M-PESA:
Why Kenya?

by

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Abstract

This research paper examines the factors that contributed to the remarkable adoption of M-PESA, a mobile payments system, in Kenya. In particular, it investigates the differences in the uptake of mobile money in Kenya and Tanzania by comparing the initial country conditions, sociocultural norms and business strategies employed in the implementation process. It finds that, despite many similarities between the two countries, Kenya has experienced a remarkably higher degree of uptake compared to Tanzania. The paper attributes the higher adoption rate in Kenya to a combination of favorable country conditions, supportive social-cultural context and effective implementation strategies employed by the service provider Safaricom. It concludes that the rapid adoption of M-PESA is an exception and not the rule for mobile money adoption models, and recommends that service providers tailor their implementation strategies to the unique conditions in each country.

Keywords: M-PESA; mobile money; financial inclusion; technology adoption; Kenya; mobile phone

Dedication

To my family, the Bosires, who never ceased to believe in my ability to excel and to define success in my own terms.

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List of Acronyms

ASCA	Accumulating Savings and Credit Account
CCK	Communication Commission of Kenya
DoI	Diffusion of Innovations
GDP	Gross Domestic Product
ID	Identification Card
IFC	International financial Corporation
KYC	Know Your Customer
MDG	Millennium Development Goal
MNO	Mobile Network Operator
GSMA	Global System for Mobile Communication Association
ICTs	Information Communication Technologies
SIM	Subscriber Identification Module
SME	Small and Medium Sized Enterprise
SMS	Short Message Service
TAM	Technology Acceptance Model
ROSCA	Rotating Savings and Credit Association

Photo Credit: Laxman Rajagopalan

1. Introduction

Kenya stepped into the arena of mobile money transfer services in 2007 through the successful launch of M-PESA by Safaricom[1], a mobile network operator (MNO) (Mas and Radcliffe, 2010). M-PESA is a mobile payments system that allows users to make financial transactions such as deposits, withdrawals, bill payments, remittances, and purchase of goods and services by using a mobile phone,[2] without requiring a bank account, internet connection, or a payment card. 'M' is an acronym for 'mobile' and 'Pesa' is a Kiswahili word that translates to 'money'; M-PESA therefore translates to 'mobile money'. Within 4 years of its launch, M-PESA attained over 15 million service users thus enabling millions of unbanked Kenyans, the majority of whom reside in rural areas, to have access to a 24-hour financial service system.

The exceptional growth of M-PESA mobile money service in Kenya since its introduction has spurred a wave of mobile money service deployments across and beyond the African continent.[3] Today, Kenya stands as a world leader in the provision of mobile money services with about 19.5 million service users and an annual transaction volume of about KES 672.3 billion (US$ 8 billion)[4], or 24 percent of Kenyan Gross Domestic Product (GDP) (CCK Report, 2012). Indeed, of the about 100 million users of mobile money around the world, one in five is Kenyan (Juniper Research, 2011).

[1] Safaricom is the leading mobile network operator (MNO) in Kenya, and an affiliate of Vodafone Group- a British multinational telecommunications company.

[2] The mobile phone acts as both a wallet and a bank account.

[3] Kenya's M-PESA is not the first mobile money deployment; however its rate of adoption has been unprecedented. The first sustainable mobile money system was launched by Smart Money, in 2001, in the Philippines.

[4] Based on an exchange rate of $/KES 85.

The success of M-PESA in Kenya has proven that mobile money services havethe potential to revolutionize access to financial services worldwide where over 2.5 billion adults do not have a formal bank account, and yet about 6 billion people have access to mobile phones (86 percent penetration rate) (ITU, 2011; Demirguc-Kunt & Klapper, 2012, 11). Most of the unbanked population reside in the developing regions of the world such as Sub-Saharan Africa where only 24 percent of the adults have a formal bank account. However, the region has a mobile phone penetration rate of over 60 percent, which provides a readily-available platform to roll out mobile money services[5] (Demirguc-Kunt & Klapper, 2012, GSMA, 2011). The adoption of mobile money services in Sub-Saharan Africa is particularly important because increased financial access can have a positive impact on long term economic growth through reducing poverty and income inequality (Clarke, 2002; Beck et al., 2004; Levine, 2005). Indeed, many believe that financial inclusion of the wider population is a key tool for achieving the Millennium Development Goal (MDG) of eradicating extreme poverty and hunger.

Mobile money services yield a number of documented benefits to providers, users and the government, including facilitating transactions (Mas & Radcliffe, 2010; Jack & Suri, 2011a), increasing money circulation in the economy (Demombynes & Thegaya, 2012), enhancing money security (Plyler et al., 2010), facilitating social capital accumulation (Plyler et al., 2010; Morawczynski, 2008), creating employment opportunities (Plyler et al., 2010), reducing economic vulnerability (Jack & Suri, 2011a), fostering entrepreneurship (Kendall, et al., 2012), increasing savings (Demombynes & Thegaya, 2012), and promoting financial autonomy (Morawczynski, 2009; Jack & Suri, 2011a). Despite these many benefits of adopting mobile money, no country has managed to match the speed and extent of M-PESA uptake in Kenya, not even in the neighboring Tanzania where the same business model and implementation strategies were employed. The statistics indicate that the launch of M-PESA in Tanzania by Vodacom only managed to attract about 280,000 users within 14 months of its launch,

[5] The access to mobile phones in Africa has grown astoundingly with the total number of mobile subscribers expected to reach over 750 million by the end of 2012 making the region the fastest-growing mobile market in the world (GSMA, 2011).

while Safaricom's M-PESA managed to garner 2.7 million users within the same timeframe (Rasmussen, 2009). Why would these seemingly similar countries have such disparate outcomes in the adoption of a similar technology?

In order to understand this variation in the adoption of mobile money service, this paper seeks to examine the factors that enabled M-PESA to thrive in Kenya by answering the central question: why Kenya? Or put differently, why not Tanzania? This is achieved by comparing the enabling country conditions, the social and cultural norms and service provider business strategies employed in the implementation of mobile money in both Kenya and Tanzania. The paper is informed by a wide range of primary and secondary sources, including academic papers, articles, data from the Financial Sector Deepening national surveys in Kenya and Tanzania (FinAccess and FinScope respectively) conducted in 2006 and 2009, and experiences from a month long field study in Kenya in April 2012.

The findings indicate that the remarkable success of M-PESA in Kenya was influenced by three key aspects. First is enabling country conditions present during the implementation of M-PESA such as the right amount of existing banking infrastructure, the poor quality of alternative financial services, the favorable urbanization ratio, the higher mobile phone penetration rate, the higher level of financial literacy, the level of economic development and the presence of a national identification (ID) system. Second is the effective operation strategies employed by Safaricom in Kenya, such as tailoring the marketing of the product to the needs of the population, and its ability to effectively build an agent network. Finally, the success of M-PESA in Kenya is owed to the favorable social cultural context in Kenya, exemplified by the established culture of remittance, and the need for financial autonomy especially among marginalized household members-particularly women.

This paper argues that the unique combination of these conditions enabled Safaricom to effectively deploy the M-PESA scheme, and has encouraged millions of users to rapidly adopt the service. This indicates that the exceptional growth rate of M-PESA in Kenya is a unique phenomenon that may not be repeated in another country. As a result, this paper recommends that service providers move away from importing the

M-PESA template, and rather seek to develop models that fit the unique needs of the users.

This research makes a contribution to scholarship and practitioners in this area by shedding light on why replicating the success of M-PESA has been met with great challenges, thereby informing the mobile money implementation efforts in developing countries. The insights from this evaluation provide valuable information to MNOs, other mobile money service providers, development agencies, technology developers, and policy makers, contributing to their efforts to create an enabling environment for mobile money service deployment, and to enhance the likelihood of more people using mobile money services.

This research paper is organized as follows: the following chapter presents an overview of mobile money services in Kenya with a focus on M-PESA, the leading mobile money service provider in the country. It examines how M-PESA works and discusses the socio-economic benefits accorded to users, service providers, and the government. The third chapter establishes a theoretical framework for conceptualizing the adoption of mobile money technology. The fourth chapter provides a comparative case study of Kenya and Tanzania in order to identify the key drivers of M-PESA uptake in Kenya. Finally, the last chapter concludes and provides recommendations for future mobile money deployments.

2. Overview of Mobile Phone and Mobile Money Service in Kenya

2.1. How M-PESA Works

Since the introduction of the M-PESA mobile money service in Kenya in 2007, over 70 percent of the Kenyan adult population has subscribed to the service in the country (African Development Bank, 2011, 12). According to the June 2012 Communications Commission of Kenya (CCK) report, about 29.7 million Kenyans own a mobile phone. This represents a mobile phone penetration rate of about 75 percent[6], a level that is substantially higher than the average rate of 62 percent reported for Africa as shown in Appendix A.[7] Of the total mobile phone subscribers, approximately 19.5 million (66 percent) use mobile money service offered by the different MNOs within the country. M-PESA serves about 15 million (78 percent) of the total mobile money service subscribers (GSMA, 2012), while the remaining 4.5 million users (22 percent) are serviced by Airtel Networks (airtel money), Essar Telecom (yu) and Telkom Kenya (Orange) mobile network operators in the country(CCK Report, 2012). Table 1 shows the distribution of the mobile market share for each service provider in Kenya.

The impact of mobile money on deepening financial inclusion and easing financial transactions is evident with the impressive growth of the volume of mobile money transfers in the country. The average monthly volume transacted through the payment systems in Kenya is about KES 56 billion (approximately US$ 660 million). In

[6] Based on an estimated population of 39.5 million as provided in the 2012 Kenya Economic Survey

[7] This calculation is based on number of active SIM cards during the period in consideration.

the 2011-2012 fiscal year, approximately KES 672.3 billion (US$ 8 billion), or 24 percent[8] of Kenyan Gross Domestic Product (GDP), was handled through the mobile money platforms in the country (CCK Report, 2012). To put this in a global perspective, the M-PESA money transfer system alone processes more transactions domestically than Western Union does globally (Kendall et al., 2012; IFC Report, 2011a, 50). In fact, over half of the world's mobile money transactions are handled through Kenya's M-PESA.

Table 1. Distribution of Mobile Subscriptions per Service Provider, June 2012

	Subscribers (millions)	Annual Growth (%)	Date Launched
Total Mobile Subscribers	29.7	15.8	
Safaricom Kenya	19.07	10.9	Mar- 2007
Airtel Networks	4.48	17.4	Nov- 2010/Aug- 2011
Telkom Kenya (Orange)	3.1	18.6	Nov- 2010
Essar Telecom (Yu)	2.55	61.2	Dec- 2009

Source: Communications Commission of Kenya (CCK), October 2012

To access the M-PESA service, an individual registers for a Safaricom electronic account with one of the over 30,000 authorized M-PESA agents that are conveniently located in kiosks across the country. Registration is free and only requires presentation of a piece of official identification. This virtual electronic account (e-wallet) is then linked to the phone through the Subscriber Identification Module (SIM) card. The individual is then allowed to set up a secret PIN on the account that is prompted whenever the funds are accessed. The users can make a cash deposit into the M-PESA account by paying cash to an MPESA agent who in exchange 'loads' the account with equal credit (e-float) at an equal convertible value (Morawczynski, 2008; Banks, 2012). The transaction is confirmed in real-time by a Short Message Service (SMS) notification to both transacting parties, which in the case of a deposit will reflect the new balance deposited into the user

[8] Kenya's annual GDP (current US$) in 2011 was reported at about US$ 33.6 billion, at an exchange rate of $/KES 85, the annual volume transacted account for 23.52% of the GDP.

account and the agent will have a record of the amount of money received from the transaction.

On receiving the transaction confirmation, the funds are immediately available in the user's account, and can be transferred to other individuals both within and outside the network, exchanged for cash, used to make purchases or to pay utility bills. All transactions, with the exception of deposits into the user's own account, are charged a small fee based on a tiered fee structure model, which encourages users at the bottom of the pyramid to cheaply send small amounts of money. For instance, the most popular amount sent is about US$ 20, which is accessed a 3.6 percent service charge equivalent to US$ 0.72 (IFC Report, 2009; Camner et al., 2009).

2.2. What is the impact of M-PESA?

Kenya's M-PESA system is acclaimed for deepening financial inclusion by providing affordable key financial services to populations that had been left out of the formal financial services system. According to the 2006 FinScope survey, only 19 percent of the Kenyan population was formally banked before the introduction of mobile money while the remaining 81 percent used semi-formal, informal or had no financial services. This situation is largely attributed to the existing poor formal banking infrastructure, with challenges ranging from limited number of banks that are mainly located in urban areas, to exclusionary participation conditions, such as high account maintenance fees, that create barriers to the use of the service (Biljon and Kotzé, 2008). Currently, M-PESA provides access to financial services to over 70 percent of the Kenyan adult population by enabling over 15 million Kenyans to have access to a formal financial system.

A significant amount of literature presents evidence that increased financial access has a positive impact on long term economic growth through reducing poverty and income inequality (Clarke, 2002; Beck et al., 2004; Levine, 2005). Indeed, financial inclusion is a key subject on the development agenda due to its influence on achieving the MDG of halving poverty by 2015. In the case of M-PESA in Kenya, many studies have cited several benefits and the potential socio-economic impact of the service on

individual users, households, communities and the government. At the macro level, M-PESA facilitates transactions, increases money circulation in the economy, enhances money security, facilitates social capital accumulation, creates employment, reduces economic vulnerability, and fosters entrepreneurship (Mas & Radcliffe, 2010; Jack & Suri, 2011a; Fengler, 2012; Demombynes & Thegaya, 2012). At the individual level, M-PESA has been reported to increase physical security, increase savings, generate employment, and promote women empowerment (Morawczynski, 2009; Plyler et al., 2010; Jack & Suri, 2011b). Despite these numerous benefits, it should be noted that the full extent of the impact of mobile money adoption, especially for promoting financial inclusion, still remains at an infancy stage because the system is relatively new. Additionally, scholarly literature on the impact of mobile money adoption on the unbanked populations is generally scarce, and most of the existing literature is either practitioner-led or drawn from the developmental arena.

One key benefit of M-PESA is its ability to facilitate financial transactions by providing a platform for transferring money quickly, cost effectively and securely thereby enabling individuals to make and receive payments in a timely fashion (Mas & Radcliffe, 2010; Jack & Suri, 2011a). In conducting trade, M-PESA enables individuals to easily make and receive payments for goods and services. Therefore, individuals no longer need to travel in order to meet with the suppliers, or to stand in long lines at the banks in order to make payments or transfers for goods and services. Instead, they can conduct transactions in the comfort of their own homes and without interrupting their normal schedules, thus saving time. Similarly, M-PESA has increased the efficiency of making remittance between urban and rural dwellers. Through using M-PESA, family members that live in urban areas are no longer required to make long overnight trips to the country side or to use other unreliable means to deliver payments such as friends and public transit drivers (Fengler, 2012; Jack & Suri, 2011a). Rather, payments of tuition, remittances, utility bills and other expenses can all be done in a timely and convenient fashion simply by sending an SMS through the M-PESA service.

The efficiency of conducting financial transactions using M-PESA contributes to increased money circulation in the economy. This is because more people, especially in the rural areas, are able to receive money and conduct financial transactions faster. The increased access to cash enables households to increase their consumption, thus

increasing demand for goods and services (Demombynes & Thegaya, 2012, 5). In order to accommodate the increased demand, local businesses are able to expand and new business start-ups are developed creating job opportunities, and as a result, positively impacting the local economy (Plyler et al., 2010). The increased flow of remittances to rural areas also boosts the local economy by providing the necessary capital to local farmers and businesses when required. Indeed, greater M-PESA penetration in communities has been found to be positively correlated with increased local farm employment (Mbiti & Weil, 2010).

Increased security of funds and safely of individuals are also key benefits attributed to the use of M-PESA. Like a bank account, to access the funds in an M-PESA account, one is prompted to enter a private security code. When using M-PESA, individuals are less concern about getting mugged for carrying large sums of money and businesses are less worried about theft for holding stocks of large sums of money. A focus group study by Plyler et al. (2010) in the Kibera slum in Kenya reports that the number of mugging cases in the slum had decreased because fewer people carried large sums of cash. The participants in the focus group reported that they enjoyed greater security by keeping cash in the mobile money account.

The increased money security and the efficiency of making remittances through M-PESA have contributed to increased savings among households and individuals that use M-PESA. A study by Morawczynski (2009) documents that the ease and the cost efficiency of using M-PESA has increased the number of remittances from the family members working in urban areas to their rural homes thus resulting in higher savings by these households. This is because the households receiving more remittances are afforded more disposable income that can be channeled toward savings. The higher level of savings is also attributed to increased security because households no longer need to hide money under the mattress encouraging home robberies; rather they are able to use M-PESA as a storage mechanism (Jack & Suri, 2011a). In fact, M-PESA users have been reported to be 32 percent more likely to report savings than their peers (Demombynes & Thegaya, 2012).

M-PESA is also attributed to improved investments in social capital and reduced consumption shocks. By using M-PESA to send money to families in rural homes,

individuals in urban areas are able to maintain and strengthen their social ties (Plyler et al., 2010; Morawczynski, 2008). M-PESA also enables individuals and households to receive 'rescue money' in a timely fashion especially during economic hardships thus enabling them to reduce their economic vulnerability. A survey conducted by Jack & Suri (2011b) reports that in the case of a negative consumption shock, the households that use M-PESA are not affected by a fall in income while those that do not use the service experience a 7 percent reduction in their income. This is attributed to the high likelihood of the households that use M-PESA being able to receive remittances from relatives and friends in the advent of a negative income shock unlike the households without the service.

Increased employment opportunities due to the expansion of existing businesses, development of new business start-ups or through direct employment as M- PESA agents is another benefit attributed to M-PESA (Plyler et al., 2010). The increased circulation of money driven by the ease to make transactions using M-PESA has enabled businesses to grow in order to accommodate the increased local demand for goods and services. New businesses have also developed, such as Beba[9], which have an operation platform similar to that of M-PESA. In terms of direct employment, Safaricom has recruited over 30,000 agents across the country to operate M-PESA shops and earn commissions on transactions by service users.

M-PESA has also been reported to increase the financial autonomy of members with a lower bargaining power in a household (Mas & Radcliffe, 2010; Morawczynski, 2009; Plyler et al., 2010; Donner & Tellez 2008). In most Kenyan households, gross inequalities exist between men and women especially in ownership and control of resources due to existing cultural norms such as land inheritance by the males. Indeed, men in Kenya hold about 95 percent of the total land holding in the country (UNDP &

[9] Beba , meaning 'to carry', is a prepaid transport payment card developed by Google for commuters that use Nairobi metro busses without requiring to carry cash. Like M-PESA, the Beba transactions are confirmed in real time by an SMS and facilitated by a network of agents located across the city.

UNIFEM, 2005, 11). As such, men have traditionally controlled land and cash crop cultivation while playing a passive yet dominant role in running the household, leaving women with limited income sources to support their families (Demombynes & Thegaya, 2012, 5; Jack & Suri, 2011a). Through using M-PESA these women have been able to receive and manage their funds independently towards the household budget without having to seek permission from their husbands (Morawczynski, 2009). This is mainly because the transactions made through M-PESA are less visible to others as compared to money delivery through relatives or the post office.

Moreover, M-PESA promotes entrepreneurship by providing a platform for development of new services and by enhancing the performance of small enterprises in the country (Mbogo, 2010; Kendall, et al., 2012). Over 300 formal businesses and several informal businesses in Kenya are integrated with M-PESA in their operation (Kendall, et al., 2012, 52). For instance, M-Kesho[10], an online formal version of Kenya's informal saving systems such as the rotating savings and credit association (ROSCA) and the accumulating savings and credit account (ASCA), has been linked with M-PESA to enable the users to save money, interest on their funds, and access loan services (Mbogo, 2010).[11] In addition, a number of banks have joined mobile money platforms to enhance service provision by enabling clients to link the M-PESA accounts to their bank accounts. M-PESA also enhances the performance of small enterprises by providing them with a tool to efficiently affect transactions. By using M-PESA, micro-business enterprises are able to increase the speed of service delivery, reduce costs and increase efficiency, thereby creating a competitive advantage in their operation (Ibid.).

Further, M-PESA has contributed to an improved macroeconomic climate in Kenya. Kenya is predominantly a cash economy; as such it is difficult for governments to

[10] A conventional bank account interlinked with M-PESA to enable the users to easily deposit money, earn interest and receive insurance and credit services.

[11] ROSCAs are formed by individuals who pool money together in a meeting and redistribute it immediately to a qualifying member per operation agreement. Similar to ROSCA but subtly different, the ASCA savings method involves members pooling contributions together and accumulating them in a fund. The funds are later loaned to members and the interest earned on the savings is also redistributed to the members.

effectively regulate monetary policy (Fengler, 2012). Through the use of M-PESA, the number of cash transactions has been reduced because all transactions made through the payment system are recorded. As a result of reduced cash transactions, the Central Bank is able to better monitor money circulation and affect monetary policies in the country.

In addition to peer to peer transfer, M-PESA also offers international remittance services to and from 45 countries around the world including countries in Europe and North America (Donovan, 2011). This has afforded service users access to a global money transfer network, and greater flexibility to conduct transactions. Indeed, M-PESA has revolutionized both the financial and economic systems within Kenya and it continues to provide greater opportunities for the individuals and communities at large.

3. Theory and Model: Adoption of Mobile Money

Inspired by the success of M-PESA in Kenya, many mobile money services have been deployed over the recent years in the developing economies. Of the approximately 100 mobile money deployments around the world, about 84 percent were launched within the last three years (Donovan, 2012, 61; Juniper Research, 2011; Cobert et al., 2011). The benefits of adopting the service to providers and users are clear yet, it has been five years since M-PESA was launched and no country has managed to match the speed and extent of M-PESA uptake in Kenya. Moreover, only handful countries have managed to attain a sustainable scale.[12] This raises two key questions: Why did the service grow so quickly in Kenya? Can the success of M-PESA in Kenya be repeated in other countries?

The slow up-take of mobile money service in other countries compared to Kenya implies a difference in technology adoption behavior. This is because the acceptance of mobile phones to store value and the acceptance of electronic money as a means of exchange depend on an individual's behavioral intention towards the use of mobile money technology. With advancement in technology, many models and theories have been presented in attempt to explain the factors that cause people to accept and use new technologies. The main models advanced in the literature include the theory of reasoned action (Ajzen & Fishbein, 1975), technology adoption model (TAM) (Davis,1989), diffusion of innovations theory (DoI) (Rogers, 1995), and theory of planned behavior (Ajzen, 1991). The technology acceptance model and the diffusion of

[12] The NTT DOCOMO in Japan, GCASH in the Philippines and FNB in South Africa are some notable examples that have managed to reach a significant scale but with less traction for financial services beyond person-to-person payments (IFC Report 2011; Leishman, 2009).

innovations theory are the most notable in explaining an individual's behavior towards accepting new technologies and innovations.

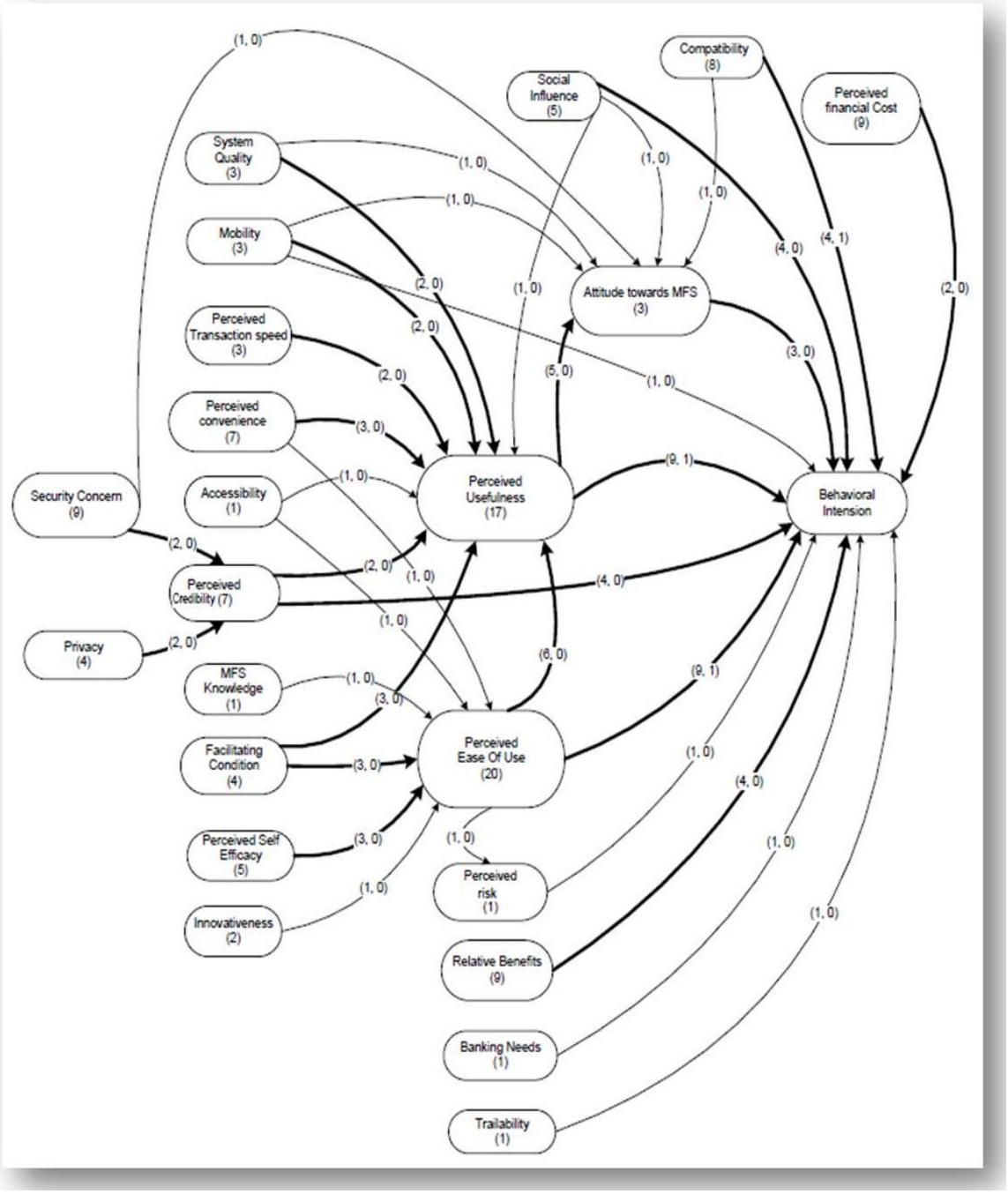
TAM is the most widely used, validated and replicated theoretical model for explaining how users come to accept and use a new technology (Luarn & Lin, 2005; Dass &Pal, 2011). It highlights an individual's attitude constructs: perceived ease of use and perceived usefulness, as key determinants to his/her intention to use a technology (Davis, 1989, 320). The perceived ease of use construct refers to the degree to which an individual expects that using a particular system would be free of effort while perceived usefulness refers to the degree to which an individual believes that using a specific application system would enhance his or her performance (Ibid.). However, many authors have established that the TAM constructs are insufficient in examining a user's acceptance of mobile money services and have employed different extended versions of the model (Nysveen et al., 2005, 330-31; Lule et al., 2012, 33; Luarn & Lin, 2005). For instance, a study by Bagozzi (2007:247) finds that TAM does not take into account the role of group, cultural and social aspects of decision making which are central to technology adoption, and advocates for the model extension. Other studies suggest perceived risk; perceived credibility, financial cost, self-efficacy, and relative advantage as other factors that affect mobile financial services adoption not covered by the TAM model (Donner & Tellez, 2008; Riquelme & Rios, 2010; Luarn & Lin, 2004; Wang, 2003).

The other widely used theory is DoI, which highlights relative advantage, perceived compatibility, simplicity or complexity of use, trialability and observability (Rogers, 1995) as the key characteristics that enable an innovation to be taken up by a population. In the theory, diffusion is defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995, 10). Some researchers have extended this theory to make it more application to explaining the adoption of mobile financial services. Tobbin (2011) presents a framework that utilizes the constructs of perceived trust, transactional cost and perceived risk in addition to the key constructs of the TAM and the DoI theory to explain the acceptance and use of mobile money transfer services among Ghanian consumers. Brown et al. (2003) also presents a framework for cell phone banking in South Africa by investing self-efficacy, prior experience with technology, perceived risk, and demand for service alongside the innovation characteristics advanced in the DoI

theory in order to best capture the drivers for mobile phone banking adoption in the country.

In view of the different approaches advanced in the literature, a modified cumulative factors model developed by Dass & Pal (2011, 5) showing 22 factors with 35 linkages that affect adoption of mobile based financial services is presented in Figure 1. The figure shows the number of studies that mention a factor in the reviewed literature and the relationship among the tested factors. The numbers on the arrows indicate the number of studies that depict the relationship between the linked factors as significant or insignificant respectively (a,b). The thick arrows indicate that most studies reviewed found the relationship between the linked factors to be significant.

Figure 1. Cumulative Model for Mobile Financial Services Adoption



Source: Modified from Dass & Pal (2011)

3.1. The key drivers of user acceptance of mobile money services

Perceived Usefulness, Perceived Ease of Use and Attitude Towards Use

The TAM model advances these three fundamental constructs, which have been widely reported by the existing literature as significant in explaining the adoption of mobile based financial services (Lule et al., 2012, 34-35; Chung & Kwon, 2009). An individual's attitude towards using a technology is indicated by the value (positive or negative) he/she attributes to using a technology, which in turn influences the intention to use the technology (Davis et al, 1989). According to the TAM model, perceived usefulness and perceived ease of use are beliefs about a new technology mediated through an individual's attitude towards accepting and using the technology.

Perceived usefulness is said to be the degree to which an individual thinks that using a particular system will enhance his/her work efficiency (Davis, 1989). This implies that the potential advantages of using mobile money services such as convenience, transactions efficiency, affordability, easy accessibility, security, and safety over the existing financial systems influence an individual's behavioral intention to adopt the service (Tobbin, 2011, 75; Chen, 2008; Schierz et al., 2010). Further, empirical evidence indicates that the mobility of mobile money services, the presence of facilitating conditions such as government and technical support, and the system quality as indicated by network coverage, reliability and stability are also determinants of perceived usefulness that have a direct effect on behavioral intention of use and eventual adoption of the service (Schierz et al., 2010, 212; Brown, et al., 2003, 383; Gu et al., 2009,11610).

The perceived ease of use is defined as the degree to which a person believes that using a particular system will be free of effort (Davis, 1989). A new system is likely to be adopted if it requires fewer maneuvers to operate. The determinants of perceived ease of use advanced in the literature include knowledge of mobile money services, self-efficacy, innovativeness, facilitating conditions, and accessibility (Gu et al., 2009, 11610; Schierz et al., 2010, 212). Users will perceive mobile money technology as easy to use when: the service can be located easily as needed, they have prior experience with using mobile phones, they believe that they have the ability to use the service, or when

the external environment is supportive as to overcome user barriers such as in making transactions and enrolling for the service. The availability of these aspects positively influences the user's intention to adopt the service and thus promotes the adoption of mobile money services.

Perceived Financial Cost

This is a factor that has been added to the existing technology adoption theories in order to sufficiently explain the adoption of mobile based financial services. The cost associated with using a service is one of the key drivers of a user's intention to adopt mobile money. Individuals are likely to adopt mobile money services if they perceive that the cost is acceptable compared to other existing alternatives of the service (Luarn and Lin, 2004; Tobbin, 2012, 82; Dass & Pal, 2011). The financial considerations for using mobile money include the cost of the mobile device, the registration fee and, the transaction fees. Among the rural unbanked populations, the cost of making transactions has been identified as a key contributing factor to the fast rate of acceptance and adoption of mobile money services (Tobbin, 2012).

Perceived Compatibility

This factor advanced in the diffusion of innovations theory refers to the degree to which the use of a technology is compatible with an individual's past experiences, social norms and cultural values (Brown et al., 2003, 384; Schierz et al., 2010, 211; Biljon & Kotzé, 2008). A service becomes meaningful when there's a social structure in place to utilize it. Therefore, an individual is likely to adopt mobile money if the service complements his/her day to day activities or lifestyle.

Social Influence (Subjective Norm)

This construct is defined as an individual's "perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen & Fishbein, 1975). Studies that have employed this factor in the extension of the existing technology adoption theories evidence that there is a positive and significant relationship between social influence and behavioral intention (Gu et al., 2009; Schierz et al., 2010,

212). This implies that the opinions of an individual's social circle: friends, family, and relatives, play an important role in his/ her decision to adopt mobile money services. Social networks influence an individual's intention to adopt mobile money by creating social pressure, which compels the individual to use the service.

Perceived Credibility

Perceived credibility is defined as the extent to which an individual believes that the service provider has the ability to execute the task effectively and reliably (Wang et al., 2003, 505). It is one of the most widely added factors to the existing technology adoption models in order to explain the behavioral intention to use mobile money. As a component of trust, perceived credibility is influenced by security and privacy threats (Wang et al., 2003, 505; Luarn & Lin, 2005, 880). There are multiple dimensions of trust in the provision of mobile money services, including trust in the technology, in the agents, and in the mobile services offered (Dass & Pal, 2011, 7; Tobbin, 2011, 64). Therefore, an individual's behavioral intention to use mobile money is influenced by his/her perception about the security of executing a transaction and the privacy of his/her personal information.

Perceived Risk

Also used in the extension of technology adoption theories, the construct of perceived risk is defined as "the consumer's subjective expectation of suffering a loss in pursuit of a desired outcome" (Wang et al., 2003, 505). Studies have proved that uncertainty about the outcome of using a technology is a key impediment to an individual's behavioral intention towards adopting mobile money services (Tobbin, 2011, 64; Schierz et al., 2010, 211). Mobile phone loss and misdirected transactions are some of the potential losses that could incur to an individual for using mobile money. Therefore, reducing the occurrence of individual losses reduces the uncertainty in using mobile money services and has a positive influence on an individual's intention to adopt the service.

Relative Benefits

The advantage of mobile money relative to other financial service channels is positively related to its rate of adoption (Brown et al., 2003, 384; Agarwal & Prasad, 1997). For instance, the convenience benefits accrued from using mobile money such as mobility, which are not availed by the traditional financial services systems, make mobile money an attractive option to users. The degree of relative advantage in mobile money can be expressed in terms of greater convenience, faster response, savings in time and effort, and user friendliness. However, this factor, which was initially proposed in the diffusion of innovations theory, is very context specific and thus the advantages can be perceived differently among the users.

Banking Needs

This refers to the level of the existing demand for financial services. Studies have adapted this factor in developing frameworks of mobile money adoption in order to explain why the service may not be adopted despite its numerous benefits, or the existence of favorable conditions. Generally, individuals that require a greater diversity of banking services and products are likely to adopt mobile money (Brown et al., 2003, 385). Among the under-banked populations, individuals are likely to demand mobile money services if they are aware of the financial products, the products meet their needs and the products are affordable (Dass & Pal, 2011, 6). Therefore, without demand, individuals are less likely to adopt mobile money services despite the great potential benefits the service may bear.

Trialability

Originally proposed in the DoI theory, the trialability concept refers to the extent to which an innovation may be experimented on before an individual makes an adoption decision (Tobbin, 2011, 64). Empirical literature indicates that mobile money services are more likely to be adopted if an individual has an opportunity to trial use before committing to the service (Brown et al., 2003, 385; Agarwal & Prasad, 1997). Therefore, trialability enables individuals to feel more comfortable with mobile money service by reducing uncertainty and doubts about the ability to use the service thereby promoting the likelihood of adoption.

Perceived Mobility

One of the key qualities of mobile money services is mobility, a factor afforded to users due to the nature of the service delivery platform: mobile phones. In comparison to traditional banking and conventional electronic commerce transactions, mobile money transactions can be conducted anywhere and at any time because mobile phones are ubiquitous and easily portable. However, the level of mobile money services mobility may be hindered by network coverage, lack of enough agents or operators offering the service, and mobile device malfunction thus affecting the likelihood of adoption (Schierz et al., 2010, 212; Kim et al., 2010). Moreover, Schierz et al. (2010, 212) provides empirical evidence that highly mobile people are likely to adopt mobile money services because the mobility of the service fits well with their lifestyle.

Taken together, these factors: perceived ease of use, perceived usefulness, perceived credibility, perceived risk, perceived financial cost, perceived compatibility, social influence, relative benefits, banking needs, trialability, and perceived mobility present a comprehensive summary of the drivers of mobile money adoption. However, it is worth noting that most of these factors are based on studies conducted on populations with prior experience or with adequate access to other forms of financial services, and thus not adequately reflecting the adoption behavior among populations with deprived access such as the unbanked (Tobbin, 2012, 76; Dass & Pal, 2011, 3; Mbogo, 2010, 184). In fact, mobile money in areas where people have access to other forms of financial services is considered as an additional channel to extend convenience to clients in using the existing financial services or in managing money; whereas among the unbanked population, the services is used as a primary channel for accessing financial services (Donner & Tellez, 2008; Tobbin, 2012, 76; Brown et al., 2003).

The difference in the adoption behavior among populations is best illustrated by the findings of a focus group study on mobile money adoption conducted in rural India. In their study Dass & Pal (2011) find that factors such as perceived risk, privacy and security that are reported as very significant in the existing literature are of no concern to the rural under-banked population. In support of this, a study conducted by Donner & Tellez (2008) advocates that the different levels of economic development in different countries create very unique social, economic and cultural environments, which have to

be considered independently for successful deployment of mobile money services. Then, it follows that the constructs that influence the behavioral intention to use mobile money services are highly context specific and thus will differ widely among the users (Jenkins, 2008). Indeed, inadequate banking infrastructure, low levels of literacy, and low penetration of banking services are some of the key elements that distinguish the technology adoption environment in the developed and developing economies.

4. Mobile Money Adoption: A comparative Case Study of Kenya and Tanzania

The remarkable success of M-PESA in providing access to financial services to over 70 percent of the Kenyan adult population has generated a host of studies attempting to explain the unique conditions that facilitated the adoption of this service. This is because mobile money has the potential to revolutionize access to financial services and thus promote economic development, which is on top of the agenda of most emerging countries. The great latent demand for mobile money services is evident through the billions of people who still remain unbanked worldwide despite having access to mobile phones. In fact, an analysis of the Global Financial Inclusion (Global Findex) Database indicates that over 2.5 billion adults in the world do not have access to a formal financial account (Demirguc-Kunt & Klapper, 2012, 11). Despite this, no mobile money service provider has achieved the speed and extent of M-PESA uptake in Kenya.

Even more puzzling about M-PESA's adoption is that other countries with higher demand for domestic remittances compared to Kenya have been less successful in adopting the service (Fengler, 2012; Heyer & Mas, 2011; Camner & Sjöblom, 2009). Moreover, many other emerging economies across and beyond the African continent have similar socio-economic profiles to Kenya, yet their efforts to replicate M-PESA have resulted to less successful outcomes. For instance, the launch of M-PESA in Tanzania by Vodafone only managed to attract about 280,000 users and 1,000 agents within a 14 months period; while Kenya's M-PESA attained a whopping 2.7 million subscribers and about 3,000 agents within a similar period (Rasmussen, 2009; Camner et al., 2009). How can these countries with similar geographical and historical factors yield very disparate results in the adoption of the same technology?

A comparison of mobile money adoption between Kenya and Tanzania provides an especially interesting case study because the two countries not only share similar geography and histories, but they also employed a similar mobile money roll-out

business plan and even used the same service name: M-PESA. Kenya is bordered by Tanzania to the south and the two countries inherited the British colonial institutions, they have similar climate, are endowed with similar natural resources, share the same official language, and have similar population size of approximately 40 million people (Miguel, 2004; Camner et al., 2009). Also like in Kenya, mobile money in Tanzania is based on a mobile network operator focused model whereby a mobile network company (in this case Vodacom) acts as the lead initiator and provides financial services.[13]

In terms of the business operation plan, both service providers launched mobile money in order to provide financial services to the rural unbanked segment of the population. Moreover, in both countries the service providers employed a similar product design and delivery platform that offered: (1) a user friendly interface, as the application was designed to accommodate both the literate and illiterate users, (2) easy compatibility with the prevalent basic phone models that only have voice and SMS capabilities, and (3) low adaptation barriers such as free and simple registration and free money deposits with no minimum balance requirements (Hughes & Lonie, 2007, 70; Heyer & Mas, 2011, 7; Mas & Ng'weno, 2010). All these features contributed to limiting the level of complexity in using the service and encouraging the users to try using mobile money in the respective countries.

4.1. Why was M-PESA very Successful in Kenya?

M-PESA was introduced in Tanzania in April 2008 by Vodacom MNO, which like Safaricom, is a partially owned subsidiary of Vodafone. After the exceptional growth of

[13] There are three general classifications of mobile money business models based on the identified service provider lead initiator: (1) mobile network operator (MNO) focused model whereby a mobile operator company acts as the lead initiator and provides financial services as exemplified by Safaricom's M-PESA in Kenya, (2) bank led model in which a financial institution (bank) acts as the lead initiator and partners with an MNO to provide mobile money services as exemplified by DTAC-K-Bank partnership in Thailand, and (3) collaborative model that entails different players forming an alliance to provide the mobile money service (interoperability) as seen in the operation of NTT Docomo's Felica mobile wallet in Japan (IFC Report, 2011a).

M-PESA in Kenya, it seemed natural for Vodacom to roll-out a similar mobile money scheme in the neighboring Tanzania which is similar to Kenya in many aspects, and where the demand for domestic remittance was even greater (Camner et al., 2009, 3; FinScope, 2006). According to the 2006 FinScope statistics, 28 percent of the households in Tanzania were dependent on domestic remittance compared to only 17 percent in Kenya. Even though Vodacom employed the same product design and implementation strategies in Tanzania as used in Kenya, the difference in the adoption rates is remarkable and serves to highlight the within country factors that caused variation in the service adoption rate.

In exploring these differences in mobile money adoption rates, this paper examines the initial country conditions, the social cultural context and strategies employed in the implementation of mobile money in Kenya in comparison to Tanzania. In so doing, it highlights the unique factors that contributed to the success of M-PESA in Kenya. The enabling country conditions at the launch of M-PESA considered are: (1) quality of existing financial infrastructure, (2) quality of alternative financial services, (3) market share of the service provider, (4) mobile phone penetration rate, (5) level of urbanization, (6) regulatory environment, (7) level of financial literacy, and (8) level of economic development. The effective operation strategies employed by Safaricom in consideration include the structure and development of the agent network, and the tailored marketing and branding of the service. Finally, the social cultural context discusses the culture of remittance and empowerment through financial autonomy aspects as explained subsequently.

4.1.1. Country Enabling Conditions

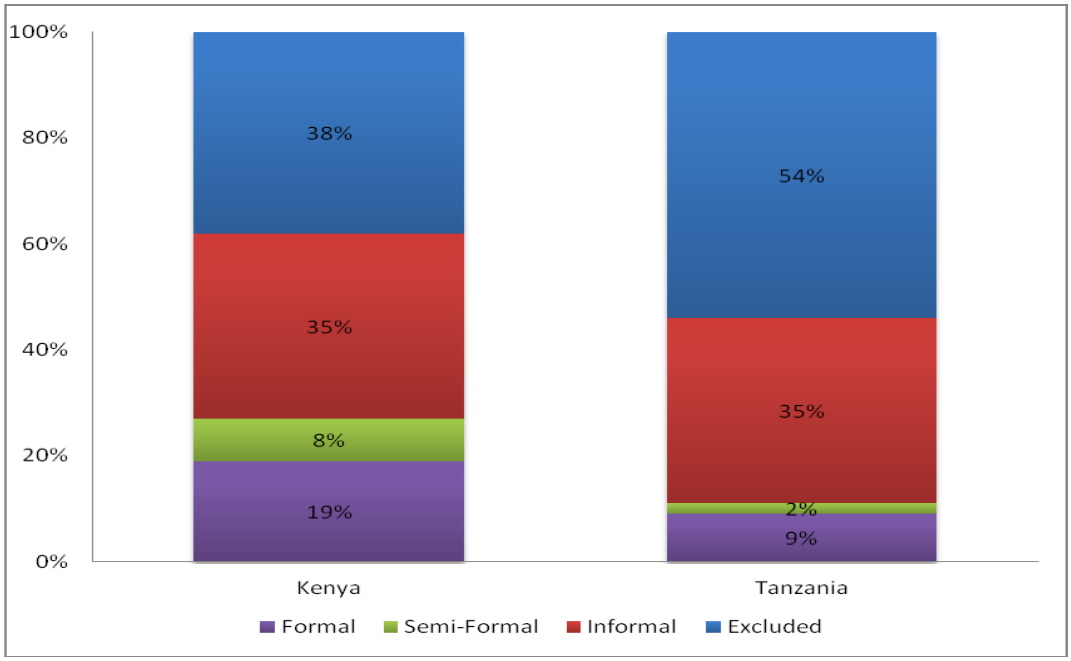
Quality of Existing Financial Services Infrastructure

The penetration rate of financial services has been established as a key influence on the rate of mobile money adoption. According to the literature, poor quality of existing traditional financial services such as banks promotes the adoption of mobile money services, which offer efficiency, greater accessibility, and more convenience comparatively. However, very poor financial services infrastructure can also derail the

adoption of mobile money services by making it more challenging for service providers and agents to adequately manage their liquidity (Camner & Sjoblom, 2009, 3).

One key difference between Kenya and Tanzania prior to the launch of M-PESA money transfer service is the level of financial penetration. Prior to the launch of M-PESA in Kenya and Tanzania, both countries had poor quality of financial services mainly offered through banks. In Kenya, the entire country was being served by 400 bank branches and slightly over 600 ATMs resulting into a bank branches per 100,000 inhabitants ratio of 1.38; while in Tanzania the ratio was 0.57 (FinAccess, 2006; FinScope, 2006; Beck, 2009). Moreover, in Kenya about 17 percent of the population used formal financial services and 38 percent of the people were excluded (did not use any form of formal, semi-formal or informal financial services), whereas in Tanzania only 9 percent were formally banked with 54 percent of the population excluded from financial services (Camner & Sjoblom, 2009, 2; FinAccess 2006; FinScope, 2006). Figure 2 shows the differences in financial access before the implementation of M-PESA in both countries.

Figure 2. Financial Services Access Rate Prior to M-PESA



Source: FinAccess (2006), FinScope (2006)

The inadequate number of bank branches in Tanzania inadvertently affected the ability of Vodacom to effectively manage agent liquidity (cash) to meet the user demand resulting to a slower uptake of M-PESA. Inadequate liquidity has a two-fold effect on the adoption rate of mobile money services. First, it limits the provider's ability to effectively roll-out mobile money scheme because the geographic coverage of the agents is limited by the access to the banks that aid liquidity (IFC Report, 2010). Second, inadequate liquidity affects the quality of service provided by the agents. Due to unreliable liquidity, the agents may not offer cash withdrawal services forcing a customer to move from one agent to another in order to find one that can offer the service. This affects the quality of service provision, which deteriorates the user's perception of the value, trust and credibility of the service provider and the services offered (Mas & Radcliffe, 2010; Morawczynski & Miscione, 2008).

Kenya, on the other hand, had a relatively better developed financial system, which was essential to Safaricom's ability to manage the agent network liquidity needs. The level of bank branches penetration rate was just right for the uptake of M-PESA: neither too high to impede the demand for the mobile money services, nor too low to hinder the ability of the agents to meet their liquidity needs. On this regard Mas and Radcliff (2011) state that:

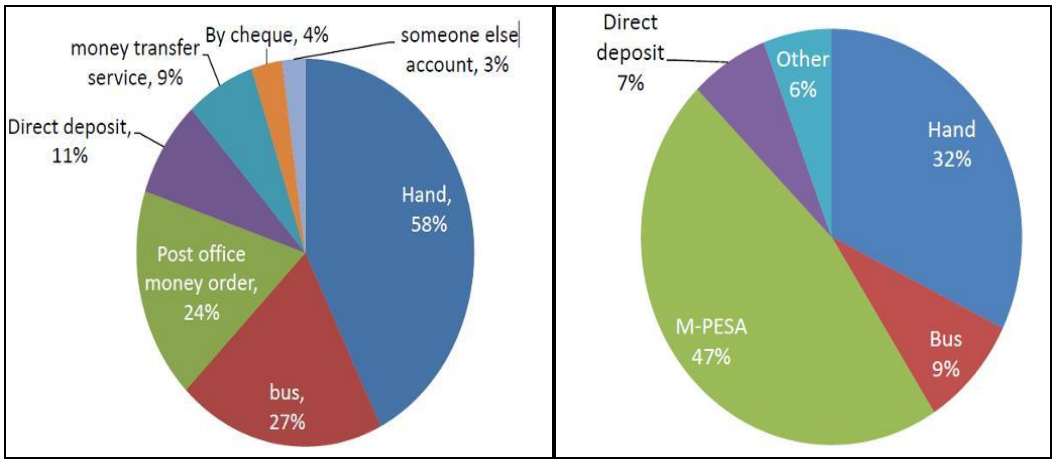
> "…the ability of M-PESA [agents] to convert cash to e-value for customers depends on how easily they can rebalance their liquidity portfolios. This will be more difficult to achieve if bank branch penetration is too low, as this will force the agent channel to develop alternative cash transport mechanisms" (Mas and Radcliff (2011, 175).

Quality of Alternative Financial Services

The relatively better quality of alternative methods for sending money in Tanzania as compared to Kenya is another factor that contributed to the different adoption rates of M-PESA. Studies indicate that mobile money is more likely to be adopted if the quality of the alternative remittance channels such as payment cards (debit and credit cards), and bank branches is low. Before the implementation of M- PESA, the common ways of sending money in Kenya included using the post office, bus companies, sending relatives or friends, or personally travelling to make the delivery (Camner & Sjoblom, 2009; Morawczynski, 2008; Kabbucho et al., 2003). The use of the post office money

remittance service was perceived by many Kenyans as expensive and inconvenient due to limited locations and higher user fees (Mas & Ng'weno, 2010, 25). Moreover, the other methods of transporting cash were: unsafe, as one could be easily mugged or robbed; unreliable, because there was no guarantee that the money could reach the intended destination or be received within the intended timeframe; and time consuming, as one would need to make plans and take time off work in order to travel up country to deliver the money. These conditions facilitated the quick up-take of M-PESA in Kenya, which offered a superior service to the alternative methods. Figure 2 shows a comparison of the channels used by Kenyans to send money before and after the implementation of M-PESA.

Figure 3. Remittance Channels before and after M-PESA Implementation-Kenya



Source: FinAccess (2006 and 2009).

Even though Tanzanians used similar methods to Kenyans in sending money, the most common way of sending money prior to M-PESA was through airtime vouchers. The procedure for sending money using the airtime vouchers is very similar to the model employed by M-PESA. It entails buying an airtime voucher and texting the code to the receiver who would then sell the code to another person looking to purchase airtime or resells it at a slightly lower value to airtime resellers (Heyer & Mas, 2011, 6; Camner & Sjoblom, 2009). This informal method of sending money presented Tanzanians with a very reliable, relatively convenient and easy method of sending money. This is because the popularity of this service enabled it to develop an extensive network of users throughout Tanzania making the trading of the vouchers for money

convenient. Moreover, using airtime vouchers does not require registration or presentation of an identification card (ID), an aspect that made it more preferable to M-PESA, as the latter required identification documents to comply with the 'know your customer' (KYC)[14] service protocol. However, the airtime vouchers are slightly more expensive than M-PESA because they are usually redeemed at a value that is10-25 percent below their face value. Additionally, it is cumbersome to convert large sums of money by airtime vouchers as this entails looking for multiple buyers (Camner et al., 2009, 8). This practice of using airtime vouchers to send money derailed the promotion of M-PESA as a better alternative method of sending money in Tanzania thus contributed to the low adoption rate of M-PESA in the country. Therefore, unlike Safaricom in Kenya, Vodacom had to initially prove to Tanzanians that M-PESA was a better alternative to the airtime vouchers in order to attract more users.

Market Share of Service Provider

The greater popularity of Safaricom in Kenya compared to Vodacom in Tanzania is another source of variation in M-PESA adoption rates. Popularity influences the adoption of mobile money services by promoting awareness about the usefulness of the service to potential users. Both Vodacom and Safaricom are dominant MNOs in their respective countries, however at the time of M-PESA launch, Safaricom had a market share of 80 percent, which was very high compared to Vodacom's share at 45 percent (TCRA Statistics, 2009; Safaricom Statistics, 2009). The superior dominance of Safaricom enabled it to advantageously position itself against its competitors when it unrolled the M-PESA scheme in Kenya thereby acquiring more users comparatively. This is because the existing network of Safaricom mobile phone users provided a ready market for the company to quickly reach and capture a wider market base for its M- PESA service (Donovan, 2011; Heyer & Mas, 2011, 2). In contrast, Vodacom's lower market share at the time of

[14] The agents are required to perform due diligence in enrolling new customers by verifying their identity and recording other relevant pieces of information before enrolling them for the service.

implementing M-PESA in Tanzania implied a stiffer competition among the operators, which limited the company's ability to acquire a larger customer base that in turn influenced its ability to quickly scale out. Table 2 shows the market share data reported in 2009 by the respective companies.

Table 2. M-PESA Market Share in Kenya and Tanzania

	Safaricom	Vodacom
Market Share	80%	45%
Network Subscribers	13	5.9
Revenue (millions US$)	904	367

Source: Safaricom and Vodacom company statistics (2009)

Mobile Phone Penetration Rate

The degree of mobile phone penetration in Kenya and Tanzania prior to the launch of M-PESA also contributed to the difference in the uptake of the service. The penetration rate indicates the level of familiarity with the use of a mobile phone and the potential market reach of the service. Individuals with prior experience of using mobile phones are likely to adopt mobile money because they believe that they have the ability to use the service compared to individuals without prior knowledge of using it (Schierz et al., 2010, 212). According to the 2006 FinScope survey, 27 percent of the Kenyan adult population owned a mobile phone and a further 28 percent had access to someone else's phone, while in Tanzania the rates for these components were reported at 15 percent and 14 percent respectively. The high mobile phone penetration rate in Kenya indicates that a good number of Kenyans were familiar with the basic operations of a mobile phone, which was the key platform for availing the service. Since more people had access to a mobile phone in Kenya, Safaricom was able to reach a wider population comparatively. As of June 2012, the mobile phone penetration in Kenya and Tanzania was reported at 75 percent and 62 percent respectively (CCK Report, 2012; TRCA Report, 2012). This increase level of penetration would contribute to greater growth of mobile money services in both countries.

Urbanization

The different rates of urbanization in Kenya and Tanzania also influenced the variation in M-PESA adoption in both countries. Urbanization ratios affect the demand for potential domestic remittances which depends on rural-urban migration patterns. A study by Ratan (2008) finds that the market size for domestic remittance is facilitated when rural-urban migration results to relatively high migration flow to the urban areas without compromising the economic development in the rural areas.[15]

Even though both Kenya and Tanzania had very close population size of about million and 39 million people respectively at the launch of M-PESA, the statistics on rural-urban immigration indicate that about 41 percent of the Kenyans lived in urban areas whereas only 30 percent of the Tanzanians live in urban areas (Camner & Sjoblom, 2009; World Bank Databank). This difference in population density is partly attributed to the large geographic coverage of Tanzania, which is a about twice the size of Kenya resulting to a more spread out population, and to the post-independence policies pursued by the Tanzanian government that served to discourage urbanization.

Both Kenya and Tanzania inheritance the British colonial institutions, however upon independence Tanzania followed a socialism development ideology (Ujamaa), which resulted to decentralization of communities and reduction of urbanization, and consequently trimmed down market for domestic remittance (Oucho, 1996; Camner & Sjoblom, 2009, 7; Miguel, 2004). The Ujamaa system restricted rural-urban migration as many people were forced to settle in the villages. The consequence of this was that Tanzania did not develop a clear dominant remittance pattern as seen in Kenya where urban-rural money transfer corridor comprises about 70 percent of the total domestic remittances (Owuor, 2006; IFC Report, 2009). This low population density made it

[15] A good urbanization ratio should be between 30 and 50 percent. This is because an urbanization ratio exceeding 50 percent indicates that remittances are most likely triggered by international rather than domestic remittances, and ratio below 30 indicates a low demand for domestic remittance services (Ratan, 2008).

difficult for Vodacom to scale out as it was rather difficult to reach the dealers in small villages which were sparsely populated (IFC Report, 2010).

On the contrary, the higher urbanization rate in Kenya promoted stronger urban-rural ties which favored higher remittances compared to Tanzania (Ratan, 2008). The higher rate of urbanization is attributed to Kenya's capitalism development ideology, and policies that encouraged urbanization through modernizing the urban areas and leaving the rural areas largely underdeveloped (Camner & Sjoblom, 2009; Ross & Weisner, 1977). This influenced people in the rural areas, especially the males who are predominantly the heads of household, to move to urban areas to seek work opportunities. However, the existing cultural practices such as ancestral land inheritance created the need for urban migrants to maintain ties with rural their homes, which were reinforced through sending remittances (Morawczynski 2011, 121; Heyer & Mas, 2011, 3). This resulted to the development of a dominant urban-rural remittance corridor that influenced the greater adoption of M-PESA in Kenya relative to Tanzania.

Regulatory Environment

From the start, the Central Bank of Kenya and the Central Bank of Tanzania provided tremendous support to the operation of the mobile money services in the respective countries. For instance, the regulators allowed Safaricom and Vodacom to operate independent of the existing financial services regulatory environment thereby enabling MNOs to provide financial services alongside the traditional banking sector (Heyer & Mas, 2011; Hughes & Lonie, 2007, 80 and Mas & Radcliffe, 2011, 174). However, some provisions within the regulations affected the adoption rate of M-PESA service in Tanzania relative to Kenya.

The regulations set to govern mobile money operation can either promote or constrain the deployment of a mobile money service in two key ways. First, the regulations may influence the structure of the business model, which determines the ability of a mobile money provider to quickly reach a wider base of clients or to scale out agents (Heyer & Mas, 2011; Economic Forum, 2012). For instance, in Nigeria the mobile money service regulators mandated three mobile money business models that excluded MNOs, who have expertise with agent network management, from being lead providers

of mobile money services (Central Bank of Nigeria, 2009; IFC Report, 2011b). This has greatly hampered the speed of mobile money roll-out in the country because non-MNOs have to form alliances with MNOs or build up an agent network, a process that can be complex and time consuming.

Second, the regulations set may encourage or undermine the nature of user experience in, for instance, opening a mobile money account and transacting with retail agents (Heyer & Mas, 2011). This is best illustrated by the regulatory environment in Tanzania whereby the requirement to comply with the KYC protocol has made the M-PESA users experience more cumbersome. The protocol mandates that agents identify their clients with a picture ID during the registration process and in subsequent transactions; however Tanzania does not have a national ID system forcing people to look for other documents that can fulfill this requirement (Camner & Soblom, 2009; Heyer & Mas, 2011, 12). In contrast, the process of registering and transacting with clients in Kenya is very easy because the country has a long established national ID system, which most people hold. Therefore, unlike M-PESA users in Kenya, the M- PESA users in Tanzania are subject to a more cumbersome registration process which affects the ease of opening an account and transacting with clients thus derailing the adoption rate of the service.

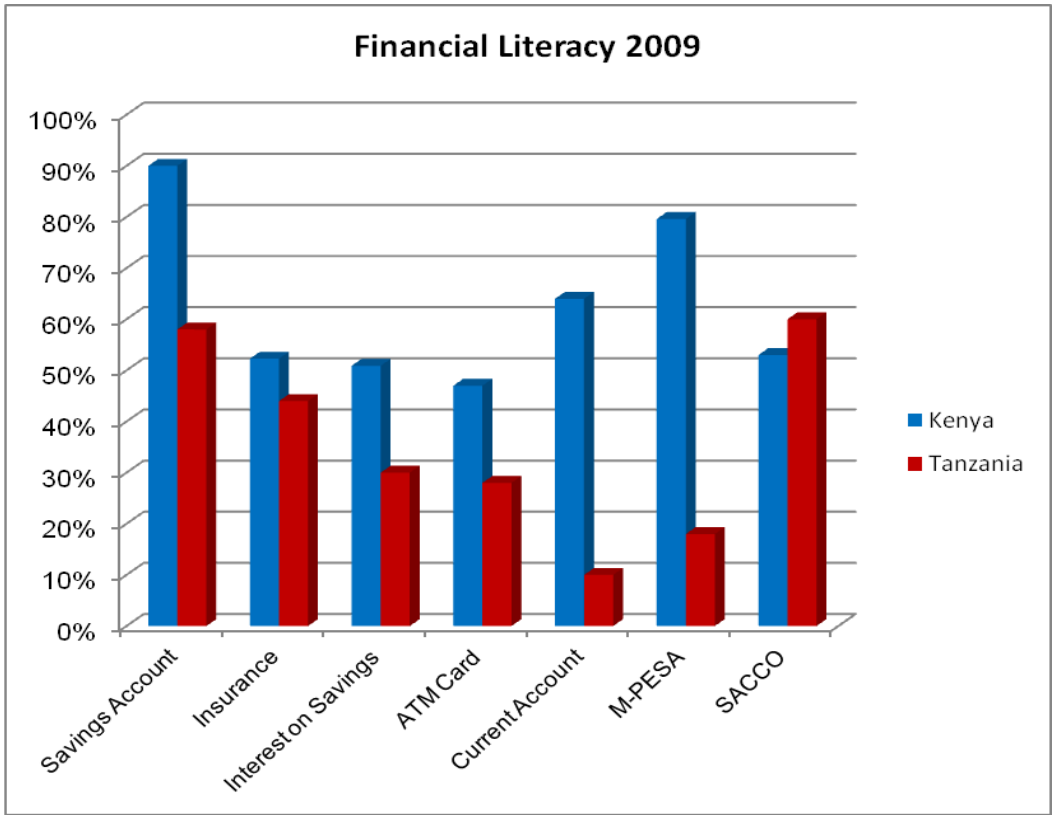
Financial Literacy

The low level of financial literacy in Tanzania is another source of variation in the adoption rate of M-PESA between the two countries. Studies indicate that the use of financial services increase with the level of education (Cole et al., 2011; Nunoo & Andoh, 2011). Generally, literacy is important in the provision of mobile money services because the product delivery platform, a mobile device, requires an individual to have the basic knowledge on how to read the mobile device screen. However, the need for financial literacy is even more important because it improves access to and utilization of financial services. As a result, users are equipped with the capacity to gauge the value of a service and to demand for other value added mobile money services.

The 2006 FinScope survey indicates that prior to the launch of M-PESA in Kenya and Tanzania; both countries had a low level of financial penetration. However,

the financial access level was much lower in Tanzania which had an exclusion rate of about 54 percentage compared to Kenya at 38 percent (FinScope, 2006; FinAccess, 2006). This indicates that the level of financial awareness was much greater in Kenya compared to Tanzania during the launch of M-PESA. Indeed, statistics indicate that less than half of the Tanzanian people were familiar with and knew the meaning of key financial terms such as current account (10 percent), debit card (28 percent) , and interest (30 Percent) (FinScope, 2009). In Kenya, on the other hand, the survey reports that most people were familiar with these key financial terms as indicated by the higher proportion of response comparatively: current account (62 percent), debit card (47 percent), and interest (51 percent) (FinAccess, 2009). Figure 4 compares the proportion of people who are familiar with and know the meaning of the key financial terms and products in the respective countries. The results imply that the high level of financial literacy in Kenya relative to Tanzania may be attributed to the greater success of Safaricom's M-PESA.

Figure 4. Population Knowledge of Key Financial Terms and Products



Source: FinScope and FinAccess (2009)

Level of Economic Development

The difference in the level of economic development (in terms of income per capita) between Kenya and Tanzania is another factor that attributed to the different adoption rates of M-PESA. Generally, strong economies promote entrepreneurship and therefore support a larger number of small and medium sized enterprises (SMEs) (Camner & Sjoblom, 2009). These SMEs are important in the deployment of mobile money services because they form the base for developing the agent network.

At the launch of M-PESA, Kenya had a stronger economy with a GDP per capita of approximately US$ 700, which was relatively higher compared to Tanzania at US$ 500 (World Bank Data).[16] This relatively stronger level of economic development enabled Safaricom to build a wider and efficient agent network from the existing base of airtime retailers that mostly comprised of SMEs with multiple retail outlets that became part of its extensive retail network (Heyer & Mas, 2011; Camner et al., 2009). Moreover, Kenya's strong economy also had an implication on the level of the banking system development that is partly attributed to the success of M-PESA. Studies indicate that the relatively developed banking system in Kenya, as indicated by the higher ratio of the banking infrastructure to population size, enabled Safaricom to efficiently scale out its service agents (Camner et al. 2009). However, in Tanzania this ratio was too low indicating that the level of the financial industry development was too poor and thus limited Vodacom from effectively scaling out its agent network (FinScope, 2009; IFC Report, 2010).

4.1.2. Business Model- Implementation Strategies

Agent Network

The degree of agent network development is another factor that influenced the different adoption rates of M-PESA in Kenya and Tanzania. The easy accessibility of

[16] Data based on current US$.

agents and provision of consistently quality service influences the perceived credibility, the perceived risk, reliability and perceived ease of use constructs that affect an individual's intention to use a service (Luarn & Lin, 2005, 880; Wang et al., 2003, 505; Schierz et al., 2010).

Successful mobile money operations are supported by an extensive network of well-trained agents who provide the cash in/cash out points at the local level (Heyer & Mas, 2009). Agents are very important in enabling a money mobile service provider to achieve efficiency in service delivery by providing reliable services and answering user questions and thus contribute to building credibility and trust in the use of the service (Mas & Radcliffe, 2010; Morawczynski & Miscione, 2008). In addition to assisting with conducting transaction, agents play a key role as the initial point of contact with potential service users by enrolling new users as well as ensuring compliance with the 'know your customer' protocol. In so doing, the agents contribute a great deal to developing clients trust in the use of the service.

During the launch of M-PESA, both Safaricom and Vodacom employed a similar strategy to build the agent network by approaching the existing airtime distribution channel. However, while Safaricom had existing relationships with about 1000 airtime resale retailers, Vodacom had established relationships with only 6 national airtime retailers (Camner et al., 2009). Therefore, when Safaricom launched M-PESA it was able to tap into its large pool of existing airtime resale agents and partnered with 300 retailers that comprised of SMEs that became part of the M-PESA distribution channel. There were two key advantages to this partnership. The first is that most of Safaricom's airtime retailers had established multiple outlets across the country that they used as retail agent outlets for M-PESA services. The second benefit is that the partnership enabled Safaricom to have control of the distribution channel by requiring that the retailers be exclusive to Safaricom. This agent network enabled M-PESA to achieve a greater physical presence at its early stage of launch because Safaricom was able to scale quickly the number of agents by only signing agreements with a limited number of airtime retailers (Heyer & Mas, 2009, 15; Camner et al., 2009).

In contrast, Vodacom had to approach end retailers that mostly comprised of independent businesses in order to expand its agent network. As a result, Vodacom was

limited in its ability to quickly grow the number of agents and to effectively control the distribution channel (Camner & Sjoblom, 2009). Additionally, due to limited control of the distribution channel, Vodacom did not have the capacity to standardize its retail outlets, an aspect that Safaricom was able to easily achieve by requiring all M-PESA service outlets to be painted green and have the Safaricom logo thus promoting the brand of M-PESA in Kenya (Mas & Morawczynski, 2009, 80). Therefore, the rate of M-PESA adoption in Tanzania was derailed partly because Vodacom had to identify and develop an agent network separate from the airtime distribution channel, a process that takes time and resources, and partly because it had a limited control of the service distribution channel.

Marketing and Branding

The different degrees of efficiency attained from the marketing and branding strategies employed by Safaricom and Vodacom also explain the difference in the adoption rate of M-PESA between Kenya and Tanzania. Advertising promotes awareness of the service and communicates the potential benefits that could be gained by a user thereby influencing the adoption of mobile money. From the inception of M-PESA, both Safaricom and Vodacom employed a similar marketing campaign which was centered on national remittance. The 'Send money home' proposition that was the central to the marketing campaigns clearly communicated the use of the system. However, unlike in Tanzania, the slogan elicited a wide response from Kenyans who highly adopted the service. This difference in the intended impact is attributed to the effectiveness of the marketing campaign in Kenya that clearly communicated the need of the service to the people by tailoring the message to the existing social norms and cultural values.

In Kenya, the 'Send money home' message was well adapted to the existing culture of remittance. Split familial structures are a common feature in Kenya's rural households due to prevalent rural-urban migration. The urban migrants stay in touch with their families by sending money to their rural homes. Therefore, the 'Send money home' proposition resonated well with the existing practice of sending money to the rural home. However, the use of the same campaign in Tanzania was not effective because the country does not have an established dominant urban-rural money transfer corridor.

This is because domestic remittances are transferred equally from and between urban and rural areas without any channel dominating the platform. Therefore, Vodacom's marketing strategy failed because it was not effectively adapted to these diverse corridors of money transfer exhibited in Tanzania (Camner & Sjoblom, 2009, 7). In fact, a study in Tanzania by Camner et al. (2009, 8) finds that even though most people were aware of the M-PESA brand, they were not aware of the uses of M-PESA or the subscription procedure. Therefore, a better initial marketing campaign should have aimed at promoting the usefulness of the service as readjusted in 2009 to 'M-PESA is easy, affordable and for everyone' (IFC Report, 2009).

4.1.3. Social and Cultural Context

A Culture of Remittance

The strong culture of remittance in Kenya compared to Tanzania is another factor attributed to the greater adoption of M-PESA in Kenya. Studies indicate that the degree to which the use of mobile money is compatible with an individual's past experiences, social norms and cultural values influences the behavioral intention to adopt the service (Brown et al., 2003, 384; Schierz et al., 2010, 211; Biljon & Kotzé, 2008). Further, Morawczynski (2011, 99) highlights that the proliferation of socio-technical systems such as M-PESA depend on their adaptation to the "social practices and local systems of logic".

The statistics on remittance demand before the launch of M-PESA in Kenya and Tanzania indicate that the latter had a higher household demand for domestic remittances. About 28 percent of the households in Tanzania depended on remittances as their primary source of income compared to 17 percent in Kenya (Camner & Sjoblom, 2009, 3; FinScope, 2006). Despite the huge latent demand for remittance services in Tanzania, the mobile money adoption rate proved to be much slower compared to Kenya. This is partly because the deployment of M-PESA in Kenya was anchored within the local social norms and cultural practices of Kenyans. As discussed earlier, Kenya's strong remittance culture is attributed to local norms such as ancestral land inheritance by the males or the high social value attributed to being buried in one's ancestral land. Such cultural practices contributed to the wide adoption of M-PESA by compelling those

in urban areas to maintain ties with their rural homes, and this was achieved through sending remittances. Therefore, M-PESA served as a new and efficient medium for the same old practice of sending money to the rural homes.

Financial Autonomy

Another cultural aspect that facilitated the adoption of M-PESA in Kenya, which is not documented in Tanzania, is its contribution to increasing the financial autonomy of the less empowered members of a household that mostly comprise of low income women. In most Kenyan communities, the traditional practices such as sole ownership of household assets by the males have served to limit women's bargaining power within the household. As such, women have often sought other alternatives to manage their income, which include joining informal savings groups such as ROSCAs and ASCAs. A survey study by Anderson & Baland (2002, 965) finds that 84 percent of the ROSCAs members are women and that married women are most likely to join a ROSCAs that single women. In exploring this phenomenon, the study finds that women participate in ROSCAs in order to conceal their incomes from their husbands. M-PESA complements this practice by providing women with a more secure and invisible way for them to manage their finances without seeking approval from their husbands, thus increasing their household bargaining power (Morawczynski, 2009; Jack & Suri, 2011a, 12; Plyler et al., 2010).

Table 3 presents a summary of the parameters influencing the adoption of mobile money present at the time of the launch of M-PESA service in Kenya (2007) and Tanzania (2008). It indicates that in general Kenya had more favorable factors than Tanzania that aided the fast growth and adoption of M-PESA comparatively. A model showing a summary of the drivers of mobile money in Kenya is included in Appendix B.

Table 3. A Comparison of Mobile Money Adoption Parameters

Parameter	Kenya	Tanzania
Country Profile		
Total Population	Total Population	Total Population
Geographic Area	Geographic Area	Geographic Area
Urban Population	Urban Population	Urban Population
GDP per Capita	GDP per Capita	GDP per Capita
Mobile Money Profile		
Leading Service Provider	Safaricom	Vodacom
Date of Launch	March 2007	April 2008
MNO Market Share (2009)	79% [d]	45% [d]
Mobile Phone Penetration	28% [e]	15% [f]
Number of Users (14 m of launch)	2.7 million [g]	280,000 [g]
Financial Penetration Profile		
Bank Branches per 100,000 people	1.38 [a]	0.57 [a]
Banked Population	19% [e]	9% [f]
Unbanked Population	38% [e]	56% [f]
Alternative Financial Services	Poor	Airtime Vouchers [h]
Financial Literacy	High	Low
Other Adoption Parameters		
Socio-cultural Factors	Supportive	Not Documented
Agent Network	Effectively Developed	Limited
Marketing and Branding	Tailored	Less Tailored
National ID System	Yes	No

Note: All data is based on the year of mobile money service launch (2007 and 2008) respectively unless otherwise stated.

a. Camner & Sjoblom, 2009
b. World Bank Data (2007)
c. World Bank Data (2008)
d. Camner et al (2010)
e. FinAccess (2006)
f. FinScope (2006)
g. Rasmussen (2009)
h. Heyer & Mas (2011)

5. Conclusion and Recommendations

In summary, although the roll-out of mobile money by Safaricom and Vodacom shared a lot of similarities in terms of the product design, implementation model, dominance in provider market share, and even country conditions, its acceptance and adoption in Kenya and Tanzania varied greatly right from the beginning. This study shows that the remarkable adoption of M-PESA in Kenya was influenced by a combination of three key aspects: the favorable country conditions, the supportive social-cultural context and the effective implementation strategies, which provided an enabling environment for Safaricom to effectively deploy the M-PESA scheme and for the Kenyans to adopt the service.

At the country infrastructural level, evidence shows that Kenya had more favorable country conditions to support the greater adoption of M-PESA compared to Tanzania during the initial launch of the service. In particular, Kenya had a relatively higher level of financial literacy, level of economic development, mobile phone penetration rate, urbanization rate, and better quality of existing financial infrastructure. Other favorable conditions in Kenya include the existence of poor alternatives for M-PESA, the popularity of Safaricom as a network due to its market dominance, and the presence of a national ID system. These differences enabled Safaricom to-roll out the M-PESA scheme in Kenya with relatively minimal limitations on agent network development and on the potential usefulness of the service.

At the society level, the supportive social and cultural norms in Kenya, which are not documented in Tanzania, contributed to the fast rate of M-PESA adoption. Evidence suggests that the existing culture of remittance in Kenya, attributed to the strong ties of the urban migrants to their village homes due to traditional practices such as land inheritance, and the need for financial autonomy among marginalized household members, also contributed to the greater success of M-PESA. These supportive social

patterns are consistent with the claim that a service is only meaningful when there is an established social structure to utilize the service.

At the level of strategy, Safaricom's marketing and branding of the M-PESA service as well as its development of the retail agent network proved to be more effective than Vodacom's during the early stages of launching the service. Evidence indicates that marketing in Kenya was tailored to the existing need of the people to send money to their rural homes. Further, unlike Vodacom, Safaricom had previous relationships with well-established airtime retailers that provided the platform for efficiently developing an extensive agent network across the country.

The comparison of key factors contributing to the variation in the uptake of mobile money between Kenya and Tanzania reveals that it is the unique combination of the different factors present during the implementation of the service in Kenya that enabled M-PESA to perform remarkably. This suggests that the exceptional growth rate of M-PESA in Kenya cannot be attributed to a single factor but rather to the unique combination of these favorable overlapping and interrelated factors. Further, the subtle differences among the enabling factors point to the importance of finding the right balance among all the contributing factors in order to experience the fast rate of adoption seen in Kenya. For instance, the poor quality of the existing financial services, and an indicator for the level of demand for mobile money, proved to be an obstacle to the development of the agent network in Tanzania, while in Kenya this poor infrastructure proved to be just adequate to effectively support the development of the agent network. All these unique attributes show that the success of M-PESA is an exception and not the rule, and therefore may not be repeated in other countries.

However, even if the success of M-PESA in Kenya is unlikely to be repeated elsewhere, mobile money operators can still borrow many lessons from Kenya's experience in deploying similar mobile money services. The unique implementation of M-PESA in Kenya serves to indicate that mobile money ecosystems are unique in each country. Kenya's experience also highlights the importance of understanding the particular needs of the potential users and tailoring the service to address those needs. Further, the support offered by the regulators in Kenya indicates that governments play a central role in the adoption of mobile money services. As such, this paper makes the

following recommendations in order to ensure greater success of future mobile money deployments.

First and foremost, as mobile money operators struggle to deal with the complexities of implementing mobile money services, it is important they recognize that the adoption rate of mobile money is likely to be different for each country. It is more likely that future deployments will mirror the Tanzanian experience where Vodacom has made a number of adjustments to the initial M-PESA model in order to create a greater impact.

Secondly, there is no single model that fits all markets. Mobile money operators should seek to have a good understanding of the local market dynamics and consumer needs in order to identify the particular factors that will promote service adoption in the different countries. This will enable them to tailor service implementation to the specific needs of the individuals, a strategy that is most likely to yield substantial success. Through understanding the market dynamics, the operators will be well equipped to adequately address any potential impediments in service adoption. Evidently, replicating a successful mobile money model without tailoring it to the needs of the potential users would be difficult despite the latent demand and adequate infrastructure as seen in Tanzania. With this in mind, service providers should move away from using global templates that could derail the growth of mobile money services.

Finally, the regulators should recognize that mobile money players have traditionally been outside the purview of central banks, and create laws that will foster growth rather than hinder mobile money deployment and adoption. The governments have the ability to drive new efficiencies such as creating a framework to facilitate private sector investments, and to build new capabilities through, for instance, promoting cross-sectional collaboration (Economic Forum, 2012). In so doing, the governments remove impediments to mobile money operations and galvanize private players thereby enhancing the adoption of the service.

Therefore, when launching a mobile money service, operators must carefully consider the country context, the social cultural context and the business strategies to be employed before developing a tailored solution that addresses the identified needs of the

potential users. Further, they should be flexible and willing to evolve and adjust their business models and implementation strategies in a manner that would best meet the user demand. This approach is likely to enable the service to reach its full potential particularly in filling the financial access gap.

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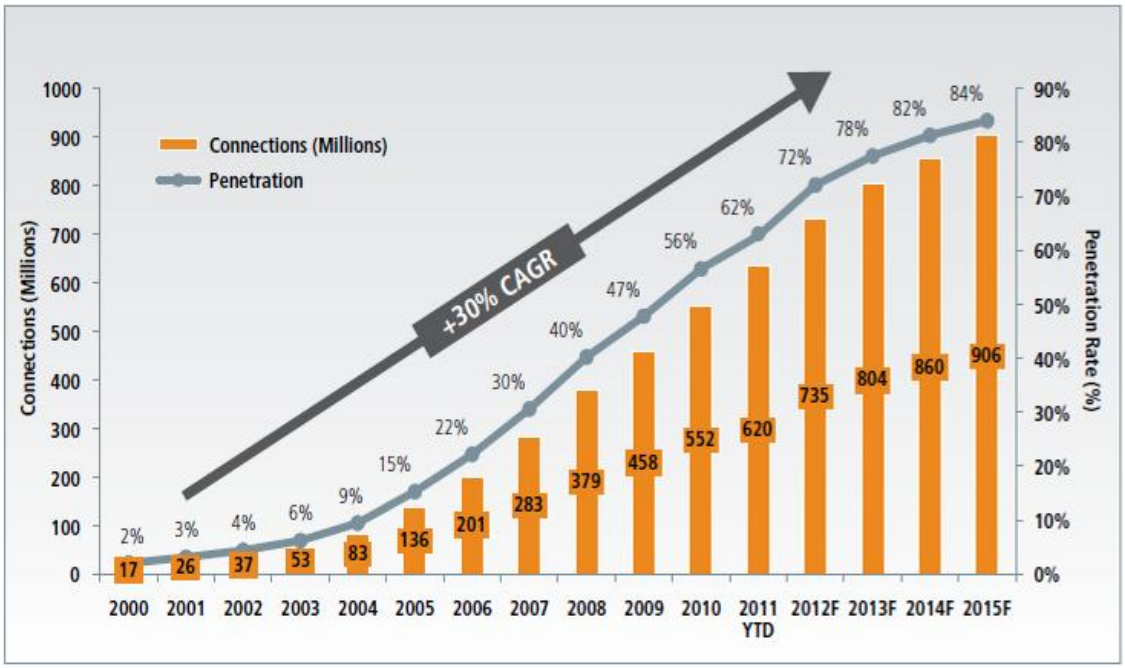
Appendices

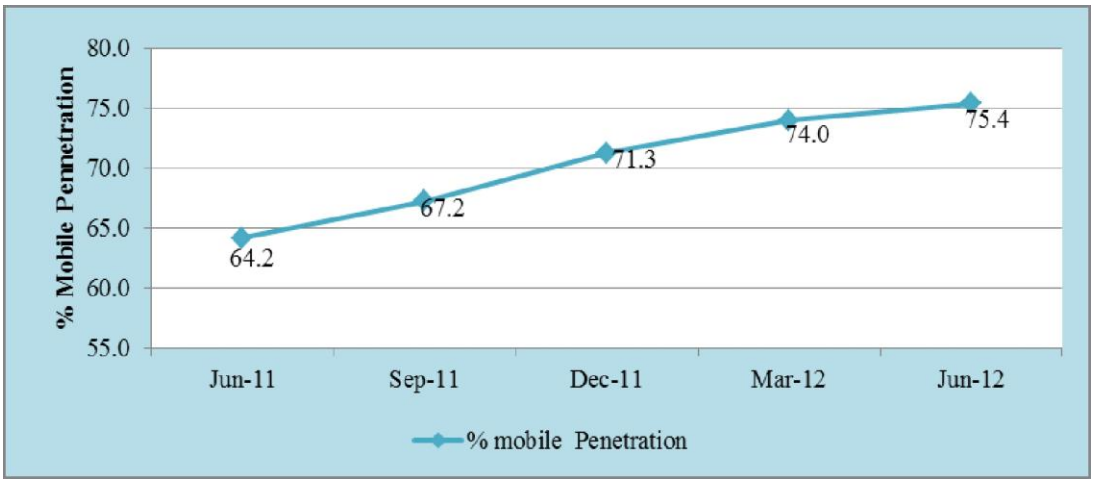
Appendix A.
Mobile Phone Connection and Growth

Trend of Mobile Phone Connection and Growth in Africa



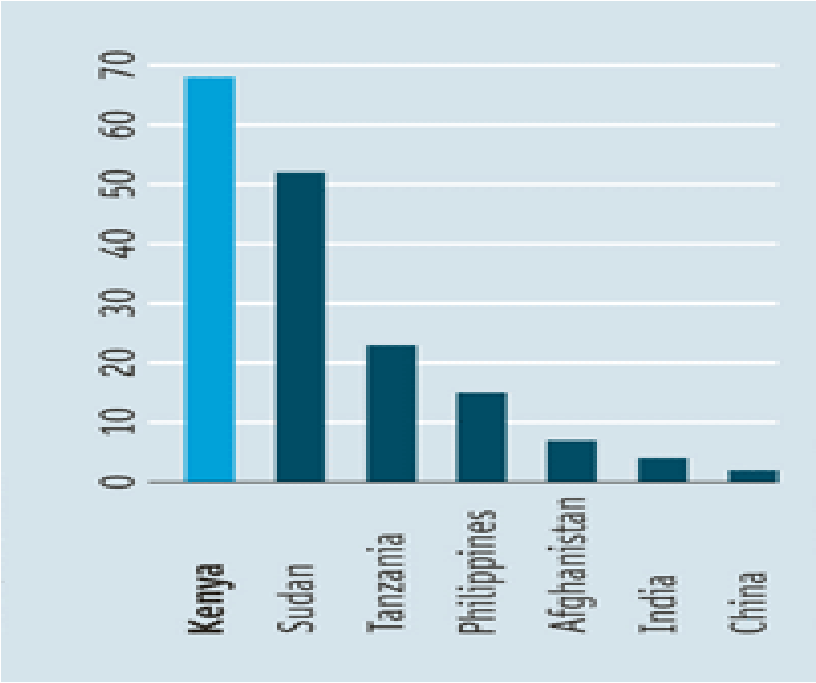
Source: GSMA (2011)

Trend of Mobile Phone Connection and Growth in Kenya



Source: The communication Commission of Kenya (KCC) (2012)

Percentage of total Adults that use Mobile Money, 2011



Source: World Bank, 2011

Appendix B.
Parameters Contributing to Adoption of M-PESA in Kenya