacity. At the same time, consumers are already adapting the M-PESA service to uses that exceed the current regulatory definition of the MFSP channel. Besides the CBK which has maintained an informal regulatory framework over the M-pesa system in Kenya, the CCK has also performed an important role through the regular monitoring of M-pesa system which has also helped in addressing some of the issues that have been rising out of M-pesa business.<sup>64</sup>

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<sup>63</sup> [siteresources.worldbank.org/Mpesa/legal\\_structures](http://siteresources.worldbank.org/Mpesa/legal_structures)

<sup>64</sup> Ibid

Some of the pertinent financial legislation that influences the operations of Mobile Money within Kenya includes:

- a) Central Bank of Kenya Act enacted 1966 and amended in 2009, created the Central Bank of Kenya and defines its mandate.
- b) Banking Act enacted 1991 and amended in 2010, regulates the activities of banking institutions within the financial sector in Kenya.
- c) Microfinance Act enacted 2006 and other related legislation regulates the provision of microfinance services within Kenya.
- d) Proceeds of Crime and Anti-Money Laundering Act enacted 2009, influences AML/CFT issues in the financial section within Kenya.
- e) Various Prudential Guidelines issued by the Central Bank of Kenya.
- f) Various Risk Management Guidelines issued by the Central Bank of Kenya.
- g) Guidelines on Agent Banking (2010) provides for the appointment of agents to extend banking services within Kenya.
- h) Draft Electronic Retail Transfers Regulation and Draft E-Money Regulation to regulate electronic money issuance and exchange, as well as its transfer between different parties within Kenya.

### **3.1.2 Impending Regulation**

By the time of writing this paper, there is a pending draft bill in the Kenyan parliament to regulate the mobile payments. The bill is entitled to the National Payments System Bill. This is the first of its kind and its intention is to fill the gaps described above as well as remove the ambiguity that currently exists as to whom between the Communications

Commission of Kenya (CCK) and the Central Bank of Kenya (CBK) holds the regulatory sway over the mobile payments.

Some of the highlights of the legislation are:

- That customers will not lose their money if a service provider such as online or cellphone money transfer company collapses or is declared insolvent.
- Service and network providers will incur the cost of compliance that includes risk management, regular reporting, hiring of qualified personnel and upgrading of ICT systems according to the bill.
- The mobile network operators will be given six months to comply with the law that encompasses all electronic payment systems and instruments such as real time gross settlement (RTGS), cellphone-based and online banking systems.
- CBK will designate a platform as a national payment system, the propriety will formulate a constitution that will guide its operations and be used as basis in its supervisory actions. The guidelines will be open to public scrutiny and cannot be changed without the approval of the Central Bank.
- The law seeks to regulate the funds being held by the banks as 'float' for mobile banking purposes. It will forbid the banks from trading with that money.

So far, key players in the Kenyan market have welcomed the legislation albeit with caution as they wait to see the impact it will have in their industry. The leading provider, Safaricom has already warned that this law could increase the transaction cost if fully implemented.<sup>65</sup>

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<sup>65</sup> [www.kenyaparliament.org/draftbills](http://www.kenyaparliament.org/draftbills)

Though the CBK has been able to oversee the functioning of M-pesa model in Kenya with little challenges, I believe that there is need to develop a clear legal framework to regulate the operations of all stakeholders who are engaged in M-commerce. These legislation need to go beyond the financial regulatory framework which have formed the basis of national payments system bill 2012. This is because there are a number of stakeholders involved in the industry hence the need to cover all their concerns. More legislation need to be developed on E-Commerce legislation, Consumer protection, Privacy and data protection, Telecommunications and Competition law. As for now, it is my humble submission that efforts should be expended in ensuring the successful legislation of national payments system bill.

## CHAPTER FOUR: HOW M-COMMERCE AFFECTS INTERNATIONAL TRADE AND RELATIONS IN KENYA

Trade patterns to a considerable degree depend on intangible barriers to trade , which are related to incomplete information, cultural differences and institutional differences across countries. The existence of national borders as such seriously reduce trade since they can lead to decrease in inter-regional trade flows once they cross country borders.

Evidence shows that geographic distance reduces trade in financial assets to an extent that is at least comparable to merchandize trade, even though transport costs are not an issue in the exchange of financial claims.<sup>66</sup> In this respect, geographic distance is a proxy of various intangible barriers that are related to incomplete information and cultural unfamiliarity. The distance effect in trade hence provides an indication for the importance of intangible trade barriers.<sup>67</sup>

Distance as a trade barrier has its effects felt also on cost of business. This is because distance has the effect of increasing the cost of business which reduces business profits. Profit which is the major incentive in trade is only enhanced when the effect of distance as a trade barriers is reduced considerably. The costs related to distance as a trade barrier can be reduced with the application of M-commerce since it eliminates some of the cost associated with distance by lowering the “distance” between the seller and the buyer.

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<sup>66</sup> Portes, R., H. Rey and Y. Oh (2001): *Information and Capital Flows: The Determinants of Transactions in Financial Assets*, European Economic Review, 45, pp. 783–796.

<sup>67</sup> Maddison, A. (2001): *The World Economy: A Millennial Perspective*, Paris: OECD.

The role of distance as a trade barrier cannot be ignored among developing nations which still depend on imports from developed nations, sun-saharan africa being one of them. The distance factors as a barrier in international trade barriers is even becoming more crucial in light of changing trade patterns that are being experience between developed countries and developing countries. Over the past few years there has been an increase in diversity of trading partners with countries in africa increasingly moving towards South America ,Asia and away from traditional trading partners of America and Europe.<sup>68</sup>

This has increasingly created the need for reducing distance as a trade barrier in international trade and one way by which this can be effectively reduced is through E-commerce and M-commerce. The role of mobile telephony in reducing distance as a trade barrier is important because of the combination of internet and mobile use. Mobile use now makes it possible for people to do transactions through M-shopping at any place and at any time. Because of this the role of M-commerce is very central in this global world where the world is but all becoming a global village.<sup>69</sup>

Mobile operators through partnerships with other international mobile operators can make it possible to avail some of these M-services such as M-payments ,M-advertising ,M-shopping and M-information among others. This requires the development of regulation to facilitate this in the global world. According to united nation conference on trade and development the role of E-commerce and M-commerce will be crucial in reducing some of the trade barriers that exist between africa and developed nations.

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<sup>68</sup> Hummels, D. (1999): *Have International Transportation Costs Declined?*, University of Chicago, manuscript, Chicago.

<sup>69</sup> UNECE(2010) *Trade: reducing non-tariff trade barriers*. policy brief

Cultural differences are also important intangible barriers to trade, increasing economic distance between traders. These differences consist of two aspects: knowledge, or familiarity, between cultures, and differences in norms and values between cultures. People are in general less informed about foreign markets and cultures. Through newspapers, television and direct communication, they are much more informed about domestic developments, especially in terms of the richness of details. Furthermore, information and knowledge on distant foreign markets and cultures tend to be less than for nearby societies. Cultural familiarity decreases across geographical distance, which may help explain why less information is collected about distant markets<sup>70</sup>. The causality also runs in the opposite direction, with lack of information reinforcing unfamiliarity with foreign cultures. Familiarity with foreign cultures increases if historical ties exist, e.g., through language and colonial history.

Incomplete information and unfamiliarity with foreign cultures generate “psychic distance” between countries. Cultural familiarity between countries reduces psychic distance and lowers trade costs. For example, proximity, common language and pre-existing ties make it easier to share information and knowledge between countries.

<sup>71</sup> Many studies have found that bilateral trade increases when countries share a common language or colonial past. Trade networks that reduce search and other information costs have historically developed along these lines of cultural familiarity. Part of the literature has pointed out the importance of these networks for international trade, which provides

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<sup>70</sup> Hofstede, G. (2001): *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations across Nations*, Thousand Oaks, London, New Delhi: Sage Publications.

<sup>71</sup> Guo, R. (2004): *How Culture Influences Foreign Trade: Evidence from the U.S. and China*, *Journal of Socio-Economics*, 33, pp. 785–812.

support for the relevance of intangible barriers to trade . The network view argues that, due to incomplete information on distant markets, search processes are important in order to match buyers and sellers. Networks facilitate the search for suitable trade partners and reduce the costs of trade. As a result, understanding the characteristics and development of networks is important to explain the observed patterns of trade. The costs of search tend to vary according to the type of product traded. <sup>72</sup>The search costs for a trade partner are higher for differentiated products, the international market conditions of which are least transparent. Differences in values and norms constitute the second aspect of cultural differences. The influence of values, informal norms and trust on economic performance and growth has received a lot of attention over the past decade.

The element of trust is particularly important among Asian countries where it play a key element in business transactions. However, with Africa increasingly becoming a key trade partner with Asian countries ,China in particular, the issue of culture as a trade barrier becomes a challenge to overcome. To overcome this E-commerce and M-commerce will play a great role in the overcoming of this trade barriers . This is because they offer M-shopping ,M-marketing and M-information which helps in removing these trade barriers and facilitating trade better than before.

According to Frankel the role of M-commerce in reducing culture as a barrier in international trade is very important since M-commerce helps in availing information that

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<sup>72</sup> Guiso, L., P. Sapienza and L. Zingales (2004): *Cultural Biases in Economic Exchange*, NBER Working Paper. no. 11005 pp 12-14

is of help to the trading partners in any country.<sup>73</sup> He argues that these information can be made available just at the touch of a "key pad", moreso in the lpad generation where such information has been classified making it easier to retrieve and make use. On the other had he makes emphasis that M-commerce has been of help in creation of trading networks which has made it possible for trading partners to access the necessary information in international trade.

While still on the subject, the other way in which M-commerce has affected the international trade is through enhancing the link between Kenyans living abroad and the local. This bring to the fore the question of migration which become the centre of study in the continuing section and its role in international relations with Kenya becoming the focus.

Migration is an important issue in Kenya, with the country both a significant destination and source of migration. It is a major destination, particularly for refugees running away from civil conflicts in the region. It is also a major source of migrants going both within and outside the region. According to one estimate, there are more than 47,000 Kenyans in the US, 21,000 in Canada, 15,000 in the UK, 7000 in Australia, 5000 in Germany and 1300 in Sweden. Overall, there are about 200,000 Kenyan migrants in Organisation for Economic Co-operation and Development (OECD) countries (Lucas, 2007)<sup>74</sup>.

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<sup>73</sup> Frankel, J.A. (1997): *Regional Trading Blocs in the World Economic System*, Washington D.C.: Institute for International Economics. pp 6-13

<sup>74</sup> Lucas R(2007). Migration impacts on economic growth in sub-saharan Africa. analytical paper pp 12-17

Migration is a human phenomenon that has intensified during the past couple of decades, reflecting the dynamics of societies.<sup>75</sup> Perhaps, the most important causes of migration are the inequalities in the living conditions of people in various societies, the conflicts, and the need to survive. People living in Diaspora have migrated due to several reasons like pursuing educational opportunities, unemployment prevailing in their host country, search for greener pastures and conflicts in host countries. Workers' remittances have grown dramatically worldwide, particularly in developing countries, where they constitute the second largest source of foreign finance after foreign direct investment (FDI) flows. World workers' remittances and compensation of employees received rose from an estimated \$2 billion in 1970 to US\$276 billion by 2006 according to World Bank's World Development Indicators Database, World Bank (2006).<sup>76</sup>

Remittances are one of the most visible, as well as beneficial, aspects of how international migration is reshaping the world today. Remittances are quietly transforming societies, countries and regions. Migrant remittances form a sizable amount of many countries foreign exchange, the lack of which puts a constraint on their development. An International Monetary Fund (IMF) report (2001) indicated that migrant remittances are increasingly becoming a more constant source of income to most developing countries, with a doubling of annual remittances between 1988 and 1999. Sander also reported that remittances have proven to be the most stable flow compared to

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<sup>75</sup> Sikod F. and Tchouassi G. (2006), "Diaspora Remittances and the Financing of Basic Social Services and Infrastructure in Francophone Africa South of the Sahara." *Perspectives on Global Development and Technology*, volume 5, issue 3. Pg 239.

<sup>76</sup> World bank(2006) World bank data base indicators

official development assistance (ODA) and to private capital flows<sup>77</sup>. Brown and Ahlburg assert that migrants remit money for the purpose of altruistic family consumption support.<sup>78</sup> According to CBK, Kenya received US\$611.2 million in 2008, from \$573.6 million in 2007, about 2.7% of GDP. Remittances have increased systematically over time, with the number of Kenyan migrants having increased over time.

Remittances are therefore an important source of domestic household incomes, hence reducing poverty. The World Bank (2006) estimates that remittances reduce the number of people living in absolute poverty in Kenya by 8.5%, even though the poorest do not often have relatives abroad, so do not benefit from remittances directly.<sup>79</sup>

The importance of remittances in Kenya is evidenced by the numerous money transfer institutions in both formal and informal sectors and the rapid increases in both international and local remittances. The domestic money transfer system has received a boost with electronic money transfer services provided by mobile telephone service providers. Besides the formal money transfers, there are also the informal channels through person to person conveyance, informal arrangements with public transporters especially bus companies among other channels.

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<sup>77</sup> Sander (2003)

<sup>78</sup> Brown R. P. C. and Ahlburg D. A (1999), "Remittances in the South Pacific." *International Journal of Social Economics* Vol. 26 No. 1/2/3 Pp. 325 – 344.

<sup>79</sup> World Bank(2006).*World bank report on economic growth in Africa*.pp 23-28

In order to facilitate the transfer of remittances from diaspora, local institutions have partnered with foreign institution. These partnership have been sought by M-Pesa who have partnered with, among others, vodafone UK ,western union and money gram among others. This has removed certain barriers which were making the receiving of remittances difficult as one had to travel to their money transfer srvice providers offices.<sup>80</sup>

Remittances are generally accepted to have great potential to generate a positive impact on recipients' welfare. This is mainly because they go directly to family members without any intermediaries and they are available to the recipients to use them according to their own priorities. For example, households may decide to use them to finance basic consumption, education, health, improvement of dwellings, purchase of real estate and investment in business. They may be especially important in supporting micro-enterprises. Thus remittances can potentially play a significant role in relief of destitution and stimulation of economic activities at local levels. In addition they help households maintain their consumption levels through economic shocks and adversity.<sup>81</sup>

For developing countries like Kenya, international remittances are seen to be a more constant source of income with a doubling of annual international remittances between 1988 and 1999. Up to 80 % of remittances to kenya are used for basic household consumption and 5-10% are used to invest in human capital such as education, health,

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<sup>80</sup> Ignacio Mas and Olga Morawczynski(2011), *Designing Mobile Money Services Lessons from M-PESA*. Analytical pp3-14

<sup>81</sup> Sander C (2003) *Migrant remittances to developing countries, a scoping study: overview and introduction to issues for pro-poor financial services*. analytical paper pp 15-18

and better nutrition. Other important investments from remittances include land, housing and Livestock. These are often seen as future assets of the emigrants themselves. Smaller portions of remittances are spent on socio-cultural events, for loan repayments, savings and generally only little is invested in employment and income generating activities other than agriculture and livestock. The use of remittances only serve to show the importance of remittances to Kenya economy.<sup>82</sup>

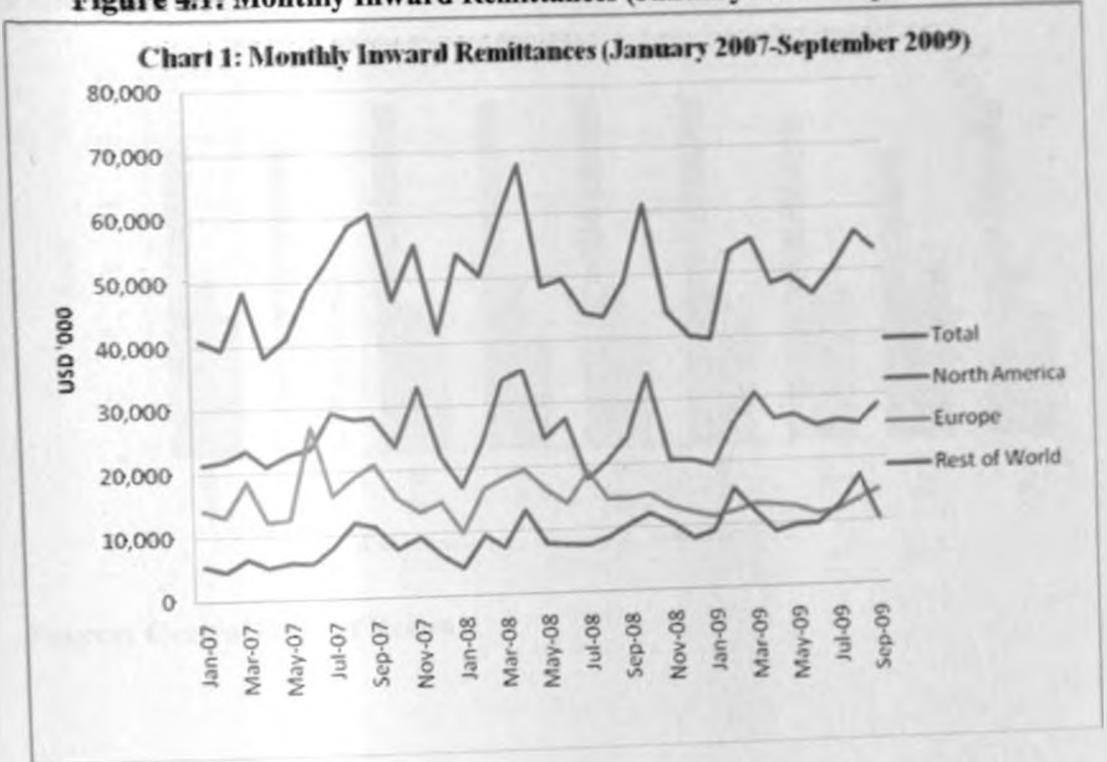
#### **4.1 Kenyan Remittances, Trends and Impact on Investment**

The Central Bank of Kenya monitors the monthly flow of data on remittances from Kenyans living abroad through commercial banks and registered international money transfer agencies in the country. The Survey shows a general upward trend in remittances flow between June and August 2009, and a decline in September, 2009 (Chart 1). ([www.centralbank.go.ke](http://www.centralbank.go.ke)).

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<sup>82</sup> Suro R (2003) *Remittance senders and receivers: tracking the transnational channels*. Multilateral Investment Fund (MIF) and Pew Hispanic Centre. Analytical paper

**Figure 4.1: Monthly Inward Remittances (January 2007 – September 2009)**

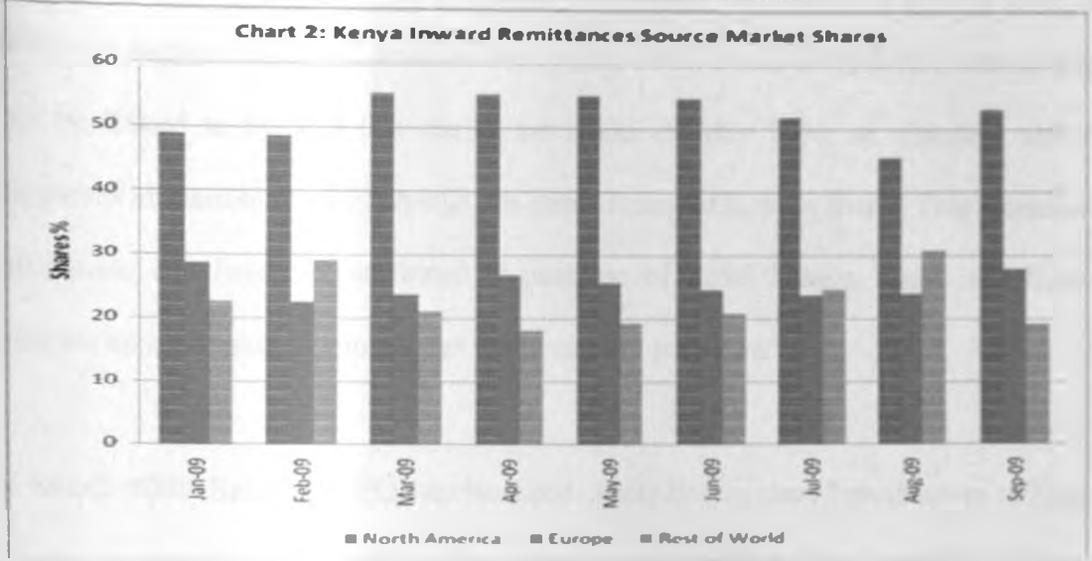


**Source: Central Bank of Kenya**

North America and Europe are the main source of inward remittances to Kenya, while those from the rest of the world account for less than a third of total remittances (Chart 2).<sup>83</sup>

<sup>83</sup> [www.centralbank.go.ke](http://www.centralbank.go.ke), *Diaspora remittances*.

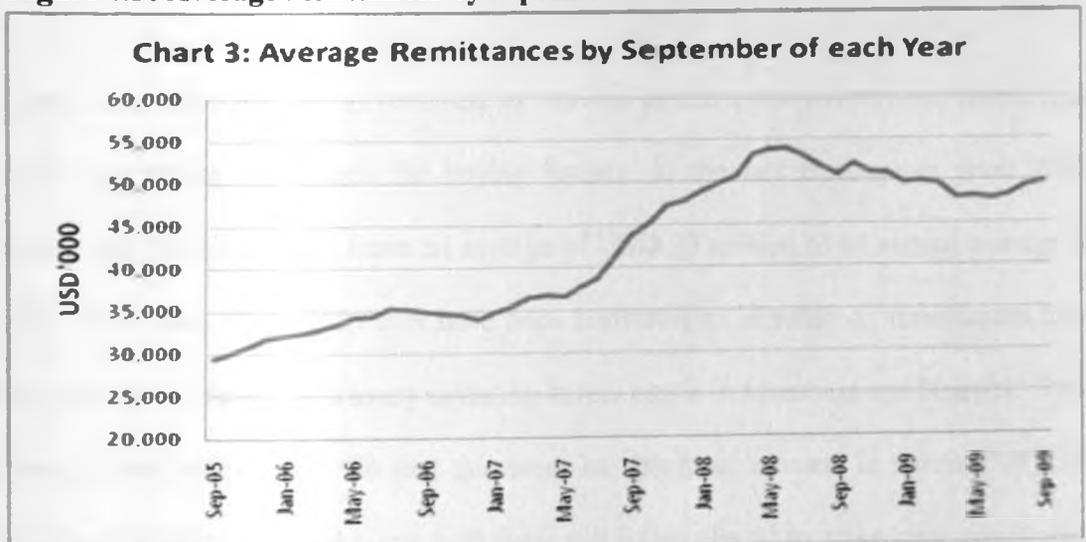
**Figure 4.2: Kenya Inward remittances Source Market Shares**



Source: Central Bank of Kenya

**4.1.3 Impact of Remittances**

**Figure 4.3: Average remittances by September of each Year**



Source: Central Bank of Kenya

The 12-month moving average shows an upward trend in remittances to June 2008. In 2006, the highest remittance recorded was in May 2006, a total of USD 42.4 million. This can be linked to the fact that during the month of May 2006, an historical activity happened in Nairobi stock Exchange, the initial listing of Kengen shares. This increase in remittance can hence be attributed to purchase of listed Kengen shares which may indicate an increasing in remittances for investment purposes.<sup>84</sup>

In March 2008, Safaricom IPO was launched. According to chart 3 remittances to Kenya reached a record high of USD 67.8 million in April 2008. This coincides with the Safaricom IPO, which closed on 23<sup>rd</sup> April 2008. The previous month of March 2008 when the IPO started also registered increased remittances to USD 59 million. Thereafter, remittance flows oscillated to around USD 50 million. This too serves to show the role of remittances in investment in Kenya.

In past five years, Kenya has recorded an increase in real estate investment. Banks have been busy giving mortgages for buying houses. In the last three years from 2007, remittances have increased from an average of USD 35 million to an annual average of USD 50 million. These increases have been attributed to increase on remittances from Kenyans living abroad with many investing in real estate in Mombasa and Nairobi. These increases are attributed to the fact that there has been an increase in partnership from Kenyans who have returned home with those still living abroad to make joint investments in the real estate sector.

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<sup>84</sup> Ibid

#### **4.2 Policies to stimulate remittances and influence their use**

I believe that policies are needed to encourage the use of remittances to promote longer-term growth and income security in developing countries like Kenya. Policies can be effective in encouraging migrants to channel more remittances through official, rather than informal channels. Policies can lead to increase in levels of remittances by encouraging them to hold their savings in financial assets rather than keeping them abroad. Lastly, policies can encourage migrants to become investors in productive assets in the domestic economies of the country. Efforts towards this were seen with the Washington conference held in 2011 and Kenya investment conference recently held in the just concluded Olympic games of 2012.

Developing countries have historically used opportunities through international trade to promote deeper domestic diversification and greater value added in their agricultural and industrial production. However, a gradual shift seems to be in the offing for Kenya. Kenya seeks the opportunities presented to it from the M-Commerce platform and technological changes in communications to build on its rich potential objectives as highlighted in the Vision 2030 blueprint to improve domestic capacities, physical infrastructure, and initiatives for closer economic links with various markets, international trade opportunities and addressing concerns relating to the international trading system.

### **4.3 The Kenyan Blue Print on the Global arena**

To aptly demonstrate the significant role Kenya plays within the foreign arena is the appointment of Michael Joseph, the former Safaricom CEO who retired in November 2010 as a World Bank Fellow to advise it on mobile payment services. Safaricom effectively created the market for mobile banking services when it launched the hugely successful M-PESA platform in 2007, which has been imitated in many other countries since then. [http://comm.ae/wp-content/uploads/2011/02/Michael\\_Joseph\\_safaricom-web.jpg](http://comm.ae/wp-content/uploads/2011/02/Michael_Joseph_safaricom-web.jpg)

More so, as World Bank Advisor Joseph will provide strategic advice to the World Bank and governments beyond Africa on policy and regulatory issues to promote development of mobile banking and mobile payments, many may see this as an individual's role in policy formulation; however, upon lifting the veil, this is a Kenyan bred idea, incorporating a former Kenyan CEO closely involved in the project influencing world policy decisions for Africa. The words "Kenyan" and Safaricom, follow Joseph everywhere he goes hence in my view, International relations are also promoted by individuals in their personal capacity.

### **4.4 Data Analysis and Presentation on Impacts of M-pesa on International Trade and Relations**

#### **4.4.1 Data Presentation**

Twenty one agents responded out of the targeted twenty four M-PESA agents representing a response rate of 88% and all the twenty one were usable for further analysis. The interviews were conducted in four banks including the CBK, with the last interview being held with a knowledgeable Safaricom representative at the Safaricom Headquarters. Seventy five percent of the agents interviewed have been in business for a

period exceeding 3 years. The research used variables adopted from the technology acceptance model (TAM) in relevance to the use of the mobile payment.

Table 1 shows the results of the descriptive statistics. A low mean value indicates there is a low level of measured construct. The research was exploratory and therefore the collected data are further analyzed using Pearson's correlation coefficient to measure how variables are related.

**Table 4.1: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std.Deviation
Cost	21	1	5	0.22	0.058
Convenience	21	1	5	0.22	0.053
Security	21	1	5	0.21	0.057

Cronbach's alpha as in table 2 was used to assess the internal consistency and reliability for each of the 3 variables. All the constructs in the agents' questionnaire were factor analysed to confirm their validity. Higher scores indicate more reliability for the measurements. Nunnally has indicated 0.7 to be an acceptable reliability coefficient but lower thresholds are sometimes used<sup>85</sup>. It should be noted that the reliability of perceived costs and security are relatively weak while the perceived convenience is relatively high<sup>86</sup>. Since these constructs are proposed for the current study, further analysis in future research could be addressed.

<sup>85</sup> Nunnally (1978)

<sup>86</sup> Nunnally, J.C. (1978). *Psychometric theory* (2nd Edition). New York: McGraw-Hill.

**Table 4.2: Measurements of Reliability Statistics for Each Construct**

Constructs	Cronbach's Alpha $\alpha$
Perceived cost	0.554
Perceived convenience	0.567
Perceived security	0,778

From the measure of reliability there is evidence that all the constructs had a significant impact on the use of the M-PESA. This implies that the Safaricom M-PESA subscribers acknowledge that the mobile payment is cheap, convenient and secure to them.

Table 3 presents the Bivariate Correlation test showing the degree of correlation among the variables. Pearson's correlation coefficient gives information about the degree of correlation as well as the direction of the correlation<sup>87</sup>. Some variables indicate a moderate degree of correlation among them with correlations lying between 0.25 and 1.0. Cost and security variables show a high degree of correlation

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<sup>87</sup> Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed method Approaches*. 2nd ed. Sage Publication, Thousand Oaks, California

**Table 4.3: Pearson Correlation**

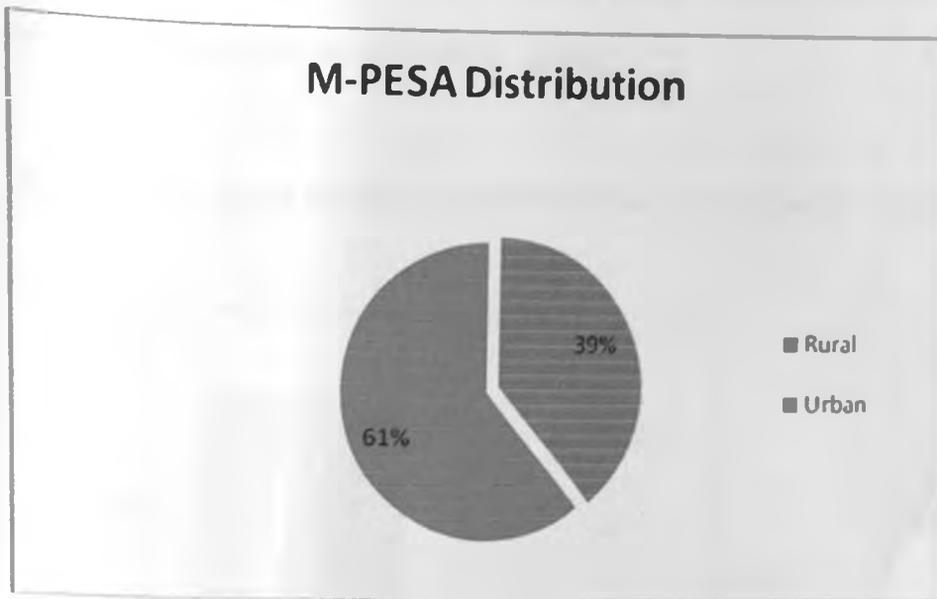
	Cost	Security	Convenience	Actual Usage
Cost	1			
Security	0.998	1		
Convenience	0.379	0.379	1	
Actual Usage	0.340	0.340	0.322	1

**Source: Author**

The table shows that the perceived low cost, security and convenience factors are all positively correlated to the actual use of the mobile payment. The subscribers to the mobile payment acknowledge that continuous use of the M-PESA with adequate support from both the government and service provider will positively impact on the economy.

The chart below presents the M-PESA agents distribution in Kenya in both the rural and urban areas. The pie chart shows a 39% penetration in to the rural areas indicating the acceptance and the usage of the mobile payment in the regions.

**Figure 4.4: M-Pesa Distribution**



**Source: Author**

**Table 4.4: Transaction to other East African Countries by agents**

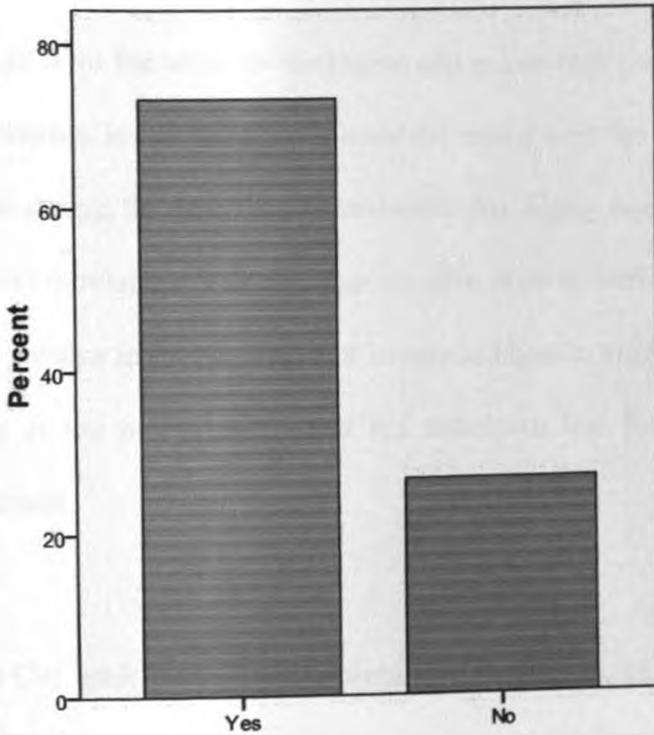
Transactions to other countries by M-Pesa	Frequency	Percent
Yes	14	66.7%
No	7	33.3
Total	21	100

**Source: Author**

When the agents were asked if in their transaction they have ever sent money to persons in other east African countries to this majority affirmed (66.7%) answered in the affirmative. Interviews with agents further showed that money sent to people in other countries in East Africa, predominantly Uganda is never less than 50,000ksh per

transaction. This indicates that M-Pesa has served a role in facilitating relations with people in other countries particularly Uganda.

**Figure 4.5 : Agents who have Transacted Money sent through Western Union**



**Source: CBK**

When the agents were asked if in their daily transaction how many of them have handled the transactions sent through western union. Majority of the respondents (70%) said that they have helped clients withdraw money sent through western union over the past two years while 30 percent said no.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

The primary objective of the study was to examine the role of m-commerce in developing countries' economies with a specific focus on how M-PESA has affected the Kenyan relations with other countries. In light of the technology acceptance model the variables used have indicated that the M-PESA has affected international relations. Its usage has spread from the urban to rural areas and gained high acceptance from the regions despite the literacy levels and development difference from the urban areas. From the interviews done during the research, m-commerce has highly been acknowledged to have had an impact in relations with other people from other countries. This is because it was realized that persons in Kenya have sent money to Uganda, although this was done informally so long as the person in Uganda has Safaricom line for there are informal "agents" in Kampala.

The Citi bank manager recognized m-commerce as an adoption that brought about the inclusion of the unbanked rural population in the financial system. He also recognized that the regulatory framework has been more accommodative and receptive of the dynamic processes of m-commerce thus easy penetration of the technologies and their adoption by the targeted groups. Citi Bank Manager acknowledged that though they have included M-pesa services in some of their product in Kenya they are looking forward to extending the coverage of these services in all their branch networks in East Africa. Of importance is this in proving that M-pesa services have the potential of improving not only regional relations but international too.

The acceptability of the mobile payment as indicated by the larger number of users of M-PESA has resulted in partnerships and more innovations products for the market such as the M-Kesho. As a result of the usage of the mobile payment there has been increased money circulation than before the M-PESA evolution and even the banks benefited from this as the Equity manager revealed that their deposits increased as the mobile payment subscribers increased.

Apart from the mobile payment system by Safaricom, from the research the findings were the banks had their own innovations such as the M-savings product by Equity Bank introduced in 2010 where customers can save money in their virtual accounts. In this interesting model, customers can earn interest from their virtual accounts as well as make withdrawals from it. ATM withdrawals from different banks in the same ATM, this was an innovation by Kentswitch. Bank customers are able to withdraw money from their accounts using their phones and other than banks' ATM cards. Visa Card Loading where the Card holders can top up their credit amounts through the partnership between I&M bank and Safaricom. MasterCard Online Purchase top-up that is collaboration between Airtel and MasterCard where card holders can get virtual credit to purchase online from their M-Commerce floats.

According to Safaricom Commercial manager, the company has helped other mobile operators from U ganda, Tanzania, Ghana, South Africa among others countries in Africa to Establish Mobile banking and payment services in their countries. This commercial manager say has been made possible through training their staff on the working model,

through partnership with other mobile operators on information sharing concerning the M-Pesa model. Besides this the commercial manager stated that Safaricom has been tasked to lead a task force in East Africa to see how the model can be made to work across all the East African Countries. This indicates how M-Pesa has played a central role in improving working relation in not only East Africa but Africa too.

### **5.1 Conclusions**

The results contribute to existing literature in several ways. First, the relation of the factors that lead to the actual usage of the mobile payment service as indicated in the Pearson's correlation. The low cost, convenience and security provided to the subscriber has contributed to the large acceptance of the M-PESA and its usage in both the rural and the urban areas. Secondly, the support of the mobile payment by both the government and the service provider has also increased its usage by the subscribers and led to new innovations and partnerships with banks and other utility services providers. Thirdly the convenience of the mobile payment service has led to the penetration of the M-PESA in rural areas at a higher rate than the banks.

The M-PESA increased use in Kenya has led to ease of transacting businesses with other countries in east Africa more in Uganda. The findings show business men from Kenya have been using M-Pesa system though informally to send money to their suppliers in Kampala who then send them goods through bus companies that operate from Kampala. This shows the potential that exists if the M-Pesa service was embraced by all countries in East Africa community. However, this is a strong possibility with east African countries developing a common ICT policy.

## 5.2 Recommendations

Based on the research findings, the government needs to support the development of a common ICT and M-commerce policy for East African community. This government needs to do this even as it works on establishing laws on M-commerce . The intended National Payments Bill 2011 is a step in the right direction and there should be adequate consultation with all the relevant stakeholders before the law is operationalized. There should also be a clear enactment or implementation criteria for the law to avoid the previous ambiguity with the current system where there was an evidenced tussle between the Communication Commission of Kenya and the Central Bank of Kenya in terms of regulation. However ,even as this is been done, as a step to improving trade relations with other countries in East Africa Kenya should lead in championing the use of M-Pesa in other countries. This can only be possible with developments of M-commerce laws in East Africa.

From the findings the banks were found to have used the M-Pesa to improve the use of its services by the citizens .This shows that there is need to develop structure that can enhance the partnership of banks and M-pesa not only in Kenya but also across the region since some of the banks have branches across East Africa Countries. There should also be more collaboration amongst the various stakeholders in the Mobile commerce sector, even from ministry of trade. Each player seems more inclined to make products and guidelines that only seek to further their interests and especially their profit making ventures. Given, the impending law may consolidate some of their activities. But most of

their actions will need to be further consolidated for shared gains and shared risks which will ultimately lead to benefits to all.

There should also be more policy focus by the government on M-commerce as a key driver of international trade as opposed to the laid back attention the government has given this critical sector. Indeed it has taken International organizations and countries (especially the World Bank) to point out to key economic institutions within government to focus more attention to this sub-sector after pointing out the enormous gains and successes that M-commerce can bring by improving international trade. It is clear that the sector will play a key role in the desired economic growth in the country with the evidenced figures; action should be taken to facilitate its use in international trade. In addition, governments, especially developing countries should use the gains from M-commerce as an important tool in their international relations.

There is need for government to formulate policies that will not only encourage more remittances but also channel them for economic development of the nation. This is because the use of M-Commerce has increased the remittances by Kenyans living abroad .This should be channeled to spur development though friendly policies that can encourage the use of remittances for investment purposes.

The above measures would improve the mobile commerce as well as the economy since will support the existing business with better platforms to do business. The study has identified the factors that have led to the success of the M-PESA and its impact on the

mobile commerce in Kenya. The mobile commerce growth has raised the economic performance and made Kenya a more attractive market for the local and foreign investors, increased trade and economic interactions and drawn the World's attention to the unique success story. M-commerce has evidently had an effect on the country's international relations.

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## APPENDIX I: QUESTIONNAIRES:

### BANK QUESTIONNAIRE

#### QUESTIONNAIRE WITH CITIBANK M-COMMERCE PRODUCT MANAGER

1. What has been the general impact of M-commerce in banking in Kenya?
2. Why do you think Kenya is the world leader in M-commerce yet it is a developing country?
3. How have the banks responded to the M-commerce revolution in the country?
4. Do you think M-commerce has had an influence on the monetary policy of the country?
5. How is M-commerce regulated within the monetary/banking sector?
6. Are there regulatory bottlenecks and/or gaps in the M-commerce phenomenon?
7. Is there a dominant M-commerce service provider/product in Kenya? If so, why do you think they are the market leader?
8. Which specific innovations have banks come up with in relation to M-commerce?
9. Briefly describe the B2C/C2B flows within the scope of M-commerce?
10. Are there any inherent risks associated with transacting through M-commerce?

11. What are the volumes of transaction (No. of transactions and volume in KES)s done via M-commerce within Citibank per month?
12. Do you have an estimate of the M-commerce volumes done in Kenya through all channels per month?
13. Do you intend to grow the above volumes, if so what are the projections?
14. What are the current gaps in innovation in M-commerce which you think should/will be filled soon?
15. In your view, what is the future of M-commerce in Kenya?
16. Do you think M-commerce has had any impact on Kenya's economic growth?, If so please briefly describe how?
17. Do you think the economic growth brought about by M-commerce above(If any) has or could shape Kenya regional role as an East Africa regional powerhouse?

END



8. What are the current volumes of MPESA per month (Approx. number of transactions and volume in KES)?
9. Have the above volumes been declining, remaining constant or rising within the last 3 years?
10. Has the MPESA/M-commerce phenomenon in Kenya usurped the role of banks in Kenya?
11. What are some of the key partnerships that Mpesa has had that have enlarged its scope?
12. What are some of the inherent risks in the operations of M-commerce in Kenya?
13. What role and impact has Mpesa/M-commerce had in the monetary system?
14. Do you think M-commerce has had any impact on Kenya's economic growth? If so please briefly describe how?

15. Do you think the economic growth brought about by M-commerce above (If any) has or could shape Kenya regional role as an East Africa regional powerhouse?

16. Is there still room for more innovation in Mpesa?

17. What in your view is the future of M-commerce in Kenya and developing countries in general?

18. What are your final thoughts on M-commerce?

**THANK YOU**

## **CBK QUESTIONNAIRE**

1. What has been CBK's reaction to the Mpesa phenomenon?
2. Is it true that in Kenya, regulation has followed innovation and not the other way round?
3. How much in terms of value are moved through Kenya in a day?
4. Is that value high than what is transferred through the ordinary banking channel, specifically the RTGS payment system?
5. Are there any inherent risks with the mobile payment systems?
6. Is mobile payments in the ambit of CBK's regulation according to the CBK act?
7. Could the agents in the mobile payments system be used for agency banking?

8. Is there any pending legislation being worked on to formally regulate the mobile payments systems?
9. How have banks reacted to the developments in M-commerce, do they feel threatened?
10. What are some of the innovations that have caught your attention in the Mobile money sector in the recent past?
11. What is your envisioned future of M-commerce in Kenya?