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Communication technology, capabilities and livelihoods: the role of mobile money in facilitating financial inclusion and development in rural Kenya

David Kiplagat Tuwei
University of Iowa

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COMMUNICATION TECHNOLOGY, CAPABILITIES AND LIVELIHOODS: THE ROLE
OF MOBILE MONEY IN FACILITATING FINANCIAL INCLUSION AND
DEVELOPMENT IN RURAL KENYA

by

David Kiplagat Tuwei

A thesis submitted in partial fulfillment
of the requirements for the Doctor of Philosophy
degree in Mass Communications in the
Graduate College of
The University of Iowa

May 2018

Thesis Supervisor: Associate Professor Melissa Tully

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CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

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To our daughter, Berur Chebichii.

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ABSTRACT

In urban and rural Kenya, mobile money, the use of the mobile telephone for banking has become a part of everyday life. People use mobile money to accomplish a variety of functions such as transfer money, save, and pay bills, among other uses. At the national level, the government considers mobile money important for individual and national development. This study focuses on Safaricom's M-Pesa, the most popular mobile money application in Kenya. Industry experts and development analysts have praised M-Pesa for enabling access and inclusion into the formal financial economy of people in the rural areas. This research examines, first, the role of mobile money in the everyday lives of people in rural Kenya, and second, the role of M-Pesa agents, intermediaries between the operator and users, that facilitate these services.

The findings from this research are based on a three-month period of fieldwork on M-Pesa use and facilitation in Chepkoilel, a rural community in western Kenya. Three questions guided this research: how has M-Pesa fit into people's existing financial cultures and practices? How do people perceive M-Pesa and the role of the service in facilitating their development or financial mobility? How do M-Pesa agents perceive their role in the mobile money ecosystem? Data were collected using interviewing and observation methods.

In this research, I found that M-Pesa users and M-Pesa agents utilized M-Pesa for their individual development. Notably, the M-Pesa agency business model, kiosks where M-Pesa transactions took place, had provided entrepreneurial opportunities for business operators in the informal economy. Equally important, the application was fundamental for facilitating local-local and global-local financial flows. The ease of making financial remittances through M-Pesa had saved people the cost of transport to the banking halls in town, and made it easy for

participants to forward their *chama*, or self-help group contributions. However, despite the speed and convenience of transactions brought by M-Pesa, there were widespread perceptions that financial management had been made difficult by the fact that money was now so fluid on M-Pesa, a contrast to how it was in the cash only economy. Financial flows had also negatively impacted social relations. At the same time, Safaricom's introduction of M-Shwari, the digital saving platform, had provided alternative avenues for saving and borrowing money outside of friends and family. Although M-Shwari fostered the privacy of financial transactions, among other perceived advantages, the application was displacing long-held collectivist financial arrangements by introducing individualistic financial practices.

This study also examined the intermediary work of M-Pesa agents in Safaricom's mobile money ecosystem. Mobile money is a new concept of money and exchange that is competing with the cash economy. Transitioning to digital finance was arguably a tremendous leap for many people in rural areas with minimal formal education and technological knowhow. As nodes linking Safaricom and its customers, M-Pesa agents were important actors in this new system of exchange and value. Agent domestication of M-Pesa was critical to the integration and use of the service within the population. Furthermore, as intermediaries, agents provided socio-technical information that Safaricom used to improve M-Pesa. However, the work of agents was often impeded by increasing cases of digital insecurity, and agents found themselves thrust with the role of the management of the safety of M-Pesa transactions despite their limited financial and technical expertise. Finally, in unexpected ways, M-Pesa agents were engaged in the shaping of M-Pesa to suit the local social, cultural and economic remittance practices of the community they served. In the end, these actions benefitted their development, the development of their clients, and Safaricom's business. However, contrary to the prevailing perception, the study

found that M-Pesa's contribution towards the integration of people into the financial economy was felt more in the informal economy rather than in the formal economy.

I conclude that though M-Pesa was important for people's development, the low-income population faced mobile divide challenges in their attempts to utilize M-Pesa for their development. Notably, the impact of socioeconomic factors and the relative high cost of mobile money services led to digital exclusion of some demographics. In addition, non-literacy and absence of digital literacy skills negatively affected user navigation and interpretation of the M-Pesa application.

PUBLIC ABSTRACT

This dissertation project was meant to help improve our understanding of the way people in rural Kenya think about mobile money. I was particularly interested in better understanding how ordinary users of M-Pesa and M-Pesa agents consider mobile money important or not important for their individual development. Furthermore, I wanted to better understand the financial practices people had before the coming of mobile money and how they are navigating the presence of the digital financial ecosystem. Finally, I was interested in understanding the work of mobile agents, the people that provide these services on behalf of the mobile operator. The interest for exploring these issues was to identify the role that communication technologies play in shaping aspects of people's practices and development in Kenya. How people perceive mobile money will likely influence the shape that the financial economy in Kenya takes in the future.

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CHAPTER ONE: INTRODUCTION AND OVERVIEW

I have a high school diploma. Many jobs require people with university education and high-level skills that I do not have. I applied to operate the mobile money agency business because I could not find a job given my “low-level” education. M-Pesa agency was the easiest form of employment I could get. What is good about M-Pesa agency is that it does not require high-level skills. People with high school education like me can manage the M-Pesa agency very well. This business accommodates my level of education. With my literacy level, I can read, write, and handle customer needs and money very well. I like M-Pesa agency operations because they are not complicated but straightforward to follow. M-Pesa agency has provided me a source livelihood. Right now, I depend on this agency to support my family. In addition, prior to coming to this job, I did not know a lot about how to handle finances. I have found that it is not difficult to do so. Though I did not expect, I have gained financial skills in the process. (Female A10, June 9, 2016)

This exchange took place in the summer of 2016 in rural Eldoret in Kenya’s Rift Valley.

Use of information and communications technology (ICTs)¹ as means of achieving development, thus information and communication technologies for development (ICTD),² previously focused on the Internet. Now, the mobile phone, the most rapidly diffusing communication technology in human history, has introduced new opportunities for enhancing human development, particularly in the Global South (Elder, 2013; Johnston, Kali, Kundaeli & Adeniran, 2015). In contrast with other communication technologies, development scholars and practitioners, consider the mobile phone fundamental for the development of people in low-income economies because of its reach and cost (Hayes & Westrup, 2014; Karanasios, 2014; Oyedemi, 2013; Vincent & Cull, 2013). Mobile for development (M4D) projects, led by the mobile phone industry, governments and development agencies now cover several development sectors, including education, health and

¹ ICT refers to any technology used for gathering, processing or disseminating of information.

² ICTD stands for “ICT for development.” The field of ICTD brings together many disciplines including development, economic, information science, among others. The field is concerned with issues of socioeconomic development, poverty alleviation and empowerment (Karanasios, 2014).

finance (Diga, 2013; Duncombe, 2011; Fuchs & Elder, 2013; Johnson & Thakur, 2015; Rashid, 2017).

Governments in East Africa have recognized ICTs as important tools for fighting poverty and fostering development. As a result, these countries have dedicated national budgets to ICT development and devised ICT regulatory frameworks to mainstream mobile technology in their economies (James, 2016; Valk & Fourati, 2013). The influence of ICT ecosystems created in these countries is evident in the implementation of ICTD initiatives such as m-banking, eHealth, e-governance, and e-learning, among others (Fuchs & Elder, 2013). For rural communities in Kenya, and in many other regions in sub-Saharan Africa, mobile technology has become an indispensable element for livelihood, used by people to support their social and economic lives. Mobile money, the use of the mobile phone for banking, is one example of an ICTD service that has become synonymous with peoples' development activities in Kenya (Hayes & Westrup, 2012; James, 2016; Valk & Fourati, 2013).

Unwin (2009) observes that to facilitate development, implementation of ICTD projects should not foreground the technologies, but instead how communication technologies are used for empowerment of people. However, previous approaches to ICTD concentrated first on technologies before addressing how ICTs could be used to facilitate development (Unwin, 2009). A number of development initiatives implemented with the guidance of this framework were top-down and supply-driven, because they focused more on available technology rather than considering the needs of the people that used the technology (Unwin, 2009). More often than not, the concept of development centered on economic growth, specifically how to alleviate poverty and raise the economic growth or GDP of countries. By defining development in this way, this approach failed to capture the ICT needs of communities or the potential of ICTs to solve

particular problems (Unwin, 2009). In addition, the mechanisms of appropriately measuring development were another fundamental challenge facing the growth as development paradigm (Kleine, 2013). In the context of developing economies, “technologies that were developed elsewhere, mostly in western countries, are brought in to developing countries by governments, non-governmental organizations, or others working in the development sector and then applied to local development issues” (Tully, 2013, p. 65). Such technologies often fail to deliver the change envisaged because they were never the appropriate tools to solve the existing problems or the audience meant to use them did not have the necessary skills (Heeks, 2010).

Researchers have therefore stated the need to first, engage in the exploration of information and communication needs and practices fundamental for development and, second, engage in the identification of effective modes of ICT utilization to solve the problems identified (Thapa & Saebo, 2014). Overall, it is important to note that knowing the needs, interests and demands of the end users may lead to the successful implementation of ICTD programs but that such projects still fail (Unwin, 2009). At the same time, it is vital to understand that communication technologies alone are not the panacea for lack of development. Structural inequalities of various kinds affect the access and use of these technologies (Heeks, 2010).

This dissertation breaks with the prevailing development communication research that has a national orientation, and which emphasizes large-scale economic growth or GDP. Some of this research does not address why low-income individuals living in rural areas adopt or reject technology. Other research focuses on individual level-decisions and my research is situated in this area. This study focuses on the mobile phone and, mobile money (one of the services enabled by the mobile phone) to understand what these innovations mean to low-income individuals living in rural Kenya, and how they experience them. This dissertation also

investigates the ways people have shaped the uses of these innovations at the grassroots level (Heeks, 2012; Kleine, 2010). In addition, I seek to understand what people think of the corporations, the providers of these technological products and services. In order to do this, I take a people-centered approach, with local people as the main participants in development (Kleine, 2013). In this dissertation I contend that taking this approach will provide a clearer understanding of the place of communication technologies in the social, cultural, political and economic contexts in which they are used (Rashid, 2017).

This dissertation is informed by ICTD research on the capabilities framework, localization and domestication of ICTs. First, ICTD, including mobile technology for development (Arora & Rangaswamy, 2013; Duncombe, 2014; Karanasios, 2014; Kleine, 2013; Thapa & Saebo, 2014) looks at the contribution of ICTs in people's socioeconomic development. This study looks at the mobile phone, the key technology accessed and used by the rural poor today. Mobile money transfers and the new mobile savings have gained popularity in Kenya with the majority of rural dwellers using the service (Rutten & Mwangi, 2012). The study investigates the role mobile money plays in the lives of low-income individuals living in rural areas. In addition, I examine the ways in which resource-constrained households cope with the cost of mobile money. Second, the capabilities approach, developed by Amartya Sen, provides a way of thinking about development not as economic growth, but as the process of expanding the freedoms that people have to lead the lives they have reason to value (Kleine, 2013). Freedoms refer to the availability of valuable choices or options that serve as opportunities at the disposal of individuals to improve their lives. In assessing people's development or social progress, the capabilities approach emphasizes what people are able to do, or on their capabilities (Dang, 2014).

Finally, localization and domestication of ICTs, under the broader social shaping perspective (Baym, 2010; Katz & Aakhus, 2002; Lievrouw, 2006; Maurer, 2012; Van Binsbergen, 2004; Williams & Edge, 1996) examine technology and the social contexts, two factors that affect technology adoption and use. Emphasizing these factors is beneficial because it foregrounds the fact that human agency shapes, domesticates, or adapts technology by inserting their local practices and social habits (Baym, 2010; Wamuyu, 2014). By adapting technological innovations to suit their way of life and in a manner that serves their habits and needs, users make ICTs their own, further entrenching technology in their lives. Though several countries in Africa have introduced mobile money, none has attained the success that M-Pesa has. With this in mind, I will examine the circumstances in Kenya that have made M-Pesa the most popular mobile money application in the country and around the world. Despite the effect of sociocultural factors in the diffusion of communication technologies, few empirical studies (Gajjala & Tetteh, 2013; Hayes & Westrup, 2012; Mahoney, 2017) have looked at the influence of these factors on the adoption and use of M-Pesa.

In this dissertation I use interviews and observations in an attempt to understand people's uses and perceptions of M-Pesa, and the role of Safaricom agents – the company's vital arteries – in the mobile money ecosystem. This dissertation is part of a growing body of research on the use of new ICTs, particularly mobile technology by individuals in the Global South for their development (Aker & Mbiti, 2010; Duncombe, 2014; Heeks, 2012; Morawczynski, 2011; Rashid & Elder, 2009). In essence, I am interested in why and how people use (or do not use) mobile money in their lives. Before presenting the study's research questions, I present a brief discussion of M-Pesa.³ Kenya's innovative use of mobile phone technology to create M-Pesa,

³ The term M-Pesa is a global-local hybrid, with "M" standing for mobile and "Pesa" meaning money in Swahili. See Chapter Three for an in-depth discussion of M-Pesa.

the mobile-based money transfer and microfinance service is considered a “mobile wallet revolution” (Graham, 2010). Because traditional banking has been inaccessible to a large proportion of people in Kenya, M-Pesa has enabled access to the financial system to the people previously excluded from it. M-Pesa’s adoption has been highest in the rural areas where conventional banks are non-existent. Thus, M-Pesa has received credit for facilitating financial inclusion to a large proportion of the rural population previously excluded from the financial economy (Rutten & Mwangi, 2012). Development experts and policy makers define financial inclusion as the freedom of people to have bank accounts where they can save and access credit (Singh, 2013). Since its introduction, mobile money has transformed how people manage their finances and their livelihoods (Rutten & Mwangi, 2012).

M-Pesa was a natural fit for my research because the innovation has become the most recognizable symbol of mobile money services in Africa and the world. M-Pesa has revolutionized access to banking services as well as Kenya’s financial ecosystem. Considered a poster child of innovative use of the mobile phone for development, M-Pesa is spreading to other developing countries (Bohnstedt, 2008). I discuss M-Pesa in detail in Chapter Three focusing on the historical development of Kenya’s telecommunications sector, the development of mobile money services, the role of the Communication Authority (CA) – the national regulator –, Safaricom’s position in Kenya’s economy, and M-Shwari and agent banking, two products aimed at deepening access to banking services in the country.

Research Questions and Framework

A number of questions drive this research: (1) How has M-Pesa fit into people’s existing financial cultures and practices? (2) How do people perceive M-Pesa and the role of the service in facilitating their development or financial mobility? (3) How do M-Pesa agents perceive their

role in the mobile money ecosystem? To address these questions, first, I analyze the adoption (or non-adoption) of mobile money by users, and, second, I investigate the role of M-Pesa agents in Safaricom's mobile money business.

I address the first research question by investigating the intersectionality of M-Pesa with *chamas*, the informal savings associations that were common in Chepkoilel, the site of my fieldwork. While M-Pesa had improved the working of these associations, the application had also displaced the existing local financial practices. To answer the second question, I examine people's perceptions about the role of M-Pesa in their personal development. Although the cost of M-Pesa services impeded adoption for some, the convenience and instantaneity of mainly person-to-person M-Pesa money transfers had made M-Pesa the choice for most people interviewed. M-Pesa facilitated transactions from families and friends in local and international locations that were vital for the day-to-day sustenance of many individuals. In addition, the linkage between commercial banks and M-Pesa through m-banking has saved people the cost of travel to the banking halls in town. I address the third research question by examining M-Pesa agents' perceptions about the role they play in Safaricom's mobile money system. M-Pesa agents constitute Safaricom's intermediaries that facilitate mobile money services for the company. The nature of the agents' job is that they deal directly with customers on a daily basis. In this context, agents were vital intermediaries for Safaricom, providing the company with information about the problems users encountered as they used the service. Safaricom used the knowledge from agents to change and improve its mobile money service. Importantly, agents helped in the incorporation and appropriation dimensions of domestication, helping users navigate the functionality of M-Pesa technology to accomplish their desired actions. This domestication was especially important for Safaricom's newly introduced services and products (Hynes & Rommes,

2007). In addition, agents boosted the consumption of M-Pesa services by inscribing localized socio-cultural identities, expressions and practices of users, such as those of social connection, trust and familiarity (Baym, 2010).

Dissertation Outline

This dissertation is divided into seven chapters. Chapter Two presents the literature and framework for the study. The chapter begins by revisiting the literature on development. In the process, the chapter explores the various conceptualizations of the concept of development. At the same time, it looks at how the definition of development has changed from the time of the modernization paradigm to the present. Then I discuss globalization, one contemporary logic guiding development initiatives around the world. I also look at the intersection between the concepts of globalization with ICTs, technologies that have fostered the globalization process. Thereafter, the chapter presents an overview of the field of information communication technologies for development. In addition to the overview, I provide a detailed discussion of how African regional organizations have engaged in the promotion of the use of ICTs for development. Next, I present literature on the use of mobile telephones for development (Duncombe, 2014; Foster & Heeks, 2013b; Heeks, 2012; Rashid & Elder, 2009; Spence, Matthew, & Smith, 2010) followed by literature on localization and domestication of ICTs. The localization perspective details how users adapt technologies by using them in unexpected ways. It also illustrates how mobile network operators react to these usages. On the other hand, the concept of domestication explores what technological artifacts mean to users as well as their experiences with the innovations.

Chapter Three provides context for the study. Here, I provide a detailed discussion of Kenya's telecommunications sector as well as recent developments in the country's ICT industry. I examine the development of Kenya's mobile money services, specifically M-Pesa.

Digital financial services has been changing. Thus, I document the latest product unveiled by M-Pesa called M-Shwari, a combined savings and loan platform (Cook & McKay, 2015; Economist, 2013; Tyson & Lund, 2017). Digital finance has become a dominant force in influencing the way commercial entities (e.g., banks and retail) in the country conduct their business (Wamuyu, 2014). I show this influence in the banking sector by discussing the rise of agent banking, a new business model where banks make their services available closer to their clients, even in the rural areas (Ravi & Tyler, 2012; Singh 2013).

In Chapter Four I describe the research context and methodology used in the study. I detail my research methods, which include interviews and participant observation. I present a description of Chepkoilel, the study site as well as the reasons behind the selection. Chapters Five and Six present the findings and discussions of the findings. In Chapter Five, I discuss *chamas*, the financial practices people engaged in before the arrival of mobile money as well as the intersectionality of M-Pesa with these practices. The chapter also examined M-Shwari, the alternative digital platform for borrowing money. I also discuss m-banking and the benefits of the linkage between mobile technology firms and banks to users. Next, I investigate two types of financial flows, local-local and global-local as well as their benefits to families. Finally, I discuss how mobile financial flows has affected social interactions and how the opinions of Chepkoilel residents are split on the matter.

Chapter Six focuses on the role of M-Pesa agents in the mobile money ecosystem. There are four sub-sections in this chapter. The first looks at the relationship between mobile money services and employment opportunities or job creation (Aker & Mbiti, 2010; Mas & Ngweno, 2010; Morawczynski, 2009). The second section examines the agents' day-to-day facilitation of mobile money services. I investigate the importance of this facilitation in the sustainability of

Safaricom's mobile money business (Foster & Heeks, 2013a; Hayes & Westrup, 2012) as well as their role in ensuring the safety and privacy of M-Pesa transactions. The third section investigates agent's perceptions of their roles and their input in the M-Pesa business. This part discusses how agents were instrumental in the integration of M-Pesa within the community through their domestication of the service. I detail the work of domestication undertaken by Safaricom as well as by M-Pesa agents. The last section examined how M-Pesa was socially constructed and shaped by interactions and relations between agents and their customers to mirror the needs of the users.

Chapter Seven presents a discussion about the role of ICTs in Kenya's economy and development plans. Next, I examine the role of mobile money in people's individual development. This is followed by an examination of digital divide impediments associated with mobile money for development. Special attention is given to constraints faced by rural dwellers, including cost, literacy, digital literacy skills, as well as insecurity and fraud on Safaricom's system. Among other things, I argue for the need to reduce the overall cost of ICTs to enable low-income socioeconomic groups to afford these services and further reduce the digital and social inequality divide. I then discuss the study's conceptual contributions, as well as that of knowledge concerning a socio-technical innovation like M-Pesa. Finally, the chapter proposes potential avenues of further research and also points out some shortcomings of the study.

CHAPTER TWO: LITERATURE REVIEW AND FRAMEWORK

This research has two goals: (1) to investigate users' decisions to adopt or not adopt mobile money for their financial mobility, and (2) to explore the role of mobile money agents in the mobile money ecosystem. This study is guided by three research questions: (1) How has M-Pesa fit into people's existing financial cultures and practices? (2) How do people perceive M-Pesa and the role of the service in facilitating their development or financial mobility? (3) How do M-Pesa agents perceive their role in the mobile money ecosystem? To address these questions, I draw on theories and concepts from literatures on development (Heeks, 2012), globalization and development (Canclini, 2014), ICTD (Donner & Tellez, 2008; Karanasios, 2014), and localization and domestication (Heeks, Foster & Nugroho, 2014; Nyamnjoh, 2014).

The chapter begins by providing background information for the study by revisiting the literature on development, while also noting the changing definition of the concept of development from the time of the modernization paradigm to the present. Then I discuss globalization, a process that has influenced the process of development and development initiatives around the world today. ICTs and other factors have in turn fostered the globalization process. Contemporary pathways of facilitating development have put a high premium on the benefits of technology to society. Next, I discuss the broad field of ICTD. The ICTD field primarily emphasizes the contribution of ICTs in socioeconomic development (Arora & Rangaswamy, 2013; Donner & Tellez, 2008; Duncombe, 2014; Karanasios, 2014; Kuriyan, Ray & Toyoma, 2008). This section includes a detailed discussion of the role of African regional organizations in promoting the use of ICTs for development. Following from this discussion, I talk about the capabilities approach, the conception of development that this study takes. In the next section, I discuss the mobile telephone, the most commonly used ICT today and the technology currently used for development. Next, I provide a detailed discussion of localization

and domestication perspectives, which detail how users appropriate technologies and how designers respond to user practices in technology design.

Development

For a long time, governments and development organizations have designed policies and agendas aimed at facilitating the “development” of countries or regions (Catoriadis, 1985). According to Scott (2014), the meanings of “development” can stretch from a concern for modernization and economic growth to an expansion of freedoms” (Scott, 2014, p. 9). Nonetheless, the notion of “development” has mostly been defined in economic terms where “development has come to signify an indefinite growth, and maturity, capacity to grow without end” (Catoriadis, 1985, p. 25). Nonetheless, different scholars have explained the concept and practice of “development” differently. Okigbo (2004), for example, opines that development is more than economic growth saying, “Development is the growth in income, productivity, good quality life, and general state of wellbeing, which assure an acceptable standard of living for the people” (p. 39). For Okigbo (2004), development must include strategies for poverty reduction, attention to social and cultural issues, and development of national institutions, designing of appropriate and workable public policies, and the promotion and empowerment of individual initiatives.

In the past decades, governments with the support of donors and non-governmental organizations (NGOs) undertook the work of development. However, recent times have seen governments working alongside the private sector and other social organizations in facilitating development (Heeks, 2012; Tully, 2016). Tully (2016) also points out that the definition of development has changed over time. Rather than being seen as a top-down practice, originating from development “experts” with knowledge of problems facing local people, development is

now more commonly viewed as an active process that incorporates the input of local people (Tully, 2016).

The logic of development has produced a way of conceiving the world in bipolar/binary categories of “advanced” and “backward” (Sosale, 2004), or the “traditional” and the “developed,” with being “developed” equated with Western-like (Semati, 2004). The purpose of development within this perspective was to “facilitate the transformation of a society from a traditional to a developed state in a unidirectional and irreversible movement” (Semati, 2004, p. 8). Exposure to media was important in this perspective as it was considered fundamental in the development process (Semati, 2004). This development was to be achieved through the process of modernization, a perspective that came into the scene in the mid-twentieth century (Sosale, 2004). The modernization theory was mostly seen as a type of Western thought (Tomlinson, 1991)

Like other conceptions of development, development under the modernization perspective was defined according to the lens of economic growth. Economic growth entailed the evolution or the progressive movement of nations or societies from point A to point B, or from “less developed” to “developed” nations. Therefore, development was viewed as a linear process that all societies would ultimately go through in order to be “modern” (Servaes, 2004, p. 56). The modernization perspective was instrumental in informing policies and practices that touched on the “economic, political, social, cultural, and psychosocial spheres of life” (Sosale, 2004, p. 39). Guiding the modernization paradigm was the perception that Western nations were advanced, modern societies, models that other less developed nations inevitably would emulate (Servaes, 2004).

On the other hand, the underdevelopment or the lack of development of mostly the non-Western nations was attributed to their “traditional” attitudes and cultural practices (Tomlinson, 1991). In order to facilitate development in these societies, the modernization paradigm, for example, promoted technology transfer from the “developed” global North to the “less developed” societies in the South (Servaes, 2004). In other words, the un-developed countries of the South were to be helped to become modern by the already developed countries of the West (Tomlinson, 1991). In addition to technology transfer, came attempts at social and attitude change. For instance, the educational programs disseminated via the mass media were seen as vital instruments for the diffusion of “modern” attitudes and the solution to the problems of poverty (Tomlinson, 1991). Eribo (2004), lamenting that for African countries, this technology transfer was synonymous with superimposed development. According to him, this model was not beneficial for the sustainable development of African countries.

According to Robertson (1992), modernization theory was criticized because it did not consider the subjective and localized definitions of modernization. For instance, the theory became unpopular because of its ethnocentric leaning such as when it attributed the underdevelopment of countries – such as those coming out of colonialism – for endogenous reasons, or factors within these countries. For some commentators, this view neglected the external causes of underdevelopment in these countries, such as colonialism or global capitalism, among other factors (Semati, 2004; Tomlinson, 1991).

Globalization is another narrative of development. Globalization focuses on the social transformation brought about by network communication technologies. Unlike previous paradigms of development, ICT-driven development has been a popular narrative in the developed and developing countries (Slater, 2013).

Globalization and Development

Navarro-Tejero (2008) defines globalization as “the movement of people, goods, or ideas within countries and regions of the world” (p. 11). In the context of globalization, ICTs are vehicles that are vital to foster fundamental human development (Slater, 2013). Compared with previous forms of development, which were mostly facilitated by governments, donors, and NGOs, contemporary globalization constitutes development that is spearheaded by de-regulated technological innovations and interconnections that are governed by institutions outside the sanctioning, control or purview of the state (Slater, 2013).

Eoyang (2007) notes that in the last two decades, the ideology of globalization has been the most discussed topic in diverse disciplines such as political science, economics, sociology, anthropology, and ecology, to name but a few. Movements, organizations and interest groups have also used the concept of globalization to push and rationalize their agendas (Robertson, 1992). Robertson (1992) notes that the concept of globalization is not new as the processes that have led to it have been on going. Nonetheless, what is recent is the debate about globalization (Robertson, 1992).

There has never been one acceptable and universal definition of globalization. This is attributed to various reasons. First, different disciplines have their own perspectives, interests and understandings of the concept (Canclini, 2014; Robertson, 1992). Second, discussion of globalization has dwelt on the varying subjects – countries with varying degrees of social, economic and political development. This fact has produced differing viewpoints about globalization (Roy, 2005). In contrast to past globalization, ICT-led globalization has the potential to affect both countries of the global North and global South in equal measure (Slater, 2013; Van Binsbergen, 2004).

This study adopts Canclini's definition of globalization as "the convergence of economic, financial, communication, and migratory process that have increased interdependence on a world scale" (Canclini, 2014, p. 42) to discuss how a global technology corporation has created ICT services to boost the economic development of people in the Global South. Globalization is more of an imaginary concept rather than a geographical distinction of the local, national and global (Singh, 2013). What is different in the current wave of globalization is the primacy of information and communication technology. ICTs have not only produced instantaneous spatial-temporal communication but also fostered worldwide "collection, storage, processing, and transmission of digitized information" (Roy, 2005, p. 14).

Roy (2005) points out three ways ICTs benefit or influence development. First, countries may provide locations where ICT firms can set up factories to manufacture ICT products. Roy however cautions that only countries with skilled personnel, appropriate infrastructure, and friendly policy structures that can benefit from such investment. Second, ICTs enable economic efficiency. This refers to the reduction in costs, facilitation of savings and investments that benefits the overall economy that has mainstreamed ICT use. Third, in the specific context of developing countries that do not have the resources to set up ICT projects, certain ICTs can facilitate such countries to "leapfrog" the process of setting up these ICT infrastructure, yet like other economically endowed regions, enjoy the benefit of accessing information and knowledge (Roy, 2005).

Globalization has brought new players into the development scene. In contrast to previous modes of development, non-state actors have now joined the state in economic and political development initiatives under globalization. Recently, there has been an increased role played by private entities such as multinational corporations in development (Sundaram,

Schwank & Armin, 2013). Multinational corporations have become active players in shaping not only development but also globalization. The influence of multinational corporations has been felt in spheres as diverse as foreign direct investments, international relations, and international political economy. This has affected economic development, the conduct of trade, finance and investments, and other concerns such as conflict resolution and peace. This scenario has however occasioned critical debate about the role of the state vis-a-vis that of the market (Roy, 2005).

African regional institutions and international development organizations, such as the United Nations, the World Bank and the International Monetary Fund (IMF), have been engaged in development and building relationships between countries (Roy, 2005). The phenomenon of globalization has also increased the intersection and interrelationship between the local and the global (Eoyang, 2007) and boosted international trade and capital flows (Navarro-Tejero, 2008). Although globalization does not result in a uniform world (Canclini, 2014), contemporary globalization has resulted in increased intersection and mediation between the global and the local (Canclini, 2014; Robertson, 1992), such as the blending of various cultures (Canclini, 2014). The process of globalization therefore brings together elements of the center and the periphery or as Robertson (1992) calls it, “the simultaneity of the universal and the particular,” which results in the production of “variety and diversity” (Robertson, 1992, p. 172). This interaction or “co-presence” can consist of countries, corporations, or consumers (Canclini, 2014, p. 151). The center is represented by global forces while the periphery by local forces. Whereas the global has power over the local, it does not completely absorb or vanquish the local (Bhaduri, 2008).

Indeed, how the process of globalization plays out in various societies is not homogeneous. There are universal and specific aspects of globalization. These varied processes

are guided by the cultures and values in these diverse societies (Roy, 2005). Summing up the interaction of the global and the local occasioned by globalization, Badhuri (2008) notes:

Globalization is a duplicity. On one hand, local cultural forms often succumb to its triumphant forces; on the other, since it is not unidirectional melting down of local forms, but one that co-opts the local and adapts it to the global idiom, the marginal actually often finds a presence within globalization itself (p. 2).

Globalization is implicated in the movement of money around the world. In turn, exchange of money cannot be removed from the social and cultural processes of people. Globalization has fostered instant transmission of “electronic money” – of which mobile money is part – between social networks found at the local, national, and global level. Globalization also finds expression in the personal lives of people, for example, when it involves social transfer of electronic money between family members living apart. Ultimately, new ICTs have altered globalization and money (Singh, 2013).

Development using Information and Communication Technologies (ICTD)

History of ICTD

The perception that communication technologies are instrumental in shaping development is not new (Slater, 2013). In fact, the role of ICTs in development was evident in the modernization paradigm of the 1950s (Akpan-Obong & Parmentier, 2009) and 1960s. Wilbur Schramm and Daniel Lerner were notable figures in the theorization of development communication during this period. Both authors emphasized the attainment of development through technology transfer. Lerner’s book, *The Passing of Traditional Society: Modernizing the Middle East* (1958) examined the modernization of former colonies, especially the Middle East countries, considered “traditional societies.”

To Lerner and other modernization theorists at the time, nations became “modern” when they adopted “Western” attitudes. Mass media was one, but not the only, catalyst of the process

of modernization. In particular, mass media messages from the West “would help people in the postcolonial world replace old traditional ways of thinking and doing with modern ways of thinking and doing” (Shah, 2011, p. 4). Like Lerner, Schramm considered the mass media to be powerful in bringing major attitudinal change. Schramm’s book *Mass Media and National Development: The Role of Information in the Developing Countries* (1964) explores the importance of the mass media in the social change of developing nations, considered “traditional societies.” Schramm (1964) argues that the mass media is capable of hastening the process of economic development because of its impact in causing behavioral change in individuals.

Compared with the 1950s, contemporary times have placed more emphasis on the relationship between technology and society and by extension technology and socioeconomic development (Heeks, 2008; Thapa & Saebo, 2014). The impact of ICTs particularly in the developing economies has been a subject of research, especially on how ICTs can be used for the improvement of people’s lives in these regions (Elder, 2013).

Individuals and nations are expending many resources on ICTs. Thus, the question of how ICTs contribute to development (Heeks, 2010) has become a common subject of discussion among development practitioners, scholars (Thapa & Saebo, 2014), NGOs and activists (Gomez, 2013). Although this does not tell the whole story of development, the installation of ICT infrastructure has been considered a broader part of development (Heeks, 2010). The debate about how communication technologies contribute to development has received renewed attention because of the worldwide process of globalization (Hemer & Tufte, 2012), a process that has been fostered by information communication technologies (Canclini, 2014). Spence, Matthew and Smith (2010) note that “the spread and appropriation of ICTs have been a key

dimension of globalization, pushing societies to build communications systems and manage them well, and to develop infrastructure and the capacity to use it” (Spence, et al., 2010, p. 11).

The ICTD field primarily emphasizes the contribution of ICTs in socioeconomic development (Arora & Rangaswamy, 2013; Donner & Tellez, 2008; Duncombe, 2014; Karanasios, 2014; Kuriyan, Ray & Toyoma, 2008). Oyedemi (2013) defines ICTD as “the use of ICTs to improve the social, economic, and political development of people, with a goal of engendering social change. It involves the applications of communication technologies in providing the necessary information and externalities that can lead to and improve the well-being of people and communities mostly in developing countries” (Oyedemi, 2013, p. 62). The ICTD field has become a multi-sectoral collaboration of several players (Kuriyan, et al., 2008). For example, the development of the widely acclaimed M-Pesa mobile money application was made possible by the collaboration of the British telecom multinational Vodafone, Kenya’s local operator Safaricom, British Department of Foreign International Development (DFID) and IBM (Zuckerman, 2010). The field of ICTD is also multidisciplinary (Dearden, 2012; Gomez, 2013; Karanasios, 2014; Raiti, 2007), encompassing such diverse disciplines as information systems, economics, and development (Karanasios, 2014).

More often than not, ICTD has revolved around broad indicators including agriculture, health care, education, governance and livelihood (Arora & Rangaswamy, 2013; Akpan-Obong & Parmentier, 2009). These indicators have determined the aims and objectives of most ICTD projects (Kuriyan, et al., 2008; Vincent & Cull, 2013). ICTs are considered directly influential in these areas and ICT projects are evaluated based on their influence in these domains (Arora & Rangaswamy, 2013; Akpan-Obong & Parmentier, 2009). In most cases, development has been explained in terms of how these technologies enable individual or group empowerment, raise

economic well-being, enable skill acquisition, ease service provision, and allow individual choice (Kuriyan, et al., 2008; Vincent & Cull, 2013).

A fundamental ingredient of ICTD is development impact (Heeks, 2012), or the ability of ICTs to improve the lives of users (Johnson & Thakur, 2015). Implementation of ICTDs project is a complex undertaking because such projects touch several sectors of a country – the political, cultural, economic and infrastructural. Having the technological infrastructure in place is only one aspect of the process. Synchronizing the operations of all these contexts for successful projects is often a challenging undertaking (Turpin & Alexander, 2014). ICTD projects and research covers issues such as provision of ICT infrastructure through telecenters, mobile telephony, e-learning or digital education, and the digital divide (Raiti, 2007).

The Changing Focus of Development

The field of communication for social change and development has been undergoing change. The field now encompasses a range of technologies, their action possibilities and their accompanying services (Arora & Rangaswamy 2013). There has also been a transformation in the definition of what constitutes ICTD approaches. ICTD now deals with a broad array of “projects, applications and services” (Heeks, 2012, p. 339). Initially, ICTD projects were undertaken with the help of external financing, such as procurement of an external loan that was used in social development agenda. Most of the development initiatives, such as telecenters, were set up to benefit whole communities. Lately, there has been a shift in the focus of development, emphasizing individual development. Understanding what individuals in rural Kenya think about mobile money and how this technology might be relevant or not relevant for their individual development is the central focus of this study.

One approach that has been used to understand aspects of development at the individual level is Amartya Sen's capabilities approach. The approach provides a way of thinking about development not as economic growth (Kleine, 2010) but as the freedom of people to choose the kind of lives they want to lead whether in the personal, social, economic or political sense (Kleine, 2013). According to Dang (2014), "The approach highlights the importance of improving individuals' substantive freedoms or real opportunities to achieve valuable states of being and doing" (p. 460). The approach establishes that while assessing people's well-being or social arrangements, focus should be on what people are able to do and to be, in short, on people's capabilities (Dang, 2014). Capabilities refer to people's freedoms to participate in social activities and roles they value as allowed by their capacities, opportunities and constraints in their environment (Shinn, 2015).

The capabilities approach also focuses on the reduction of obstacles that have often impinged on people's lives (Sen, 2000). In the context of mobile phones, such choices include how people use these tools to enjoy easier communication with significant others, access new information and knowledge, obtain resources, save time, and so on (Kleine, 2013). Importantly, this perspective considers people as central to the process of development as they decide the kind of lives they choose to live. As such, the perspective does not see development as a top-down process but instead one that is openly negotiated (Kleine, 2013). I align this study with the capabilities approach in my attempt to understand how low-income rural individuals of Chepkoilel use mobile phones and mobile money services for their individual development.

The use of the approach to evaluate ICT policies and programs in developing economies, particularly at the grassroots level, is an emerging interest among researchers (Vaughan, 2011). Jacobson (2016) posits that the approach is a useful conceptual framework to research

communication technologies for social change and development. There has been sustained interest in the application of the framework in multipurpose technologies, including the Internet and mobile phones, considered technologies of choice that have the ability to support various chosen outcomes (Kleine, 2013).

Researchers have pointed out that mobile phones have provided a springboard that has enabled the expansion of human capabilities by “making substantial contributions to capabilities and freedoms in economic, social, and governance spheres (Smith, Spence, Rashid, 2011, p. 85). For example, they increase the reception of vital information that people get over their mobile phones in vital areas of development including market and financial information, health, education and so on (Kleine, 2013). Mobile phones also increase the possibilities that arise from the connectedness not only between individuals but also institutions. The most significant impact of the mobile phone is evident in the provision of mobile financial services that have facilitated savings, cheaper payment options, as well as local, national and international financial flows (Smith, et al., 2011).

Various scholars have used the capabilities approach in empirical research projects. Kleine (2010) used the approach to analyze how state ICT policies affected rural telecenters and micro entrepreneurs in rural Chile. On the other hand, Vaughan (2011) used the framework to investigate the sustainability of ICT programs in a remote indigenous Australian community. The next section details ICT initiatives on the African continent that are aimed at fostering development.

Africa's Communication Infrastructure

African countries have created joint initiatives to build communication infrastructure for the purpose of raising the continent's socioeconomic development. This is reflected in various

frameworks developed to address the utilization of ICTs; such as the United Nations Economic Commission for Africa (UNECA), an agency affiliated to the UN system. Other bodies include the African Information Society Initiative (AISI) and the New Partnership for African Development (NEPAD) (Akpan-Obong & Parmentier, 2009). NEPAD, through the e-Africa Commission has the objective of building resources and facilitating connectivity to the ICTs. As spelled out in its 2001 document, NEPAD is, among other things, concerned with reducing the digital divide. As the roles of these bodies have shown, ICT development is important for African nations and ICTs are considered a mechanism to improve the social and economic development of African countries (Akpan-Obong & Parmentier, 2009, p. 299).

Eko (2013) notes that for much of the 20th century, Africa had negligible communication infrastructure and little input in building such infrastructure. But recent events in the continent are evidence of Africa's active participation in this direction. One such case is that of African countries pooling resources to finance the construction of ICT infrastructure within the continent (Graham & Mann, 2013). For example, the African fiber optic internet infrastructure has been cited as the "single most significant African-funded technological accomplishment in the history of the continent" (Eko, 2010, p. 182). The undersea fiber-optic project, which started in 2001, brought broadband internet connectivity to East, West and Southern Africa. The project, jointly funded by African countries, telecommunications companies from US, France and India have connected Africa to major telecommunications hubs of Europe, North America, the Middle East and Asia for the first time. The project has not only revolutionized telecommunications but also facilitated the mobile telephone boom that has led to economic growth on the continent (Eko, 2010).

Optimism and Pessimism of ICTD

The link between ICTs and development has generated both optimism and pessimism. Optimists perceive ICTs as capable of enabling development and general empowerment of the people. On the other hand, skeptics point out that ICT projects cannot solve long standing problems of poverty in communities (Clarke, et al., 2013). In the context of this caveat, Scott (2014) laments that many corporations involved in international development engage in discourse often portraying ICTs as the panacea of development. According to Scott, such singular and deterministic portrayal runs counter to the fact that ICTs are the double edge sword that “can bring about development by themselves and they can even contribute to the exacerbation of inequalities” (Scott, 2014, p. 4).

Technological utopianism is the belief that ICTs have a positive effect on development (Avgerou, 2010). Even with all the ICT infrastructure in place, building ICT infrastructure and fostering ICT access cannot in themselves enable development (Heeks 2010; Raiti, 2007) but should instead be seen as only a part of the solution (Raiti, 2007). The digital divide of access and use is still an issue in mobile telephony and the mobile phone should not be seen as a magic bullet for development (Johnston, et al., 2015). One of the leading factors causing the digital divide in Africa is the language used by communication technologies. The digital divide is prevalent in Africa, the second-largest continent, endowed with a great diversity of languages (Osborn, 2010).

To put this into perspective, Sinha and Hyma (2013) point, “Africa has more than an estimated two thousand different languages spoken by over a billion people. There are nearly fifteen languages in Africa that each has more than ten million speakers” (Sinha & Hyma, 2013, p. 102). In Kenya, there are more than 42 languages spoken by the diverse ethnic communities in

the country. ICT use in Africa has extended beyond the capital cities to rural areas, where there are users who are even more diverse. However, one of the reasons the continent has not fully benefitted from ICTs has to do with the fact that communication technologies – such as the Internet and mobile phones – do not use the language spoken by the majority of the people in Africa (Osborn, 2010). An inherent danger with ICTs is that they can be used to “crowd out minority languages due to content in a dominant language being more readily available and spread” (Sinha & Hyma, 2013, p. 101).

There is likely to be optimal adoption and use of communication technologies if these technologies have software and content in the languages most familiar to users. It is even more important for ICTs to accommodate the languages most familiar to people if they are to serve the purpose of development. Having ICTs that use the indigenous languages will reveal more possibilities that ICTs can be used to achieve (Osborn, 2010). Furthermore, communication technologies that accommodate local languages are vital to increase accessibility of ICTs, thus eliminating social exclusion (Sinha & Hyma, 2013, p. 101). In order to ensure that ICTs serve the purpose of development, there is need for the localization and adaptation of technology to the languages and modes of communication of the users (Osborn, 2010).

There have been attempts to promote local language computing in the African continent. For example, from 2003, the International Development Research Center⁴ (IDRC) has supported research on local language computing to understand the ways technologies are used at the local level, their results and their influence on facilitating or inhibiting social inclusion. One of IDRC’s projects is the African Network for Localization (ANLoc), a program that focuses on the

⁴ The International Development Research Centre (IDRC) is a Canadian development agency that funds research that addresses economic development, poverty reduction and other aspects of social change in developing countries. A 1970 Act of Parliament led to the establishment of IDRC. IDRC’s regional offices are located Cairo, Egypt; Montevideo, Uruguay; Nairobi, Kenya; and New Delhi, India (<https://www.idrc.ca/en>).

“linguistic diversity of the continents to create tools and resources to make possible the adaptation of computer and mobile phone interfaces and digital languages” (Sinha & Hyma, 2013, p. 106). In particular, ANLoc has zeroed in on the development of a language technology in specific aspects of computing such as language fonts, keyboards, and browsers – problem areas that negatively affect the adoption of indigenous languages in the world of digital technologies (Sinha & Hyma, 2013).

Failure of ICTD projects has been a key concern for researchers and development practitioners. Lack of success of such projects has always been attributed on the mismatch between the designs of ICTs vis-a-vis users’ contextual experiences (Diga, 2013). Designers of ICTs – being distant from users – are often seen as lacking complete knowledge about the needs and contexts of the users, so they end up designing systems that may not fit the actual usage (Diniz, et al., 2014 p. 15).

Essentially, successful ICTD projects are those that “serve a local need in a manner consistent with local social, cultural, political, and economic practices and with technology suitable for those conditions” (Tully, 2016, p. 77). Calling the setting up of infrastructure “inputs,” Heeks (2010) adds that the real contribution of ICT on development should be focused on the “outputs,” or what people do with ICTs to develop themselves. He also says there should be a link between the inputs and the outputs, and this link is determined or made possible by key factors such as:

- Readiness of national ICT infrastructure
- Skills of users to use ICTs
- Policies of the country on ICT
- Availability of ICTs such as mobile phones

- Uptake or actual usage of technology, and ability to contribute to development
- Sustainability or the ability of ICT projects to be sustained
- Impact or the behavior change associated with technology use
- Cost associated with ICT use
- Benefits or the contributions of ICT to broader development (p. 627).

Mobile Telephony for Development

When compared to other ICTs such as the computer or the Internet, the mobile telephone is now the most commonly used ICT by a cross-section of people. Indeed, mobile phones are almost achieving ubiquity (Heeks, 2012; James, 2016). Although access to mobile telephony phone has been phenomenal across most regions of the world (Spence, et al., 2010), the availability and usage of the mobile phone is the highest in developing economies (Duncombe, 2014; James, 2016).

A combination of socioeconomic and emotional factors have determined the demand for the mobile phone (Heeks, 2012). Mobile phone ownership has reached a greater portion of the rural population because of reduced phone prices (ITU, 2014). According to Rashid and Elder (2009), the availability of pre-paid technology has made mobile phones affordable to most users, including low-income groups (Rashid & Elder, 2009). In a large-scale survey of mobile phone use across eleven African countries - Botswana, South Africa, Ghana, Namibia, Kenya, Nigeria, Tanzania, Cameroon, Uganda, Rwanda, and Ethiopia - network effects determined mobile phone adoption. Network effects are the benefits that an individual subscriber to a mobile network operator receives by virtue of linking with many other individuals that have subscribed to the same operator (James, 2016). Furthermore, Heeks (2012) writes that the wide availability and use of mobile phones has been fueled by the resurgent demand and the embeddedness of this

technology, writing that “emergent demand is pulling ICTs into those communities. Once there, there is increasing grassroots innovation that appropriates and adapts the technology” (Heeks, 2012, p. 340).

The rapid proliferation of the mobile phone in developing countries has made the mobile phone an important component that can, and actually does enable development particularly in low-income economies (Duncombe, 2011; Rashid & Elder, 2009; Vincent & Cull, 2013; Zuckerman, 2010). Rashid (2017) notes that “new ICTs such as the Internet and mobile phones enable people to access, use, and share information and knowledge at an unprecedented level. They also offer great potential for socioeconomic development, be it in education, health, or livelihood opportunities” (Rashid, 2017, p. 3).

Mobile telephony has leapfrogged past initiatives that were aimed at utilizing communication technologies for the purpose of development. As stated, mobile telephony has enabled connectivity for many in contrast to most of the previous technologies, which required large investments for installation, maintenance, and sustainability (Zuckerman, 2010). Much of the discussion about mobile phones and development has dwelt on Africa that, when compared to rest of the world, has witnessed unprecedented growth in mobile ownership and use (Vincent & Cull, 2013). The mobile phone’s utility for the purpose of aiding development particularly in the global South has been an on-going subject of debate in the ICTD domain (Zuckerman, 2010). Practical and visible influence of the mobile phone has increased this debate. Heeks (2012) writes, “Delve into a poor community today and you will see how ICTs are reshaping livelihoods, travel, interactions, and financial flows and so on” (Heeks, 2012, p. 340).

Provision of mobile telephony and its related services is no longer solely done by public telecommunication corporations owned and run by governments (Zuckerman, 2010). Because of

liberalization, the mobile telephony sector has seen the entry of private companies providing mobile calling services, among other services (Heeks, 2008). Despite the liberal policies, government continue to also provide these services. Lately, private mobile operators have joined governments in attempts to leverage mobile technologies for promoting the socioeconomic development of communities (Duncombe, 2011; Zuckerman, 2010). Thus, mobile telephony service provision has become a joint effort of public and private partnerships (PPPs). M-Pesa that this study focuses on, is an example of a PPP partnership as it is owned by Safaricom, which is partly a public company, and Vodafone, the UK's private telecommunications conglomerate.

In this context, the work of development has become a complex mix of commerce and service. As commercial entities, private telecom operators are driven by a profit motive. On the other hand, ordinary users of these services are seeking better services – or value for their money. A perfect balance of the two motivations according to Heeks (2008), provides the appropriate ground for development to work.

Despite the rapid uptake of mobile telephones by the rural poor in developing countries, studies show that affordability is the leading barrier to the adoption of mobile telephony services (James, 2016). The cost of mobile technology is often out of the reach of most low-income individuals in developing economies (James, 2016). For the households that have access to the mobile phone, studies show that the device has however placed a greater financial burden on families. Data from Research ICT Africa (RIA), a body that collects ICT supply-side data for the African continent found that on average households spend between 11 percent and 27 percent of their income on mobile communications compared to individuals in developed economies who spend 2-3 percent (Gillwald, 2010).

In spite of the high cost of ICTs, resource-constrained individuals are spending the few resources they have on mobile phones because it is the only technology available to them (Foster & Heeks, 2013b; Rashid & Elder, 2009). In fact, the mobile phone is the preferred tool of communication when it is difficult and expensive to communicate by other means (James, 2016). Furthermore, even with villages connected, skills hamper rural folks from realizing ICT potential (ITU, 2014). Because of these problems, researchers have called for the need for national ICT policies that reduce tariffs on ICT products and services to enable low-income communities to access ICTs. They also suggest the development of low-cost ICTs that the poor can afford. In addition, in an era where so much depends on having access to ICTs, researchers suggest the need to expand the definition of poverty to include digital deprivation or the lack of access to digital devices. In their view, absence of such mechanisms is likely to increase socioeconomic inequality (Diga, 2013).

Research suggests that access to ICTs like the mobile phone can have a significant effect on reducing poverty. In contrast to the developed world where the Internet is the ICT of choice for many, mobile phones are more accessible to many people who depend on small scale enterprises to improve their lives (Johnson & Thakur, 2015). More than any other sector, the mobile phone has had an impact on the small-scale informal sector of developing economies. The informal sector refers to the small businesses owned by private individuals (Opiyo & K' Akumu, 2006).

Johnson and Thakur's (2015) exploratory case study to understand the usefulness of ICTs in boosting small-scale enterprises in the informal sector in rural and urban Jamaica found that new mobile phones influenced the operations of such businesses. Mobile phones facilitated interpersonal networking of business people in the informal sector by improving the interactions

between buyers and sellers, the network operator, mobile phone operators and the phone card vendors. The authors write that “the mobile phone ecosystem has revolutionized this informal sector by providing an innovative platform on which these informal entrepreneurs operate” (Johnson & Thakur, 2015, p. 2).

Opiyo & K’Akumu (2006) investigated the utilization of mobile phones by the informal “Jua Kali” (Hot sun) sector in Kariokor Market in Nairobi, Kenya. Kariokor market offer a variety of small enterprises including general shops, eating places, leather businesses, and curio vendors. They found that in the absence of communication tools, business owners are often exploited by middlemen who transact business on their behalf. They found that in Kariokor, owners of small businesses used the mobile phone to obtain orders, operate after business hours, monitor business from afar, and strike business deals (Opiyo & K’Akumu, 2006).

This study investigates the use of the mobile phone to facilitate mobile money services. It specifically examines the mobile money businesses owned by individuals in rural Kenya, to know how individual owners have used these business opportunities for their development. These enterprises comprise the country’s expansive informal sector, one area of employment that supports the bulk of the population.

M-Pesa services have become a fundamental part of people’s development in Kenya. The success story of M-Pesa has received the attention of researchers in various fields of study. The next section highlights a cross section of empirical studies of M-Pesa, and by extension Safaricom. It looks at studies about the relationship between M-Pesa, community development and gendered poverty reduction; nature and scale of local financial flows facilitated by M-Pesa; role of policy in the development of M-Pesa; and the incremental scaling of M-Pesa by Safaricom, and Safaricom marketing.

Studies of Safaricom/M-Pesa

Suri and Jack (2016) conducted a study to assess the long-range poverty and gender impact of M-Pesa in Kenyan households. They found that access to M-Pesa increased per capita consumption levels and lifted 194,000 households, or 2 percent of Kenyan households, out of poverty. Interestingly, they found the impacts were more pronounced in female-headed households - M-Pesa also produced other changes in the study population. The application influenced the financial behavior of participants, by inculcating the desire to save money. Mostly for women participants, the application increased their financial resilience, and made others change occupation by leaving subsistence agriculture and moving into business. The general conclusion of the authors was that M-Pesa had reduced poverty in the study population (Suri & Jack, 2016).

Using Safaricom data from 2007-2010, Mbiti and Weil (2013) set out to study the speed of local financial flows via M-Pesa, what they call “transfer velocity” or the total value of monthly person-to-person mobile money transfers among ordinary users of M-Pesa, i.e. excluding transfers of Safaricom agents. They argue that it is important to study money velocity because “it measures the degree to which different components of the money supply contribute to aggregate demand” (p. 371). They found that transfers rose significantly as the popularity of M-Pesa rose. On average, there were about four person-to-person transfers per month. They also found that the velocity of money transfers is not very high because M-Pesa is a hybrid system, used not only for sending money but also for storing value. In this sense, they noted that some individuals kept cash on their phones for more than one week. Overall, their study revealed that the use of e-money had not substituted cash (Mbiti & Weil, 2013).

On their part, Foster & Heeks (2013b) start from the premise that the mobile phone and mobile money services are inclusive innovations because they argue the two innovations have benefitted a broad cross section of the Kenyan population. Their study examines the role of policy making in the creation of inclusive innovations that they argue has mostly benefitted the low and middle-income individuals in the country. Their study uses observation and semi-structured interviews with various actors involved in the inclusive innovation system – policy-makers, handset producers, handset distributors and wholesalers, informal handset sellers, mobile money operators and dealers, mobile money agents, as well as other demand-side actors, including phone repairers, airtime and accessory retailers. Their data is also drawn from document analysis, especially about policy in the two sub-sectors. The authors found that the policy and regulatory intervention has produced inclusive innovations, created markets in the two sub-sectors, and positively impacted the intermediaries engaged in the facilitation of these innovations. In their view, these benefits associated with the regulatory environment would not have been possible had it not been for the combined synergies and active involvement of various government agencies and other private partners involved in policy making. In this context, the authors conclude that the idea that a single decision or policy maker is able to produce the desired changes in a sector like telecommunications is simplistic and naïve (Foster & Heeks, 2013b).

In a different but related study, Foster and Heeks (2013a) use the concept of scaling to understand the incremental changes that made M-Pesa, an innovation targeted at the mostly lower socioeconomic strata to spread to differentiated user groups over a period of time. The authors operationalize “scaling” as process that occurs after an innovation has been piloted and has diffused. Their study draws on interviews with several actors including senior and middle-

level Safaricom personnel, Safaricom dealers, agents, and other actors, including M-Pesa competitors. The focus of the interviews was to understand M-Pesa diffusion and operation, and the role played by actors in scaling and innovation of M-Pesa. The authors also drew from secondary data, especially research reports, proposals, patents and publicly available statistics (Foster & Heeks, 2013a). They found that the scaling of M-Pesa went through four stages: exploratory, incremental growth, aggressive growth, and standardization. These stages of scaling were assisted by processes of adaptive innovation, majorly coming from the low-income consumer segment. They found the nature of the innovations to be majorly socio-technical rather than technical, originating from a cross section of actors, mainly those in close proximity to low-socioeconomic groups rather than the lead firm – Safaricom – Safaricom engaged in active learning from consumers in the lower end market by “approaching them through the “middle-of-the-pyramid” (p. 296) rather than invoking their real socioeconomic status. Through the knowledge obtained from the ground, Safaricom was able to come up with strategies of making M-Pesa popular within the population. Some strategies of scaling that Safaricom adopted led to more adaptive innovation of the service. At other times, the new iterations of the innovation that emerged, as well as the new information obtained from the ground, produced substantial change of marketing strategy and direction from Safaricom. The authors advise firms that plan to scale services and products in the low socio-economic demographics to “recognize the multi-locational, continuous, and emergent nature of innovation and develop processes to monitor and address those innovations” (Foster & Heeks, 2013a, p. 296).

Finally, Tuwei and Tully (2017) studied Safaricom marketing over a four-year period from 2010 to 2014 to explore how the company used nationalist sentiment in its marketing. Using textual analysis of Safaricom advertisements, the authors found that Safaricom

commercialized national sentiment by designing ads that reflected a commitment to promoting Kenya and its products. Further, the ads presented Safaricom as the driver of the country's economic growth and development. The company achieved this by using discourses that linked Kenyan identity and other aspects of the country's distinctiveness to consumerism, commercial economic success, profit and upward mobility (Tuwei & Tully, 2017). This study, situated within the mobile telephony for development research complements these studies by examining how rural M-Pesa users as well as M-Pesa agents utilize M-Pesa for their individual development. Further, by using domestication and localization concepts, the study investigates how users and agents shape M-Pesa to respond to their needs, and equally how these two groups are shaped by the M-Pesa service.

Social Shaping, Localization and Domestication of ICTs

The philosophical underpinning of the social shaping of technology perspective is that technological innovations, such as information and communication technologies (ICTs) – are in essence social phenomena (Lievrouw, 2006). “Technology does not develop according to an inner technical logic but is instead a social product, patterned by the conditions of its creation and use” (Williams & Edge, 1996, p. 866). Baym argues that the social shaping perspective helps us to understand the link between the features of technology, and the human practices that emerge to utilize these technological affordances (Baym, 2010). This perspective also provides an understanding about the everyday utilization of technology (Lievrouw, 2006).

During the research and development of technologies, the technological and the social environment of the technology coincide to shape the final product (Jorgensen, Jorgensen, & Clausen, 2009; Williams & Edge, 1996). Technological artefacts are experimented for fit with the social and cultural uses and experiences of would-be adopters (Williams & Edge, 1996) who

“come to media with social agendas, social commitments, and deeply ingrained social practices that are largely replicated and enacted through new technologies” (Baym, 2010, p. 153).

Designing the technology to fit the demands of users is thus an iterative process (Jorgensen et al., 2009).

In East Africa, multinational handset manufacturers often undertook user research among low-income consumers with the objective of designing mobile phones that meet the needs of these consumers (Forster & Heeks, 2014). These companies designed mobile phones with better antennae range and longer battery life given the little or no access to electricity by some consumers. These firms also made low-cost phones with fewer features and simple-to-use interfaces given the low literacy levels of some users (Foster & Heeks, 2013a). Chinese handset manufactures, for example, incorporated suggestions from intermediaries in the lower-income market, designing dual sim phones, which were popular with users because they could choose lower-cost networks. Others included creating a Swahili and M-Pesa interface (Foster & Heeks, 2013b).

Despite the technical design in place, technological innovations have inherent possibilities and constraints (Baym, 2010; Hutchby, 2001) – what is possible or not possible to accomplish with the technologies. User factors such as age, culture, and experience also influence technology use (Ling, 2004). New communication technologies provide several affordances that “influence what happens through and because of them” (Baym, 2010, p. 148). In other words, “there is a logic associated with communication technology” (Katz & Aakhus, 2002, p. 305). Although there are ways that technology-texts have “preferred” built into them, “they are always open to the user to find a way around this attempt at interpretive closure” (Hutchby, 2001, p. 445). For example, users have agency of handling the possibilities and

constraints offered by objects by, for example, localizing, domesticating, repurposing or rejecting them (Baym, 2010; Hutchby, 2001).

Localization

Although creators and marketers of ICTs expect their innovations to be used in certain ways (Katz & Aakhus, 2002), users utilize ICTs in unexpected ways by being adaptive and innovative – the process of localization. The term “localization” refers to user adaptation of aspects of ICT technologies, products, or services to fit the “local modes of communication, culture and standards” (Osborn, 2010, p. 7). In this context, people will use ICTs to suit their local interests, experiences, and cultures (Baym, 2010; Maurer, 2012). Contextual interpretation of ICTs is one way in which users insert their identity in technological artefacts, the process of “transformative localization,” where alien innovations finally become “local and identitary” (Van Binsbergen, 2004, p. 123). ICTs become “local” because they support various socio-cultural uses and expressions, achieved when users acclimate to the uses of these technologies (Castells, 2005).

Those who localize innovations exercise some form of creative agency with the aim of producing innovations that to them are familiar and not culturally alienating (Ogone, 2015). In addition, the objective of localization is to produce innovations that “become acceptable to local conditions, expectations and demands” (Gewald, et al. 2012, p. 4). The localization of ICT services produces fresh iterations of the service that are different from the original intentions of the creators or designers of these innovations. In this way, the localization process constitutes an internal innovation of a technological artefact in a society and culture (Gewald, et al., 2012). According to Osborn (2010), there are three benefits of the localization of ICTs. First, localization produces unique iterations of innovations that are more accessible to the populations

that use them for their development. Second, localization produces innovations that are more relevant to the demands and objectives of people who use them. Third, localization of ICTs helps in bridging the digital divide.

Mobile technology has been localized in many parts of Africa. For example, in rural Eastern Uganda, Burrell found the phenomenon of shared access of the mobile phone was common among community members (Burrell, 2010). In South Sudan, people hold multiple SIM cards and at times several handsets to gain access to the cheapest calling rates (Brinkman, de Bruijn & Hilal, 2009). Cameroonian migrants in Cape Town, South Africa, also have multiple SIM cards, using one SIM to call kin back home in Cameroon and the other for calls with friends within Cape Town (Nyamnjoh, 2014). The phenomenon of the “missed call” (also called “beeping” or “flashing”), is another example of user localization of the mobile phone. With “beeping” or “flashing,” a caller attempts to make a call but before the receiver picks up, the caller disconnects. The intended receiver will see from the contact list who called and return that call (Donner, 2008; Hahn & Kibora, 2008; Powell, 2014; Rashid & Elder, 2009; Slater, 2013). “Flashing” is a common habit in Kenya, Rwanda, and Ghana and comes at no cost to the original caller. The practice is common among individuals with strong ties and often reflects the “norm of economic hierarchy” where the “richer” party pays. “Flashing” is a cost-saving practice shaped by social, cultural and economic conditions (Donner, 2008).

Thus, since the arrival of mobile technology, Kenyans have also creatively shaped their usage of mobile phones by contextualizing their calling habits. The calling habits of Kenyans were so strange to the point that Michael Joseph, Safaricom’s first South African CEO called the calling practices “peculiar.” Against the expectations of Safaricom at the time, Kenyans had devised creative ways of beating the high cost of mobile communication (Walubengo, 2017b).

Apparently, Kenyans have now shifted these “peculiar” habits from mobile calling to mobile money services. Mobile money service providers have also utilized user research to localize their inventions. In their research to understand the contribution of various actors in M-Pesa technology and service innovation, Foster and Heeks (2013b) found that Safaricom worked with small-scale intermediaries embedded in local communities, especially M-Pesa agents. M-Pesa agents are vital actors that play a significant role in mediating the needs of users on the ground (Foster & Heeks, 2013b). In turn, Safaricom engages in a lot of learning and listening from these intermediaries with a view to localizing and growing its mobile money service (Foster & Heeks, 2014).

By working with agents to improve the M-Pesa’s service, Safaricom has been inclusive in the innovation and product development of M-Pesa. From such interactions, mobile service creators are able to learn about the unique conditions of users of its services, their technology practices and also constraints. Service creators use these insights to design or change their innovations that also in the end serves their bottom line – profits. Technology companies that see the importance of these user-producer linkages have been able to penetrate markets successfully. This user-producer interaction between the agents and Safaricom has led to the continued development of M-Pesa (Foster & Nugroho, 2014). Importantly, consumers benefit from these user-producer interactions because companies produce much needed localized innovations relevant to people in low-income mobile markets in developing countries (Foster & Heeks, 2014).

This study focuses on the agent’s bottom-up mediation of user ideas and experiences. This has led to the localization of M-Pesa services by the agents and by the parent company. Often, the localization adopted by Safaricom and agents has mirrored the contexts of users on the

ground. To emphasize, this linkage “highlights the role localized practices play in making new goods and services applicable to local needs” (Foster & Heeks, 2014, p. 221).

Domestication

According to Sam (2015), “domestication theory is used to capture the dialectic process involved in human interaction with technology” (p. 4). The concept of domestication refers to the process through which users get familiar with various new ideas which leads to the eventual appropriation of these ideas (Haddon, 2011; Silverstone, 2007). The mobile money innovation that this study focuses on is an example of a new idea.

Domestication is instrumental in providing a link between technology and everyday life and how users come to make technological innovations part of their lives (Richardson, 2009). As such, domestication provides insights about what technologies and technological services mean to users, their experiences with the technologies, and what place technologies play in their lives (Haddon, 2011). The perspective also helps to explain a whole range of user actions such as knowing about the existence of an innovation, the acquisition of the innovation and the integration of the innovation in everyday practices (Pearce, 2013).

In short, the domestication approach sheds light on the nuances of integrating artefacts, such as mobile phones, into various settings, such as the home or the community (Sorensen, 2006). The process of domestication leads to the transformation of communication technologies from being strange objects to commonplace artefacts deeply embedded in people’s daily routines (Hahn & Nyamnjoh, 2014). Domestication and social shaping processes are related as they are both frameworks that explain “Why and how technologies emerge in the form they do” (Haddon, 2011, p. 132).

Studies using the domestication theory “have explored how ICTs find a place in our lives, in terms of how and why we use them in certain ways and what they mean to us” (Haddon, 2011, p. 317). Sam (2015) adds that “domestication theory has been employed as an analytical lens to capture the process and complex relationship between the mobile phone technology use and its symbolic and socio-economic meaning for people at the bottom of the pyramid (p. 5).

Past studies using the domestication perspective looked at processes of technology use by individuals at the household level. Such studies examined people’s acceptance or rejection of technology in their lives. Most of these studies focused on the television given the ubiquity of the television at the time (Haddon, 2011). However, the home is not the only space where ICTs are consumed (Haddon, 2011). “Domestication is not an activity solely reserved for households to experience but can also occur outside the home” (Hynes & Rommes, 2007, p. 140).

At the same time, the evolution of ICTs is a reality and so are people’s experiences with ICTs. The mobile phone is a fitting technology to examine with domestication theory “since this artefact has very rapidly become a widely used communication device, which involves considerable cultural changes” (Sorensen, 2007, p. 52). The domestication approach is useful to understand not only the process of technological adoption but also non-adoption (Hynes & Rommes, 2007). Sam (2015) used domestication theory to investigate how young and marginalized individuals in post-conflict Sierra Leone adopted and made the internet part of their lives. In addition, the approach is helpful in explaining how users utilize technologies in ways that are against the expectations of designers and creators (Berker, Hartmann, Punie, & Ward, 2007).

The process of domestication, however, mean different things to different actors. In the context of designers or creators of technological innovations, the process of domestication is

another word for consumption – how users consume or utilize the new ideas they produce. On the other hand, in the context of ordinary users of these innovations, it is part of everyday life (Bakardjieva, 2007).

Four concepts help to elaborate the process of domestication - appropriation, objectification, incorporation and conversion (Silverstone, 2007). Appropriation describes the ownership of technology and the first phase of familiarization with the technology. This phase also includes the symbolic interpretation of the technology. The incorporation dimension is the insertion of the functionality of technology in the routines of daily life. This dimension further addresses when the technology is used and for how long. In the process of objectification, users give the technology a space in their routines. The objectification and the incorporation processes of domestication are related. In both processes, users allot the technology a schedule of when to put the technology to use. The final process, conversion, examines how potential adopters of technology are able to convert ICTs to valued capabilities (Hynes & Rommes, 2007). Mobile money services have become a huge phenomenon in East Africa. In Kenya, people in both rural and urban areas use these mobile-based services. Mobile money provides a timely and appropriate opportunity to analyze the domestication process of this innovation.

CHAPTER THREE: RESEARCH CONTEXT

Kenya's Telecommunications Sector

Working alongside the United Nations Economic Commission for Africa (UNECA), a United Nations agency, African countries in 1996 agreed to adopt the African Information Society Initiative (AISI). The purpose of the agreement was to promote and mainstream ICTs for the objective of aiding national development of the countries of East Africa (Zezeza, 2005). Since then, notable attempts to mainstream ICT have been on going in most countries of East Africa as part of the broader objective of development (Zezeza, 2005; Muiruri, 2007). As a result, ICTs are now a common feature in the development policy plans of countries in the region (Aguero, Barrantes, & Waema, 2014). However, initiatives to mainstream ICTs have not been without challenges, which include infrastructural, technical, regulatory, cultural and economic, to name a few (Zezeza, 2005).

The history of ICT policy making in Kenya is complex because the process has involved many stakeholders and undergone many transformations. Even though policymaking began as a simple process of participation of many stakeholders in the formative stages, the process then changed from stakeholder “participation” to public-private “partnerships” (Etta, 2005, p. 6). ICT policies and regulations are a product of a political process. The final policies produced have insurmountable influence because they determine the nature of the ICT market, the kind and number of players, the market competition, and access and benefit of ICTs to the greater public (Okinda & Adera, 2014).

Interest in the liberalization of the telecommunications sector started in 1997. The Ministry of Transport and Communication and the government telecom, Kenya Posts and Telecommunication Corporation (KP&TC), drew up new policy guidelines and directions.

KP&TC, the monopoly government entity, originated from the East African Posts and Telecommunications Corporation (EAP&TC), a telecoms and postal company formed in the 1960s, which served the defunct East African Community (EAC), a regional economic bloc of the East African countries of Kenya, Uganda and Tanzania. The policy also spelt out the role of the telecom sector in national development. This step led to the creation of the Kenya Communication Act of 1998, which brought changes in the telecom and postal sector (Waema, 2005).

The signing of the Kenya Communication Act (KCA) in 1998 started three processes in Kenya's telecommunications sector – liberalization, regulation and privatization. The changes essentially introduced competition in the sector. The regulation led to the split of KP&TC, the monolithic state monopoly, into three agencies, Communication Commission of Kenya (CCK), now called Communication Authority of Kenya (CA), the telecoms regulator; Telkom Kenya, the public telecoms operator; and Postal Corporation of Kenya, the postal services company (Muiruri, 2007). KCA has undergone various amendments. For example, amendments of the law were made in 2009 and in 2010. In the 2010 amendments, CAK introduced new laws dealing with sectorial disputes, tariffs, compliance checks, fair competition, and interconnections among others (Muiruri, 2007; Okinda & Adera, 2014). Though the sector was privatized, liberalized and regulated, the government still provided these services in conjunction with private companies.

Overall, ICT policies have led to unprecedented growth and availability of various ICTs in East Africa. In particular, the widespread availability of the mobile phone has become the most notable trend (Okinda & Adera, 2014). These developments have also been made possible by, among other things, the continued development of the ICT infrastructure by private mobile phone providers and the recent installation of the undersea fiber optic cable (Aguero, Barrantes,

& Waema, 2014). Four submarine cables were installed on the Kenyan coastal town of Mombasa. They are; SEACOM, the East African Submarine Cable System (EASSy), the Lower Indian Ocean Network (Lion2), and the East African Marine System (TEAMS). These developments have brought enthusiasm that many people can now access better internet connectivity at a lower cost. However, more importantly, like the growth of the mobile telephony sector, these events have ignited optimism about the potential impact of these ICTs to spur social and economic development in the country (Okinda & Adera, 2014; Agüero, Barrantes, & Waema, 2014).

The growth of mobile telephony in Kenya has surpassed many expectations. Mobile subscription has continued to increase and mobile providers' masts now rise above the landscape in both rural and urban Kenya. While mobile phone access and use has gone up, fixed-line telephone services have gone down. Apart from the mobile phone, a wider cross section of the population has been able to access other ICTs such as radio, internet and television (Agüero, Barrantes, & Waema, 2014). FM radio stations have also grown substantially, with the majority broadcasting in indigenous languages (Okinda & Adera, 2014).

The mobile phone has become popular because it can be used to accomplish a variety of functions. "Mobile phones are no longer simply a tool for voice calls or text messages, but are increasingly being used as a sort of bank to deposit cash, security gadget, a tool for mobilizing group members" (Agüero, et al., 2014, p. 127). Kenya's mobile telephony sector now showcases both global and local companies. Equity Bank, a local commercial bank recently joined the sector, introducing Equitel network. Safaricom was the first public-private entrant in the liberalized telecoms space. There has been a huge turnover of companies in the sector. According to current data from CAK, there are currently four mobile cellular providers in the

country – Safaricom, Orange Telkom (co-owned by the French and the Kenyan government), India's Airtel Networks, and Finserve Kenya (Equitel) (CAK, 2015).

Safaricom has remained the dominant operator for a while now. According to CAK's (2015) reports, mobile subscriptions and market share percentage are as follows:

- Safaricom – 24 million (67%)
- Airtel – 7 million (19%)
- Orange Telkom – 4 million (11%)
- Equitel – 900,000 (3%)

Safaricom's M-Pesa leads the market in mobile money operations with a market share of 76.9% followed by Airtel Money 11.25%, Mobikash 6.8%, Equitel 3.15%, Tangaza 1.82%, and Iko Pesa 0.7% (CAK, 2015). Safaricom is owned by the government of Kenya (which has a majority stake), global British telecom Vodafone, and members of the public who own shares in the company. Safaricom started out by first providing mobile phone services, mainly voice calling and text messaging. Thereafter, Safaricom introduced M-Pesa (Allen, 2013; Camner & Sjoblom, 2009; Doya & Cohen, 2014). Safaricom's commercial success has given the company flexibility to introduce new products into the market with ease and without the apprehension that its customers will shift to other mobile operators (Ngugi, Pelowski, & Ogembo, 2010). Safaricom has grown to become the leading mobile operator and the most recognizable brand in the country (Jack & Suri, 2011; Safaricom, 2014).

Kenya's Mobile Money Services

Safaricom's most successful product is M-Pesa. The first conception of M-Pesa began in late 2003 as an ICT pilot project. The innovation was part of a 3-year project aimed at assisting micro-finance institutions and was jointly sponsored by the Vodafone Group and UK's

Department for International Development (DFID). The purpose of the project was to examine the possibility of using ICTs to assist micro-finance institutions that provide small loans to small-scale business groups in developing countries. The positive reception saw the application change and grow. Safaricom officially launched M-Pesa in 2007. M-Pesa witnessed aggressive growth in early 2008 because the company emphasized continuous innovation of the product to suit the demands of users. By 2010, M-Pesa had become an important component of Safaricom, accounting for about 10 percent of Safaricom's revenue. The success of M-Pesa can be partially attributed to Safaricom's continued improvement of the service (Foster & Heeks, 2013a). Since its inception, the M-Pesa service has received both local and international acclaim (Gajjala & Tetteh, 2013).

M-Pesa is the brainchild of two Britons who worked for Vodafone, a British-owned multinational telecommunications company (Hughes & Lonie, 2007). However, M-Pesa is portrayed and seen as Kenyan because the idea "was tested, honed and commercialized in Kenya and has succeeded there like nowhere else" (Omwansa & Sullivan, 2012, p. 13). M-Pesa services are offered by Safaricom on behalf of Vodafone (Foster & Heeks, 2013a; Rutten & Mwangi, 2012). M-Pesa enables people to use their mobile handsets to transfer money, save, and pay bills, among other functions (Donner & Tellez, 2008; Rutten & Mwangi, 2012). The M-Pesa application is inexpensive when it comes to depositing, paying, or transferring money as the process requires very little bank involvement (Mas & Radcliffe, 2011). M-Pesa has become the "mobile-wallet revolution" that "has revolutionized cash flows in social and economic spheres and has changed unsafe, slow and occasional barter trade into safe, fast and 24/7 mobile-cash-based trade, fundamentally changing the management of the local economy" (Rutten & Mwangi, 2012, p. 80).

The diffusion and adoption of M-Pesa has been phenomenal (Rutten & Mwangi, 2012). In the first two years of its creation, M-Pesa was adopted by 34% of the adult population. In fact, the growth of the M-Pesa exceeded that of the mobile phone itself (Morawczynski, 2011; Omwansa & Sullivan, 2012). M-Pesa is used throughout the country with 80 percent of rural households using the service in 2013 (McKay & Kaffenberger, 2013). The M-Pesa product and brand have been critical to Safaricom's subsequent product development and marketing strategy. Mas and Ng'weno (2010) argue that the "M-Pesa brand is seen as stronger than Safaricom's corporate brand – itself a powerful brand in Kenya with a dominant share of the mobile phone market" (Mas & Ng'weno, 2010, p. 5).

Evident of the popularity the service, the financial transactions facilitated by M-Pesa exceed the total global transactions on Western Union. Within Kenya, the innovation has amassed more customers than all the banks combined, with 60 percent of rural residents using M-Pesa. In addition, M-Pesa has outpaced its competitors - Equitel, Airtel Money, MobiKash, Orange Money, Tangaza and Iko Pesa - in popularity. Even the growth of the M-Pesa platform has surpassed the expectations of Safaricom management (Omwansa & Sullivan, 2012). Because of Safaricom's dominance, Donovan (2012) argues that because other mobile money service operators are comparatively weaker than M-Pesa, Safaricom is now the standard, essentially eliminating alternatives and "voluntary choice" (Donovan, 2012). However, lately, Safaricom's domination of the telecoms sector has raised eyebrows.

In 2017, there was a heated national conversation about the domination of Safaricom in Kenya's telecommunications sector. CA, the telecoms regulatory authority first brought the debate to the limelight (Kisero, 2017b). The concern surrounded the fact that Safaricom is not just a telecoms company that oversees mobile communications but also a company that manages

a sizeable mobile money market. The latest debate arose from the realization that most mobile operators in Kenya are deriving revenue from outside traditional telecommunications services. In practical terms, the legislators planned to introduce banking and communications sector legislation requiring mobile network operators that have businesses beyond telecommunications to split their businesses (Mumo, 2017b).

The latest action was also a response to what the regulatory authority saw as abuses in market dominance and anti-competition behavior by Safaricom that began in 2010. For instance, CA was concerned that only two banks – Commercial Bank of Africa and Kenya Commercial Bank were the only Safaricom partner banks (Kisero, 2017b). In addition, market players and analysts have accused Safaricom of bullying behavior toward smaller telecom companies (Kisero, 2017a). The fact that Safaricom does not currently have a close competitor was the foundation of the concern. Two of Safaricom's closest competitors are in financial straits. While Airtel is in huge debt, Orange Telkom is trading poorly in the market (Kisero, 2017a).

Although CA has not implemented the findings of the report, media reports stated that CA was going to order the separation of M-Pesa from Safaricom, the parent company, so that they operate as independent entities (Kisero, 2017a). The separation would require the two companies to have separate staff, business operations, customer support, and branding (Kisero, 2017b). The new regulations would also affect Safaricom's promotions and other loyalty programs (Mumo, 2017b) while also forcing the company to share its expansive infrastructure with its competitors (Walubengo, 2017a). The report's recommendations also included the creation of regulations that would institute restrictions on product bundling and other pricing tactics that telecom companies currently use. Commentators in the telecom industry noted that reining in on market dominance would improve consumer protection (Kisero, 2017a).

Even though the publication of the report had not yet taken place, criticism of the report came fast and furious. The ICT cabinet secretary was of the opinion that it is unfair to punish a successful company like Safaricom by bringing new regulations that would curtail its growth and success (Walubengo, 2017a). Bob Collymore, Safaricom's CEO, was against the report arguing that even though the telecom sector needed greater interoperability and other changes, market forces and not regulatory interventions should dictate the process (Kisero, 2017b). In much of his response, the CEO touted the company for job creation and for the positive impact of its social responsibility projects on communities (Mumo, 2017b). One notable expression of opposition to the plan came from Linus Gitahi, the immediate former CEO of Nation Media Group – the leading media house in the country. Gitahi thought the proposed plan was heavy handed, that if implemented would kill Safaricom, the “goose that lays the golden egg” in reference to how most people perceive Safaricom's place in the wider Kenyan economy. Others criticized the proposal for not taking into consideration the effect the action would have on the economy, the financial system, other industries, and the society in general, and the investments made by the company shareholders (Gitahi, 2017).

As noted, Safaricom is the most successful company in East Africa and a source of pride for the Kenyan nation. The subject line of most critics of the proposal bordered on the place of Safaricom in the Kenyan nation, especially in what the company has grown to become – a homegrown technological success story. In this context, rather than rein in Safaricom, critics instead wanted the government to support the company to grow further to become a pan-African institution (Walubengo, 2017c). Most of them noted that Safaricom was a reputable company that had developed organically because of massive investment by the company's leadership and the shareholders. Rather than legislate the separation of Safaricom, critics wanted the

government to create an enabling environment for competition that would guarantee consumer protection rather than using regulation to achieve the objective (Gitahi, 2017). Much of this discussion echoed the liberal market discussion in the 1990s. In this sense, they wanted the regulator to promote free enterprise, investment and innovation that would guarantee consumer choice while at the same time safeguarding consumers from monopolistic tendencies (Omondi, 2017).

After a lengthy national debate, CA responded by saying that ordering the separation of Safaricom was not the option the authority was considering at that moment, noting that this action would not bode well for the country's economy. The authority also pointed out that this action would be tantamount to giving advantage to Safaricom's competitors. Rather than pursue the separation of Safaricom and M-Pesa, the regulator promised to continue with other market interventions to create a level playing field in the telecoms sector while at the same time "protecting the market leader Safaricom" (Mumo, 2017a). CA's response and the opinions of Kenyans opposed to the splitting of Safaricom underscore the perceptions of many about the fundamentally influential position that Safaricom now occupies in Kenya's economy. Essentially, the Safaricom mobile money business has grown to become the center of the country's financial economy. As one commentator noted, "M-Pesa is now systemic in our financial sector. You cannot just yank it out of Safaricom without serious implications on the safety and soundness of not only the payments system, but of the financial sector, at large" (Kisero, 2017a).

Nevertheless, the important position occupied by Safaricom in the Kenyan economy came under scrutiny when the company faced a major network outage in 2017. In what many considered the most destructive technological failures ever to happen in Kenya, Safaricom's

systems collapse paralyzed phone, SMS, data and M-Pesa services for at least three hours (Ilako, 2017). In the words of one information technology professor, “Safaricom services sneezed and the Kenyan socio-economic fabric caught a cold and underwent serious distress” (Walubengo, 2017c).

Of all the services offered by Safaricom, subscriber inaccessibility of M-Pesa services was the most damaging outcome of the network outage. This was because the population has come to rely on the M-Pesa service to purchase goods and services, pay bills, and send and receive money (Abuya, 2017). Illustratively, the M-Pesa service facilitates more than 900,000 mobile money transactions per minute. This means that over one million transactions could not take place in the time the M-Pesa system was out of service. The downtime further affected over three million social or economic activities that directly and indirectly rely on the M-Pesa mobile commerce. The outage affected 21 million or 67 per cent of Kenyan mobile money subscribers who could not transact money on the M-Pesa platform. In Safaricom’s voice segment, over 27 million or 71 percent of Kenyan mobile voice subscribers were not able to make calls or receive them (Walubengo, 2017c). According to industry analysts, the inoperability of Safaricom’s voice, data and mobile money led to the company’s loss of over 40 million KES. This is not to mention the enormous loss of state revenue and subscriber deposits. Others opined that the systems failure had the potential to undermine market confidence, and lead to pressure to the regulatory authority to assure the telecoms industry (Abuya, 2017).

In the wake of the network failure, Francis Wangusi, Communications Authority of Kenya Director-General, stated that the agency had ordered Safaricom to produce a comprehensive report of what led to the systems failure. Though Safaricom had blamed the problem on its technical systems, Wangusi said the labelling of the massive problem as “a

technical hitch” was not sufficient to the authority and that Safaricom was downplaying a serious occurrence (Ilako, 2017). To prevent similar problems occurring in the future, Mr. Wangusi noted that CA would punish the corporation if such an act that negatively affected the economy of the country, arose from negligence, strategic positioning or other motives. Pointing that the regulator and the government had long deliberated on the financial security risk posed by a singular powerful telecom company, Wangusi argued for the need for regulations aimed at spreading the risk that befell those who depended on the crucial telecom industry. In the aftermath of the outage, the Director-General reported that CA had drafted interoperability regulations to govern the mobile money market where consumers would access different service providers from one account and mobile money services would not be interrupted (Ilako, 2017).

Barely a month after Safaricom’s systems failure, ICT Cabinet Secretary, Joe Mucheru announced that Service Providers had reached an agreement to allow cross-network mobile money transfers at no additional cost. Even though a cross-network mobile money transfer system exists in the country, the process is often expensive and tedious. The implementation of cross-network mobile money transfer is a win for smaller operators who have long pursued a change in regulations. For small operators, the regulations change is the only way they can fairly compete against a well-established service like Safaricom’s M-Pesa. By unveiling cross-network mobile money operability, Kenya joins Tanzania, who by the end of 2016 had a thriving cross-network mobile money facility (Mumo, 2017c).

The breakdown of Safaricom’s systems fueled the recent debate about Safaricom’s market dominance. Telecom analysts pointed out the current scenario where the Kenyan economy and people’s lives in general, have become so beholden to one operator, so that the economy and the rhythm of life can halt in the absence of alternative operators to provide the

financial services. For many in the industry and government, the growing integration of M-Pesa with several sectors of the country's economy was cause for concern (Abuya, 2017). To illustrate this concern, one regular industry writer stated, "The Safaricom question has moved beyond the regulatory scope of competition, dominance or sanctions. It is now about risk management and the business continuity for the enterprise called the Republic of Kenya" (Walubengo, 2017c). Walubengo added that even though the country continues to celebrate Safaricom's innovation that has led to M-Pesa's continued success, "We must equally be wary of the single point of failure dynamics that come with such exclusive success" (Walubengo, 2017c).

Alongside the importance of Safaricom to the national economy, M-Pesa has raised the technological profile of the country, making Kenya the fastest growing market for mobile financial services in the world (Morawczynski, 2011). Since its launch, M-Pesa has been hailed as a mobile banking success and held up as an example of "best practice" in the field and as a driver of individual and economic development (Aker & Mbiti, 2010; Mas & Morawczynski, 2009; Tuwei & Tully, 2017)). Many consider Kenya's mobile money concept a pioneering global mobile money success. To Kenyans, M-Pesa is emblematic of the country's growing technological prowess, and the country's ambition to become a global technological player. The rapid adoption of mobile money service has not only become the poster child for innovative use of the mobile phone but has also served as an inspiration to African, and Asian countries, and lately the global North, that are looking to replicate the success of the model in their countries (Bohnstedt, 2008). For instance, the mobile money concept has spread within Africa to South Africa, Côte d'Ivoire, Senegal, Mali, Niger, Madagascar, and Botswana (Kabukuru, 2012); Romania in Eastern Europe (Heinrich, 2014), and Afghanistan, the Philippines and India in Asia

(Donner & Tellez, 2008) – countries with more ownerships of mobile phones than bank accounts.

In most developing economies, traditional or conventional banks are concentrated in urban areas. Because of this, banking and other financial services have been mostly inaccessible to the rural poor. Thus, mobile phones are expected to close this “access” barrier (Aker & Mbiti, 2010; Mas & Radcliffe, 2011). M-Pesa is used by low and high-income individuals. But the service has been adopted more by low-income individuals, especially the excluded or underserved rural dwellers previously not served by formal financial institutions. M-Pesa has been credited with facilitating financial inclusion or access to the formal economy by enabling “connection to the financial system for a large group of those previously excluded from it” (Rutten & Mwangi, 2012, p. 94). Rutten and Mwangi (2012) add that mobile money has altered how people manage their money and their livelihoods. Through facilitating financial participation, these demographics can “increase their wealth, diversify their asset base and become more resilient to shocks” (Rutten & Mwangi, 2012, p. 100).

In Kenya, job opportunities are scarce for the rural poor. This has led to problems of rural poverty and feelings of abandonment from shared prosperity (World Bank, 2016a). There is also a huge disparity in unemployment rates in urban and rural areas. In some cases, the rate of unemployment in rural areas is twice that of urban areas (Munga & Onsomu 2014). The informal economy, on the other hand, has created jobs, including in the rural areas. The informal sector, the set of economic activities and enterprises not regulated or protected by the state, is much larger in developing most economies (Sorensen, 2017). Direct and indirect job opportunities created by mobile money should be looked at in the context of the informal economy. In addition to being credited for expanding financial services, M-Pesa has been praised for improving

business operations, and creating opportunities for entrepreneurs throughout Kenya (Aker & Mbiti, 2010). This has improved the livelihoods of individuals and the economic growth of the country. According to the World Bank, the growth of Kenya's economy has been relatively good in the past decade. This was attributed to the growth of modern services including the financial services exemplified by those mediated by mobile telecommunications (World Bank, 2016a).

The success of M-Pesa in Kenya has been attributed to a wide variety of factors to do with the country, the technology, the users, and the company. Safaricom has received accolades for a well-executed pilot study of the application (Hayes & Westrup, 2012). M-Pesa's flexible design was informed by the local needs and habits of users (Foster & Heeks, 2013b; Morawczynski, 2011). The prowess of Safaricom's senior management and technical support of the company has been praised for creating and steering a flexible yet simple technology that was easy to use and learn (Hayes & Westrup, 2012).

The popularity of M-Pesa was also made possible by the presence of M-Pesa agents situated in both rural and urban areas of the country who sold airtime credits for Safaricom and facilitated mobile money transactions for M-Pesa (Foster & Heeks, 2013a; Hayes & Westrup, 2012). In a country with high unemployment figures, many, serving as Safaricom agents (Mas & Ngweno, 2010; Morawczynski, 2009), seized the business opportunities created by M-Pesa. The success of M-Pesa has also been attributed to the workable public-private sector partnership of Safaricom and these government agencies, which provided a stable grounding for the company to take off (Hayes & Westrup, 2012). On the policy level, Kenya's regulatory environment supported the growth of M-Pesa (Koech, 2012). Throughout the incubation and experimentation of the application, the regulatory environment or the absence of regulation favored the initial establishment of M-Pesa. Consequently, Safaricom's competitors, made up of other operators

and commercial banks did not enjoy the advantages Safaricom got especially in its early stages that led to its dominance (Hayes & Westrup, 2012).

M-Pesa spread in the country because of the distrust of banks especially by the low-income population, who avoided banks for fear of “losing” their money (Mas & Ngweno, 2010). A study by Financial Sector Deepening (FSD) to determine how Kenyan households earn, save and spend their money, found low-income earners perceived banks as not providing for their tailored financial needs. Many wanted their savings to “work” for them rather than just “sit” in bank accounts (FSD, 2014; Mwaniki, 2014).

M-Pesa services have also continued to grow because of the public’s demand for these services (Rutten & Mwangi, 2012). For example, during the 2007-2008 post-election crisis, M-Pesa service was used to send money between families when travel was particularly unsafe and became a savings account for many who felt vulnerable during and after the violence (Economist, 2013; Morawczynski, 2011). Kenya provided a large market for domestic remittances, mostly from urban working class individuals who remit money to their relations in rural areas. Before the entry of M-Pesa, the slow and often inefficient bus system was the only available alternative for local remittances. On the other hand, the Post Office, though inexpensive, was inconvenient (Mas & Ngweno, 2010). Put together, these factors constitute what Vodafone’s research of user financial needs and financial practices of the Kenyan people may have revealed. Vodafone chiefly tapped into the socio-cultural remittance patterns of the Kenyan consumer. These need-based analyses were instrumental in informing the final creation and design of the M-Pesa innovation (Duncombe & Boateng, 2009; Morawczynski, 2011; Omwansa & Sullivan, 2012). Although these reasons account for M-Pesa’s success, they are not exhaustive. The contextual environment that supported M-Pesa was specific to Kenya and

therefore it may be difficult to find similar conditions in other country contexts (Hayes & Westrup, 2012, p. 34).

Chamas

As a result of the inability to pay bank service fees, a large segment of low-income individuals in Kenya prefer to use cash in their transactions (Koech, 2012). Others have opted for informal savings and credit associations, popularly known as *chamas*, as a safer custodian of their savings (FSD, 2014; Mwaniki, 2014). *Chamas* is a local name for rotating savings and credit associations (ROSCAs). They are informal cooperative societies owned and managed by members. Member of *chamas* create these associations and make contributions to the shared saving pool (FSD Kenya, 2015a). Members hold regular meetings, where they make contributions to the shared saving pool, called the “pot.” The pot money is given to one member every period, in rotation until everyone has received the pot. Though *chamas* are common in Kenya, they are more popular with women (Dupas & Robinson, 2013).

Savings groups are common in urban and rural Kenya (FSD Kenya, 2015a). Although the workings of groups differ, people use these associations to save and borrow money. FSD carried out a research project dubbed “Kenya Financial Diaries” to understand the financial lives of low-income individuals. The study involved capturing people’s transactions over the course of a year through fortnightly visits, interviews and personal stories. The project, the largest of its kind in Kenya, covered 300 households from all regions of the country. The study aimed to understand how low-income Kenyans manage their lives with their low incomes, as well as how they use money and what they thought about money. The study would provide useful information about barriers to savings, borrowing, investment, education and health (FSD 2014b).

The study found that low-income individuals derived incomes from various sources and had complex financial lives. Remittances from social networks were a very vital source of income especially for people in rural areas and women. One financial management strategy people had was to ensure some level of liquidity in case of an emergency. Even though saving money was more important for people than borrowing money, the savings were not immediately available in cash form. People had to balance having liquid money meant for short-term uses and for longer-term investment in the future (FSD 2014b).

Another 2013 study found that 1 in 4 adults, or 25 percent of the population, used a savings group to save or borrow money. The study found that individuals with primary school educational attainment or less were not as likely to use savings groups. On the other hand, people with secondary school education or higher were more likely to use savings groups. Further, the study found an important gender dimension in the use of saving groups. While 31.6 percent of females used savings groups, 18.3 percent of males used them (FSD Kenya, 2015a).

M-banking

The Kenyan government has made policy reforms in the banking sector to increase access to banking services, especially by low-income groups. Telecommunication firms are the major players in increasing access to banking. The popularity of mobile money within the population has inspired business institutions to incorporate mobile banking in their business in order to win customers. M-banking refers to the linkage in service provision between banks and telecommunications firms. Banks have incorporated mobile banking because they consider it an efficient method to marshal deposits, disburse loans, and receive loan repayments (Muthiora, 2015).

However, from the start the new relationship between commercial banks and telecommunication companies has not been smooth. Before banks linked with mobile money, commercial banks saw the rise of mobile money a threat to their business. Over the years, this perception has changed. Now more and more banks have adapted and leveraged mobile banking in the provision of their services (Ravi & Tyler, 2012).

M-banking has altered the conduct of banking in the country. Not only was the cost of banking in the past inaccessible to certain populations, but opening a bank account in Kenya was a lengthy and complicated process. Commercial banks required customers opening savings accounts to provide two letters of introduction from other customers of the bank, saying they supported the new customer based on knowledge of the individual. In addition, banks wanted new customers to show capability to keep the account going by providing a certain amount of money as minimum deposit (Muiruri, 2016). Banks created these requirements to ascertain the creditworthiness of their would-be clientele. At the same time, banks charged high fees on customer withdrawals, making banking unsustainable for most low-income individuals. If opening a bank account was an expensive process, a loan application was even more complicated, with numerous requirements. These structural bottlenecks in the banking sector limited people's enjoyment of banking services. Essentially, because banks wanted to sustain their commercial imperative, they were more responsive to the needs of the well-to-do and people with regular income from employment or business (Koech, 2012).

In a survey research to determine the supply and demand factors that contributed to low levels of financial uptake in Western Kenya, researchers found that people did not save money in the bank. The study cited reasons including people's distrust of banks, the perception that banking services were unreliable, and the high bank fees (Dupas, Green, Keats & Robinson,

2012). Often, the financial lives of the low-income population comprised meagre savings, making them unable to afford the high bank fees. Thus, these individuals preferred instead to use cash in their transactions (Koech, 2012). The survey found that people did not borrow from the banks because they were apprehensive about losing their collateral, the guarantee money required by banks before disbursing loans or credit (Dupas, et al., 2012). Other reasons included poverty, lack of savings, and poor infrastructure (Copley & Sy, 2015). In short, low-income earners perceived banks as not meeting their tailored financial needs (FSD, 2014; Mwaniki, 2014).

Dupas et al. (2012) state that there is need for banks to improve the quality of services they offer. The researchers suggest that financial institutions need to understand the demand side of banking, by researching what customers want. For example, banks need to create saving and credit products that suit the majority of the rural poor households. They also say financial institutions need to instill trust – a factor that has kept low-income individuals from using banking services – if they are to win the hearts of this demographic. Equally important is the need for banks to offer stronger consumer protection by creating friendly regulations and deposit insurance (Dupas, et al., 2012). On the other hand, the researchers point out that contrary to what most banks assume, many individuals are unaware of the range of banking services offered by financial institutions. The lack of knowledge makes it difficult for consumers to take full advantage of banking services. As such, the authors opine that banks and other financial institutions need to make their services known by marketing themselves. They also advise banks to create banking products that are sophisticated and relevant for tailored groups, such as farmers with seasonal income who prefer banking products that enable them to save the money as soon

as they have access to it, or others who need cash in case of unforeseen emergencies (Dupas, et al., 2012).

The slow response of banks to understand the needs of their customers notwithstanding, there have been attempts by commercial banks to improve the services they offer. In less than five years, commercial banks have transformed the way they interact with their customers. There were noticeable attempts by banks to bring their services closer to their customers. Through agent banking, it was evident that banks were altering the distribution of their services, a break from the old banking model where urban dwellers had far easier access to banking services than their rural counterparts.

Agent Banking

In response to the new digital reality, businesses, notably banks, are using digital finance to tap into low-income consumers and promote their businesses (Muthiora, 2015). Digital finance has influenced the conduct of traditional banking. The new financial landscape has seen digital and traditional finance morph in new ways. Inspired and challenged by the popularity of mobile money, traditional commercial banks have had to configure their mode of business to incorporate low-income clients. This is evident in the rise of agent banking networks found all over Kenya. Owing to the fact that people are no longer going to the branch for financial transactions, the branch has taken on “new meanings in framing the relationship between the bank and its customer” (Singh, 2013, p. 37). The branch has now taken its services closer to the people. In a break from tradition, bank customers were able to access banking services without having to visit established bank branches in the urban areas.

Borrowing a leaf from Safaricom’s widespread agent network, leading banks including National Bank, Co-operative Bank, Equity Bank, and Kenya Commercial Bank have taken their services closer to their customers through agency banking. Like the M-Pesa shops, the agencies

were located within communities, in small towns, and dusty shopping centers in the countryside. The agencies operated in nondescript buildings, in small spaces, with bare facilities for customers. They had a different feel from that of bank branches in town that had marble-surfaced banking halls and comfortable seating for customers. Agency banking also involved the use of “field” bankers that reached out to communities, essentially “hawking” banking services to people, including in rural areas. Services in these bank outposts were scaled down from the ones found in the urban areas. They also had few employees and most agencies had two or three bankers. Nonetheless, agency bankers provided vital services including the collection of deposits, the issuance of withdrawals and the processing of loan payments. Alongside the tag of the parent bank, the agencies had taken local names to attract customers. For example, Co-operative bank has its agency named Jirani,⁵ while Kenya Commercial Bank has Mtaani.⁶

The agent-banking phenomenon is important for enabling the spread of financial services to poor people and those in rural areas. Nonetheless, their development is dependent on the regulatory environment that can balance the risks associated with untested financial products, while giving room to further innovation (Ravi & Tyler, 2012). Development analysts see this as one strategy for ensuring financial inclusion. The intersection of mobile and traditional banking services has also produced new relationships and arrangements between banks and their customers (Singh, 2013).

In the past, the poor were not a viable market for banks. Because of lack of access to banking, the savings of most people remained outside of the formal financial system (Singh, 2013). However, in a change of attitude and business strategy, commercial banks have recognized the importance to their business of developing products that serve the “bottom of the

⁵ Jirani is neighbor in Swahili.

⁶ Mtaani is village in Swahili.

pyramid” markets – the poor consumers. For example, banks have become receptive to low-balance deposits, thus leading to the rapid uptake of banking services (Ravi & Tyler, 2012).

M-Shwari

Following the success of M-Pesa, in 2013 Safaricom introduced M-Shwari, a combined savings and loans product (Economist, 2013). Commercial Bank of Africa (CBA), a private commercial bank, and Safaricom jointly oversee M-Shwari’s operations. M-Shwari runs on M-Pesa’s infrastructure. In spite of being a relatively new service, M-Shwari is one product that is already challenging M-Pesa in popularity (Cook & McKay, 2015).

Unlike obtaining a loan from a commercial bank in the past, opening an M-Shwari account, and asking for a loan is a simple process. The loan application process is simple because Safaricom does not require customers to maintain a huge amount of money in the account or provide collateral to qualify for a loan. For this reason, people with both commercial bank accounts and M-Shwari accounts preferred borrowing from M-Shwari. For many users, M-Shwari has simplified the loan borrowing procedure (Economist, 2013).

According to many commentators, besides representing the next step in digital financial services, M-Shwari is a testament to the fact that mobile money infrastructure can be used to provide advanced financial products to many people. Unlike formal banks with imposing physical infrastructure, M-Shwari has no physical banking facilities. M-Shwari is a virtual account found on the phone that runs on M-Pesa’s expansive infrastructure. Individuals can save and apply for loans from their handsets. Besides allowing customers to save for the short term, the service gives customers credit options, “which makes customers feel that their funds are ‘working’ for them”. Like the M-Pesa application, M-Shwari can work on any kind of mobile handset, and setting up and using the service is easy. The service is also engaging, instantly pleasing users who exhibit “good behavior” (Cook & McKay, 2015).

The aim of M-Shwari is to “deepen and diversify the consumption and income benefits of M-Pesa by providing clients with a facility to save and by offering credit beyond a user’s networks of family and friends” (FSD Africa, 2016). To make credit provision decisions for unbanked clients, M-Shwari relies on user digital information or telecommunication data that customers provided when they joined the network (Cook & McKay, 2015). Proponents of a savings and loan service like M-Shwari point that millions of individuals, small and medium-sized enterprises lack sufficient credit or have no access to credit (Tyson & Lund, 2017).

Bob Collymore, Safaricom’s chief executive, pointed out that the unbanked sector in Kenya could have a combined savings of \$3.4 billion, which does not earn the savers any interest, and increases the likelihood of theft (Economist, 2013). The absence or scarcity of credit consequently impedes people’s entrepreneurial initiatives, development and economic growth. On the other hand, the availability of credit through digital finance has two benefits; first, it expands financial access, and second, it reduces the cost of disbursing credit when compared to traditional bank branches (Tyson & Lund, 2017). M-Shwari is the promising digital channel through which consumers who did not have the benefit of these services in the past can save money and access short-term loans (Cook & McKay, 2015).

Provision of digital financial services by telecommunication companies cannot succeed without the active participation of governments and banks. First, through telecommunications policy, the government ensures that there is an interoperable network between banks and telecommunications companies. Second, the government ensures the creation of widely acceptable forms of identity so that mobile providers can prevent fraud. Third, the government devises regulations that protect investors and consumers. These regulations should also give

banks, telecommunication companies, and financial technology creators the space to continue innovating and improving their products (Tyson & Lund, 2017).

Safaricom conducted aggressive marketing of M-Shwari. In much of its marketing, M-Shwari's portrayal showed the ability of the service to enable people's prosperity, lifting individuals from rags to riches (Economist, 2013). A sizeable proportion of the Kenyan population has embraced M-Shwari, even though studies show early adopters of the service are more likely to be urban, with bank accounts, above the poverty line, and more likely to be men (Cook & McKay, 2015). CBA serves as the only lending bank, and the financial base upon which M-Shwari thrives. Because of working with one bank, Safaricom has faced accusations of hurting innovation, competition and growth in the digital financial services, by engaging in monopoly or quasi-monopoly activities. Mobile money commentators opined that Safaricom should have opened the access to its M-Shwari platform to all banks in the country, who would serve as lenders (Economist, 2013).

M-Shwari proponents argue that the service succeeded because it has resonated with the Kenyan people, principally because M-Shwari mirrors the way low-income Kenyans manage their finances (Cook & McKay, 2015). Kenyans desire financial arrangements that provide short-term liquidity while also providing benefits in the future. Surveys of M-Shwari use show that Kenyans save and borrow money to cushion against erratic fluctuations in their cash flow, and to cater for unforeseen needs (Cook & McKay, 2015). By the end of 2014, M-Shwari had 7.2 million customers, disbursed loans amounting to 20.6 million to 2.8 million borrowers, and registered 9.2 million savings accounts (FSD Africa, 2016).

M-Shwari is receiving praise for enabling millions of mostly poor unbanked people to enjoy several banking benefits including earning interest, and accessing credit. Kenyans consider

M-Shwari important as it serves a complementary function to already existing financial products. Though used alongside other similar services, users seemed to value M-Shwari more for four reasons. First, M-Shwari provides alternative avenues beyond family and friends through which people can borrow money. Second, through M-Shwari people can access their money quickly when compared to other means. Third, M-Shwari's infrastructure provides high levels of privacy, and fourth, M-Shwari is devoid of social obligations (Cook & McKay, 2015). As illustrated by M-Shwari, digital finance has produced new players providing different savings products. Commercial banks no longer have the monopoly of providing such financial services. This scenario has driven forward competition in the financial sector, a step that has benefitted low-income consumers. In this context, mobile phone applications like M-Shwari have had a notable influence on people's capabilities – an alternative loan choice. M-Shwari is one tool that all subscribers are in a position to exploit, a process that was expensive and difficult prior to the arrival of mobile banking (Smith, et al., 2011).

CHAPTER FOUR: METHOD

This study used an ethnographic approach and multiple methods to collect data on M-Pesa use and the role of M-Pesa agents in Chepkoilel, Kenya. Obijiofor (2015) notes that ethnography works on the assumption that human lives are socially and culturally constructed. This approach recognizes the presence of many realities in human societies. Aside from enabling the use of “thick” description to document personal observations and interviews with participants, media ethnography recommends drawing from various ethnological methods of investigation (Obijiofor, 2015). In the following section, I describe my fieldwork discussing access to the site and the role of the research assistant and the methods used in this research and the types of data collected.

The Research Site

History of Chepkoilel Uasin Gishu

Chepkoilel, is a rural village in the northern part of Uasin Gishu County. The Uasin Gishu is situated in the middle section of Kenya’s Rift Valley, North West of the capital Nairobi. It is one of Kenya’s 47 counties created during the devolution of government in 2013. The name of the county comes from the Maasai clan, *Ilwasin Gishu* that lived in the plains in the 16th and 17th centuries, using the land for grazing their cattle (Overview, 2015). In the Anglo-Maasai agreement of 1911 between the Maasai and the Colonial government, the Maasai agreed to be moved to the southern part of the Rift Valley known as Trans Mara (Uasin Gishu County, 2017).

During British colonization of Kenya, certain areas of the country were populated by White settlers. In Uasin Gishu, the colonial government invited South African Afrikaners to take up the rich agricultural farmlands in Uasin Gishu Plateau, as it was known in that period. The Afrikaners made the journey from South Africa to Mombasa, Kenya’s coastal port town by sea. From there, they used rail transport to move inland. In Uasin Gishu, the first group of Afrikaner

families settled in the area around the present-day Eldoret town in 1903. Several other Afrikaner families immigrated to the area later and settled in a place called Sergoit, a few miles from Chepkoilel in 1908. Asian traders also arrived in the town (Kiereini, 2017).

Eldoret, situated 330 kilometers northwest of Nairobi, is the administrative headquarters and commercial center of Uasin Gishu County. The name “Eldoret” was originally a Maasai name *Eldore*, meaning “stony river,” in reference to Sosiani River that flows through the town (Uasin Gishu County, 2017). Eldoret town was carved out of fertile farming area. Settler farmers referred to the area as “farm 64.” The locals appropriated the name and today still call the area “Sisibo.” The number 64 was derived from the fact that the location of Eldoret was 64 miles (103 kilometers) from the next rail station in the lakeside town of Kisumu in Western Kenya (Kiereini, 2017).

Close to one million people live in Uasin Gishu. Compared to other counties in the country, Uasin Gishu is considered cosmopolitan with other ethnic communities including Luhya, Kikuyu, Luo, Kamba and Kisii inhabiting the area. However, the Nandi sub-group of the Kalenjin community forms the majority of the population. The Nandi people as well as other Kalenjin ethnic groups that live in the wider Rift Valley are internationally renowned for their prowess in sporting activities. Because of this, the county was recently christened the “county of champions” (Uasin Gishu County, 2017).

Livelihoods and Unemployment in Chepkoilel

There is a high unemployment rate in Kenya of 40 percent (Omwansa & Sullivan, 2012). The unemployment rate among the youth – the bulk of the population – is higher than the rest of the Kenyan population (World Bank, 2016). M-Pesa agency business and “bodaboda” or motorcycle taxis have provided a livelihood to some individuals. What was notable in Chepkoilel

was the high number of unemployed youth. To pass time, most of them hung about in the shopping centers while others played pool and mobile sport betting. In general, people in Chepkoilel said it was hard finding jobs in the nearby town of Eldoret. Residents who worked in shop keeping, hardware sales, and carpentry shops saw themselves as engaging in productive work. They noted that youth unemployment was not good for the overall security of the community, as idle youth would involve themselves in petty theft and other ills.

More than 80 percent of the total population in Kenya lives in rural areas. A great portion this population is unskilled. There are no high quality and permanent jobs in the rural areas. Many individuals in Chepkoilel are unemployed, underemployed or in unstable, temporary, low-paying jobs. The county has 50 percent of its population living below poverty line (Uasin Gishu County, 2011). Comparatively, Nairobi, the nation's capital has almost twice the per capita income (UNDP, 2013). There are a few manufacturing industries in Eldoret that are a source of employment. They include Raiply Wood factory, Rupa Textiles, Kenya Pipeline Company, Kenya Cooperative Creameries, Corn Products Kenya as well as pyrethrum factories (Uasin Gishu County, 2017).

It is common in Kenya for younger men and women to migrate to the cities for work. Once there, they send money back to their families, most of them in rural areas (Omwansa & Sullivan, 2012). Though the youth today have sought various kinds of jobs in urban areas, the impression that agriculture is important for livelihood remains in rural Kenya.

Much of Uasin Gishu is agriculturally rich, enjoying cool temperatures and two rainy seasons in a year. The inhabitants, the Kalenjin people, were originally pastoralists. However, the community has adopted modern farming. Majority of the people engage in maize and wheat farming. The county is considered Kenya's breadbasket because much of the national grain

comes from the area (Uasin Gishu County, 2017). Agriculture has been the mainstay of Kenya's economy from the time of independence from British rule in 1963. After independence, the country's leaders continually emphasized the importance of agriculture for livelihood. As exemplified by my observations in rural Chepkoilel, most of the population derives their livelihood in one form or another from the land.

People live on family-owned smallholder farms, where they engage in small-scale farming, mostly for subsistence. Male members of the family work on the family farm while the female members mostly work around the homestead. People mostly grow maize for family consumption because it is the staple food. Farmers with bigger farms sell their maize crop to the government-owned National Cereal and Produce Board or private millers. Because the community values livestock, many of those without formal employment easily go into small-scale dairy farming. Few families have high-grade dairy animals. Nonetheless, they sell the little milk they get from their livestock to the farmer-owned Kenya Cooperative Creameries (KCC) plant in Eldoret town, privately owned dairies or individuals near where they live. However, the agricultural sector has witnessed poor growth recently. The cereal and milk market is poor and farmers hardly fetch enough money from the sale of milk or grains.

Most rural villagers lead a simple and modest life. A majority of the households do not have connection to the national grid, and lack other public amenities liked piped water and sewage system. Bonds of kinship, family, work, religion, neighborliness and a host of other relations shape social life in rural areas. As noted, the concept of *harambee* or "pulling together" is deeply entrenched in rural culture. When faced with financial troubles, people rely on crowdfunding and social resources for help.

Methods and Data Collection

ICTs are becoming ubiquitous in people's lives. The widespread use of mobile money in rural Kenya is a testament to this fact. At the same time, the development of mobile technology is rapidly growing. As such, more academic research and knowledge is needed to understand how people use these technologies to improve their lives (Kleine, 2013).

The relationship between a technological innovation and development is a complex and contingent process. Different people use technology to support their development outcomes in different ways. This calls for research methods that capture the particular nuances of technology use. One way to understand this is by using systematic qualitative research to understand the place of ICTs in people's lives (Kleine, 2013). This study uses interviews and observations and relies on various perspectives drawn from multiple disciplines to enable conceptual triangulation. This kind of triangulation brings new perspectives and understanding in a subject leading to a rounded analysis (Darian-smith & McCarty, 2017).

The findings from this research are based on a three-month period of fieldwork on M-Pesa use and facilitation in Chepkoilel in western Kenya. Conducted in May-August in 2016, it involved a combination of interviewing and observation in M-Pesa kiosks as well as various other settings. In the remainder of this chapter, I describe my fieldwork including access to the field site, the methods used, and the types of data collected.

Starting the Research

After receiving institutional approval from the IRB for the research, I contacted a research assistant in Kenya.⁷ I needed a research assistant because it is difficult to do research in

⁷ I received approval for this research, "Using information and communication technologies for social change and development: Mobile money in Kenya" (protocol #; 201603725) from the Human Subjects Office Institutional Review Board at the University of Iowa, Iowa City.

a new place. Even though I shared the same Nandi language with members of the community, the process of assimilation and integration is not always easy. I was an outsider in Chepkoilel, a strange face that most locals had never met before. I was also an outsider because I did not reside in the immediate locality or even in Kenya. That is why I needed to have a research assistant who would assist me in the process of integration with the community. I hired a local resident who has lived in the area for more than 10 years. Importantly, he had a good relationship with the locals.

During my fieldwork, this research assistant played an important role in facilitating contact with the people. Not every person in the community is a potential interviewee. On their own, community members are helpful in pointing out knowledgeable people who can help in the research. This research process engenders the acceptance of a researcher in a community. When we started the interviews, he was fundamental in the introduction process, a key part of the interview. My education and the foreign school I attended were potential power markers. The research assistant was essential in creating an environment that made interviewees feel comfortable.

To give power and control of knowledge to the participants, my research assistant stated that I was out to learn from them. He told them that there are things they could teach me about M-Pesa now that I had been out from the country for so long. He told them to explain aspects of M-Pesa in basic terms because I knew nothing about the application. I also noticed that he framed my information seeking as “help,” telling the participants that my research would not succeed without their help.

Interviews

Interviews are suitable for the exploration of the “thoughts, opinions, beliefs, experiences, and motivations of people around a particular subject” (Darian-Smith & McCarty, 2017, p. 137). In particular, face-to-face interviews enable interaction between the researcher and the participants leading to a better understanding of people’s thought patterns. While researching the rural audiences in Chepkoilel, I relied on semi-structured interviews because they have a semblance of face-to-face conversation rather than a formal question and answer style.

This interactional quality of interviews enabled me to have one-on-one dialogue with individual M-Pesa users in various settings and M-Pesa agents in their kiosks. At the start of the interviews, I carried a list with questions I wanted to ask the participants. After the first few rounds of interviews, I realized that having a pen and paper was influencing people’s freedom to converse. I had to stop and the change was immediate. The conversations went freely and unhindered. I concluded that perhaps people in rural settings are comfortable with things that are formal. Formality has the potential of hindering and impeding the extent of interaction and participants’ eagerness to contribute thus inhibiting the amount and depth of information that can be procured.

While listening to each participant, interviews gave me the opportunity to explore issues further by asking the participant follow-up questions or seeking clarification and confirmation. The interactivity of interviews was instrumental in building relationships with the participants. This relationship with people who were new to me benefitted the overall research.

In order to get the most out of interviews I had to let my participants to explore their own thoughts. Conversational interviews were helpful in the sense that they gave the participants “freedom to determine the topic of discussion and the direction of the conversation” (Darian-Smith & McCarty, 2017, p. 137). This approach served to bring out topics that had not crossed

my mind before or which I did not have down in my questions. The flexibility of conversational interviews allows the researcher and participant to explore the topic in depth and to cover new topics or questions (Tracy, 2013; Jensen, 2012). For example, the issue of mobile money safety was a new topic that emerged from the field that I had not considered in my proposal writing. The fact that users and agents highlighted this problem in equal depth showed the seriousness of the issue. Because it was an issue that affected both groups of participants, I made sure to have a conversation about the issue in subsequent interviews. Conversational interviews helped me to focus on issues that transpired in the course of the interviews. It also facilitated the identification of informative sources.

The interview questions were based on the framework of localization and domestication of ICTs. Questions focused on M-Pesa use, and how M-Pesa agents perceived their role in Safaricom's mobile money ecosystem. The questions were open-ended to allow participants to develop their own themes and to grant me flexibility to probe deeper when participants introduced new ideas or emerging issues.

I conducted all the interviews. Interviews with M-Pesa users took place in various locations that were determined by the research participants: in their homes, in their workplaces, in hotels or under the tree in the neighborhood. Interviews with M-Pesa agents took place in their kiosks. The participants for this study were selected using purposive and snowball sampling techniques (Lindlof & Taylor, 2011). To recruit participants, I made phone calls to potential interviewees with mobile phones. I also directly approached participants one-on-one in various settings and through social networks.

Most Kenyans speak more than one language – Nandi (the ethnic language/mother tongue), Swahili (the national language) and English (the official language). Participants were

interviewed in the language they were most comfortable with. The ease with which they would express themselves in a language determined their choices. I made sure to ask about language preference before the start of every session. Some participants wanted interviews conducted in the Nandi language while others were comfortable in Swahili and a few others in English. Others were comfortable with a mixture of English and Swahili or Nandi and Swahili.

In total, I interviewed 40 people: 25 M-Pesa users and 15 M-Pesa agents. For M-Pesa users, there were 17 men and 8 women. The majority of the users (14) were in their twenties. For M-Pesa agents, there were 5 men and 10 women. Here also, the majority of the agents (8) were in their twenties. I also engaged in observations of two groups of participants in various settings. Every interview was audio recorded and lasted between 20 minutes and 1 hour. Audio files were later transcribed in full (LeCompte & Schensul, 2013), and translated into English. In this dissertation, verbatim responses for M-Pesa users are identified by the interviewee code with the letter U. On the other hand, verbatim responses of M-Pesa agents are identified by the interviewee code with the letter A. Qualitative data analysis and coding followed five processes – familiarization, identification of a theoretical framework, indexing, charting and mapping and interpretation as informed by the work of Pope, Ziebland and Mays (2000). Familiarization involves immersion in the data, a process that requires listening to the recordings, reading the transcripts and studying the notes. Identification of a theoretical framework involves identifying the main issues, concepts and themes that help in grouping the data. This is arrived at based on a priori frameworks and those that emerge in the field. This framework assists in the data management. Indexing is the application of a thematic framework to all the data through annotation or other coding systems. Charting is reorganizing the data in line with the thematic framework – putting related issues together through synthesis. Finally, mapping and

interpretation is the process of deriving associations between themes, a procedure that helps to explain the findings. This process is guided by the original research questions as well as the emergent themes from the data.

Observations

The data collection for this study involved the use of observational methods. The method involves observing the subject of the study, and the systematic description of the behaviors and events in a research setting. With observation, the researcher uses the five senses, often taking notes of the observation (DeWalt & DeWalt, 2011). Observations enable learning through exposure (LeCompte & Schensul, 2013). Though the researcher can take photographs or record the events he or she observes, I did not use to avoid being obtrusive in the events at the site. Instead, I engaged in listening and watching of behaviors in various sites.

I went to the field with basic ideas about what I was going to observe. Having a prior plan of what to observe helped me to focus on what I considered important to answer my research questions and sub-questions and for theory building. However, a great portion of my observations comprises details that I had not planned for and were equally useful data.

Observations were an important part of the data for this study. They were part of the field notes I kept. Mobile money services are popular in rural Kenya. Observations were carried in the process of interviews. Customers often briefly interrupted my conversations with agents. When this happened, agents instructed me to wait as they served customers. I used the interlude to observe their facilitation of M-Pesa and their overall interactions with customers. We resumed our conversation when there was no one to be served. In order not to disrupt the business activities of the agents, I did not write field notes from the observations in the agent shops. Nonetheless, I recorded my field notes on the same day in a different location. I made every

attempt to ensure the field notes closely reflected the observations by cross-checking the details during successive visits to the agent shops.

These methods allowed me to observe the contexts of M-Pesa use and the facilitation of M-Pesa. These two processes were interlinked; thus, it was not possible to engage in the observation of M-Pesa users in isolation from their facilitators – the agents. Thus, most of these observations took place in agent shops, the only places that agents served their customers. Most observations involved learning about the one-to-one interactions between agents and their customers. Observation allowed me to examine the mobile money processes between M-Pesa agents and the customers. I was also interested in observing how agents and users were involved in the deconstruction of M-Pesa, and how ordinary people used M-Pesa on a daily basis.

In general, I was interested in learning about the disjunctures prevalent in M-Pesa remittance processes. Through observations, the disconnections between Safaricom's expectations and realities on the ground were revealed. Interviews would not have revealed these contradictions because agents would not have been ready to reveal how they altered the service. On the face of it, agents attempted to show they followed Safaricom's guidelines as to how to discharge the services. Thus, observations revealed contradictions in ways other methods would not have uncovered. It showed how agents participated in the localization of M-Pesa by being less stringent in the production of identification documents by their customers or by not asking clients to sign the logbook. Agent localizations of M-Pesa were local iterations of the service that were necessitated by various circumstances of the customers such as the fear of losing the identification documents or their low financial positions. In the field notes, I provide in-depth descriptions of mobile financial activities, including my own interpretations and analytical position.

CHAPTER FIVE: INTERSECTION OF M-PESA AND EXISTING FINANCIAL PRACTICES

This chapter presents the research findings from M-Pesa users in Chepkoilel. The findings are guided by the research questions: how has M-Pesa fit into people's existing financial practices? And, how do users perceive M-Pesa and the role of the service in facilitating their development or financial mobility? In the following section, I explore the financial practices people engaged in before the arrival of M-Pesa. In particular, I discuss people's use of informal saving groups and formal banking facilities. I investigate if and how M-Pesa has intersected with these practices. I found that group members used M-Pesa when they could not meet face-to-face. However, the coming of mobile saving facilities was displacing the role of saving groups. The chapter also examines people's use of formal banking services and their incorporation of M-Pesa. I find that people adopted m-banking because of convenience. Finally, the chapter looks at the role of social network remittances in supporting people's livelihoods. I found that mobile money had facilitated local and international remittances that cushioned families against tough times.

M-Pesa and Informal Saving Groups

A sizeable proportion of the population in Chepkoilel belonged to a saving group. Belonging to a saving group was almost part of life in the community. These groups were highly localized and independent arrangements, taking new members occasionally to increase their numbers. People would also relinquish their membership when they could not afford the group contributions or for other personal reasons. Interviews revealed three types of arrangements in Chepkoilel.

Rotating Savings and Credit Associations (ROSCAs), or *chamas* in local lingo, was the most popular arrangement in Chepkoilel. *Chamas* involved members pooling funds to benefit one beneficiary at a time on a rotational basis. These groups were highly informal, and did not

need any government approval. Members used *chamas* purposely for saving money. The number of members that made up a group and the relationship of the members varied from group to group as seen from these responses:

Our group is made up of 20 people. We contribute 1000 KSH each to one person each month. We are all neighbors living in the same building. (Male U02, June 4, 2016)

I am in a group with 10 friends who do not work here with me. We contribute 1,000 KSH every month. (Female U04, June 4, 2016)

I belong to group with my workplace colleagues. We are 12 members and we contribute 6000 KSH every per month. (Male U07, June 4, 2016)

In general, groups were made up of workmates, friends, neighbors, church members or family members. Members could be individuals running private businesses or those employed in government or private sector. Membership was not restricted and it was common to find members from diverse geographical locations, including from urban areas. There were no age or gender restrictions either. Some *chama* groups were composed of more than twenty people. Thus, some members had never met each other face-to-face. Although group size and the spatial distribution of members at times hindered group interaction, the objective of the group, which was to have everyone in the group receive the pooled funds, created social cohesion among members. In other words, the objectives, traditions and culture of the members fostered social cohesion (Ling, 2008).

The members decided the amount of monthly contribution and the frequency of collection based on the ability of members to raise the money. Members who lived near each other set up face-to-face meetings to talk about the group's affairs and hand over the money to the recipient of the month:

Our group is made up of neighbors. We all live in the same village. We meet physically to hand over the money to the treasurer who gives the money to the recipient of the month. (Female U05, June 7, 2016)

Group members who lived far from each other had incorporated mobile money into their practices. Those who could not make it to such meetings used M-Pesa to send their contributions:

We use the mobile phone to discuss group issues. Also, other members use M-Pesa to send their contributions to the treasurer. M-Pesa has brought efficiency in the affairs of our group. (Male U01, June 4, 2016)

People found membership in these groups to be advantageous because of the economies of scale – the amassed resources. Residents said a bigger sum of money enabled them to finance “bigger” personal projects, such as purchasing household furniture or buying a plot of land that they would not afford relying only on their individual incomes. In other words, there was so much that an individual member would accomplish with the pooled resources than with his or her individual income.

The second type of saving group was the welfare group. As the name suggests, they were used for welfare activities. The purpose of this group was synonymous with the work of insurance. Like *chamas*, the activities of the welfare groups were well organized:

We started our welfare group recently. Our group is made up of friends and people of the same religion. We have a “constitution” that guides what we do. For example, we meet every first Monday of the month and we contribute 1000 KSH every month. We have deadlines for contributions. We also write and keep minutes. (Female U04, June 7, 2016)

Members used the funds to pay for emergencies such as sickness or death that befell members, or kin of members. In some cases, contributions were not regular and members only contributed whenever an emergency occurred. If members lived near each other, they met monthly to make their individual contributions. However, members who lived in far localities sent their contributions via M-Pesa.

The third group arrangement was the microfinance group. Here, members pooled funds and then banked the money in a microfinance institution from which they asked for a loan

together. Microfinance institutions mainly disburse loans to small businesses and group investment activities. By pooling funds, members of the microfinance group were able to get a substantial loan from the microfinance institution. In turn, the bigger sum of money advanced to them was able to finance a sizeable development project that would benefit all the members. The type of investment activity varied from group to group. Examples of such projects included construction of rental houses and business premises for lease. The lease money that came from these premises went towards servicing the loan but in the end, the real estate belonged to the group as a whole:

We belong to a loan group, a micro-finance called Eclove. We pool funds, then bank in the microfinance institution then ask for a loan as a group. This arrangement has really helped our members. (Male U18, June 18, 2016)

What is evident in the three social arrangements is that M-Pesa did not displace the face-to-face meetings the group members had. Members used M-Pesa only in circumstances when a physical meeting was not possible. The fact that groups made selective use of M-Pesa signaled that savings groups were not beholden to the application in managing their group's activities. Thus, M-Pesa had not reduced social cohesion in Chepkoilel. The group's activities, facilitated by M-Pesa helped to foster social cohesion.

Collective development was the philosophical basis of these groups. Members formed *chamas* out of a common understanding that bringing their resources together would improve the lives of all the members. Most members of these groups were low-income earners. Thus, low-income can be seen as a constraint that limited the choices and opportunities of the members. However, members responded to their individual constraints by summoning the capabilities possessed by the other like-minded individuals, and using the power of their togetherness to benefit everyone.

Although saving groups were common in Chepkoilel, some residents did not belong to any such group. What was notable in the latest trend was that tech-savvy people had adopted the mobile saving platform – M-Shwari. These individuals held the opinion that such novel applications deserved a place in the changing technological environment. They supported the modernization of saving. Their desire for change was brought about by the problems people faced with saving groups.

Depending on the type of *chama* and the “constitution” drawn up by members, individual *chama* members were open to borrow funds from the pooled group funds for personal use and then return the money, at times with interest. Disbursement of such monies was procedural and often took time. For example, an individual asking for a loan had to physically look for the Chairperson and Treasurer of the group, then sit down with them to discuss if he or she qualified to apply for a loan or not. If one was qualified to get a loan based on the personal contributions made, the loan application process involved getting approval signatures from the rest of the group members. Obtaining the signatures was, however, not a smooth process because of member absences during crucial meetings set to discuss loan disbursements. This heightened people’s perceptions of savings groups as inefficient, cumbersome and time-consuming. In general, a cross-section of individuals were against the many procedures one had to go through before getting a loan from a saving group. One former saving group member said:

Saving groups are losing meaning. With groups, you have to physically look for the Chairman or Treasurer of the group, then sit down to discuss if you qualify for a loan or not. You also have to look for group members to sign your application form. A times, one member may be unavailable to sign the loan form. Conflicts with members at times arise. (Female U22, June 18, 2016)

Mobile loan application became the preferred option in light of the problems people faced with the saving groups. They pointed out the many advantages of M-Shwari over *chamas*.

The instantaneity of the saving platform provided by M-Shwari, done alone at the touch of the button, was considered more convenient and efficient. A user said:

If you save 10,000 shillings, you can get 20,000 shillings at the press of a button. Getting a loan using M-Shwari is faster and convenient than using saving associations. (Female U22, June 13, 2016)

In addition, M-Shwari loan application, was preferred to the group's operations, which were often times laden with inefficiency, absences and member conflicts. One user said, "With M-Shwari, conflicts not arise because it's only you and the M-Shwari product" (Interviewee U22, June 7, 2016). They also pointed that M-Shwari has instilled an improved savings routine or culture, most of which came in the form of alerts or reminders. Because of this, they said that they did not need group members to remind them to save:

You no longer need a group of people to save money. M-Shwari has instilled discipline in individuals to save. The application sends you messages telling you it is time to repay the loan. (Female U22, June 18, 2016)

The other reason people preferred M-Shwari was privacy. Asynchronous requests for loan money using M-Shwari remained unbeknown to many people. As seen from M-Shwari enthusiasts, the mobile saving platform was considered liberating, efficient and convenient. For these individuals, the development of technology-led saving platforms was making savings groups obsolete. Safaricom required that customers must have saved a certain amount of money in order to get a loan from M-Shwari. Because of this requirement, everybody was in the process of saving money. Whenever people had extra cash in their M-Pesa, they transferred it to the M-Shwari account. For them, their money was more useful on their M-Shwari accounts because they would ask for a loan with it.

M-Shwari customers could ask for whatever amount they wanted based on the amount of money they had saved. Safaricom used customer information on its computer system – such as M-Pesa transactions, M-Shwari savings, and so on, to determine loan beneficiaries and the

amount to award. The more one saved, the higher the loan one got from M-Shwari. People borrowed small and big amounts of money; it all depended on one's need. For example, there were customers who requested smaller loan amounts of 300 KSH and others who applied for bigger sums of 3,000⁸ KSH. Another loan applicant was proud that he had saved 2,500 KSH making him eligible to ask for a 7,000 KSH loan. M-Shwari was beneficial to low-income earners because one could save any amount on M-Shwari. People found M-Shwari loans user friendly as the facility catered to their needs in terms of the amount of money they needed. Residents stated that M-Shwari loan and credit has positively affected their lives. As one user stated, M-Shwari had also saved on travel expenses, as one did not have to make a long road trip:

I use my phone to ask for a loan. Safaricom provides the loan immediately in my M-Shwari account. I simply go to the nearest M-Pesa agent to transact and I move on. (Female U05, July 9, 2016)

People said that M-Shwari credit has “saved” them whenever they faced financial emergencies or problems. M-Shwari has also provided others with loans and short-term credit for the expansion of their small businesses and for other needs:

I rely on M-Shwari for loans. It is useful to me because there are times I may not have money to cover emergencies. (Female U22, May 29, 2016)

However, there were customers who did not have money in their M-Shwari savings account yet wanted loans. I found out that in such cases, people had devised creative ways to meet Safaricom's saving requirement. For example, one customer asked his shopkeeper friend to lend him money, which he put into his M-Shwari saving account. He then asked for M-Shwari loan, and once Safaricom approved the loan application, he used part of the loan money to pay back

⁸ Approximately \$30 USD. The average exchange rate of the Kenya Shilling to the USD during the period of the study was about 98 to 1.

the money borrowed. An M-Shwari loan was subject to interest though, which went up when a borrower did not repay the loan in time.

Safaricom had devised a time plan for loan repayment. Those who applied for M-Shwari loan paid back the money in smaller amounts over a period depending on the amount borrowed. Some loan receivers met the repayment deadlines while some did not. Although loan applicants liked the flexibility of repayment, they thought the repayment rules were too strict because they were cast in stone. They felt Safaricom should relax their rules at times:

Safaricom is not flexible on loan repayment. When it is time to repay you have to repay. The loan will double if you do not repay on time. There is no way of explaining to the company to extend the time. The customer care department does not deal with that. Safaricom should extend my time. (Female U16, June 4, 2016)

Safaricom worked with the Credit Reference Bureau (CRB)⁹ to devise mechanisms to punish loan defaulters. Some residents understood that if they did not repay their loan on time, Safaricom would send a report of their credit worthiness to CRB irrespective of the amount of money defaulted. This would make it hard for them to get another loan from M-Shwari or from anywhere else. Some customers were interested in taking smaller M-Shwari loans. However, they were apprehensive of the hefty penalty they would get from Safaricom if they defaulted on repayment. In such a case, they ended up not taking the loans:

I do not use M-Shwari because when you default in your payment, Safaricom will send your credit information to CRB. As a result, you will not receive any other loan money from any financial institution. CRB blocks you from accessing any finances until you repay M-Shwari with penalties. (Male U17, June 9, 2016)

This study found that though customers understood the process of opening an M-Shwari account and even applying for a loan, customer understanding of the product was generally low when compared to other Safaricom products. For example, I found out that most residents could not

⁹ CRB is a company licensed by Central Bank of Kenya to gather and collate the credit information of individuals and companies from different sources and compile a credit report on behalf of lenders.

name the credit rating body that Safaricom worked with. They were also unaware of the amount of interest received, the prices charged, how to qualify for a loan or loan increase.

On top of M-Shwari, people borrowed money from relatives and friends. Though residents borrowed money from these sources, they preferred borrowing funds from M-Shwari because they were sure of getting the funds. They also preferred M-Shwari because the loan application process was quick, including the fact that if they qualified for the loan, the funds were transferred to their mobile accounts within a short time. In contrast, borrowing from individuals was fraught with disappointments because the lenders would not have the money at times.

I argue that M-Shwari had essentially broadened the base of people who could borrow funds. More importantly, the conception of a loan had changed from being a preserve of the elite with huge sums of money, to a facility that ordinary users with mobile phones could access. In this way, Safaricom users praised M-Shwari for the demystification and the simplification of the loan application process.

Self-help saving groups have been prevalent in Kenya for several decades. However, the development of alternative technology-enabled saving platforms by mobile network operators appeared to be changing and displacing savings groups. The coming of mobile saving platforms brought with it individualistic financial practices, a contrast fostered and facilitated by community self-help groups. The new platform was evidently becoming a threat to the existence of the social capital that residents derived from other members of the community, and which was integral to their capabilities and their overall development. As Ling (2008), observes, some technologies have the capability to atomize or limit group activities. In this case, the mobile phone fostered saving practices that catered to the individual rather than the group.

M-Pesa and Commercial Banking – M-banking

Interviews revealed that the majority of the residents had bank accounts before M-Pesa arrived. A participant said:

I have a bank account with Kenya Commercial Bank. Previously, I had one with Equity Bank. I had the accounts before M-Pesa and M-banking were introduced. (Female U22, June 14, 2016)

However, I found that commercial banks had acquired a negative reputation in the village – they were associated with poor services. Banking services in town were not a pleasant experience for most people, because of long queues especially during mid and end of the month when public and private sector employees took salaries. Residents complained that, on many occasions, depositing or withdrawing money involved more than two hours on the queue. In addition, most participants said that though they had formal bank accounts before M-Pesa arrived, they could not access money, as they wanted to.

I had a formal bank account before M-Pesa arrived. However, the problem was I could not access my funds after business hours and over the weekend when banks are closed. (Interviewee U09, June 18, 2016)

Because of these problems, participants welcomed the linkage between commercial banks and telecommunications firms. People said because of m-banking, they could now access their funds when they needed them. People now use their phones to withdraw money from their formal bank accounts or send money to these accounts using their m-banking facility. Many welcomed the convenience of using m-banking to access their banks accounts at any time, even during the weekends when banks were closed. One user emphasized the convenience of m-banking saying:

When I have money in my M-Pesa account, I can transfer it to my bank account or move money from my bank account to my M-Pesa account. I do not have to plan a trip to the bank. Therefore, I prefer to transact with my phone. When you want to withdraw money, you go to the nearest agent at your own convenience to cash the money. (Male U06, July 12, 2016)

One can say that the coming of m-banking has brought new ways through which customers could work with financial institutions. M-banking has brought unprecedented access to formal financial services to people previously excluded from them. The convenience of m-banking drew many to the m-banking platform. Overall, people found m-banking cheaper than traditional banking.

Though mobile technology has become a central tool through which most Kenyans conduct their financial transactions, not everyone was excited to use these tools to conduct their financial activities. Even with M-Pesa accounts, people still transacted using their commercial bank accounts. In fact, some residents stated that they use their formal banks accounts more than they use the m-banking facility. Furthermore, others had not registered for the m-banking facility that links the M-Pesa account to the commercial bank account. These individuals were comfortable managing their money the old way; they deposited and withdrew money from the bank tellers or from the automated teller machines (ATMs). Two reasons accounted for these financial practices – cost and perceptions of money management.

First, in terms of cost, some individuals found the cost of M-Pesa services unaffordable. It cost money to perform a wide range of m-banking transactions. For instance, moving money from the M-Pesa account to the commercial bank account came at a cost. Though the facility to move money around had made life easy for individuals, there was a feeling that in the end, the many transactions were costly as they ate away one's hard-earned savings. Second, in spite of its convenience and speed, some people felt that m-banking had brought problems of money management. Residents complained that it was difficult to manage and keep track of their finances when they used the m-banking platform. These habits show that people were not ready

to let go of their comfort zone of the cash economy, nor erase, disrupt, or displace existing financial practices.

Recent developments in the banking sector show that the sector is as lucrative as ever. Notably, the entrance of telecommunication firms in the market has not only introduced a new way of banking but also brought competition. In order to retain their relevance in the market, commercial banks have linked with telecommunications firms through m-banking. Tellingly, the adoption of m-banking signals the future direction of banking – digital. This fact explains why banks have changed their emphasis from physical bank branches to online banking models.

Financial Flows Across Borders

The concept of giving has a long history in Kenya. After Kenya's independence from British colonial rule in 1963, Jomo Kenyatta, the first President of newly independent nation introduced *harambee*, or “pulling together.” *Harambee* served as a vehicle to raise money to fund development projects of the resource-constrained republic. The practice involves the public pooling of resources in order to support the establishment of a host of community-related projects like schools, churches, and hospitals (Muchiri, 2016). In later years, *harambee* became a popular way of raising funds not just for community projects but also for personal needs. I argue that interpersonal money transfers via M-Pesa are a modern-day iteration of *harambee*.

Singh (2013) notes that interpersonal money transfers are “the vast array of flexible and interpersonal financial transactions that operate in give-and-take of everyday life” (p. 157). There were two types of such flows in Chepkoilel; local-local flows and global-local flows. The first type of flows was made up of remittances between individuals and family members living within Kenya, such as between people residing in different provinces, counties, municipalities and neighborhoods/villages. Local-local flows were the majority. Compared to M-Pesa, formal

banking institutions are not as efficient in the facilitation of these person-to-person remittances. M-Pesa transfer was the choice of the majority of the people interviewed majorly because these financial flows are instantaneous. These flows had improved the livelihoods of people in one way or the other.

On the other hand, global-local financial flows were transnational in nature, originating from Kenyans residing in foreign countries. These flows came from people who had migrated to other countries around the globe and sent money to their families they had left behind. There were more flows originating from foreign countries than those originating from Kenya, perhaps signifying the relative strength of economies between the countries involved.

M-Pesa was a great enabler of these two types of financial flows, which were beneficial to the employed and the unemployed alike, the receivers and senders of money. For instance, it was all too common to find people in Chepkoilel with no source of income or jobs. In the absence of opportunities to improve their lives, mobile money was the vehicle of choice to solicit help, now done with the touch of a button. Partial or complete dependence on kin and relatives for survival was the mode of living for some people. On the other hand, M-Pesa had become a convenient tool to assist members of the community that needed help.

People took advantage of their mobile phone networks and the benefits that this connectedness brought. Individuals seek help from others within the traditional relationships of kin and lineage, or from the social network of friends and peers. For example, it was common to hear people say their relatives, friends, or some other relation sent them money via M-Pesa or they send money themselves:

I live far from my family and at times, they need money from me. I use M-Pesa to send money to them in case of emergency. It takes a short time for me to send money. (Female U15, July 12, 2016)

Local-local and global-local flows brought reassurance of strong bonds in these relationships, both to the sender and receiver of money. Because most mobile remittances were asynchronous, the act of sending money by phone carried an interesting unspoken message – it was a signal that the sender of the money was doing well. One Chepkoilel resident clearly illustrated this phenomenon. A semi-skilled man in his thirties, he was able to send his mother money even though he had a temporary job as a mill operator that did not pay well. Though he had not seen his mother for a while, he said the fact that he was able to work and send money was evidence enough that he was alright and healthy and his mother did not need to worry. He said:

My mother lives in Kapcherop [a far location]. I often send her money using my telephone. Therefore, I do not need to travel to take money to her. The fact that I am able to work and send her money is enough evidence I am all alright. (Male U09, June 13, 2016)

In other words, sending money via M-Pesa had a bigger message than just remittance; it was a coded message of well-being. Such instances of person-to-person remittances served to keep families going.

These social networks were fundamental in building the capabilities of individuals. Different individuals send money at the local level for a variety of purposes. For instance, family members including husbands and children working in urban areas and other locations away from home send money to family back home. People also send money to respond to need, and to express care and relationship. Family members used these local money transfers to pay for business expansion, schools fees, hospital fees, or family ceremonies.

M-Pesa has facilitated global-local flows and increased economic linkages at the global and the local levels. Some residents had kin and relatives in other parts of the world. For

example, a resident with a brother doing business in London often received money from him through M-Pesa:

I have a brother in London who does business and often sends me money. I know other people in the village with relatives abroad who send them money. (Male U18, July 19, 2016)

Western Union, MoneyGram and other international companies have traditionally processed such remittances. These companies operated in conjunction with established banks in town. Transferring money meant making a visit to these physical bank locations. To accomplish this, residents had to factor in the cost of transport, much of which was unreliable owing to the poor infrastructure. This has changed with M-Pesa. M-Pesa has simplified transnational financial flow and drastically lowered the cost of receiving money. Residents appreciated that they can now receive remittances from relatives anytime and instantly. As stated by another participant, transferring money was easy as it meant visiting to the nearby M-Pesa agent:

I receive money from abroad instantly and anytime on my phone. These days, I do not have to go Western Union to transfer the money sent to me. I simply go to the nearest M-Pesa agent in my neighborhood. (Male U18, July 19, 2016)

Participants felt the global-local flows improved their lives. The resident with a brother in London said the money he received had enabled him to expand the small hardware business located in the small shopping center of Sogomo. Furthermore, according to this recipient, global-local financial flows were vital for the promotion of local entrepreneurship. Almost everyone I interviewed had assisted or received help from a relative or a friend. For people ready to assist family members living far from them, M-Pesa had saved them the cost of travel. Rather than make a trip to offer the assistance, most residents preferred sending money by phone:

I say thank you to whoever started M-Pesa because it has helped me a great deal. M-Pesa has saved me a lot of transport cost. (Male U08, July 7, 2016)

Mobile Financial Flows and Social Interactions

Many preferred to send money they had to their relatives rather than use the money to pay for transport. Because of this development, the debate about whether mobile money remittance had affected social relationships has come to the fore in research studies of mobile money. For instance, in her research to examine the correlation between social networks and mobile money remittances in Western Kenya, Kusimba et al. (2015) found that though mobile money remittances strengthened social bonds, they also disrupted social relationships.

This debate had split the opinions of Chepkoilel community right in the middle. Those who thought the process of sending money by phone had replaced social interaction stated that some people had conflated travelling to see family with sending money.

Some M-Pesa users have developed the habit of saying ‘why should I travel when I can send them money.’ I think there are people who do not meet their family members and think money caters for the social part of life, which is not true. (Female U22, June 18, 2016)

For this participant, some people had reduced social interaction between family members to financial remittances, pointing that there is a difference between the two acts. For others, the M-Pesa facility brought the temptation to use the application to send money rather than make the trip:

M-Pesa makes you feel it is better to send the money you would have otherwise used for transport. (Male U18, July 9, 2016)

It was apparent that people had to make the difficult choice of sending money to family or using the money to meet the cost of travel. More often than not, the former prevailed because it was cheaper. As one resident put it:

Safaricom services are expensive but you cannot compare the charges with the cost of travelling to take the money to whoever needs it or the travel cost of the person in need coming for the money from me. (Female U20, June 18, 2016)

A participant who often sent money thought that mobile money remittances actually made people meet less. His premise was that before mobile money came around, those providing help and those asking for help would physically meet to give or receive money. He said that he often complained to one of his relatives for asking for money through mobile money without ever visiting him in person. He felt that money had become the only thing that people asked for. Members of families who lived in the rural areas often accused their folks working and living in big towns like Nairobi for preferring to send money rather than travelling upcountry to meet them. Because young and middle aged men and women were the ones who worked in towns and cities, the older members of the family remained on the family land in the rural areas. One participant relayed one common complaint he had heard from parents of sons and daughters working in towns:

I have heard the old say young people spend more time in town and do not travel home in the rural areas. In addition, the old folks say the young people send them money yet they do not travel to meet them. They say at times it is not the money they need but the companionship of their children. (Male U23, June 13, 2016)

A participant, who lived away from family, and often sent money to them, noted that his family would have liked to see more of him:

I last saw my mum five months ago, yet I send her money when she asks for it. My parents complain I do not go see them. (Male U18, June 4, 2016)

Though some people thought that M-Pesa had diminished social cohesion between family members, others did not subscribe to this dystopian viewpoint. Though they were in the minority, some residents did not think sending money by phone had reduced social interaction. Residents stated that the physical interaction of family members and sending money were two separate activities. Because of this, residents stated that they could send money to their family members and still meet them in person. In short, according to them sending money by phone did not stop them from physically meeting other family members.

M-Pesa had simplified and eased financial both local-local and global-local financial flows. However, some people took this convenience with a grain of salt. There were widespread perceptions that the presence of ready money on the M-Pesa account makes people engage in extravagant spending, especially sending money. People had the impression that money is now so fluid on M-Pesa so much so that it was difficult for them to manage their money wisely. One resident offered a brief assessment of it saying, “Personally, I think the ease of sending money is problematic” (Interviewee U03, June 4, 2016). Consequently, one method some residents used to control their spending was to avoid keeping more money than their needed on their M-Pesa account.

The positives and negatives of mobile money transfers aside, overall, Chepkoilel residents had positive reviews of M-Pesa. People no longer kept their money under the mattress because M-Pesa was a bank. Residents appreciated the fact that most of Safaricom’s services, including M-Pesa have not left them out. They pointed out the universal reach and accessibility of Safaricom’s services to all classes of people irrespective of age, education or wealth. Now a decade old, it was surprising how the mobile wallet revolution had altered perceptions about money, especially for participants long used to using cash in their transactions. People’s impressions about money had changed so much so that they were averse to carrying physical money. The willingness of consumers to use digital finance was notable. As exemplified by M-Pesa and M-Shwari, there was evidence of widespread acceptance and entrenchment of digital finance even in rural Kenya. M-Pesa has cemented its role in people’s development. My research however, found that M-Pesa services were out of reach for some users because of cost. The whole range of M-Pesa transactions remains expensive especially for people with no income. Some residents felt that though M-Pesa was a useful service, it was a form of expensive

convenience. However, left with no other viable options, people put up with the high cost of M-Pesa because it provided a convenient way to carry out a host of activities such as travel, assistance, shopping and so on.

This chapter has examined the intersection of M-Pesa with the existing financial practices people engaged in. It investigated how M-Pesa intersected with *chamas*, the informal saving groups as well as the formal banking activities through m-banking. The chapter also examined how M-Pesa has facilitated the financial flows between the global and the local levels.

CHAPTER SIX: AGENTS, DEVELOPMENT, AND SHAPING OF M-PESA

This chapter presents the research findings from M-Pesa agents as well as M-Pesa users in Chepkoilel. The findings are guided by the research question, how do agents perceive M-Pesa and the role of the service in facilitating their individual development or financial mobility? The first part of this chapter examines how M-Pesa agents have derived livelihoods from M-Pesa through business ownership and employment. The second part examines the intermediary role of agents in the mobile money ecosystem through domestication and management of safety of M-Pesa transactions. The third section details how users and M-Pesa agents have localized M-Pesa, thus entrenching the service among the population. Overall, M-Pesa agents were important actors in the mobile money ecosystem and were critical to the domestication of M-Pesa within the population. They also provided information that Safaricom used to improve the service, acting as important nodes between the company and users.

Mobile Money and Development

The M-Pesa agents are the face of Safaricom's M-Pesa business. M-Pesa agencies are privately owned enterprises whose owners are contracted by Safaricom to facilitate M-Pesa transactions on behalf of the company. Most M-Pesa agencies in Chepkoilel belonged to local owners. These shops were distinguishable because of their green color – what locals called “Safaricom green.” These agencies formed the majority of businesses in the area. These shops, whose doors were always open, were found near residential neighborhoods, along the road, near the farmers' market, on the back streets of small shopping centers or near Matatu (bus) stops.

M-Pesa agents in Chepkoilel appreciated Safaricom's “help” in creating direct and indirect job opportunities for many community members through M-Pesa agency business. The M-Pesa agency facilitated the attainment of the capabilities of residents through the improvement of their actual life conditions (Jasek-Rysdahl, 2001). M-Pesa agency business provided job

opportunities in two ways: first, directly through ownership of M-Pesa agency shops, and second, indirectly by providing employment to individuals who were employed to do the daily management of the M-Pesa agencies.

Eight of the 15 agents interviewed owned their agency business. The M-Pesa agent business was in most cases the only available opportunity for self-employment. The business presented new opportunities for entrepreneurship to rural dwellers that few other initiatives had offered. Though most of those who ventured into an M-Pesa agency were newcomers in business, others had tried their hand in other businesses before. An M-Pesa agency was attractive for a couple of reasons. First, starting the agency work was not capital intensive when compared to other businesses. Second, M-Pesa agency owners were attracted to this kind of work because there were few complications associated with the initial establishment of the business. For example, agents noted that the process of getting the license to start the agency from Safaricom was straightforward. Third, the ease of managing M-Pesa agency business was the most important reason that drew many to the business, even those with minimal educational qualifications. This quality of M-Pesa agency business was very important because some business owners had a high school certificate as the highest educational attainment. One agent summarized the advantages of M-Pesa agency work:

I wanted a business that is easy and straightforward to manage and could bring me income. I just liked Safaricom because their services are not complicated. I also wanted a business that my level of education could manage. I have high school education and I can read, write, and handle customer needs. I thought M-Pesa would help me in this regard.
(Female A10, August 4, 2016)

The response from this interviewee encapsulates the feelings of other interviewees concerning their entrance into the M-Pesa agency business. It was evident that M-Pesa agency business

worked well with their level of education, the amount of capital they could raise, and the knowledge capabilities (Jasek-Rysdahl, 2001).

The attractiveness of M-Pesa agency business had made people leave other jobs and businesses to venture into the agency business. As some owners were quick to point, M-Pesa agency provided better comparative returns when compared with other jobs and businesses they had tried. For example, one respondent quit his primary school teaching job to venture into an M-Pesa agency. Another left her job in the hotel industry after working there for three months. After leaving the hotel industry, this participant started working for Safaricom, though not in the M-Pesa department. Even though she did not work in the M-Pesa department, she was able to gain so much knowledge about the conduct of M-Pesa business that she decided to leave formal employment to open her own M-Pesa agency. Though the business at times had challenges, she considered that it was profitable after operating the agency for three years.

As explained in detail in the next section on mobile money security, insecurity had started to become the bane of M-Pesa agency business. In order to boost the security of agency businesses, Safaricom introduced new rules concerning the location of M-Pesa agency shops and also the kind of structures that housed these businesses. Unlike in the past, Safaricom wanted the agencies housed under permanent buildings and alongside other business. The new directive from Safaricom was a business boon for several entrepreneurial individuals – especially people with small grocery shops or *dukas*. Those with *dukas* went ahead to add the M-Pesa business to what they were doing originally. Having the M-Pesa agency business alongside the *dukas* had greatly improved the earnings of many individuals. According to those interviewed, having the two businesses under one roof had benefits; the M-Pesa agency would invite customers to withdraw money from the M-Pesa agency then in all likelihood, use the money to buy goods

from the shop. Elated at the prospect, one elderly female *duka* owner said, “People come here, withdraw cash and buy stuff in my shop. Safaricom M-Pesa services bring me customers. This has boosted my business a great deal” (Female A14, July 23, 2016). In other words, having the M-Pesa agency and the *duka* business together has ensured that money circulates within the shop.

M-Pesa agents stated that their monthly income from Safaricom originates from two sources: they are paid commissions based on the number of M-Pesa transactions they facilitate, and the amount of sales from Safaricom merchandise – such as Safaricom airtime calling cards. By providing an income, the M-Pesa agency had improved the life conditions of people. Business ownership and management had brought contentment and satisfaction to those who had ventured into an M-Pesa agency, especially the first-time owners who had developed the feeling that they had the ability and newfound knowledge to run a thriving business. There was a sense that M-Pesa had re-awakened unbeknownst business instincts that individuals possessed. This goes to show how through experimentation with the agency business, residents discovered their potential capabilities at their disposal to mobilize to improve their lives. Besides providing residents with the agency to determine the course of their lives, M-Pesa agency business also expanded the choices residents that residents used to improve their live conditions (Jasek-Rysdahl, 2001).

Furthermore, the fact that anyone with a high school education was welcome to apply to Safaricom to become an M-Pesa agent made people appreciate Safaricom for creating an open-door business model that provided opportunity virtually to any community member. In other words, this openness gave freedom to residents to try their hand in business, an opportunity that had not been presented to them before (Tikly & Barrett, 2011). Arguably, by raising the

capabilities of rural dwellers and giving them the opportunity for business participation, the M-Pesa business model is socially inclusive ICT for development (Vaughan, 2011).

Second, there were individuals employed by the owners of M-Pesa agencies to do the daily management of the mobile money businesses. Most of these individuals were in their twenties or early thirties. In interviews, those employed to operate agency shops stated that the M-Pesa agency had provided them with employment and a source of livelihood. They pointed out that they depended on the agency job to support themselves and in some cases their families:

M-Pesa agency has provided me a source livelihood. Right now, I depend on this agency to support my family. (Female A06, June 9, 2016)

The agency job, according to them, was the easiest form of employment they could get. Agents, especially those with a high school education took up this job because they could not find any other job given what they saw as their “low-level” education. These individuals said that because of the M-Pesa agency jobs they are not idle now.

M-Pesa agency also provided temporary employment especially to college students. According to some students interviewed, university breaks that last up to six months were too long a time to idle at home without a job. In order to keep busy during the break sessions, they worked part-time as M-Pesa agents. For instance, a male student in his early twenties, who attended the University of Nairobi, recounted how running the agency business had enabled him to earn income to pay for college rent and school fees. In his view, the ability to pay for these expenses had reduced his dependency on his parents. He also liked the social side of the business, “First, I like M-Pesa because it has helped me a lot. Secondly, I like this job because I like to talk to people. In this business, you deal with lots of people. I like this work because I get to socialize with people.” (Female A12, July 7, 2016)

In general, apart from filling their time, earning an income and socializing with clients, college students found other benefits from working part time at M-Pesa agencies; it gave them the opportunity of adding “employment” to their resume, not to mention that the temporary employment allowed them to gain coveted financial skills/business experience. Expounding on the last benefit, an agent stated:

I wanted to know more about how to deal with money. People were talking a lot about Safaricom and money and I wanted to know how to handle money. My friend and I from the village decided to try it by looking for the M-Pesa agency job. We found that it is not difficult handling finances. We have the financial skills now. (Female A11, June 10, 2016)

Even though the M-Pesa agency businesses they managed did not belong to them, agents made the choice to manage these entities to earn income and make their lives better. The management of an M-Pesa agency came with immediate and long-term benefits – what the capabilities approach considers development outcomes – such as increased knowledge, improved portfolio, income and so on (Kleine, 2010). Apart from providing these indirect job opportunities, Safaricom has employed many people in their headquarters and in regional offices. Residents were well aware of the job opportunities Safaricom provided by naming their relatives and friends whom they knew worked in these offices.

The Role of Agents in the Mobile Money Ecosystem

This section presents the research findings from M-Pesa agents. The findings are guided by the research question; how do M-Pesa agents perceive their role in the mobile money ecosystem? In brief, the mobile money transactions that agents facilitate revolve around two core operations – the taking of customer deposits and the giving of cash withdrawals to customers. An agent explained:

My basic role is to transact money between Safaricom and the user. I do two main things with M-Pesa, I facilitate deposits and withdraw money for the customer. (Male A08, July 23, 2016)

M-Pesa agents consider this particular function the most important part of their job.

Nonetheless, besides these roles, agents do perform a host of other duties for Safaricom. They replace SIM cards for people who have lost them and register new M-Pesa accounts. Especially when Safaricom introduces new services, the company looks to agents to explain to clients about the existence of the new services. For customers who do not know how to execute any operation of mobile money such as sending, depositing or withdrawing money, agents take them through the process. Agents also show clients how to reverse cash send to wrong recipients. They also provide general information about Safaricom, M-Pesa tariffs, new offers and promotions, as enumerated by one agent:

I take deposits and withdrawals and do SIM registration and replacement. I do customer service; I explain to customers about services such as M-Shwari. For customers who do not know how to execute deposits and withdrawals, or how to send money, I show them. I also show them how to reverse cash send to wrong agents or wrong recipients. Customers appreciate what agents do. So they trust the agents. (Male A03, July 9, 2016)

Given the breadth and importance of what they do, M-Pesa agents constitute the face of Safaricom mobile money business. Agents told me that though helping clients with all these kinds of issues sometimes appears more than their mandate, they do it because of the trust customers have placed on them. Apparently, even after informing the customers about the existence of Safaricom customer care services where they can call when they face problems, customers prefer instead to seek the help of the M-Pesa agents. This is understandable given that agents are closer to customers. Additionally, calling the customer care department costs money and time. In particular, customers had given the Safaricom care department the dubious reputation of inefficient customer service given the long waiting times. The work of M-Pesa

agents seemed like that of Safaricom's customer care department in the light of their many functions that agents performed.

All M-Pesa agents were very conversant about the two core mobile money operations they execute – the taking of customer deposits and the giving of cash withdrawals to customers. They were happy to explain to me the procedures of the two processes. Before going to their phones to withdraw cash, clients ask agents if they have the cash they are about to withdraw. They ask this before doing anything else because at times M-Pesa agents run out of cash to give clients who want to withdraw money. If agents have the money, they ask for the customer's identity card (the national identity card or the Kenyan passport). Safaricom's regulations prohibit M-Pesa agents from discharging this service to a customer asynchronously. A customer must be physically present at the shop and have his or her phone to receive this service.

After getting permission to proceed, customers go to the "withdraw money" menu on their phones then indicate the amount the amount of money they want to withdraw, the secret personal identification number (PIN) and the agent's number (every M-Pesa agency has a business name and number). Clients have twenty seconds to confirm if they have entered the right amount of money. If they have done so, the transaction will be complete in less than one minute. However, if a customer has pressed the wrong details, he or she can cancel the transaction then start over again. When the transaction is over, the agent writes down the transaction number and the amount of money withdrawn. On their part, clients are required to sign on the daily transaction book.

The process of depositing money is more or less the same as the one for withdrawing money. When a client wants to deposit money, agents will first ask if they have identification document. Deposit money is the cash the customer comes with for transfer to the phone as

virtual money. When depositing money, individuals must be physically present at the shop and use their mobile handsets in the depositing process. Safaricom prohibits customers from depositing money on behalf of another person. When ready, clients hand over the physical cash and the M-Pesa agent deposits the money in the customer's phone using the official Safaricom telephone.

For the sake of accountability and to avoid cases of theft, agents must count the money and confirm that the money is genuine currency while the client witnesses. The client then gives the agent the telephone number that will receive the deposit. The work of M-Pesa agents is a reflection of Safaricom's business ethos. Consequently, Safaricom emphasizes the ethics and integrity of M-Pesa business. For instance, Safaricom requires that agents engage in clean business by depositing the same amount of money they receive from their clients. An agent said this is important to safeguard the future of the business:

All ethics must be observed for a successful transaction and so that the customer will come back the next time. (Male A08, August 4, 2016)

Like the process of withdrawing money, clients present their identification information so agents can record the details in their record book. Thereafter, a client is required to sign into the daily transaction booklet. The production of the identification information and the signature serves to authenticate the process.

Agents said that the M-Pesa system is equivalent to a small bank only that a subscriber has more access to the funds compared to a formal bank. In addition, they stated that M-Pesa transactions differed from the ordinary banking system because of speed. M-Pesa transactions were instantaneous. The M-Pesa applications processed remittances in minutes, if not seconds. Everyone seemed to agree that the fast pace of mobile money transactions also meant that a lot of money was quickly changing hands, thus benefitting the local economy. M-Pesa agents

provide services that are similar in many respects to those provided by commercial bank clerks. However, observations showed that their working conditions and the facilities they operated from were very different from those of white-collar bankers in towns. For example, these shops did not have the benefit of big, open spaces. Customer comfort was not key in these kinds of establishments because there were no seats for waiting customers or wide tables to sign on the daily transactions booklet. Instead, a narrow counter separating the customer from the agent on the opposite side was the only space a customer placed the phone or any other belongings. There were no desktop computers for the agents either because the only technology they used was a mobile phone with Safaricom software on it. There was always a barrier made of wire netting that separated the customer from the M-Pesa agent. One got a feeling that these shops catered more to the customer on the move. This was, however, not the case because in some instances, I witnessed customers waiting their turn to be served and had to stand in the queue in a crowded space.

The ambience of M-Pesa shops differed substantially from what you would find in the banking halls in town. Local or multinational banks – Kenya Commercial Bank, Standard Chartered Bank, Barclays Bank, National Bank, Cooperative Bank, Equity Bank, Family Bank, and others, operated from permanent, imposing buildings on various streets in Eldoret town. The inside of banks provided a picture of a formal business environment with bright lighting, marble-lined floors and open spaces for clients to move around. Given the longevity of some services, banks offered ample and comfortable seating for its customers. In addition, all banks got around-the-clock security from the Police department.

Safety and Privacy

Given the rise in digital insecurity, M-Pesa agents noted that Safaricom prioritized the safety of M-Pesa transactions. Safaricom was concerned with the safety of the money customers had in their M-Pesa accounts. On the face of it, much of the responsibility of ensuring financial safety remained in the hands of M-Pesa agents in as much as many of them had no experience with financial management. To ensure safety of M-Pesa transactions, Safaricom had come up with three major agent practices 1) customer registration 2) production of a national identity before receiving service 3) know-your-customer, popularly referred to by agents as just KYC.

Subscribers first register to have M-Pesa accounts in order to use the M-Pesa application and to enjoy the M-Pesa services. Even though traditional phones or the new smartphones come preloaded with the M-Pesa application, users have to activate it by registering. Agents pointed that registration is a requirement stipulated by the Central Bank of Kenya. M-Pesa agents or local Safaricom representatives did the customer registration. The majority of the people go to M-Pesa agents to register because these agents are close to where they live. During the registration process, Safaricom gathers a wealth of information not only about the subscriber but also about the subscriber's next-of-kin, such as the name, physical address, postal address, and 2mobile number or numbers, and national identification number and type, nationality, date and place of birth.

When a customer visits an agent for service, agents must ensure the information on the identity document the customer presents matches these registration details in the company's database. The process of M-Pesa registration involves massive data collection. Perhaps because they had not become victims of identity theft or because of lack of knowledge, safety and privacy of personal data as well as that of the next-of-kin were not a concern to the majority of the research participants. One would expect Safaricom to take steps to protect customer

information given the many cases of fraudulent transactions prevalent in its systems. Customer education about data protection is also key.

Production of the national identification is the second method Safaricom uses to ensure the safety of M-Pesa transactions. Under the rule, all customers must produce their national identity document to receive any of the M-Pesa services. An agent said:

One of the rules is that when a customer withdraws or sends money, he or she should present himself or herself and have the ID. If the customer is not the owner of the ID, you nullify the transaction. We follow this rule strictly. (Male A04, July 12, 2016)

All Kenyan nationals carry a national identification card (popularly called ID) that shows their name, their image, and their place of birth and residence. Introduced in Kenya during the colonial times, the national identity card is a simple, manual laminated paper and is not electronic. The government's registrar of person issues national IDs to Kenyans over the age of 18. The national ID is usually Kenya's foremost outward signifier of identity and Kenyans use it when making job applications, or when filing for government services, among others.

Apart from registration and production of a national ID, the third and last authentication process Safaricom introduced is "know your customer" or KYC. In this system, Safaricom requires its agents to not only provide service but also be vigilant to know more about the customers they are serving. For instance, agents were supposed to look out if the names they see on the identification documents matched some known felons cited by the government for ills ranging from local crimes to terrorism activities. Though not a deep investigative process, KYC is supposed to help an M-Pesa agent to get some information about a customer that would indicate if an individual is likely to commit illegal financial transactions such as money laundering or engaging in identity theft. In addition, when guided by KYC, agents are supposed to know what to expect from their clients so that they can put a red flag on transactions they do not expect or those that are out of the ordinary. Finally, KYC means closely following a

customer's transaction history together with those of people a customer transacts. There were posters detailing the KYC process pasted on the walls of most agent shops. Most agents had thorough knowledge of the KYC process.

In spite of all the measures Safaricom had instituted to ensure the safety of M-Pesa transactions, M-Pesa agents reported that they were facing a number of problems in their day-to-day operations. These included 1) burglary 2) fraudsters 3) users non-adherence of regulations. In the formative years in the life of the M-Pesa service, Safaricom did not have strict requirements about two things in the conduct of M-Pesa business – the location of M-Pesa shops and the kind buildings/premises that M-Pesa agents discharged their services. Thus, it was common to find M-Pesa agency shops located in isolated spaces, with no other businesses around. In terms of premises, one was likely to find these services carried out under semi-permanent structures made of old wood or corrugated iron sheets. M-Pesa agencies are small businesses and their owners did not have extra capital to invest in putting up sturdy and costly permanent structures. However, the laid-back requirements of Safaricom were about to be tested.

Business safety soon became an issue for M-Pesa agents. These businesses became targets for burglary and theft, threatening the sustainability of the M-Pesa business and denting the positive tag that had come to be associated with M-Pesa agents. In as much as M-Pesa agencies handled cash just like the clerks in commercial banks, they did not get 24-hour police security that banks got. M-Pesa agent shops were also different from commercial banks that had a strong room where cash was safely stored. In short, M-Pesa agencies did not have the luxury of several safety checks. It was easy to understand why M-Pesa agent shops faced problems of security. Aside from the reasons already stated, these businesses were largely the most successful

enterprises in a given locality. Some of these locations had little other economic activity operating.

Because of the problems M-Pesa agents faced, Safaricom instituted changes on the conduct of M-Pesa business. These changes concerned the future location of M-Pesa business as well as the nature of physical establishments that housed the agency business. Safaricom now requires the location of M-Pesa agency kiosks in well-established permanent structures rather than in temporary establishments. According to the agents we talked to, the new rule about location of agency business within secure premises has removed insecurity and given them peace of mind. Per the new Safaricom regulations, those who apply for licenses to be M-Pesa agents must state that they are going to operate their business inside permanent structures and close to other businesses in the vicinity. Agency owners who did not own buildings leased space within small shops.

The problem of lost identity documents is the second problem that agents faced. People misplaced or lost their identity cards all the time, and reported the matter to the Police. Some people never traced the document. In a process no one clearly understood, lost identity cards found their way into the hands of fraudsters. Fraudsters used people's personal identification documents to steal money from them. M-Pesa agents noted how fraudsters were able to open M-Pesa accounts using other people's identity cards. In as much as owners of lost identity cards got new identity card replacement from the registrar of persons, the government agency did not invalidate the lost identity cards and thus nothing stopped fraudsters from continuing to use the lost identity cards to open M-Pesa accounts. Agents stated that fraudsters used the identity cards people lost without the owner of the identity document ever knowing.

Agents reported that once they sensed that something was not right, they advised people who had lost their identity cards to visit Safaricom offices to ascertain if fraudsters had registered M-Pesa accounts in their name without their knowledge. Upon visiting Safaricom offices, some subscribers were shocked to learn that they had several M-Pesa accounts bearing their name. Fraud has had disastrous repercussions on subscribers. Safaricom has blocked the M-Pesa accounts of some subscribers because of what the company considers fraudulent use of identity cards. Besides the deactivation of M-Pesa accounts, subscribers lost credibility of their credit worthiness in the eyes of CRB, the agency concerned with the assessment of customer ability or inability to repay credit advanced to them. In some cases, the bureau blacklisted people's accounts, making it hard for them to obtain credit in their subsequent applications.

There was a clear connection between the issues of lost identity cards and the rise of fraud on Safaricom mobile money system. There is not much Safaricom can do about lost identity cards because issuance of national identity cards is the work of another entity – the government's Registrar of Persons. As it stands in 2017, it is easy to acquire a replacement of an identity card. Although the replaced identity card may bear the same serial number as the previous one, this does not prevent the existence of several cards belonging to the same person. This is how fraudsters have been able to use people's lost identity cards. The origin of this problem lies with the registrar of persons that has not attempted digitalization of its registration system. Though the government has always had plans for digitization, it has not executed the process. Due to poor service delivery and corruption, the department is perceived by the public as inefficient.

National identity cards are basic laminated pieces of paper. Though these cards have serial numbers on the back, they do not carry any stored information on them about their owners

other than the information on the surface of the identity card. Without a magnetic strip, these cards carry very little information on them. In other words, the police or any other investigative body cannot use these cards on the computer to reveal any further information about the holder of the card. Therefore, the lack of a central information pool or database has helped to fuel mobile money fraud. Because of the absence of a government system of voiding lost identity cards, thieves and fraudsters continue to use the documents people have misplaced or lost. To solve the cause of the problem requires the collaboration of the government agency, the criminal investigation arm of the police department and Safaricom. In the interim, Safaricom may be forced to devise new methods of validation of customer identification and the faces of customers themselves.

Besides using lost identity cards, fraudsters were also using other methods to steal from agents and users. Agents narrated how fraudsters would walk into their shops posing as Safaricom representatives out to check how they were getting on with their agency business. Such con artists were interested in any information that would help them to steal money from customers. In reality, Safaricom officials would sometimes visit M-Pesa agents to listen to any problems they had. Apparently, thieves knew that Safaricom sent their officials to check on the work of M-Pesa agents. Thieves were taking advantage of M-Pesa agents who were not keen to ascertain the identity of their company visitors.

Although they conned M-Pesa agents, the major targets of fraudsters, according to M-Pesa agents were often the ordinary M-Pesa users. Safaricom often runs many competitions where winners get millions of shillings, or other prizes such as vehicles. Because of the lucrative nature of the competitions, many individuals take part in them. Safaricom shares the stories of winners on the internet, on radio and on national TV. Most winners come by money they had

never thought of having in their lives. After the acquisition of people's phone numbers, scammers would make calls to random users telling them they had won money. Pretending to be Safaricom officials, scammers would tell unsuspecting users to send them money to process their winnings.

Agents said scammers prey on the desires of individuals who dream of winning lucrative prizes. The total amount of money that unsuspecting individuals send to con artists run into millions of shillings. Though Safaricom often warns its customers not to fall for random calls that do not come from the company, Safaricom has not publicly revealed the scale of the scamming activities. Even on ordinary days when there were no competitions, scammers would send text messages asking customers to send them money by M-Pesa. Scammers constructed their messages in such a way as to appear they knew the other person or had communicated together earlier on. The M-Pesa users interviewed revealed what have now become formulaic lines in such messages used by scammers such as: *fafadhali nitumie zile pesa kwa namba hii kwa sababu hiyo namba ingine iko off*, which roughly translates "please send me the money we talked about to this telephone number as my other phone number is not operational." Scammers were exploiting people's trust and the ease of digital transactions when using such scenarios.

PINs are four-digit secret numbers that customers use when sending or withdrawing money. The PIN is the primary authentication process that Safaricom utilizes. Given the importance of PINs, scammers would use calls to trick unsuspecting customers into revealing their birth dates because they guessed that is what most users had saved as their PIN numbers. Memorization of the PIN was problematic for some users. For ease of recall, most people used their date of birth as their four-digit PIN. Fraudsters used the PIN to draw money from people's M-Pesa accounts. Agents reported that the most important piece of information they gave clients

was to keep their personal identification numbers or PINs secret to avoid fraud. In terms of M-Pesa's risk management, it was apparent that Safaricom greatly relied on the work of M-Pesa agents.

As Safaricom representatives on the ground, most agents had come to know the many tricks used by fraudsters. M-Pesa agents said they gained such knowledge from working in the agency business for long, by exchanging notes with fellow agents, and by dealing with customers on a daily basis. Having such first-hand knowledge of fraudster tricks was a source of pride for most agents we interviewed. Their contributions to M-Pesa safety made them happy. However, M-Pesa agents stated that fraudsters had infiltrated the business system and were designing new ways of stealing from agents and customers every day;

Cases of fraud are rising. Fraudster are inventing new ways of stealing each day. You just have to be keen. (Female A15, July 16, 2016)

Fraudsters were exploiting loopholes in the M-Pesa system to defraud customers. M-Pesa agents' revelations of the extent and nature of M-Pesa fraud revealed that fraudsters were attempting to outsmart Safaricom's system every time. One got a sense that for Safaricom, it was always a race against time to get ahead of the fraudsters and thieves.

The seriousness of fraud notwithstanding, agents reported that Safaricom had been unwilling to help them when they faced fraud cases, instead telling them to report such cases to the police, a long process for many. Agents found it ridiculous and a waste of time to make the journey to the police Department to report small amounts of money lost. In addition, some agents feared that because the police department had always been associated with corruption, they did not foresee receiving any help from law enforcement.

The third and final source of mobile money insecurity came surprisingly from the users themselves. Safaricom required M-Pesa agents to ask for identification documents before

providing services to customers. Because Safaricom had made this requirement public knowledge through posters, radio, TV and other avenues, M-Pesa users were also aware of these procedures. Therefore, users understood what agents would expect when they visited them for financial services. Agents wanted to see these procedures followed by agents because they understood the fundamental importance of the rules for financial safety. Safaricom requires agents to ensure that customers present identification documents in order to receive service. Agents must also match the face of the person presenting the identification information with the photo in the document:

Safaricom requires customers to show agents the national identity card. It is the only way to ensure authenticity in the mobile money process. We are here to also check out fraudsters. (Female A02, July 16, 2016)

In spite of the detailed procedures devised by Safaricom, interviews and observations showed users did not fully follow the company procedures. While some users followed these laid down procedures, others did not. Some users said that they did not carry their identification documents for fear of losing them. Agents accused users for not cooperating with them when they asked for the documents:

Many customers do not like to be asked for the ID. This has become a challenge to us because a customer may be new to us yet wants to withdrawal a lot of money. It becomes challenging to give a large amount of money to someone you do not trust. When you deny such a customer service, he/she becomes arrogant. (Female A14, July 12, 2016)

Agents wanted to abide by the requirements set forth by Safaricom but users were frustrating their work. Giving large sums of money to a customer they did not know or trust was scary and challenging to agents as they did not know who they were dealing with. Customers did not like to be turned away for not showing identity documents and showed their displeasure to the agents. In a way, agents found themselves between a rock and a hard place. On the one hand, agents

wanted to provide good service to their clients. On the other hand, they had to follow rigorous Safaricom rules. At the same time, agents cared for their bottom lines – income:

The majority of the commission I get from M-Pesa basically comes from withdrawals. On some occasions, a customer may want to withdraw money yet do not have the national ID. It is during times like these that I am tempted to allow the withdrawal because at the end of the month it pays more commission and profit. (Male A08, July 10, 2016)

Agents did not want to turn away such clients, as this would jeopardize the commission they earned from facilitating these services.

The failure by users to abide by the correct transaction process may partly account for the fraud that is bedeviling M-Pesa. Ironically, users were aware of the company's attempts to eliminate fraud yet their actions seemed to contradict this objective. According to the agents, though cases of fraud would not lead to substantial financial losses by a big corporation like Safaricom, it was enough to damage the hard-earned income of ordinary users who bore the brunt of fraud.

Safaricom looks to M-Pesa agents to administer the technical aspects of mobile money transactions because they are the people that directly deal with customers. As discussed in the next section, M-Pesa agents have also served as important service intermediaries for the company, thus benefitting Safaricom business, customers and their development.

M-Pesa Domestication and Development

As noted in chapter five, because Kenyans were used to using cash, mobile money was a new concept about money. Transitioning from physical cash to digital finance was arguably a tremendous leap for many users. For agents and users, several processes of the M-Pesa service were new concepts that needed domestication. For this reason, both Safaricom and M-Pesa agents were actively engaged in the domestication of M-Pesa. The role played by both parties was beneficial to Safaricom, the agents that facilitated these services, and the end users of M-

Pesa. As eventual users of service, M-Pesa customers needed to know how to navigate the service on a daily basis.

Safaricom domestication of M-Pesa

The development of M-Pesa has become important for Safaricom's overall business. As part creator and designer of M-Pesa, Safaricom has inscribed visions and actions in M-Pesa – what the company expects from the service and the users who interface with the application daily. Safaricom is involved in the shaping of the actions of agents and users. According to Silverstone and Haddon (1996b), there is an overlapping relationship between the design of an innovation and its domestication. Both design and domestication pave the way for the use of an innovation. As the authors note, “Domestication is anticipated in design and design is completed in domestication” (Silverstone & Haddon, 1996b, p. 46). To ensure progression of its mobile money business, Safaricom needed to explain how the M-Pesa application works. The process involved making an unfamiliar application familiar to agents. In as much as the innovation was exciting, the application was also threatening and perplexing to both the M-Pesa agents and users. In this case, the process of domestication helped to reduce or remove this difficulty.

To ensure the domestication of M-Pesa, Safaricom emphasized information gathering from M-Pesa agents. The information Safaricom received from its agents on the ground was used to improve the service and hence the domestication of the service. Gathering information about M-Pesa also helped to ensure uniform delivery of M-Pesa in the country. Safaricom used several communication channels to get vital information about M-Pesa.

First, Safaricom focused on agent job training. Job training and the company's induction culture developed the capacities of M-Pesa agents. During these sessions, Safaricom also informed new M-Pesa agents about the M-Pesa procedures and other aspects of the business, in

effect domesticating the service to them. The training was also important to existing agents who needed to know how to go about facilitating newly introduced services or new iterations of existing services. Importantly, during these training sessions, Safaricom obtained information from agents about the happenings in the agency business and any problems agents had with M-Pesa. Second, Safaricom held seminars and meetings with agents in the local town at regular intervals. Safaricom used these sessions to listen to issues that agents faced in their domestication of the service, especially the problems users faced in the process of using M-Pesa.

Third, on certain occasions, Safaricom used phone calls to contact agents, asking them their opinions about the service. Safaricom also provided agents with special telephone numbers from which agents forwarded their suggestions about how to improve M-Pesa. Finally, Safaricom got information about M-Pesa by text messaging agents during the month. The back and forth exchange of knowledge between Safaricom and agents was fundamental in continued domestication of M-Pesa. Although Safaricom had opened these communicational channels, agents lamented that the direct telephone line Safaricom gave them to report problems about M-Pesa, the company still charged them for calls yet the communication benefitted Safaricom. Others said the company took time to resolve the problems they reported to Safaricom.

Safaricom did not only use the knowledge from agents to improve the service. Occasionally, Safaricom representatives visited M-Pesa users directly to ask their opinions about M-Pesa, the challenges they faced with the service as well as their opinions about how the problems could be resolved. For Safaricom, the process of domestication as well as the feedback loop between the company and the agents was instrumental in obtaining information that the company used to improve M-Pesa and the overall user experience with the service.

Agent Domestication of M-Pesa

As explained at the beginning of this chapter, as local service intermediaries, M-Pesa agents occupy a special position in the M-Pesa ecosystem. As technological service intermediaries, agents are the only Safaricom nodes that work with M-Pesa customers on a daily basis. For this reason, they are in a position to know more about how users utilize M-Pesa in their everyday lives for their development. Thus, M-Pesa agents are important constituents – domesticators as well as facilitators of the service.

M-Pesa agents carried out the bulk of the domestication of M-Pesa for Safaricom. First, for new M-Pesa users, agents helped in the appropriation dimension of domestication, helping users navigate the use of M-Pesa. The appropriation phase of the domestication process is concerned with user ownership of technology or user's first phase of familiarization with the technology. In a sense, Safaricom agents are M-Pesa's principal "warm experts" or informal mentors, people accustomed to the technology who assist the novices to understand the workings of an innovation (Haddon, 2011; Ling, 2004). Second, agents were instrumental in the incorporation dimension of domestication. The incorporation dimension addresses the issue of knowing the functionality of the technology to accomplish desired actions in the routines of daily life (Hynes & Rommes, 2007). M-Pesa customers needed explanations on several processes of M-Pesa, such as setting up the M-Pesa account, sending and receiving money, how to save money, and keeping the account safe by using a PIN, among others. In short, agents helped Safaricom to demystify elements of M-Pesa, thus making users feel comfortable using the service in their everyday development activities (Hahn & Nyamnjoh, 2014).

Another fundamental component of domestication that agents took part in is commodification. Commodification is the "process through which objects and technologies emerge in a public space of exchange values and in a market-place of competing images and

functional claims and counterclaims” (Silverstone & Haddon, 1996b, p. 45). Commodification, therefore, involves, among other things, the marketing and the general understanding of consumer behavior (Silverstone, 2007). The process of commodification prepares the way for the appropriation of technological innovations, and by extension people’s utilization of technologies to serve their development.

Agents actively took part in the commodification of M-Pesa, aiding in the consumption of the service through their marketing efforts. More often than not, agents requested informational packets and posters from local Safaricom officials who provided brochures and posters to agents’ kiosks. The informational material boosted the use of M-Pesa. Whenever there were competitions or promotions, Safaricom officials within the agent’s locality would deliver M-Pesa promotional material that agents pasted strategically on the walls of their premises. As one agent stated, Safaricom took their marketing seriously:

Safaricom have their officials who are concerned with the distribution of the marketing material. These officials come to see that the information has been displayed well, that you have branded well. You know, they are doing the marketing (Male A04, June 5, 2016).

In as much as this agent stated that the Safaricom officials were doing the marketing, agents were in the marketing mix as well, helping in the advertising of Safaricom services. To show how advertising was important to Safaricom, the display of the advertising material was done at the direction of Safaricom officials who worked to ensure proper display of advertising material in and outside of M-Pesa kiosks. Green posters dotted the walls, doors, and windows of most M-Pesa kiosks. Most posters were informational in nature, detailing how to go about sending money, or keeping one’s M-Pesa account secure. For instance, I observed that many shops had a poster titled “PIN yako, siri yako” (your PIN, your secret), to educate customers to keep their transactions safe by not revealing their personal identification numbers. More than any

other group, members of the population with few digital literacy skills, as well as older people needed information to keep their PIN secret. Agents played a vital role in the domestication of the daily user experiences of this group of users with M-Pesa.

The process of domestication is however not always a smooth process. Certain circumstances can result in the stoppage or reversal of the process (Hynes & Rommes, 2007). Lim (2007) adds that though users may adopt technologies, their acceptance of the technologies could come with circumspection. Negative attributes, such as insecurity and other perceived limitations associated with technologies give rise to circumspection. As explained in depth at the beginning of this chapter, the problem of fraud was on the rise in the village and in other parts of Kenya. Fraud was not only the factor that threatened the survival of the mobile money business but it was also becoming a hindrance in the domestication and integration of M-Pesa. Importantly, fraud was a potential hindrance to the use of M-Pesa for the purpose of development.

In response to the problem of M-Pesa fraud and other aspects of insecurity, Safaricom officials updated agents on how to detect fraud, putting emphasis on the need for M-Pesa agents to be proactive in obtaining more than the bare details about the customers they served. Because fraudsters kept reinventing their ways, company officials notified agents about the possible methods of fraud that fraudsters might use in the future. Company representatives instructed agents on the steps to take when they encountered fraud. For instance, agents were required to inform the company as soon as possible whenever they sensed fraud, such as when they received calls from numbers they did not recognize claiming to be originating from Safaricom. In such a case, Safaricom wanted agents to report the caller's telephone number to the local Safaricom personnel. The company also participated in the education of agents to look out for special phone

numbers that would reassure them that the communication was genuinely from Safaricom. Company representatives also educated M-Pesa agents about other issues such as how to distinguish real from fake money, business ethics, and safety and confidentiality of customer information.

Aside from fraud, the other obstacle impeding agent domestication of M-Pesa was the problem of errant transactions. Agents wanted Safaricom to implement a way of confirming money payments by displaying the name of the recipient on the agent's phone screen. This change would help agents know they were remitting money to the right recipients. They also wanted the M-Pesa operating system configured to display the identity information of the receiver of the money on the client's phone screen so that clients would not remit money to wrong phone numbers. Agents had learnt that several M-Pesa customers had become frustrated with not knowing if the remittances they made went to the right recipients. This issue was the leading problem that users faced and which agents wanted to help solve. Agents saw that correcting this problem would immediately ease the anxiety of users as they went about using M-Pesa daily. Agents pointed out how troublesome the issue of errant transactions was to not only to users but also to them. An agent said:

Until recently, when customers sent money, the mobile screen did not show the name of the person receiving the money. This was a challenge to us agents. We faced many customer complaints as a result. You see, at times you are with a customer right there and he or she needs immediate help to reverse the errant transaction. Many customers have lost a lot of money in the process. The biggest problem that customers and agents face was how to reverse the money sent to wrong recipients. (Female A09, July 9, 2016)

Agents wanted fast solutions on the problems they noted with the M-Pesa service delivery. In spite of reaching out to Safaricom to correct the problem, the agents perceived Safaricom to be slow in instituting changes that would increase user satisfaction, streamline their work, and boost the integration of the service. Compared to its closest competitor – Equity

Bank's new mobile money, Safaricom had been slow to make changes to its services despite receiving recommendations from agents. Agents did not consider this a difficult task not least for a technologically successful company like Safaricom. Agents argued that after all, Safaricom had substantial personal information of users that the company obtains when clients register to get the M-Pesa accounts.

Safaricom has since made the changes to the problem of errant transactions. Currently, the transaction system displays the name of the recipient of the money, making it easy for clients to confirm the transaction before execution. The new system also provides a twenty-second window to reverse the transaction if a user thinks it is not correct. According to the agents, this is a great improvement in their service provision because it has eased their work and improved their efficiency. The changes have also eased the anxiety of remitters who feared losing money through erroneous transfers. Many agents were quick to own these changes that they said resulted from their mediation. I observed that the majority of the agents cared for their jobs and importantly, the welfare of the customers they served daily. Agents wanted users to enjoy smooth M-Pesa services. There was evidence that agents understood they were the bedrock in the successful delivery of M-Pesa services. Many of them went about their jobs with pride and were enthusiastic to see the improvement of M-Pesa services.

As service intermediaries, agents passed information to Safaricom that was important in the continued improvement of M-Pesa's user interface. In other words, the work of agents helped Safaricom in further innovation of M-Pesa through the improvement of the design and the general workability of the M-Pesa application. In turn, this innovation fed back into the user integration of M-Pesa (Silverstone & Haddon, 1996b) and subsequent use of M-Pesa for development.

The process of domestication was beneficial to Safaricom, agents and users of M-Pesa. First, to Safaricom, domestication of M-Pesa served to boost the use of the service. In sum, domestication increased Safaricom's mobile money business and fundamentally its profit margins. In fact, of all the services (calling, internet and mobile money) offered by Safaricom, M-Pesa has for many years been one of the main pillars of the company due to its comparative profitability. Second, domestication was beneficial to users of M-Pesa and agents. In order to be optimally useful for people's development, technology has to be easy to use, at least for a broad section of the population. The functionality of a technological innovation like M-Pesa is directly related to actual use. M-Pesa customers needed to know all the technical processes of M-Pesa in order for the service to benefit their development processes such as saving money.

M-Pesa Localization and Development

This section focuses on how agents working in local contexts have shaped M-Pesa to suit the local social-cultural and economic contexts of the communities they are serving. Given their position, agents understood about the consumption side of M-Pesa. For instance, they were conversant with the habits and localized practices of users because they observed their daily remittance patterns. On the other hand, for seamless provision of its mobile money services, Safaricom expected M-Pesa agents to engage in the facilitation of M-Pesa in the ways prescribed by the company (Katz & Aakhus, 2002). However, my observations of the daily work of agents in their kiosks revealed that agents pushed back on the expectations of Safaricom by reconfiguring their facilitation of M-Pesa services in accordance to the local social, cultural and economic practices of the clients they served daily. In short, M-Pesa agents engaged in the localization of M-Pesa by bending the corporate procedures and stipulations.

However, there was a notable difference in how owners of M-Pesa agency outlets and workers employed to manage these agencies bend the rules of the game. Observations showed agency owners who managed the day-to-day operations of their businesses were more daring to break the rules of the game than the employees. One way in which agents participated in the localization of M-Pesa in by being less stringent on customer production of personal identification. Safaricom stipulated that customers must produce their personal identification materials in person in order to receive the services of M-Pesa agents. As discussed earlier in this chapter, some M-Pesa customers did not always carry their personal identification materials when they sought M-Pesa services. The apprehension of losing the document, or the fear that the document would fall into the hands of fraudsters, made some people avoid carrying it altogether. Others simply forgot to carry the document. In addition, some M-Pesa users found Safaricom's requirement that they must always produce identification documents a difficult requirement to follow all the time.

My observations of agents employed by owners of M-Pesa agencies is that they were less forgiving, and openly said they would not serve clients without proper personal identification for fear of fraud. It was easy to understand the strict position taken by these employees; they were at the mercy of their employers. They did not want to be accused by their employers of breaking the rules of the game – the business procedures. For most individuals, these jobs were important to them because they were a source of livelihood. On the other hand, the contextualization or reinterpretation of the provision of M-Pesa services by agency owners came with ease. These businessmen and women were more forgiving of their clients who did not produce personal identification documents.

The attitude of agency owners was understandable given that as proprietors, they were not answerable to anyone other than Safaricom. For instance, an agency owner was ready to serve clients without identification, mostly other business people she knew because she trusted them. In other words, M-Pesa localization followed business network contours. This connection was in turn associated with the element of affiliation and trust. Trust was key in the M-Pesa business and the agency owner repeatedly stated that she served people without identification because she trusted them. According to the business owner, some of the business people she served had urgent things to accomplish with the money they wanted to withdraw:

At times, a customer I know very much may not have the identification documents but I will serve him or her. I know, for example, people around me that do other businesses and I trust them. (Female A14, July 12, 2016)

The proprietor of another agency shop was ready to serve clients without identification if such clients respectfully explained why they did not have the document in the first place:

When dealing with people I know that do not have identification documents, it depends on how that person talks. One can understand people who explain their situations well before going to the phone to withdraw money. However, other customers come and withdraw money before telling me they do not have the ID. When you ask them for their documents, they get upset and start to quarrel. We normally tell such people to call Safaricom's customer care department. Nevertheless, if a customer is courteous and explains the problem, I may help. (Female A13, July 16, 2016)

By saying "how that person talks," the agency owner meant whether a person was rude or polite. Rude customers were those who initiated the transactions by going to their phones before politely explaining to the agent why they did not have identification in the first place. This goes to show that personal dispositions and the manner of negotiation by those without identification determined whether they got the service or not.

The agency owner did not see the need of asking customers to present their identification documents during their repeated visits to the agency saying:

Some people may come here three or four times to be served and I will not continually ask for their identification. As long as they tell me the ID number and they sign the booklet, I have no issues. (Female A14, July 19, 2016)

The words of the business proprietor show that having served the same client many times in the past brought trust. Nonetheless, such clients needed to verbally give their identification number to the agent besides signing the logbook after the transaction to receive service.

Agency owners also followed cultural contours in their localization of M-Pesa (Baym, 2010). Agency owners stated that on some occasions, they served customers who did not have identification documents, especially the elderly, people that did not understand digital technology of mobile money. Nonetheless, they stated that they served this group as long as they did not have dark intentions of defrauding them. Aside from the inability of the older generation to use mobile money as hinted by the agent, it is worth noting the cultural construction of elderly people in the Kenya setting, something that this agent hinted at. Advanced age or relative age in general is often a basis for unquestioned respect and trust. This seems to be the case across the many Kenyan ethnic communities where older adults are the considered the epitome of societal mores of truthfulness, decency and integrity.

Finally, familial social relations influenced agent localization of M-Pesa services (Lievrouw, 2006). Observations showed that agents trusted such networks because they were composed of people they knew well. For instance, agents adapted M-Pesa services when serving close relatives or people from the same village. An agent told me:

An M-Pesa customer may be my mother. Chances are I know her ID details. If she has the ID with her, she will hand it over to me when she needs the services. However, if she has not carried one, I might know her ID number and other details. I will not have issues with that. I will serve her. (Female A11, July 9, 2016)

The second way agents localized M-Pesa was by shortening the M-Pesa procedures.

Designed with several steps or processes, the M-Pesa remittance system was expensive to some

people because each step of the process charged a fee. The many processes are Safaricom's ways of making money. Safaricom gets a profit from facilitating each process of these mostly person-to-person and person-to-business transactions. It takes several steps for the remitted money to reach the hands of the receiver. For instance, M-Pesa charges a fee to send a certain amount of money and a separate fee to withdraw the same amount of money. In the commercial bank equivalent, this would be similar to the bank charging its customers for both depositing and withdrawing their money. For this reason, users felt that Safaricom was charging them twice. Because of this scenario, it was common to hear recipients of money telling their senders in Swahili "tafadhali tuma na ya kutoa" which means "please send the principal amount plus the withdrawal charges." A remittance recipient who wanted to withdraw an exact amount of money sent to him or her would tell the sender to include the withdrawal fee alongside the principal amount. In the event that a sender did not include the amount for withdrawal, Safaricom deducted the withdrawal fee from the principal amount.

The cost of M-Pesa transactions was not affordable to everybody. Mobile money fees were exorbitant especially for low-income earners, the jobless, and the poor. People often tried to cut these processes. However, it was not possible to sidestep any part of the process without the involvement of the agent. To avoid paying the sending fee, for example, I observed people withdraw money from an agent directly, i.e., the sender sent money directly to an agent rather than the person who needed the money. By sending money directly to the agent's phone number, a sender avoids paying money for one-step of the process. In the ideal situation, the sender remits money to a second party's phone number who will in turn visit the agent to withdraw the money including paying the withdrawal charges. This process was possible if the sender or receiver of the money already knew the agent that was going to process the transaction. Such a transaction

process was discussed over the phone. Through the phone conversation, the monetary recipient got other details needed to withdraw the money, such as the agent's business name and business number. Safaricom has provided all agents with both details which customers include when sending and receiving money.

Another aspect of localization was the manner of monetary withdrawal. Though Safaricom regulation required individuals to physically visit the agent's shop to withdraw money, I witnessed individuals withdraw money miles away from the M-Pesa shop. Here, local social connections brought trust that eased the mostly person-to-person financial flows. My participant observation revealed that the extent that agents and clients knew and trusted each other determined the localization of M-Pesa transactions. Apparently, some M-Pesa users had well-established connections with agents based on friendship, and a history of previous transactions together. These mobile money users were able to withdraw money away from the agent's shop as long as they remembered the agent's business name and number.

Safaricom rules did not allow third-party withdrawals. The owner of the telephone number that the money was sent to, was supposed to be the one to physically go to an agent to withdraw the cash. However, agents and users had shaped and localized this rule by allowing a different person to receive money from an agent on behalf of the owner of a telephone number. Observations showed that the recipient of the money could be anybody known to the original receiver of the money and the agent. For instance, a recipient who needed to withdraw the money sent to him or her would send a brother or sister or a friend to collect the money after informing the agent by phone. Most of these arrangements mirrored the local way of life of the people in the community and how people normally dealt with each other. Most social arrangements did not require detailed "background checks." In these settings, because people knew each other well,

person-to-person financial dealings were as casual as the way of life of the people in these spaces. It appeared that Safaricom's requirements clashed with the social and cultural norms existing in the community. In a way, Safaricom's formal and stringent regulations were met by informal, laid-back way of doing things at the local level.

From the testimonies of agents, working at the agency was a delicate balance between working towards business success and maintaining the safety of M-Pesa transactions. Agents did not want to break Safaricom regulations or compromise the safety of the M-Pesa business. Working at M-Pesa agency shops was a lifeline for the agents in the study. Agents wanted to protect the jobs that were fundamental for their individual development. At the same time, agents were aware of the punishment they would get from Safaricom if they compromised M-Pesa security. Therefore, agents did not want to be on the wrong side of the company's regulations because they knew the penalty they would receive from the company. For instance, an agent in her thirties told me:

I have to be careful because Safaricom can suspend my line for a month or so, or terminate the line if I fall in the same mistake three times. (Female A14, July 16, 2016)

Agents were careful in every action they took because Safaricom officials at times made unannounced visits to agent shops to monitor service delivery. At the same time, the localization of M-Pesa was fraught with other risks. Even as agents localized their service delivery to suit the needs of their customers, they were not always sure about the intentions of the customers they were dealing with. In as much as agents relied on trust and familiarity to localize their services, they were often in a bind about whom they were dealing with. For example, agents were not sure if some clients they were serving had hostile motives to expose them to Safaricom. When their gut feeling told them this was probably the case, they did not serve such clients in order to protect their businesses.

The localization of M-Pesa was beneficial to users and agents alike. For users, the localization of the remittance process reduced the cost of the service. This enabled users to save money they would have used to send or withdraw cash. In the end, localization led to the development of a remittance system that was more beneficial to the local-to-local financial flows. Because the new system was more in synchrony with the ways of doing things of the users, it served their personal development better. On the other hand, the localization of M-Pesa services was beneficial to the agents because it boosted their business activities and concomitant personal development. Agents pushed back on the demands of Safaricom to connect with their customers. This connection was even more necessary during what the agents called the “hard economic times” – occasions when M-Pesa business was slow. The whole range of Safaricom transactions that agents facilitated earned them an income. Earnings in the form of commission benefitted agents the most because the more clients they served, the higher the earnings they got from Safaricom. Agents reported that they earned higher commissions from withdrawals than from deposits. For them, the temptation to allow these transactions to proceed was greatest because they ensured a bigger commission and profit at the end of the month.

This chapter has examined the importance of M-Pesa in providing job and business opportunities for residents of Chepkoilel. The chapter also discussed how agents were instrumental in the integration of M-Pesa within the community through their domestication of the service. In addition, the work of agents was fundamental in ensuring the security of M-Pesa transactions. The last section examined how M-Pesa was socially constructed and shaped by interactions and relations between agents and their customers to mirror the needs of the users.

CHAPTER SEVEN: DISCUSSION AND CONCLUSIONS

This aim of this research was to examine how rural audiences in Uasin Gishu County, Kenya use mobile money. The research also set out to investigate the work played by M-Pesa agents in Safaricom's mobile money business. To answer the three main research questions (1) how M-Pesa has fit into people's existing financial practices; (2) how people perceive M-Pesa and the role of the service in facilitating their development, and (3) how M-Pesa agents perceive their role in the mobile money ecosystem, I conducted fieldwork in Uasin Gishu County in western Kenya. This study includes interviews with M-Pesa users and M-Pesa agents and observations of their interactions. The use of interviews and observations allowed for deeper investigation of how users navigated M-Pesa and the contextual work of M-Pesa agents (Obijiofor, 2015).

The study was framed within the phenomenal growth of ICTs as evidenced by the increase in mobile subscriptions in developing economies, including East Africa (Pearce, 2013). A great proportion of these subscriptions come from individuals in low-income brackets, including those living in poverty (James, 2016). The emphasis of the importance of ICTs in national economies followed the economic model adopted by most countries of the world toward economic globalization and the attendant neoliberal economic order in the 1990s. The global capitalist system is the economic model that sustains economic globalization. Furthermore, financial capital, the creation of a market economy and the aspect of economic openness are some of the hallmarks of this economic logic (Sorensen, 2017).

In international development circles, the uptake of ICTs has come with the recognition that these technologies can be used to promote development, a process referred to as ICTD. ICTD projects are aimed at bringing social change and refer to the use of ICTs to improve the social, economic and political development of people (Oyedemi, 2013). In fact, in the first

decade of the twenty-first century, analysts and commentators in international development pointed out that ICTs were the main contributors of the country's economic growth contributing around one-quarter of Kenya's GDP (Heeks, 2012) – on the whole, ICTs are seen as necessary tools in the twenty-first century because they “enhance the speed of information and communication, and provide access to relevant social services to people who are connected to these technologies” (Oyedemi, 2013, p. 62).

Until the 1990s, Kenya's socioeconomic development was pegged on agriculture, a sector that remained the backbone of the country's economy until a decade ago. Geared towards the production of primary commodities, the sector has not been able to lift many out of poverty. Thus, there has been a shift in the country's long-term development plans. Since mid-2000, the economic model has shifted to ICT-led economy, especially mobile telephony and mobile money, the financial services facilitated by mobile technology. In a pragmatic sense, the development of mobile financial services is anchored in the Kenya's development plans. Access to mobile financial services was made possible by policy developments in the country's mobile telephony sector. Illustratively, in 2008, the then-President, Mwai Kibaki, unveiled Kenya Vision 2030, a strategic development plan to raise the country's development by the year 2030. The plan was a multipronged approach, anchored in three pillars: economic, social, and political. Among other key areas of development, the economic pillar identifies the need for increased access to financial services to the country's population (Zoogah & Wolf, 2017).

In addition, the most important national project towards the emboldening of ICTs in the country's economic life was the landing of the fiber-optic cables at the port town of Mombasa in 2010. This event generated a lot of attention not only in Kenya but also in the East African countries that were going to benefit from the project. This excitement and expectation was

evident in mainstream media reporting, in the statements made by companies in the ICT sector, and in policy documents and statements formulated by government (Aguero, et al. 2014; CAK, 2015; Okinda & Odera, 2014). More importantly, this development was framed in terms of ICT potential for economic development. More than any other time, the ICT industry was seen as having a potential role in powering the country's economic transformation (Graham & Mann, 2013). Furthermore, 2013 saw the establishment of a fully-fledged government department, the ministry of ICT, for the first time in the country. The ministry is tasked with the development of national ICT activities that will be responsible for boosting the national and local economy.

This shift in government policy and the joint partnership between public and private entities has led to the rapid rise of mobile money services. As a result, Kenya is often considered the center of successful innovation of mobile money in sub-Saharan Africa, and even the world (Redford, 2017). This perception has been emboldened by the fact that more and more individuals in Kenya are in a position to utilize their mobile telephones to conduct financial transactions. In a short span of time of less than a decade, mobile money has become a part of everyday development in Kenya as evidenced by people's use of the service to accomplish a variety of functions such as transfer money, save, and pay bills, among other uses (Mahoney, 2017).

One often discussed aspect of mobile money that is related to people's development is that mobile money has eased access to formal banking services especially to low-income individuals, a scenario that was difficult to accomplish in the past because of a myriad structural factors (James, 2016). In particular, out of the several mobile money services existing in Kenya, M-Pesa has received praise for improving financial inclusion, enabling people in underserved locations to access financial services (Redford, 2017).

Mobile Money and Individual Development

This study has demonstrated that Safaricom's M-Pesa agency model positively influenced the development of individuals in rural areas. Specifically, the model played a key role in the provision of job and business opportunities in Chepkoilel. M-Pesa agency work was attractive to Chepkoilel residents because starting the business was easy as it did not require a lot of capital. At the same time, getting permission to start the agency from Safaricom was not a difficult process. Furthermore, people liked the openness of the business opportunity, the fact that anyone with the ability and capital could get the chance to operate the agency. Participants noted the benefits they had derived from M-Pesa agency work. Ownership of M-Pesa agencies had raised the capabilities of individuals by improving their financial, human, and social capital. Importantly, people considered the acquisition of entrepreneurial skills and mindsets beneficial to them not only in the short-term but also in the long-term. In short, these small businesses have raised peoples' capabilities to be their own agents of change.

The fundamental role of the M-Pesa business is a testament of the importance of the cooperation between public-private partnerships and local entrepreneurs in the work of development for the purpose of improving the lives of individuals. The government of Kenya, Safaricom and Vodafone must be commended for coming up with this arrangement that has benefitted not only the companies involved but also the local entrepreneurs.

The study also found that people of most income groups in Chepkoilel commonly used *chamas*, the self-help saving groups. The contributions from these groups cushioned families against unexpected emergencies and provided extra support to individual financial capacities. The role of digital technology had featured in the activities of these groups. However, *chama* members were selective in their incorporation of digital technology in group activities. *Chamas* members easily adopted M-Pesa only if the application supported the operations of these

associations. For instance, they incorporated M-Pesa if the application was able to bring efficiency in the management of the contributions that members made towards the collective kitty. On the other hand, *chama* members did not incorporate M-Pesa if it was not necessary, such as when they lived near each other and could meet in person to discuss the financial affairs of the group.

The reason *chamas* have struck a chord with virtually every income group irrespective of location is because the philosophical foundation of these groups intersects with the collective culture of most cultural groups in Kenya. Most people, especially in the rural areas, like to “maintain relationships with other individuals and community; and which in turn impact every aspect of their lives, including the process of communication and their meaning making” (Faniran, 2014, p. 156).

What was unique about the kind of development brought by *chamas* is that because all the members had a stake in the group, it benefited all the members, and their immediate and extended families. This ownership model of *chamas* is likely to lead to the sustainability of the groups. The prevalence of *chamas* in the rural areas signals the fundamental importance of community development initiatives that existed before the arrival mobile money. People’s use of *chamas* in their financial activities points to the primacy of local community development initiatives aimed the improving the lives of members. *Chama* activities led to the empowerment of people’s capabilities to solve their own problems rather than looking to the government or donors for support. The widespread use of *chamas* by the community members points to the collective nature of development. *Chamas* and other self-help social groups could offer a workable approach and model of development.

I argue that these social and financial formations symbolize the resilience of these communities in their attempts to raise their levels of development in an environment of weak economies, and at times, in the absence of government support. As the next section demonstrates, collective development may be an answer to the capitalistic economic system that has fallen short in bringing everyone on board in terms of prosperity. Given the importance of these groups to communities, there is need for the county and national government to support and promote them. On their part, scholars have work cut out for them to research the important role *chamas* play in empowering the capabilities of people either as individuals or in groups.

Impediments of Mobile Money for Development

As discussed in detail in chapter three, after the success of M-Pesa, Safaricom had introduced M-Shwari, an application that enabled people to save money on their phones. Safaricom marketed M-Shwari as an application that provided alternative avenues for people to borrow money beyond family and friends. The adoption of M-Shwari signaled the changing perceptions of money in Kenya. Though some people still borrowed cash using the traditional channels, they had accepted M-Shwari. People were drawn to M-Shwari because of the advantages the system offered. The application had simplified the loan borrowing process because, unlike commercial banks, Safaricom did not require customers to proof that they had substantial collateral in order to qualify for a loan from M-Shwari. It also took a short time to process loans and people liked the fact that they got the money fast. Finally, M-Shwari was devoid of social obligation and the application afforded people high levels of privacy outside of Safaricom (Cook & McKay, 2015).

But M-Shwari was an antithetical to the work of *chamas* explained in the previous section. In spite of their benefits, the creation of these mobile saving platforms ushered

concomitant individualistic practices that were evidently becoming a threat to the community-based socio-economic arrangements. It was evident that the creators of M-Shwari were taking advantage of the weaknesses of *chamas*. People perceived getting a loan from *chamas* a time consuming process because one had to get approval from the rest of the members. Absences from *chama* meetings set to discuss loan disbursement were also prevalent. This is not to mention the problem of member conflicts, and the fact that there was no privacy in financial matters as all the members got to know the loan one got or did not get. Because of these problems some people preferred M-Shwari. The disruption caused by mobile saving applications demonstrates the potential influence of digital technology. This influence manifests itself in situations where people perceive the older way of doing things as slow, inefficient or unworkable.

ICT for social change and development researchers have cautioned that the impact of ICT diffusion is not the same across nations, socio-economic groups or people living in different localities. Whereas some groups are likely to benefit from the use of ICTs, others may not receive any benefit at all (Wilson, 2004). There has been little discussion and research looking at the challenges faced by low-income populations in rural areas in their attempts to derive benefits from ICTs. In many developing economies for example, rural residents face constraints that affect their use of ICTs when compared to their counterparts in the urban areas (Melkote & Steeves, 2004).

According to Rashid (2017), the affordability of ICTs remains an issue in certain contexts, including rural Kenya (Rashid, 2017). The widespread presence of mobile money in Kenya did not mean that digital finance had benefitted everyone in the community. My research of mobile money in Chepkoilel found that one of the pressing problems associated with M-Pesa

was that of cost. Despite the phenomenal uptake of mobile services in Kenya, the unemployed and the low-income population found the service unaffordable. Thus, while talking about progress made on the mobile money front, one should not overlook the pressing issue of the digital divide, particularly of cost. The two major remittance procedures – sending and receiving money was costly. For instance, there was cost associated with person-to-person remittances. Equally, one paid a fee for performing m-banking processes, such as remitting money from one's cell phone to the commercial bank account. For these reasons, people felt transaction fees were taking away a substantial portion of their finances.

The high cost of M-Pesa services was evident in the non-adoption of the service by some individuals. Yet the cost of M-Pesa services had forced users to devise ingenious ways of reducing the cost of their transactions, including “leapfrogging” some of the many M-Pesa procedures. This was common among the low-income demographic. On this, Donner (2008) argues that not all socioeconomic groups use mobile money in the same way. He observes that economic circumstances of different economic groups structure how individuals use mobile money. My observations showed that people were always inventing ways to beat the high transaction costs of mobile remittances. Assisted by agents, users attempted to bypass some of M-Pesa procedures or steps in order to avoid the paying for the cost of the service. The actions taken by agents in this context can be understood as an attempt to accommodate the low economic position of their customers.

The other aspect of the digital divide that beset M-Pesa and other digital financial platforms was digital literacy skills. In most cases, English was the operating language used by these mobile phone applications yet a small fraction of the population spoke or understood English. Despite being the official language of the country, a small fraction of people in Kenya

speaks English. Individuals who have gone through many years of formal schooling – English language is the medium of instruction in Kenyan schools – are more comfortable speaking, reading and writing in English. With more than 42 ethnic communities, Kenyans are more comfortable speaking in their first language, the ethnic language followed by Swahili and English. Therefore, navigating the M-Pesa application required not only basic literacy but also digital literacy skills. Digital skills and literacy are necessary to use technology. The absence of these skills implies that individuals were not in a position to make optimal utilization of an innovation like mobile money in their development. The older generation and individuals with minimal formal schooling were hard hit by this aspect of technology. In this sense, the technical nature of the digital money applications and the lack of digital skills by users led to the exacerbation of inequalities within the population.

To a small extent, the problem of user inability to navigate the use of digital applications was partially solved by agents and other experienced users. Agents who helped people use M-Pesa through their domestication practices ensured that users were able to utilize these technologies for their development. In addition, the work played by informal mentors cannot also be overlooked. The problem of the digital divide around the use of mobile money highlights the need for telecommunication firms like Safaricom to simplify their innovations and to use the language accessible to the general population. Beside this, the company should adopt accessible and simplified methods of educating its consumers about its services.

According to Oyedemi (2013), the discourse about ICTs has tended to border on optimism rather than the messy reality. The author observe that in order to fully understand the role of ICTs in development, discussions about the role of innovations such as mobile money must highlight both the benefits derived from these innovations as well as the negative effects

(Oyedemi, 2013). Commentators and analysts in the field of ICT for development agree that though ICTs can bring about development, they can also lead to the exacerbation of inequalities (Scott, 2014). Wilson (2004) sums up the benefits and pitfalls of ICTs saying:

New ICTs have the potential to bring growth and equity to the worlds' developing countries. The great risk in this transition is that the new technologies might fail to live up to their expectations and that ICT might become a great and powerful engine of inequality rather than a tool for greater global and national equity. (p. 2)

Relatedly, mobile money was beset by widespread cases of insecurity, especially fraud on its network. Users blamed Safaricom for being slow to stop the rising cases of fraud on its network. Media reports, corroborated by M-Pesa users, highlighted the culpability of Safaricom officials in the vice. This was the case for example, in the many competitions that Safaricom run. Safaricom personnel tried to influence the outcome of many of these lucrative competitions. M-Pesa agents also thought that the M-Pesa operating system was weak and prone to be compromised by fraudsters. As a result, fraudsters were taking advantage of the loopholes in the company's digital system to steal from Safaricom customers.

The national identification document was the single most important document that Safaricom used to authenticate the customers transactions. The problem with using this document as a basis for all financial identifications was that many Kenyans lost their documents every other time. In a spiral of events, lost identity cards often times landed into the hands of fraudsters who went ahead to use people's personal identification information to not only open M-Pesa accounts but also steal money from people's M-Pesa accounts. Criminals were able to use the lost identification documents because the government registry system was not able to invalidate them. This problem was compounded further by the lack of a central information pool or database in the concerned government department. Thus, the problem of identification lay beyond Safaricom. In a clear acknowledgement of the extent of the problem of fraud, Safaricom

disclosed in 2015 that the company is investing in technology and security systems that are able to detect fraud on its network. The company also reported that it is developing strict anti-fraud regulations (Okuttah, 2015).

M-Pesa agents observed that though Safaricom did not suffer as much comparative damage, customers were not lucky, as they were the most disadvantaged whenever fraud occurred. It is ironic that consumers bore the brunt of fraud, and faced financial risk yet they were the bedrock of Safaricom's business. As agents told me, and as (Mahoney, 2017) notes, rather than confront the problem, Safaricom shifted the blame on individual users. Safaricom must do more to protect consumers from fraud. Working to solve the problem of fraud on its network does not just benefit consumers, it also has a bearing on Safaricom's profits. As evident in Chepkoilel, consumer confidence in Safaricom's services is likely to take a hit as a result of the perception that using Safaricom's services is prone to danger to one's hard-earned finances. In such an environment, it behooves telecommunication firms like Safaricom to engage in customer education about financial insecurity in order to bring trust in their services.

Stemming fraud in order to protect consumers is also the mandate of the Central Bank of Kenya. The government department oversees legislation on monetary policy, among others. In a paper titled "cyberlaws and regulations for enhancing e-commerce including case studies and lesson learned," Patrick Nduati, the head of national payments systems at the department observed that the government is actively drafting digital finance legislation to safeguard consumers. The body is also engaged in a broad sweep of other legislative components touching on customer consent during information collection and storage, appropriate use of consumer information, and consumer rights of access to personal information, among others. The department is also looking to draft laws on data protection and create a comprehensive legal

framework to deal with cybercrime (Nduati, 2015). It is satisfying that the government is aware of the issue of fraud and is busy drafting legislation to stem the problem. However, there is a difference between creating laws and implementing them. A myriad of laws may be created, however, these laws will not produce the desired effect if they are enforced and followed. The Central Bank of Kenya has to work with other government agencies and private businesses to ensure successful operationalization of digital finance laws.

The problem of fraud highlights the dangers inherent in the digital economy. Mobile money and other forms of electronic commerce are yet to take complete hold in Kenya. The development of this sector, which is vital not only for the economy but also for people's development is likely to be hampered by digital insecurity. The problem is likely to be compounded by the fact that mobile money is a relatively new ecosystem of money and exchange. Many individuals are still at a loss on how to handle the problem of digital insecurity. As Mahoney (2017) opines, part of the reason fraud exists on Safaricom's network is because the company has not provided customers with adequate financial education. This has made Safaricom's systems prone to predatory activities. Safaricom must invest in sophisticated anti-fraud systems in order to get ahead of the fraudsters who are regularly updating their tricks. In light of the problem of fraud, it is almost as if Kenya was quick to adopt digital finance before preparing for ways of handling the problems the new ecosystem was likely to bring. Now that digital finance is here, and seems to be the future of banking, the government of Kenya must draft laws to protect consumers and the integrity of the system of exchange.

Study Contributions

In the mobile money ecosystem, M-Pesa agents are technology service intermediaries that Safaricom picked and trained from every other rural and urban community around the

country to facilitate M-Pesa services on its behalf. Besides serving the communities they worked in, agents were vital cogs in the wheels of Safaricom's mobile money business. Safaricom continually reached out to M-Pesa agents to provide the company with information aimed at improving the service and overall mobile money business. Thus, agents played a fundamental role in the adoption, use and development of M-Pesa services.

The relationship between technology and how users utilize technology in everyday life has interested technology developers and researchers in many disciplines. However, research has not paid sufficient attention to the social constructs of technology use (Richardson, 2009). In spite of their fundamental role in the mobile ecosystem, few empirical studies have looked at the influence of technology service intermediaries, especially M-Pesa agents operating in social contexts. Though Foster and Heeks (2013a) study the work of intermediaries in Kenya's mobile telephony sector, their focus is on a broad cross-section of these intermediaries, ranging from Safaricom personnel, dealers, competitors and agents. Given the importance of what they do for Safaricom, the current study offers a singular and detailed investigation of M-Pesa agents. The study examines M-Pesa agents' perceptions of what they do, their relationship to Safaricom, and what they think about their customers – the people they serve daily.

At the same time, according to Pearce (2013), despite the fact that developing economies, like those in East Africa, lead the world in the number of new mobile subscriptions, past research of mobile communication diffusion, adoption and use, has not used a variety of methods, theories and frameworks to shed light on the unique and rich mobile phone use patterns obtaining from the region. She writes:

Much of the research on mobile media and communication in developing countries does not engage with existing theory, frameworks, constructs, or even literature, despite a dearth of appropriate perspectives (p. 77).

The attempt in this study to use the domestication and localization is a response to this concern. Domestication and localization were deemed appropriate perspectives to understand the rich mobile provider-intermediary-user dynamics that were at play in the changing technological and socio-economic context in Kenya.

The study found that, first, in terms of domestication both Safaricom and agents were involved in the domestication of M-Pesa. Domestication involved explaining how the M-Pesa application worked in order to smoothen the process of consumption. Safaricom engaged in the domestication of M-Pesa in order to boost the company's imperative – consumption of M-Pesa services. Safaricom officials at the local level worked with agents to facilitate this process. The process involved teaching agents the proper ways of delivering M-Pesa services. As Foster and Heeks (2013a) observe, M-Pesa was a socio-technical innovation rather than a technical one. This means that actors, mostly agents, who worked with users mostly in low-socioeconomic environments determined the direction of the M-Pesa service based on what they saw in terms of use dynamics. The current study found that Safaricom emphasized the gathering of a wealth of information from agents about their experiences working with users in local communities. In turn, Safaricom used the information they got from agents to change and improve the service.

One such vital information that agents provided Safaricom was about the problem of fraud that was beginning to negatively affect M-Pesa services. Part of the agent's domestication work involved helping users detect and protect themselves from the work of fraudsters. Second, working with users had exposed M-Pesa to another problem faced by customers – the issue of errant transactions. This was a situation where users sending money were not certain if the money they sent went to the right recipient. The problem was brought about by the absence of confirmatory messaging on the telephone screen. According to many agents, this problem was

the leading cause of user disaffection with M-Pesa. Ironically, to the dismay of agents, Safaricom took time to sort this problem in their systems.

By making their contributions in these ways, M-Pesa agents felt they were fundamental in moving Safaricom's mobile money forward, helping the company in the facilitation and domestication of the service within the population. It is worth pointing out that some of the M-Pesa changes envisioned by agents have continued to shape the delivery of the service. In particular, the confirmatory alert system for any complete transaction, has raised the public's trust of M-Pesa and Safaricom as a whole. As demonstrated by these examples of the work of agents, M-Pesa agents played a vital role in shaping M-Pesa services. In fact, most M-Pesa innovations and improvements were mediated by agents.

This goes to show the important position agents played in Safaricom's mobile money ecosystem. Using the domestication approach has provided more insights into agent-user experiences with mobile money services, and how these experiences are shaped by the sociocultural and economic factors in developing economies. In turn, these dynamics have a bearing on people's use of mobile money for their development. In addition, explaining the work of M-Pesa agents using the lens of domestication heeds the call to use the concept outside of household settings in order to enrich and extend the understanding of the approach (Lim, 2007).

The second concept that was deemed useful to understand the dynamics of M-Pesa use and facilitation is localization. Though M-Pesa services were found in urban areas, the presence of these services in rural Kenya was the most impactful given the near absence of banking services in such locales. Thus, M-Pesa agents performed their services in local settings, in close proximity to their users. This strategic position enabled M-Pesa agents to witness first-hand the patterns of M-Pesa use. Because Safaricom was interested in ensuring a uniform face of the

service, it provided its agents with guidelines that were meant to help them facilitate their services.

But these guidelines were broad strokes that were meant to guide the facilitation of M-Pesa in the country as a whole. As a result, the guidelines did not apply to the specific needs of users of differing social, economic and cultural positions and locales. But, aside from the fact that the technology has to be suitable to local conditions, for ICTs to better serve people's development, they have to be consistent with the local social, cultural, political, and economic practices (Tully, 2016). It was evident that M-Pesa agents made attempts to shape their delivery of M-Pesa in response to the needs of their customers.

However, agents were not in a position to locally shape the technical construction of the M-Pesa software. The technical specifications of M-Pesa were created by Safaricom and Vodafone. But, because agents were the sole facilitators of M-Pesa, they were in a position to engage in the social construction of the M-Pesa remittance process. At the same time, the M-Pesa remittance system was receptive to diverse cultural contexts of use. To the extent that the application allowed, agents took advantage of the affordances of the M-Pesa to exercise creative agency in their facilitation of M-Pesa – the process of sending and receiving money (Gewald, et al. 2012).

M-Pesa agents localized the remittance process in two ways: by relaxing Safaricom's requirement that customers must show their personal identification before getting services, and by shortening the remittance process to reduce cost. In terms of asking customers for identification, agents dropped Safaricom's guidelines and adopted local definitions of trust to guide their delivery of the service. Agents treated other business owners differently, by not asking for their personal identification documents prior to providing them services. This

deconstruction of M-Pesa rules was even greater for clients that agents were familiar with, the regular customers they had served severally in the past. For this, they did not feel the need to strictly follow the laid-down company rules. In other cases, agents offered a cultural definition of service provision.

This was the case especially with the older demographic that did not know how to navigate M-Pesa. Here, agents exercised understanding, accommodation and even empathy to ensure the inclusion of this group of users in the enjoyment of mobile money services. Finally, agents were involved in the incorporation of local socio-cultural identities, expressions and practices in their facilitation of M-Pesa services. The perception of trust and familiarity brought about by family, friendship and social connection relations made agents tailor their services to match the social relationships brought by these associations.

Second, M-Pesa agents mostly served lower-socioeconomic groups that found the M-Pesa remittances process costly. Thus, agents understood the financial position of their clients by cooperating with them in shortening the remittance process to reduce cost. For example, agents allowed their customers to send money directly to them rather than to the recipient of the cash. In this way, the sender of the money avoided paying the sending fee. In another example, agents allowed third party withdrawals. This meant that a different individual would withdraw money from an agent. This relaxation of the rules helped recipients who could not meet the cost of travel to withdraw the cash.

In other words, agents and users shaped M-Pesa by putting their own socio-cultural interpretations of monetary remittance as they continued to use the application (Baym, 2010). In the end, M-Pesa shaping and localization was a process of creating familiarity with the service. In other words, this deconstruction can be seen as attempts to domesticate the service so that M-

Pesa did not appear strange (Brinkman, et al., 2009). Agent re-interpretation and shaping of M-Pesa delivery was meant to satisfy the development needs and habits of their users in the local environments where they provided the services. It also made agents to connect with their clients and to boost their business.

The process of social shaping and localization demonstrates that socio-technical services such as M-Pesa are socially contextualized and shaped by interactions and relations between various stakeholders. Even though this contextualization does not take place in the initial stage of design and development, it certainly happens during the utilization and domestication. In all probability, the adoption and use of M-Pesa became a huge success because agents and users exercised agency by inscribing local socio-cultural interpretations of the service (Berker, et al., 2007). Broadly speaking, I argue that the localization of M-Pesa by local communities in Kenya symbolizes the compromise that local knowledge systems undertake in their bid at neutralizing and taming the all-encompassing power of technological services created elsewhere. The new iterations of M-Pesa services negotiated between agents and users show the necessity of documenting these processes within research of communication for social change and development. Researching such bottom-up technological practices and highlighting people's needs and struggles while negotiating these services offers a rich menu of media use patterns (Thomas, 2014). However, such shaping and contextualization may not be uniform across societies. There is need for more on-the-ground research to understand the social contexts in which these technologies are used.

Aside from documenting the work of technological service intermediaries, and engaging a variety of theories and frameworks that shed light on the unique and rich mobile money use patterns in an African context, this study contributes to knowledge about socio-technical

innovations like M-Pesa. Kenya has been a leader in the mobile money world since the introduction of M-Pesa in 2007. The “success of M-Pesa in Kenya has made it a model for banking in many other parts of the world” (Mahoney, 2017, p. 281). M-Pesa has made East Africa the center of global mobile money industry, and become a source of inspiration and innovation.

But as Foster and Heeks (2013a) observe, M-Pesa grew because it was a socio-technical innovation rather than technical one. M-Pesa became a product of a cross section of actors, including M-Pesa agents, dealers and users from low-socioeconomic groups, and not just Safaricom. The interactions and relations between these actors provided Safaricom with new strategies of making M-Pesa popular within the population. Mobile money, as exemplified by M-Pesa, represents Kenya’s contribution to knowledge about the use of mobile technology to create mobile money services that serve people’s development. This knowledge has not only benefitted Kenya and the rest of Africa but also the world.

This study is significant in its contribution to the general need to expand research of mobile money in non-Western contexts. As Darian-Smith and McCarty (2017) observe, knowledge from outside of the dominant Euro-American academy “offers new ways of thinking that have potential to generate solutions to the kinds of global-scale problems that our rapidly globalizing world faces” (p. 30). Further research is needed to investigate the potential of mobile money throughout East Africa. Such research would provide in-depth evaluation and understanding of the local knowledge and lived and living experiences of social actors with mobile money. Such research can use ethnographic, interviewing and observational methods to help contextualize mobile money adoption and use in these areas. Above all, these approaches

will help scholars focus not on what ICTs do to Africans, but what Africans do with ICTs (Njogu & Middleton, 2009).

Future Research of Mobile Money

Mobile money continues to evolve with new iterations of the service. For instance, M-Pesa began as an application used for sending and receiving money. Currently, the application can be used to accomplish more functions. Using M-Pesa to save is the latest development of the service. There is no knowing the future direction of mobile money. This is a testament of the fact that mobile financial services are a moving target. In the same vein, user utilization of these technological services keep changing (Berker, et al., 2007). For instance, past research in East Africa demonstrate that cultural and economic contexts continue to shape mobile-based practices (Donner, 2008).

At the same time, provision of mobile money services is no longer the preserve of mobile network operators. Mobile money business has become a lucrative venture and more and more players in the banking and other financial sector have entered the market. In the commercial bank sector, this is exemplified by Equity Bank's Equitel, launched in 2015 (Zoogah & Wolf, 2017). Equitel is a mobile payment platform that further entrenches the convergence between mobile and banking services. Safaricom agents were quick to realize that Equitel is making inroads in the market, slowly but systematically, bringing competition to M-Pesa. To make an imprint in the mobile money market, Equitel is taking advantage of Safaricom's shortcomings. As opposed to Safaricom, Equitel has developed better procedures for refunding customers the money sent to wrong recipients. In addition, Equitel is taking advantage of Safaricom's poor management of agency networks. An agent noted:

Today, there are so many Safaricom agencies. People open M-Pesa agencies even with so little money. Sometime back, the company would require that an agent have a certain amount of money before opening an agency. However, today even with 20,000 KSH, you will operate an agency. (Female A14, July 19, 2016)

Better management of the agency network has paid dividends to Equity's agents. According to Safaricom agents, Equity's agents earn more income than they do. However, the problem with Equitel is that it is only concentrated in urban areas. Nonetheless, most Safaricom agents forecasted that Equity's mobile money service will one day beat Safaricom's at least when their services reach the rural areas. Commercial banks are taking care of their bottom lines – profits. Aside from strengthening their mobile money business, they are equally promoting their mobile banking platforms in order to break even.

Apart from commercial banks, there are other entrants in the mobile money business. The credit card company, Visa is also interested in getting a piece of the pie. The company launched Mvisa app that allows users to make purchases or transfer money on their mobile phones. According to the company, entering the mobile money market takes the place of the poor presence of their credit card business in the largest economy in East Africa. Mvisa works with some few banks in the country that have collaborated with Visa. This means that its reach is smaller than M-Pesa's. However, Mvisa is linked to more network providers. Because the system runs on the Visa network, consumers do not have to be customers of a bank or mobile operator. In this way, Visa corporation thinks its application makes it possible for consumers to make transactions across countries and among users on different mobile networks thus boosting financial transactions not just within the country but within the African continent (Kuo, 2016).

As evident from these examples, Kenya's mobile money market is fluid. It is also one of the most lucrative modes of business. Mobile money agents and network operators have both benefitted from digital finance. Because mobile money has supported rural entrepreneurs, one

would hope the model is developed further so that more agents can continue to benefit. But commercial banks are starting to emphasize agency banking and mobile banking platforms, initiatives that do not employ many people on the ground. In light of this, the question is if mobile operators will continue to consider the agency framework important for their business in coming years. Thus, the sustainability of the agency network may be in jeopardy.

Safaricom has been a key player in enabling access to financial services through its mobile money service unveiled slightly over 10 years ago. Though Safaricom and M-Pesa have grown to become the pride of the nation, the dominance of the mobile money sector by Safaricom, and the entrenchment of the company in the country's economic system has generated some disquiet in the country. The quality of services provided by other mobile operators had led to the domination of the sector by Safaricom. Other operators were relatively weak and lacked the financial muscle to build worthwhile systems. Thus, the quality of their services were no match to those provided by Safaricom. For example, participants in Chepkoilel felt that Safaricom's M-Pesa services were far much faster and straightforward compared to those offered by other operators. This made participants feel that Safaricom had set a high standard of service, a perception that attracted them to the company. But to many, Safaricom's services were comparatively costly. Evidently, there was a lack of viable choices in the mobile money market. In the absence of options, people put up with the high cost of Safaricom's services.

The debate about the position of Safaricom in Kenya's economy also raises many issues about free market regulation and neoliberalism in Kenya. Many ICT commentators agree that the regime of regulated competition has brought benefits to the ordinary users of ICTs. This is because competition among mobile network operators in the sector has lowered the cost of ICT

services and other products (Gillwald, 2010). Thus, in an ideal situation, the presence of many players in Kenya's mobile money market should be beneficial to users. Unfortunately, this has not been the case.

Critics of deregulation and free market capitalism point to the dangers of this arrangement. They point that the regime is responsible for the production of an uneven playing ground in the telecommunications sector. Others state that free market system has led to rising inequality within countries. They point that telecommunications corporations are obsessed with profits at the expense of development (Rashid, 2017). Oyedemi (2013) notes:

The critical issue is to engage how technology can be ethically adopted for sustainable social change. Technology gap and inequalities cannot be left to the free market alone, and neither should technology be seen as a universal remedy for all development problems (p. 76).

These issues have arisen in Kenya's telecommunications sector. Commentators believe that for political and economic reasons, Safaricom enjoys unfair advantage over its competitors.

Study Limitations

There are limitations in this research that are related to the choice of mobile money application studied and the study population. This study centers on the use M-Pesa for financial transactions. However, there are other mobile money platforms in Kenya including Equitel, Airtel Money, T-Kash, MobiKash, Orange Money, Tangaza and Iko Pesa. M-Pesa was chosen for study because it is the oldest application with a dominant share of the mobile money market (Mas & Ng'weno, 2010). Though there are close similarities in the interface, usability and marketing operations of mobile money companies, the results of this research do not extend to other mobile money brands. Nonetheless, studying M-Pesa sheds light on the operations of other mobile companies.

As noted in chapter four, Kenya is a multi-ethnic country. However, this study was only able to capture M-Pesa use and agent facilitation of M-Pesa among rural audiences in the Kalenjin region of the Uasin Gishu in the Rift Valley. Although the results of this research may not extend to M-Pesa use among the rest of the Kenyan rural and urban population, the results of the role of M-Pesa agents in rural Chepkoilel is likely to speak to how these intermediaries operate in other areas of the republic because Safaricom attempts to provide uniform user experiences countrywide. In addition, among the Kalenjin people, this research addressed a small section of the community. Even though the findings of this study cannot be generalized, they should be applicable and transferable to other similar contexts.

These limitations aside, it is worth stating that rural areas of Kenya share a common characteristic irrespective of the ethnic community that inhabits a given location. What runs through most rural settings in Kenya, for instance, is the reliance on the informal economy for livelihood, the rudimentary infrastructure, and the dependence on commodity agriculture. The findings presented here represent important insights into the use of M-Pesa by rural audiences and the role of agents in such settings.

REFERENCES

- Abuya, K. (2017). How much do you rely on M-Pesa? Retrieved from <http://www.techweez.com/2017/04/27/is-our-over-dependence-on-mpesa-a-dangerous-move-can-something/>
- Aguero, A., Barrantes, R. & Waema, T. M. (2014). Livelihoods and ICTs in East Africa. In E. O. Adera, T. M. Waema, J. May, O. Mascarenhas, & K. Diga, K. (Eds.). *ICT pathways to poverty reduction: Empirical evidence from East and Southern Africa*, (pp. 77-99). Warwickshire: Practical Action Publishing.
- Aker, J. C. & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of economic perspectives*, 24(3), 207–232.
- Akpan-Obong, P. & Parmentier, M. J. C. (2009). Linkages and connections: a framework for research in information and communication technologies, regional integration, and development. *Review of policy research*, 26(3), 289-309.
- Allen, K. (2013). On the new frontier of mobile and money in the developing world: mobile phones, M-Pesa, and Kenya. Available at <http://journals.ed.ac.uk/hydra>
- Arora, p. & Rangaswamy, N. (2013). Digital leisure for development: reframing new media practice in the global South. *Media, culture & society*, 35(7), 898–905. doi: 10.1177/0163443713495508
- Avgerou, C. (2010). Discourses on ICT and development. *Information technologies & international development*, 6(3), 1–18.
- Bakardjieva, M. (2007). Domestication running wild. From the moral economy of the household to the mores of a culture. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 62-79). Open University Press.
- Baym, N. (2010). *Personal connections in the digital age*. Malden, MA: Polity.
- Bebbington, A. (1999). Capitals and capabilities: a framework for analyzing peasant viability, rural livelihoods and poverty. *World development*, 27(12), 2021-2044.
- Berker, T., Hartmann, M., Punie, Y. & Ward, K. J. (2007). Introduction. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 1-17). Open University Press.
- Bhaduri, S. (2008). The global, the local and the role of language, literature, and cultural studies today. In S. Bhaduri (ed.), *Negotiating glocalization: Views from language, literature and culture studies* (pp. 1-8). New Delhi: Anthem Press.

- Bohnstedt, A. (2008, December). Subscribers profit as mobile wars intensify. *African Business*. Retrieved from <http://bsc.chadwyck.com.proxy.lib.uiowa.edu/bsc/toc.do?SearchEngine=Opentext&id=JD01413929&divLevel=1&action=new&queryId=>
- Brinkman, I., De Bruijn, M., & Hilal, H. (2009). The mobile phone, “modernity” and change in Khartoum, Sudan. In M. de Bruijn, F. Nyamnjoh & I. Brinkman (Eds.), *Mobile phones: The new talking drums of everyday Africa* (pp. 69-91). Leiden: African Studies Center.
- Burell, J. (2010). Evaluating Shared Access: social equality and the circulation of mobile phones in rural Uganda. *Journal of computer-mediated communication*, 15, 230–250.
- Burell, J. (2009). Could connectivity replace mobility? An analysis of Internet café use patterns in Accra, Ghana. In M. de Bruijn, F. Nyamnjoh, & I. Brinkman (Eds.), *Mobile phones: The new talking drums of everyday Africa*, (pp. 151-169). Leiden: African Studies Center.
- Communications Authority of Kenya (2015). Annual Report 2014-15. Accessed 4/1/16 from <http://www.ca.go.ke/images/downloads/PUBLICATIONS/ANNUALREPORTS/Annual%20Report%20for%20the%20Financial%20Year%202014-2015.pdf>
- Cook, T. & McKay, C. (2016). *How M-Shwari works: The story so far* (CGAP Report 10). Retrieved from <http://www.cgap.org/publications/how-m-shwari-works-story-so-far>
- Copley, A. & Sy, A. (2015, August 31). Taking stock of financial and digital inclusion in sub-Saharan Africa [Web log post]. Retrieved from <https://www.brookings.edu/blog/africa-in-focus/2015/08/31/taking-stock-of-financial-and-digital-inclusion-in-sub-saharan-africa/>
- Camner, G. & Sjoblom, E. (2009). Can the success of M-Pesa be repeated? A review of the implementations in Kenya and Tanzania. Available at <http://www.valuablebits.com>
- Canclini, N. G. (2014). *Imagined globalization*. Durham, NC: Duke University Press.
- Castells, M. (2005). *The network society: A cross-cultural perspective*. Northampton, MA: Edward Elgar.
- Castoriadis, C. (1985). Reflections on “rationality” and “development”. *Thesis eleven*, 10/11, 18-36.
- Clarke, S., Wylie, G., & Zomer, H. (2013). ICT 4 the MDGs? a perspective on ICTs’ role in addressing urban poverty in the context of the millennium development goals. *Information technologies & international development*, 9(4), 55-70.

- County Government of Uasin Gishu (2017). The champion: fruits of devolution. Accessed from https://www.uasingishu.go.ke/?page_id=1214
- Dang, A. (2014). Amartya Sen's capability approach: a framework for well-being evaluation and policy analysis? *Review of social economy*, 72(4), 460–484. <http://dx.doi.org/10.1080/00346764.2014.958903>
- Darian-Smith, E. & McCarty, P. (2017). The global turn: theories, research designs, and methods for global studies. University of California Press.
- Dearden, A. (2012). See no evil? Ethics in an interventionist ICTD. *Information technologies & international development*, 9(2), 1-17.
- de Bruijn, M., Brinkman, I., & Nyamnjoh, F. (2013). Introduction: Mobile margins and the dynamics of communication. In M. de Bruijn, I. Brinkman & F. Nyamnjoh (Eds.), *Side@ways: Mobile margins and the dynamics of communication in Africa* (pp 1-16). Langaa & African Studies Center.
- DeWalt, M., & DeWalt, B. R. (2011). Participant observation: A guide for fieldworkers/ Lanham, MD: AltaMira
- Donner, J. (2008a). The rules of beeping: Exchanging messages via intentional “missed calls” on mobile phones. *Journal of computer-mediated communication*, 13, 1-22 [doi:10.1111/j.1083-6101.2007.00383.x](https://doi.org/10.1111/j.1083-6101.2007.00383.x)
- Donner, J. & Tellez, C. A. (2008). Mobile banking and economic development. Linking adoption, impact and use. *Asian journal of communication*, 18(4), 318-332.
- Donovan, K.P. (2012). Mobile money, more freedom? The impact of M-Pesa's network power on development as freedom. *International journal of communication*, 6, 2647–2669.
- Doya, D.M. & Cohen, M. (2014). Kenya, Nigeria, and Africa's new hope for growth. Available at <http://www.businessweek.com/articles/2014-11-06/kenya-nigeria-and-africas-new-hope-for-growth>
- Diga, K. (2013). Access and usage of ICTs by the poor. In L. Elder, H. Emdon, R. Fuchs, & B. Petrazzini (Eds.), *Connecting ICTs to development: The IDRC experience* (pp. 117-135). IDRC & Anthem Press.
- Diniz, E., H., Bailey, D. E. & Sholler, D. (2014). Achieving ICTD project success by altering context, not technology. *Information technologies & international development*, 10(4), 15-29.

- Duncombe, R. (2011). Researching impact of mobile phones for development: concepts, methods and lessons for practice. *Information technology for development*, 17(4), 268–288.
- Duncombe, R. A. (2014). Understanding the impact of mobile phones on livelihoods in developing countries. *Development policy review*, 32(5), 567-588.
- Duncombe, R., & Boateng, R. (2009). Mobile phones and financial services in developing countries: a review of concepts, methods, issues, evidence and future directions. *Third world quarterly*, 30(7), 1237-1258.
- Dupas, P., Green, S., Keats, A., & Robinson, J. (2012). *Challenges in banking the rural poor: Evidence from western Kenya* (NBER Working Papers 17851). Retrieved from <http://www.nber.org/papers/w17851>
- Dupas, P. & Robinson, J. (2013). Savings constraints and microenterprise development: evidence from a field experiment in Kenya. *American economic journal: Applied economics*, 5(1), 163-192.
- Economist (2013). Why does Kenya lead the world in mobile money? Available at <http://www.economist.com/blogs/economist-explains/2013/05/economist-explains-18>
- Eko, L. S. (2013). Putting African accents in the United Nations Internet for development policies. *Journal of information technology and politics*, 10, 341-356. Doi: 10.1080/19331681.2013.794119
- Elder, L. (2013). Into the future: new opportunities and threats in a global networked society. In L. Elder, H. Emdon, R. Fuchs, & B. Petrazzini (Eds.), *Connecting ICTs to development: The IDRC experience* (pp. 279-285). IDRC & Anthem Press.
- Eribo, F. (2004). African development and innovation of communication technologies. In C. C. Okigbo & F. Eribo (Eds.), *Development communication in Africa* (pp. 175-183). Rowman & Littlefield Publishers.
- Etta, F. (2005). Policy making: the new development El Dorado. In F. E. Etta & L. Elder, (Eds.), *At the crossroads: ICT policy making in East Africa* (pp. 3-15). International Development Research Center & East African Educational Publishers.
- Eoyang, E. C. (2007). *Two-way mirrors: cross-cultural studies in glocalization*. Lanham MD, Lexington Book.
- Faniran, J. O. (2014). Toward a theory of African communication. In C. Christians & K. Nordenstreng (Eds.). *Communication theories in a multicultural world*. New York: Peter Lang

- Foster, C. & Heeks, R. (2014). Nurturing user–producer interaction: inclusive innovation flows in a low-income mobile phone market. *Innovation and Development*, 4(2), 221–237. <http://dx.doi.org/10.1080/2157930X.2014.921353>
- Foster, C. & Heeks, R. (2013a). Innovation and scaling of ICT for the bottom-of-the-pyramid. *Journal of information technology*, 28, 296–315. doi:10.1057/jit.2013.19
- Foster, C. & Heeks, R. (2013b). Conceptualizing inclusive innovation: modifying systems of innovation frameworks to understand diffusion of new technology to low-income Consumers. *European journal of development research*, 25, 333–355. doi:10.1057/ejdr.2013.7
- Foster, C. & Heeks, R. (2013b). Analyzing policy for inclusive innovation: the mobile sector and base-of-the-pyramid markets in Kenya. *Innovation and development*, 3(1), 103-119. Doi: <http://dx.doi.org/10.1080/2157930X.2013.764628>
- FSD Africa (2016). The Growth of M-Shwari in Kenya – A market development story. Retrieved from <http://fsdkenya.org/publication/the-growth-of-m-shwari-in-kenya-a-market-development-story/>
- FSD Kenya (2014a). Supporting the development of inclusive financial markets in Kenya. FSD Annual Report. Retrieved from <http://fsdkenya.org/>
- FSD Kenya (2014b). Shilingi kwa shilingi: the financial lives of the poor. FSD Annual Report. Retrieved from <http://fsdkenya.org/>
- FSD Kenya (2015). Explainer: savings groups in Kenya. Retrieved from <http://fsdkenya.org/explainer-saving-groups-in-kenya>
- Fuchs, R. & Elder, L. (2013). Conclusions: a decade of innovation that matters. In L. Elder, H. Emdon, R. Fuchs, & B. Petrazzini (Eds.), *Connecting ICTs to development: The IDRC experience* (pp. 267-277). IDRC & Anthem Press.
- Gajjala, R. & Tetteh, D. (2014). Relax, you’ve got M-Pesa: Leisure as empowerment. *Information technologies & international development*, 10(3), 31–46.
- Gewald, J., Leliveld, A., & Pesa, I. (2012). Introduction: transforming innovations in Africa; explorative studies on appropriation in African societies. In J. Gewald, A. Leliveld, & I. Pesa (eds.), *Transforming innovations in Africa: Explorative studies on appropriation in African societies* (pp. 1- 15). Leiden: Brill.
- Graham, F. (2010, November 22). M-Pesa: Kenya’s mobile wallet revolution. *BBC*. Retrieved from <http://www.bbc.com/news/business-11793290>

- Graham, M. & Mann, L. (2013). Imagining Silicon Savannah? Technological and conceptual connectivity in Kenya's BPO and software development sectors. *EJISDC*, 56(2), 1-19.
- Gillwald, A. (2010). The poverty of ICT policy, research, and practice in Africa. *Information technologies & international development*, 6, 79-88.
- Gitahi, L. (2017, February 28). Why breaking up Safaricom would be penalizing success. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/oped/Opinion/440808-3831686-12xpld4/index.html>
- Gomez, R. (2013). The changing field of ICTD: growth and maturation of the field, 2000-2010. *The electronic journal on information systems in developing countries*, 58(1), 1-21.
- Haddon, L. (2011). Domestication analysis, objects of study, and the centrality of technologies in everyday life. *Canadian journal of communication*, 36, 311-323.
- Hahn, H. P. & Kibora, L. (2008). The domestication of the mobile phone: oral society and new ICT in Burkina Faso. *The journal of modern African studies*, 46(1), 87-109.
- Hartmann, M. (2007). The triple articulation of ICTs. Media as technological objects, symbolic environments and individual texts. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 80-102). Open University Press.
- Hayes, N. & Westrup, C. (2012). Context and the processes of ICT for development. *Information and organization*, 22, 23-36. doi.org/10.1016/j.infoandorg.2011.10.001
- Heeks, R. (2010). Do information and communication technologies (ICTs) contribute to development? *Journal of international development*, 22, 625-640. Doi: 10.1002/jid.1716
- Heeks, R. (2012). Deriving an ICTD research agenda: a commentary on 'Information and communication technologies for development (ICTD): solutions seeking problems?' *Journal of information technology*, 27, 339-341. doi:10.1057/jit.2012.31
- Heeks, R., Foster, C. & Nugroho, Y. (2014). New models of inclusive innovation for development. *Innovation and development*, 4(2), 175-185. doi.org/10.1080/2157930X.2014.928982
- Heeks, R. (2009). The ICT4D 2.0 manifesto: Where next for ICTs and international development? Development informatics working paper series Paper No. 42. Institute for Development Policy and Management, University of Manchester. <http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/index.htm>

- Heinrich, E. (2014, May). Kenya's mobile wallet tech expands to Eastern Europe. *Fortune*. Retrieved from <http://fortune.com/2014/05/09/kenyas-mobile-wallet-tech-expands-to-eastern-europe/>
- Hemer, O. & Tufte, T. (2012). ComDev in the mediatized world. *Nordicom review*, 33, 229-238.
- Hughes, N. & Lonie, S. (2007). M-Pesa: mobile money for the “unbanked” turning cellphones into 24-Hour tellers in Kenya. *Innovations*, 63–81.
- Hutchby, I. (2001). Technologies, texts and affordances. *Sociology*, 35(2), 441-456.
- Hynes, D. & Rommes, E. (2007). ‘Fitting the Internet into our lives’: IT courses for disadvantaged users. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 125-144). Open University Press.
- Ilako, C. (2017, April 27). Safaricom outage: CA pledges rules to avert future disruptions. *The Daily Nation*. Retrieved from http://www.the-star.co.ke/news/2017/04/27/safaricom-outage-ca-pledges-rules-to-avert-future-disruptions_c1550230
- International Telecommunications Union (2014). Final WSIS targets review: achievement, challenges and the way forward. Retrieved from <http://www.itu.int/en/ITU/Statistics/Pages/publications/wsistargets2014.aspx>
- Internet Society (2017). Promoting content in Africa. Retrieved from <https://www.internetsociety.org/resources/doc/2016/promoting-content-in-africa/>
- Suri, T. & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354, 1288-1292. doi: 10.1126/science.aah5309
- Jack, W. & Suri, T. (2011). Mobile money: the economics of M-Pesa. National Bureau of Economic Research Working Paper 16721. Available at <http://www.nber.org/papers/w16721>.
- Jack, W., Suri, T., and Townsend, R. (2010). Monetary policy and electronic money: reflections on the Kenyan experience. *Economic quarterly*, 96, 1, 83-122.
- Jacobson, T. L. (2016). Amartya Sen's capabilities approach and communication for development and social change. *Journal of communication*, 66, 789-810.
- James, J. (2016). The impact of mobile phones on poverty and inequality in developing countries. Springer International Publishing.

- Jasek-Rysdahl, K. (2001). Applying Sen's capabilities framework to neighborhoods: using local asset maps to deepen our understanding of well-being. *Review of social economy*, LIX (3), 313-329.
- Jensen, K. B. (2012). The qualitative research process. In K. Jensen (Ed.), *A handbook of media and communication research: Qualitative and quantitative methodologies* (pp. 265-282). London: Routledge.
- Johnson, S. C. & Thakur, D. (2015). Mobile phone ecosystems and the informal sector in developing countries – cases from Jamaica. *The electronic journal of information systems in developing countries*, 66(6), 1-22.
- Johnston, K. A., Jali, N., Kundaali, F., & Adeniran, T. (2015). ICTs for the broader development of South Africa: An analysis of literature. *Electronic journal of information systems in developing countries*, 70(3), 1-22.
- Jorgensen, M. S., Jorgensen, U. & Clausen, C. (2009). The social shaping approach to technology foresight. *Futures*, 41, 80-86. doi:10.1016/j.futures.2008.07.038
- Kabukuru, W. (2012, January). How it all began. *African Business Magazine*. Retrieved from <http://africanbusinessmagazine.com/finance/banking/how-it-all-began/>
- Karanasios, S. (2014). Framing ICTD research using activity theory: a match between the ICTD field and theory? *Information technologies & international development*, 10(2), 1-17.
- Katz, J. E. & Aakhus, M. A. (2002). Conclusion: making meaning of mobiles – a theory of apparatgeist. In J. E. Katz & M. A. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 301-318). Cambridge University Press.
- Kiereini, D. (2017, September). How Eldoret etched its educational mark. Retrieved from <http://www.businessdailyafrica.com/lifestyle/society/How-Eldoret-etched-educational-mark/3405664-4096104-108ovabz/index.html>
- Kisero, J. (2017b, January 23). Safaricom faces M-Pesa break up in market dominance war. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/business/Safaricom-faces-M-Pesa-break-up-in-market-dominance-war-/996-3824618-vdv5gw/index.html>
- Kisero, J. (2017a, February 21). Consumer protection means of cutting Safaricom dominance. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/oped/Opinion/consumer-protection-a-means-of-cutting-safaricom-dominance/440808-3822560-jsmlpbz/index.html>

- Kleine, D. (2013). *Technologies of choice? ICTs, development, and the capabilities approach*. Cambridge, MA: The MIT Press.
- Kleine, D. (2010). ICT4WHAT?—using the choice framework to operationalize the capability approach to development. *Journal of international development*, 22, 674–692. DOI: 10.1002/jid.1719
- Koech, J. (2012, October). Bringing banking to the masses one phone at a time. *DallasFed Economic Letter*, 7(11). Retrieved from <http://www.dallasfed.org/research/ecllett/2012/e11211.cfm>
- Kuriyan, R., Ray, I., & Toyoma, K. (2008). Information and communication technologies for development: the bottom of the pyramid model in practice. *The information society*, 24, 93-104. Doi: 10.1080/01972240701883948
- Kuo, L (2016). Visa is taking on the world’s largest mobile money platform on its home turf. Retrieved from <https://qz.com/781365/visa-has-launched-a-mobile-money-platform-to-challenge-m-pesa-in-kenya/>
- Kusimba, S. B., Yang, Y. & Chawla, N. V. (2015). Family networks of mobile money in Kenya. *Information technologies & international development*, 11(3), 1–21.
- LeCompte, M. D. & Schensul, J. J. (2013). *Analysis and interpretation of ethnographic data: a mixed methods approach*. Altamira Press.
- Lievrouw, L. A. (2006). New media design and development: diffusion of innovations v social shaping of technology. In L. A. Lievrouw & S. Livingstone (Eds.), *The Handbook of new media, updated student edition* (pp. 246-265). Sage.
- Lievrouw, L. A., & Livingstone, S. (2006). Introduction to the updated student edition. In L. A. Lievrouw & S. Livingstone (Eds.), *The Handbook of new media, updated student edition* (pp. 1-14). Sage.
- Lim, S. S. (2007). From cultural to information revolution: ICT domestication by middle-class Chinese families. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 185-204). Open University Press.
- Lindlof, T. R. & Taylor, B. C. (2011). *Qualitative communication research methods*. Sage
- Ling, R. (2008). *New tech, new ties: how mobile communication in reshaping social cohesion*. The MIT Press.
- Ling, R. (2004). *The mobile phone connection: the cell phone’s impact on society*. San Francisco, CA: Morgan Kaufman.

- Mahoney, D. (2017). "Money in your hand." M-Pesa and mobile money in Kenya. In D. L. Hodgson and J. A. Byfield (Eds.), *Global Africa: Into the twenty-first century* (pp. 280-288). University of California Press.
- Mas, I & Radcliffe, D. (2011). Mobile payments go viral: M-Pesa in Kenya. Bill & Melinda Gates Foundation.
- Mas, I. & Ng'weno, A. (2010). Three keys to M-Pesa's success: branding, channel management and pricing. *Journal of payments strategy and systems*, 4(4), 352–370.
- Mas, I. & Morawczynski, O. (2009). Designing mobile money services: lessons from M-Pesa. *Innovations*, 77–91.
- Maurer, B. (2012). Mobile Money: Communication, consumption and change in the payments space. *The journal of development studies*, 48(5), 589-604 doi: 10.1080/00220388.2011.621944.
- Mbiti, I. & Weil, D. N. (2013). The home economics of e-money: velocity, cash management, and discount rates of M-Pesa users. *American economic review: Ppapers and proceedings*, 103(3), 369-374. Doi: <http://dx.doi.org/10.1257/aer.103.3.369>
- McKay, C. & Kaffenberger, M. (2013). Rural versus urban mobile money use: Insights from demand-side data. Available at <http://www.cgap.org/blog/rural-vs-urban-mobile-money-use-insights-demand-side-data>
- Melkote, S. R. & Steeves, H. L. (2004). Information and communication technologies for rural development. In C. C. Okigbo & F. Eribo (Eds.), *Development communication in Africa* (pp. 165-173). Rowman & Littlefield Publishers.
- Morawczynski, O. (2011). Examining the adoption, usage and outcomes of mobile money services: the case of M-Pesa in Kenya. Unpublished doctoral dissertation. The University of Edinburgh, Scotland.
- Morawczynski, O. (2009). Exploring the usage and impact of "transformational" mobile financial services: the case of M-PESA in Kenya. *Journal of eastern African studies*, 3(3), 506-525. Doi: 10.1080/17531050903273768
- Muchiri, S. (2016). A handbook of mobile money business in Kenya: an inside look at the operation of the mobile money business in Kenya. CreateSpace.
- Muiruri, M. (2007). Kenya: Diffusion, democracy, and development. In E. J. Wilson III & K. R. Wong (Eds.), *Negotiating the net in Africa: The politics of internet diffusion* (pp. 65-84). Boulder, CO: Lynne Rienner Publishers.

- Mumo, M. (2017c, May 6). Kenyans set to enjoy cross-network mobile money transfer from July. *The Daily Nation*. <http://www.businessdailyafrica.com/corporate/Kenyans-enjoy-crossnetwork-mobile-money-transfer/539550-3916290-78kxybz/index.html>
- Mumo, M. (2017b, March 2). Midiwo amendment seeks to push telcos to split business. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/business/Midiwo-sets-stage-for-law-to-break-up-Safaricom/996-3834908-i4lqibz/index.html>
- Mumo, M. (2017a, March 14). We will not punish success, regulator says of Safaricom. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/business/Telco--competition-watchdogs-rule-out-Safaricom-split-option/996-3850174-hydgh3/index.html>
- Muthiora, B. (2015). Enabling mobile money policies in Kenya: fostering a digital financial revolution. Retrieved from <https://www.gsma.com/mobilefordevelopment/programme/mobile-money/enabling-mobile-money-policies-in-kenya-fostering-a-digital-financial-revolution>
- Munga, B. & Onsomu, E. (2014, August). State of youth unemployment in Kenya (Web log post). Retrieved from <https://www.brookings.edu/blog/africa-in-focus/2014/08/21/state-of-youth-unemployment-in-kenya/>
- Mwaniki, C. (2014, August 12). Matatus sign to Safaricom's M-Pesa ahead of cash fare ban. *Daily Nation*. Available at <http://www.nation.co.ke/business/M-Pesa-Safaricom-Matatus-Payment/-/996/2133510/-/b9cyrnz/-/index.html>
- Navarro-Tejero, A. (2008). Education and globalization: reflections on inter-cultural studies. In S. Bhaduri (Ed.), *Negotiating glocalization: Views from language, literature and culture studies* (pp. 11-18). New Delhi: Anthem Press.
- Nduati, S. M. (2015). Cyberlaws and regulations for enhancing e-commerce: including case studies and lessons learned. Retrieved from <http://unctad.org/en/pages/MeetingDetails.aspx?meetingid=644>
- Ngugi, B., Pelowski, M. & Ogembo, J. G. (2010). M-PESA: A Case study of the critical early adopters' role in the rapid adoption of mobile banking in Kenya. *The electronic journal of information systems in developing countries*, 43(3), 1-16.
- Njogu, K. & Middleton, J. (2010). *Media and Identity in Africa*. Indiana University Press.
- Nyamnjoh, H. M. (2014). *Bridging mobilities: ICTs and appropriation by Cameroonians in South Africa and The Netherlands*. Langaa & African Studies Center.

- Obijiofor, L. (2015). *New technologies in developing societies: from theory to practice*. Palgrave Macmillan.
- Ogone, J. O. (2015). Remediating orality: the cultural domestication of video technology in Kenya. *Critical arts*, 29(4), 479-495. doi: 10.1080/02560046.2015.1078541
- Okigbo, C. C. (2004). The African world: the publics of African communication. In C. C. Okigbo & F. Eribo (Eds.), *Development communication in Africa* (pp. 31-43). Rowman & Littlefield Publishers.
- Okinda, O. & Adera, E. O. (2014). Political economy of ICTs and their effect on poverty. In E. O. Adera, T. M. Waema, J. May, O. Mascarenhas, & K. Diga, K. (Eds.), *ICT pathways to poverty reduction: Empirical evidence from East and Southern Africa* (pp. 53-76). Warwickshire: Practical Action Publishing.
- Omondi, D. (2017, March 17). Sound telecom regulations a necessity. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/oped/Opinion/Sound-telecom-regulations-a-necessity/440808-3852610-134qj9bz/index.html>
- Omwansa, T.K. & Sullivan, N. P. (2012). *Money, real quick: Kenya's disruptive mobile money innovation*. Lexington, KY: Balloonview Ltd.
- Osborn, Don (2010). *African languages in a digital age*. HSRC Press & IDRC
- Opiyo, R. O & K' Akumu, O. A. (2006). ICT application in the informal sector: the case of the Kariokor market MSE cluster in Nairobi. *Urban forum*, 17(3), 241-261.
- Oyedemi, T. D. (2013). The global agenda: technology, development, and sustainable social change. In J. Servaes (Ed.), *Sustainability, participation and culture in communication: Theory and praxis* (pp. 59- 81). Intellect.
- Pearce, K. E. (2013). Phoning it in: theory in mobile media and communication in developing countries. *Mobile media & communication*, 1(1) 76–82. doi: 10.1177/2050157912459182
- Pew Research Center (2016). Smartphone ownership and internet usage continues to climb in emerging economies. Retrieved from <http://www.pewglobal.org/2016/02/22/smartphone-ownership-and-internet-usage-continues-to-climb-in-emerging-economies/>
- Pope, C., Ziebland, S., & Mays, N. (2000). Qualitative research in health care: analyzing qualitative research. *BMJ*, 320.
- Powell, C. (2014). *Rethinking marginality in South Africa: mobile phones and the concept of belonging in Langa Township*. Bamenda, Cameroon: Langaa Research & PCIG.

- Raiti, G. C. (2007). The lost sheep of ICTD research. *Information technologies and international development*, 3(4), 1-7.
- Rashid, A. T. (2017). Inclusive capitalism and development: case studies of telecenters fostering inclusion through ICTs in Bangladesh. *Information technologies & international development*, 13, 1-14
- Rashid, A. T. & Elder, L. (2009). Mobile phones and development: an analysis of IDRC-supported projects. *The electronic journal on information systems in developing countries*, 36(2), 1-16.
- Ravi, A. & Tyler, E. (2012). Savings for the poor in Kenya. Retrieved from <https://www.newamerica.org/asset-building/policy-papers/savings-for-the-poor-in-kenya/>
- Redford, D. T. (2017). Introduction. In D. T. Redford (Ed.), *Developing Africa's financial services: The importance of high-impact entrepreneurship* (pp. xv-xxiii). Emerald Publishing.
- Richardson, H. J. (2009). A 'smart house' is not a home: the domestication of ICTs. *Information systems frontiers*, 11, 599–608. doi 10.1007/s10796-008-9137-9
- Robeyns, I (2005). The capability approach: a theoretical survey. *Journal of human development*, 6(1), 93-114.
- Roy, S. (2005). *Globalization, ICT and developing nations: Challenges in the information age*. Sage Publications.
- Rutten, M. & Mwangi, M. (2012). Mobile cash for nomadic keepers: the impact of the mobile phone money innovation (M-Pesa) on Maasai pastoralists in Kenya. In J. Gewald, A. Leliveld, & I. Pesa (Eds.), *Transforming innovations in Africa: Explorative studies on appropriation in African societies* (pp. 79- 101). Leiden: Brill.
- Safaricom (2014). Our Heritage. Available at <http://www.safaricom.co.ke/about-us/about-safaricom/our-history-heritage>
- Sam, S. (2015). Exploring mobile internet use among marginalized young people in post-conflict Sierra Leone. *The electronic journal of information systems in developing countries*, 66(5), 1-20.
- Sen, A. (2000). *Development as freedom*. Anchor Books.
- Servaes, J. (2013). Introduction: the kaleidoscope of text and context in communication. In J. Servaes (Ed.), *Sustainability, participation and culture in communication: Theory and praxis* (pp. 1- 23). Intellect.

- Servaes, J. (2004). Multiple perspectives on development communication. In C. C. Okigbo & F. Eribo (Eds.), *Development communication in Africa* (pp. 55-64). Rowman & Littlefield Publishers.
- Schramm, W. (1964). *Mass media and national development. The role of information in the developing countries.* Stanford University Press.
- Scott, M. (2014). *Media and development.* Zed Books.
- Semati, M. (2004). Introduction: New frontiers in international communication. In M. Semati (Ed.), *New frontiers in international communication theory* (pp. 1-16). Rowman & Littlefield publishers.
- Shah, H. (2011). *The production of modernization: Daniel Lerner, mass media and the passing of traditional society.* Temple University Press.
- Shinn, M (2015). Community psychology and the capabilities approach. *Am J Community Psychol*, 55, 243–252. doi 10.1007/s10464-015-9713-3
- Sinha, C. & Hyma, R. (2013). ICTs and social inclusion. In L. Elder, H. Emdon, R. Fuchs, & B. Petrazzini (Eds.), *Connecting ICTs to development: The IDRC experience* (91-116). IDRC & Anthem Press.
- Silverstone, R., and Haddon, L. (1996b). Design and the domestication of information and communication technologies: technical change and everyday life. In R. Silverstone and R. Mansell (Eds.), *Communication by design: The politics of information and communication technologies* (pp. 44–74). Oxford: Oxford University Press.
- Silverstone, R. (2007). Domesticating domestication. Reflections on the life of a concept. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 229-248). Open University Press.
- Singh, S. (2013). *Globalization and money: A global South perspective.* Rowman & Littlefield Publishers.
- Slater, D. (2013). *New media, development and globalization: Making connections in the global South.* Polity Press.
- Smith, M. L., Spence, R., & Rashid, A. T. (2011). Mobile phones and expanding human capabilities. *Information technologies & international development*, 7(3), 77–88.
- Spence, R., Matthew L. & Smith, M. L. (2010). ICT, development, and poverty reduction: five emerging stories. *Information technologies & international development*, 6, 11–17.
- Sorensen, G. (2017). *Rethinking the new world order.* Palgrave.

- Sorensen, K. H. (2007). Domestication: The enactment of technology. In T. Berker, M. Hartmann, Y. Punie & K. Ward (Eds.), *Domestication of media and technology* (pp. 40-61). Open University Press.
- Sosale, S. (2004). Toward a critical geneology of communication, development, and social change. In M. Semati (Ed.), *New frontiers in international communication theory* (pp. 33-53). Rowman & Littlefield publishers.
- Sundaram, J. M., Schwank, O. & Armin, R. V. (2013). Globalization and development in Sub-Saharan Africa. New York: United Nations.
- Suri, T. & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354, 1288-1292. doi: 10.1126/science.aah5309
- Thapa, D. Saebo, O. (2014). Exploring the link between ICT and development in the context of developing countries: a literature review. *The electronic journal of information systems in developing countries*, 64(1), 1-15.
- Thomas, P. N. (2014). Theorizing development, communication and social change. In C. Christians & K. Nordenstreng (Eds.). *Communication theories in a multicultural world*. New York: Peter Lang
- Tracy, S. J. (2013). *Qualitative research methods: collecting evidence, crafting analysis, communicating Impact*. Blackwell Publishing Ltd.
- Tim Unwin (2009). Development agendas and the place of ICTs. In T. Unwin (Ed.), *ICT4D: Information and communication Technology for Development* (pp. 7-38). Cambridge University Press.
- Tomlinson, J. (1991). *Cultural imperialism*. Baltimore: The Johns Hopkins University Press.
- Tully, M. (2017). Technopolitics and ICTD in Africa. *Information technologies & international development*, 13, 69–71.
- Tully, M. (2016). The local and the global in ICT4D initiatives: analyzing implementers and audiences, a case study of voice of Kibera. In G. R. Haleboua & B. Aslinger (Eds.), *Locating emerging media* (pp. 65-79). Routledge.
- Turner, G. & Tay, J. (2009). *Television studies after TV: understanding television in the post-broadcast era*. New York: Routledge.
- Turpin, M. & Alexander, P. M. (2014). Desperately seeking systems thinking in ICTD. *Electronic journal of information systems in developing countries*, 61(6), 1-15.

- Tuwei, D. & Tully, M. (2017). Producing communities and commodities: Safaricom and commercial nationalism in Kenya. *Global media and communication*, 1-19. Doi: DOI: 10.1177/1742766517694471
- Tyson, L. & Lund, S. (2017, January). Digital finance and the future of economics. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/oped/Opinion/Digital-finance-the-future-of-economics/440808-3504930-15s931o/index.html>
- Uasin Gishu County (2015). Overview of Uasin Gishu. Retrieved from <http://www.kenya-information-guide.com/uasin-gishu-county.html>
- UNDP (2013). Kenya national human development report. Climate change and human development: Harnessing emerging opportunities. Retrieved from hdr.undp.org/sites/default/files/knhd_report_2013.pdf
- Valk, J. & Fourati, K. (2013). Catalyzing access via telecommunications policy and regulatory research. In L. Elder, H. Emdon, R. Fuchs, & B. Petrazzini (Eds.), *Connecting ICTs to development: The IDRC experience* (pp. 57-73). IDRC & Anthem Press.
- Van Binsbergen, W. (2004). Can ICT belong in Africa, or is ICT owned by the North Atlantic region? In W. V. Binsbergen & Van Dijk, R. (Eds.), *Situating globality: African agency in the appropriation of global culture* (pp. 107-147). Brill.
- Vaughan, D. (2011). The importance of capabilities in the sustainability of information and communications technology programs: the case of remote Indigenous Australian communities. *Ethics Inf Technol*, 13,131–150. DOI 10.1007/s10676-011-9269-3
- Vincent, K. & Cull, T. (2013). “Ten seeds”: How mobiles have contributed to development in women-led farming cooperatives in Lesotho. *Information technologies & international development*, 9(1), 37-48.
- Waema, T. M. (2005). A brief history of the development of an ICT policy in Kenya. In F. E. Etta & L. Elder, (Eds.). *At the crossroads: ICT policy making in East Africa* (pp. 25-43). International Development Research Center & East African Educational Publishers.
- Wamuyu, P. K. (2014). The role of contextual factors in the uptake and continuance of mobile money in Kenya. *EJISDC*, 64(4), 1-9.
- Walker, M. (2006). Towards a capability-based theory of social justice for education policy-making. *Journal of education policy*, 21(2), 163–185.

- Walubengo, J. (2017a, February 28). Safaricom Dominance Report Proposes an Impractical Solution. *The Daily Nation*. Retrieved from <http://www.nation.co.ke/oped/blogs/dot9/walubengo/2274560-3831640-76ukg5/index.html>
- Walubengo, J. (2017b, April 4). 'Peculiar behaviour' is simply Kenyan mobile ingenuity. [Web log post]. Retrieved from <http://www.nation.co.ke/oped/blogs/dot9/walubengo/2274560-3877168-79fs35/index.html>
- Walubengo, J. (2017c, May 2). Risks to Safaricom outstrip mere business - we should be concerned [Web log post]. Retrieved from <http://www.nation.co.ke/oped/blogs/dot9/walubengo/2274560-3910726-7oojsx/index.html>
- Williams, R. & Edge, D. (1996). The social shaping of technology. *Research policy*, 25, 865-899.
- Wilson III, E. J. & Wong, K. R. (2007). Introduction: Negotiating the net in Africa. In E. J. Wilson III & K. R. Wong (Eds.), *Negotiating the net in Africa: The politics of internet diffusion* (pp. 1-16). Boulder, CO: Lynne Rienner Publishers.
- Wilson, E. J. III (2004). *The information revolution and developing countries*. The MIT Press.
- World Bank (2016). Kenya country economic memorandum: from economic growth to jobs and shared prosperity. Retrieved from <https://openknowledge.worldbank.org/handle/10986/24008?show=full>
- Zezeza, P. T. (2005). Postscript: Challenges of the ICT revolution in East Africa. In F. E. Etta & L. Elder, (Eds.), *At the crossroads: ICT policy making in East Africa* (pp. 283-294). International Development Research Center & East African Educational Publishers.
- Zoogah, D. B. & Wolf, C. (2017). Equity Bank: a high-impact entrepreneurial turnaround story. In D. T. Redford (Ed.), *Developing Africa's financial services: The importance of high-impact entrepreneurship* (pp. 125-140). Emerald publishing.
- Zuckerman, E. (2010). Decentralizing the mobile phone: a second ICTD revolution? *Information technologies & international development*, 6, 99-103.

APPENDIX A. INTERVIEW PROTOCOL FOR M-PESA USERS

This is an open-ended loosely structured interview. Additional questions may arise in the course of the interview.

Thank you for taking the time to talk with me today.

- 1) I'd like to start by having you tell me about the mobile phone you have.
 - a) Do you use a standard phone or a smart phone? Why?
 - b) What functions do you use on your mobile phone?
 - c) What provider do you use and why? How long have you used this provider? Have you ever used a different provider?
 - d) What is your opinion about the cost of mobile phones and mobile calling rates?
- 2) What do you think about M-Pesa?
 - a) Do you use/not use M-Pesa? Why?
 - b) What do you use M-Pesa for? (E.g. to save, send, or receive money, purchases etc.)
 - c) Has mobile money had an effect on your life?
 - d) Are there positive aspects to mobile money?
 - e) Are there negative aspects to mobile money?
- 3) Can you tell me a little about your financial practices, such as saving money?
 - a) Do you engage in communal/group savings?
 - b) Do you use M-Pesa in the group activities? If yes, how? If no, would you consider using mobile money?
 - c) Do you have a bank account with a financial institution? (If no; If possible, would you like to have one? (If yes, ask the next question)

- a. How long have you had the bank account?
- b. Why do you have it? How much do you typically save per month?

APPENDIX B. INTERVIEW PROTOCOL FOR M-PESA AGENTS

This is an open-ended loosely structured interview. Additional questions may arise in the course of the interview.

Thank you for taking the time to talk with me today. I'd like to talk to about your role as Safaricom's M-Pesa agent.

1. Why did you become an agent?
2. How long have you been an agent?
3. How does one qualify to become an agent?
4. What is your role as an agent?
5. What Safaricom's guidelines do you follow?
 - a. Do you always follow the set company guidelines in your work?
 - b. Have you received training or materials from Safaricom?
6. Do you provide input to Safaricom on how it can improve M-Pesa services?
7. Can you make a living by being an M-Pesa agent?
 - a. If no, do you have another job that sustains you?
8. What do users who come to you like about M-Pesa services?
9. What do users who come to you want to see changed about M-Pesa services?

APPENDIX C. INTERVIEW DEMOGRAPHICS FOR M-PESA USERS

Participant Code	Age	Gender	Village
Interviewee U01	30	Male	A
Interviewee U02	33	Male	B
Interviewee U03	78	Male	A
Interviewee U04	29	Female	C
Interviewee U05	28	Female	A
Interviewee U06	26	Male	A
Interviewee U07	54	Male	B
Interviewee U08	27	Male	C
Interviewee U09	30	Male	A
Interviewee U10	59	Male	B
Interviewee U11	33	Male	A
Interviewee U12	30	Male	B
Interviewee U13	75	Male	B
Interviewee U14	55	Male	A
Interviewee U15	25	Female	B
Interviewee U16	33	Female	A
Interviewee U17	37	Male	C
Interviewee U18	26	Male	B
Interviewee U19	30	Female	A
Interviewee U20	30	Female	A
Interviewee U21	30	Male	C
Interviewee U22	28	Female	B
Interviewee U23	28	Male	B
Interviewee U24	26	Male	C
Interviewee U25	18	Female	A

APPENDIX D. INTERVIEW DEMOGRAPHICS FOR M-PESA AGENTS

Participant Code	Age	Gender	Village
Interviewee A01	34	Male	A
Interviewee A02	34	Female	A
Interviewee A03	30	Male	B
Interviewee A04	28	Male	C
Interviewee A05	18	Female	A
Interviewee A06	56	Female	A
Interviewee A07	27	Male	C
Interviewee A08	20	Male	B
Interviewee A09	29	Female	A
Interviewee A10	42	Female	B
Interviewee A11	23	Female	C
Interviewee A12	26	Female	A
Interviewee A13	33	Female	A
Interviewee A14	28	Female	B
Interviewee A15	25	Female	A

APPENDIX E. INTERVIEW DETAILS FOR M-PESA USERS

Location	Date	# of Participants - Users
Village A	5/29/16	3
Village A	6/4/16	3
Village A	6/7/16	4
Village B	6/10/16	4
Village B	6/13/16	3
Village B	6/14/16	2
Village C	6/18/16	3
Village C	7/4/16	3

APPENDIX F. INTERVIEW DETAILS FOR M-PESA AGENTS

Location	Date	# of Participants - Agents
Village A	7/9/16	3
Village B	7/12/16	1
Village B	7/16/16	3
Village A	7/19/16	4
Village C	7/23/16	2
Village C	8/4/16	2