

Bridging the financial gap and unlocking the potential of informal businesses through mobile money in four East African countries

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Abstract

Analysis of Research ICT Africa's 2011/2012 nationally representative survey data on informal businesses across 12 African countries shows that the informal sector is mainly a cash and face-to-face driven sector. Informal businesses rely on cash for transacting financially with their customers and suppliers and even for sending money. At the same time informal businesses still mostly communicate in person with customers and suppliers.

This study seeks to investigate reasons behind these patterns among informal businesses and explore avenues through which communication and financial transaction channels among informal businesses can be enhanced. The lack of access to bank accounts is prevalent among informal businesses across all the countries studied. Few individuals use personal bank accounts for business purposes or have a dedicated business account. Conversely, many own and make use of mobile phones for business purposes.

Based on these findings, this paper shows how mobile technology can be capitalised on through the form of mobile money to create financial inclusion of the informal business sector and how banks and/or mobile operators could use transaction data generated from mobile money transfers to generate transaction histories, and trial balances that may be used for business plans and gaining access to formal financial services.

Introduction

In the developed world, the informal sector is mainly seen as undesirable, linked to tax evasion and illicit labour practices, while in the developing world it constitutes the main source of jobs and livelihoods for the poor (Sparks and Barnett, 2010). The informal sector continues to thrive as economic growth in most African countries have not been able to generate adequate formal employment and has not resulted in an equitable distribution of income as expected (Lin, 2011). The formal sector in developing countries often only employs a small share of the total workforce. The informal sector provides work force for the formal sector either on occasional or permanent basis (Kay, 2011). It also buys and sells products to it as well as manufacture inputs used in the formal sector (Pieters et al., 2010). It provides services to the poor through transformation from bulk pricing to small affordable quantity pricing, which has come to be known as sachet pricing (Prahalad, 2004). The informal sector is therefore important and devising ways through which it can be enhanced, allowing it to grow and become more sustainable should be a priority area for policy makers in African nations.

The informal sector continues to face many challenges and obstacles preventing informal businesses from reaching their full potential. Informal businesses are generally small, often lacking the capital, skills and expertise necessary to expand and improve their businesses. Rigorous tax laws, labour laws, the registration process and the lack of access to finance and other resources hinders the growth of these businesses (Stork & Esselaar 2006).

Informal businesses usually do not generate enough funds to expand as most of the profit made is withdrawn to feed the family of the business owners (McCormick, 2012). Any form of expansion for such businesses will therefore require access to outside capital (Beck and Demirguc-Kunt, 2006). The main challenge for policy makers in developing countries is to create a business climate that allows informal businesses to grow and expand, vertically or horizontally. Vertical growth would lead to becoming a formal business while horizontal growth puts the informal business on more sustainable footing.

Although there is growing consensus on the role that ICTs play in economic development and the enhancement of business activities, evidence shows that only mobile phones are widely used among informal businesses, whilst the use of other ICTs such as fixed-lines, computers and Internet remain negligible (Deen-Swarray et al, 2013). In this paper, we explore how the mobile phone through use of mobile internet, mobile money and mobile applications can enhance the way informal businesses conduct their activities, by allowing them to extend their distribution and

procurement channels. In addition, we examine whether mobile money can encourage and make conducting business transactions over distance more affordable as well as creating avenues for informal businesses to access formal financial services.¹ This paper analyses how transaction histories could be generated for informal businesses through mobile money transfers, allowing them to enter the financial system and giving them better chances of accessing formal financial services. The paper discusses the potential of server-based services delivered via mobile phones and mobile applications for smart and feature phones for services such as point of sale, inventory control, accounting, bidding and marketing and how the mobile money platform has allowed informal businesses in some parts of Africa to provide new services and unleash their entrepreneurial capacity.

At the time of the survey only few countries had significant mobile money take up. This paper thus focuses on four countries where informal businesses made use of mobile money in significant numbers, namely, Kenya, Uganda, Tanzania and Rwanda.

Methodology and Classification

Research ICT Africa (RIA) conducted nationally representative household and informal businesses surveys in 2011/2 in 12 African countries. The survey used a census sampling methodology and is thus mostly limited to residential or mixed areas and not entirely commercially zoned areas. The countries covered in the survey included Botswana, Cameroon, Ethiopia, Ghana, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania and Uganda. The random sampling was performed in four steps for businesses:

- Step 1: The national census sample frames was split into urban and rural Enumerator areas (EAs).
- Step 2: EAs were sampled for each stratum using probability proportional to size (PPS).
- Step 3: For each EA a listing was compiled that included all businesses. The listings served as a sample frame for the simple random selections.
- Step 4: 10 businesses were sampled using simple random sampling for each selected EA.

Only businesses with a physical presence, i.e. shop, workshop, house from where the business operates, street corner from which the business usually operates were sampled. Branches of businesses were excluded unless they operated as franchises.

SAMPLE SIZE

The desired level of accuracy for the survey was set to a confidence level of 95% and an absolute precision (relative margin of error) of 5%. The population proportion P was set conservatively to 0.5 which yields the largest sample size (Lwanga & Lemeshow, 1991). The minimum sample size was determined by the equation below (Rea & Parker, 1997). Inserting the parameters for the survey yields the minimum sample size of 384.

$$n = \left(\frac{Z_a \sqrt{p(1-p)}}{C_p} \right)^2 = \left(\frac{1.96 \sqrt{0.5(1-0.5)}}{0.05} \right)^2 = 384 .$$

WEIGHTING

The weights are based on the inverse selection probabilities² and gross up the data to national level when applied.

$$\text{Business Weight: } Bus_w = DW \frac{1}{P_{Bus} * P_{HA}}$$

¹ Relevant studies in the field are Bångens & Söderberg (2011); Foster et al (2012) and Hellström & Tröften (2010)

² See UNSD (2005) page 119 for a detailed discussion on sampling weights.

$$\text{EA Selection Probability: } P_{EA} = m \frac{HH_{EA}}{HH_{STRATA}}$$

$$\text{Business Selection Probability: } P_{Busw} = \frac{10}{Bus_{EA}}$$

DW = design weight compensation for over-sampling of urban EAs;

HH_{EA} = number of households in selected EA based on information of last census or updated listing by field team;

HH_{STRATA} = number of households in strata (urban, rural);

m = target number of EAs for each strata, (urban, rural);

Table 1: Survey Characteristics	
Target Population	all businesses
Domains	1 = national level
Tabulation groups	national level
Oversampling	Urban 60% Rural 40%
Clustering	Enumerator Areas (EA) national Census
None Response	Random substitution
Sample Frame	Census sample from NSO
Confidence Level	95%
Design Factor	1
Absolute precision	5%
Population Proportion	0.5, for maximum sample size
Minimum Sample Size	384

For the analysis of the survey data, the businesses were classified based on formality. Informal businesses in Africa often engage in various activities and are less specialised compared to businesses from developed economies. An informal business can be involved in activities that span the primary, secondary and tertiary sector (i.e. farming, manufacturing and services), thus making the International Standard Industrial Classification³ unsuitable. The SME classification becomes a challenge when it comes to developmental purposes, making it more challenging for policy makers to identify and support marginalised businesses.⁴

The study employed the business classification method used by Stork and Esselaar (2006) and modified by Deen-Swarray, Moyo & Stork (2013). An index⁵ was developed based on which the informal businesses are classified into informal, semi-formal and formal businesses.

Table 2: Distribution across formality classification, unweighted (source: Research ICT Africa 2012)	Informal less or = 1.5	Semi Formal 2 to 3	Formal 3.5 or more	Total Sample
Uganda	82.0%	17.4%	0.6%	500
Kenya	85.0%	11.1%	3.9%	513
Tanzania	82.3%	14.9%	2.9%	491
Rwanda	85.6%	12.3%	2.0%	640

This survey is not representative of formal businesses and therefore this category has not been analysed further. For the remainder of the paper only the informal and semi-formal businesses are analysed.

³ <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27>

⁴ See Stork and Esselaar (2006) for a more detailed discussion

⁵ The index is described in detail in See Stork and Esselaar (2006) for a more detailed discussion

Enhancing Businesses through Mobile Technology

Generally, mobile phones enhance business activities and give them better access to information (Donner, 2007; Jagun et al., 2008; Donner and Escobari, 2010). Mobiles allow informal businesses to communicate more efficiently with suppliers, customers and business partners, giving them a competitive edge in the industry, facilitating market research and improving information access (Inmyxai & Takahashi, 2010). The use of mobile phones resulted in a change in social networks and communication patterns among micro-enterprises in Kigali, for example, which led to an increase in their business contacts (Donner, 2006).

Table 3: Informal businesses using ICTs (source: Research ICT Africa 2012)		Uganda	Tanzania	Rwanda	Kenya
Businesses ICT use	mobile phones for business purposes	67.9%	44.4%	53.4%	67.4%
	own computers	2.0%	0.1%	0.7%	3.0%
	working Internet connection	3.2%	2.8%	2.0%	3.5%
	working fixed-line phone	6.9%	1.0%	1.3%	0.1%
Does the business use SMS or text messages	sends	27.2%	77.3%	63.9%	78.1%
	receives	18.1%	37.4%	33.3%	55.3%
Why businesses do not use mobile phones	too expensive	37.1%	41.7%	55.3%	5.5%
	no need	48.7%	55.8%	33.1%	20.2%

Deen-Swarray et al., (2013) showed that mobile phones remain the most important and commonly used ICT device among informal businesses in 12 African countries. Table 3 displays the survey results for the four selected countries. Slightly over two-thirds in Uganda and Kenya, a little over half in Rwanda and even less in the case of Tanzania, can be considered fairly low considering the recent uptake in mobile phone penetration across the continent. However, in comparison to other ICT devices, mobile phones are the most popular ICT device among informal businesses for conducting their activities.

However, the use of mobile phones among informal businesses is still limited to basic communication services such as voice and SMS. Sending text messages for businesses purposes is more common than receiving and more so in Kenya, Tanzania and Rwanda. This form of communication is however fairly low in Uganda in comparison to the other countries and considering that they have quite a larger share of businesses using mobile phones.

The finding that a large percentage of business owners have a mobile phone makes it a vehicle through which businesses processes can be enhanced for growth and sustainability. Apart from cost, another major reason why businesses indicated they did not use mobile phones to conduct business activities was that they found no need. This is not surprising as in general, informal businesses in Africa are fairly small with very limited scope of operations. Business owners may also not be aware of the services offered through a mobile phone and potential benefits that could be achieved through this device. Penetration rate, quality and cost of mobile and internet facilities continue to be a challenge in most African countries and thus limiting network effects (Aker & Mbiti, 2010). The issue of cost is however comparatively low in Kenya as one of the cheapest countries for mobile telephony in Africa (Gillwald & Stork, 2013).

Table 4: ICT access by individuals 15 years or older (source: Research ICT Africa 2012)		Kenya	Uganda	Rwanda	Tanzania
Owning a mobile phone		74.0%	46.7%	24.4%	35.8%
15+ that use the Internet		26.3%	7.9%	6.0%	3.5%
Where the Internet was first used	Computer	68.9%	28.2%	70.8%	45.8%
	Mobile phone	31.1%	71.8%	29.2%	54.2%
Where did you use the Internet in the last 12 months?	Mobile phone	77.8%	81.3%	70.9%	74.7%
	Work	31.4%	55.0%	52.1%	44.6%
	Place of education	38.8%	51.2%	30.7%	24.4%

Table 4: ICT access by individuals 15 years or older (source: Research ICT Africa 2012)		Kenya	Uganda	Rwanda	Tanzania
the last 12 months:	Another persons home	38.9%	54.0%	24.9%	23.9%
	Internet Cafe	72.4%	74.0%	50.2%	62.8%

Though the Internet opens up a lot of opportunities that businesses could tap into, informal businesses hardly make use of it. This is not surprising given the low number of individual Internet users in Uganda, Rwanda and Tanzania of below 8%. Table 4 displays results from the nationally representative household surveys that were conducted in parallel to the business surveys by RIA in 2012. It displays individual access and use for individuals 15 years or older. At present, with the increased penetration of mobile phones, mobile internet has been widely adopted. Despite the low internet penetration on the continent, most Internet users now access the Internet through their phones and a high proportion claimed to have used the internet first on a mobile phone (Stork et al, 2012).

Access to Financial Services

Banks are set out to make profits and as a result cater for the needs of those who can guarantee this. They are therefore selective in the areas they operate in and this has limited access to financial services for many, especially those residing in poor or remote urban areas as well as in rural areas, as is evident from the RIA household surveys of 2007/8 and 2011/12. Further, retail banks in Africa rely to a large extent on banking fees for their revenues, even charging customers for depositing money into their bank accounts and also for withdrawing it.⁶ Additional charges are levied for transfers, issuing check, account maintenance to name just a few (Beck et al, 2009). The banks are mainly interested in profitable customers in the short or medium term and focus much less on potential customers that may only be profitable in the long term. In the developed world, retail bank's profits mainly stem from financial intermediation and savings and check accounts are often free (DeYoung and Rice, 2004).⁷ Access to financial services thus continues to be expensive for informal businesses and will only be considered if the advantages outweigh the expenses. In addition, bank accounts are often inaccessible for informal businesses that do not meet the requirements to open an account. These requirements may include ID documents, electricity bills, and proof of income. The high account maintenance costs and inaccessibility of formal financial services for Informal businesses hinders their expansion, horizontally or vertically, and thus economic growth potential.⁸

Table 5: Informal business access to formal financial services (source: RIA 2012)		Uganda	Kenya	Tanzania	Rwanda
No bank account		77.8%	63.1%	88.4%	56.0%
A dedicated business account		5.9%	21.2%	9.9%	6.2%
Use private account for business purposes		16.4%	15.7%	1.7%	37.7%
main reasons why businesses do not have bank accounts (multiple response)	too expensive to maintain	63.3%	30.2%	40.7%	37.0%
	banks would not provide my business with an account	14.5%	6.9%	34.8%	16.4%
	no need	45.4%	39.2%	49.9%	55.7%
How was the start up capital financed	Own Savings	80.8%	86.8%	93.0%	69.5%
	Lending from Friends or Relatives	8.3%	7.3%	4.0%	24.8%
	Micro finance Loan	5.6%	4.0%	1.6%	2.3%
	Bank	5.3%	1.9%	1.4%	2.4%
	NGO	0.0%	0.0%	0.0%	1.0%
	Pension	0.0%	0.0%	0.0%	0.0%
major business	access to finance	13.9%	5.2%	12.7%	15.4%

⁶ Stanbic Uganda 0.5%, BCR Rwanda 2% on depositing cash. Kenya's Commercial Bank of Africa charges 1%.

⁷ According to the Canadian Banker's Association Canadian banks only make 6% of revenues from bank fees: http://www.cba.ca/contents/files/backgrounders/bkg_revenuesprofits_en.pdf.

⁸ Swamy and Tulasimala (2011) shows that higher borrowing transaction costs for the poor in particular will retard the long-term growth of rural financial markets.

Table 5: Informal business access to formal financial services (source: RIA 2012)		Uganda	Kenya	Tanzania	Rwanda
obstacles	challenges from authorities/economic conditions	29.0%	37.3%	32.4%	24.6%
Of businesses with access to a bank account	had a loan	19.1%	10.5%	17.4%	6.2%
	were denied one	6.7%	6.6%	0.0%	0.3%

Informal businesses continue to rely on cash transactions as the main form of transacting with their customers and suppliers. Table 5 shows that in all the countries the majority of informal businesses do not have a bank account. Only in Kenya did slightly over 20% of informal businesses indicate that they had an account that was entirely dedicated to business purposes.

Generally the informal business connectivity and individual or household connectivity is closely related. For an informal business to adopt any technology will depend on how many of its customers, employees and suppliers have adopted it. Table 7 displays the number of individuals that have a bank account and the number is higher compared to informal businesses having a bank account (dedicated or private). This is due to the household survey representing the entire population while the business survey only represents informal and not formal businesses.

Whilst in Uganda the cost of maintaining a bank account was cited by most businesses as the main reason why a business does not have a bank account, in Kenya, Rwanda and Tanzania, it was more of a need factor. In Tanzania a third of the informal businesses without a bank account stated that banks would not provide them with an account, usually due to a lack of formality such as permanent address, identification documents, tax registration to name just a few.

The lack of access to bank accounts is partly reflected in the way the start-up of the informal business was financed. The vast majority of informal businesses got their start up capital from outside the banking system, either through own savings or from family and friends as summarised (Table 5). The few businesses with access to a bank account (private or dedicated) that applied for a bank loan and were rejected indicated that this was mainly due to a lack of collateral and the fact that their businesses were too informal. A few others claim that the interest rates charged by banks was just too high.

This draws our attention to the fact that informal businesses do not transact through the formal banking system. Due to the nature of informal businesses, banks find it risky to take them onboard as clients, where the risk is mainly confined to not being able to collect banking fees. As a result, these businesses fail to have a transaction record, thus limiting their chances of obtaining loans or any form of formal financial services from banks.

Table 6: Bank infrastructure compared to mobile money agents						
	Operating Commercial Banks	No. of Bank Branches	Number of bank branches per 100,000 adults	No. of ATMs	Mobile Money Agents	Sources
Uganda	25*	455*	2.431***	660*	MTN: 15,000**	*Central Bank of Uganda Annual Report 2011/12 ** http://www.gsma.com/mobilefordevelopment/how-mtn-uganda-communicates-to-its-network-of-15000-agents *** http://research.stlouisfed.org/fred2/series/DDAI02UGA643NWDB
Kenya	43*	970 (in 2009****)		2291*	75226 **	*Central Bank of Kenya Annual Report 2012 ** http://www.africanews.com/site/Kenya_Mobile_money_usage_peaks_at_US135_billion_dollars/list_messages/42838 *** http://siteresources.worldbank.org/INTFR/Resources/475459-1343750603202/Feature_Financial_Inclusion_in_Kenya.pdf

Table 6: Bank infrastructure compared to mobile money agents						
	Operating Commercial Banks	No. of Bank Branches	Number of bank branches per 100,000 adults	No. of ATMs	Mobile Money Agents	Sources
Tanzania	34*	477*	1.948***	369*	17000 **	*Central Bank of Tanzania Website ** http://www.cgap.org/blog/mobile-money-agents-tanzania-how-busy-how-exclusive *** http://research.stlouisfed.org/fred2/series/DDAI02TZA643NWDB
Rwanda	9*	Bank of Kigali 47*** and Commercial Bank of Rwanda: 19****	5.498****	232*	700**	*Central Bank of Rwanda Annual Report 2012 ** http://www.newtimes.co.rw/news/views/article_print.php?15010&a=54295&icon=Print *** http://en.wikipedia.org/wiki/Bank_of_Kigali **** http://research.stlouisfed.org/fred2/series/DDAI02RWA643NWDB?cid=32794

Table 6 displays key indicators for the banking sector for each of the selected countries and compares them to the number of mobile money agents. Kenya had the widest network with 970 bank branches and 2,291 ATMs. This is however minute compared to the number of mobile money agents of more than 75,000.

The banking structure, the cost involved and the inaccessibility of banking facilities make them not very commonly used, not only among informal businesses but also at the household and individual levels.

Table 7: ICT bank access of individuals 15 years or older (source: Research ICT Africa 2012)	Kenya	Uganda	Rwanda	Tanzania
Bank Accounts	44.5%	15.2%	16.3%	6.2%
Mobile money	60.3%	13.9%	3.3%	14.1%

Of Kenyans 15 years or older 60% used mobile money, while in Tanzania it was only 14%. In both countries more people used mobile money than had access to a bank account in 2012. In Rwanda and in Uganda more people had access to a bank account than used mobile money. It is however still early days for mobile money in Rwanda, which was only launched in February 2010.⁹

Mobile Money

Mobile money is part of the recent development of mobile digital technologies and mainly refers to electronic money on mobile devices which can allow transactions between peers and between mobile devices and can store money, credit and debit cards (Diniz, 2011). The introduction of mobile money is viewed as a stepping-stone to include more of those who lack access to formal financial services like savings, credit and insurances (Comminos et al 2009).

According to the 2012 Global Mobile Money Adoption Survey (GSMA, 2012), 37% of the 166 operators in Sub-Saharan Africa had already launched mobile money, covering more than half of all countries in the region and accounting for 56% of global mobile money deployments around the world in 2012. There were 56.9 million registered mobile money users in Sub-Saharan Africa by June 2012. There are now more mobile money wallets than bank account holders in Kenya and Tanzania and by far more mobile money agents than bank branches (see table 6). All this provides a good indication of the growing penetration of mobile money in relation to traditional banking. As mobile money distribution expands beyond agents to include bank ATMs, cards and online platforms for cash-in and cash-out transactions, there may be some form of interaction between using mobile money and subsequently having access to a bank account (GSMA, 2012).

⁹ http://www.mtn.co.rw/Content/Pages/135/Unguka_Bank,_MTN_Rwanda_partner_in_'Mobile_Money'_venture

Some operators, such as Orange Kenya offer mobile money services inclusive of a bank account in collaboration with a bank. To-date, operators are still one of the biggest direct beneficiaries in terms of payments through selling airtime or credit directly to consumers. This avenue helps operators save by minimising commissions and printing costs involved in the traditional distribution system of using scratch-cards. Unfortunately, informal businesses that sell airtime are the losers when this happens (Kumar and Mino, 2011).

Table 8: Means of sending and receiving money that the business uses	Kenya	Uganda	Tanzania	Rwanda
Mobile Money	58.4%	16.2%	13.8%	7.6%
Post Office	0.8%	0.7%	0.3%	0.4%
Western Union/Moneygram	2.3%	1.8%	0.1%	0.6%
Banks	20.0%	16.9%	4.7%	9.9%
Send cash with someone	86.3%	80.8%	92.9%	70.2%

According to the RIA survey, cash is still “king” among informal businesses. Most businesses tend to send cash with someone when they need to transfer or receive funds as shown in Table 8. This could be due to a lack of alternatives or there may be some social factors that underly face to face interaction between business owners and customers that need to be explored in further research. Mobile money is catching up fast though, and in Kenya and Tanzania, outperformed other methods. Interestingly though, businesses in Uganda and Rwanda make use of banks a little more than they do with mobile money. This could be partly explained by the proximity of agents, as more businesses in both countries indicated that mobile money agents were too far compared to counterparts in Kenya and Tanzania. While Kenya’s lead as the innovator of mobile money in Africa is not surprising and Rwanda’s lag can be attributed to the late start and the relatively small number of mobile money agents, Uganda’s higher reliance on banks compared to mobile money is surprising.

Table 9: Businesses that use mobile money for:	Kenya	Uganda	Tanzania	Rwanda
A: paying employees	8.1%	22.1%	7.7%	1.2%
B: paying insurance	0.6%	1.4%	18.3%	0.4%
C: paying suppliers	67.3%	63.0%	78.0%	71.9%
D: paying bills	38.9%	25.6%	32.0%	5.6%
e: paying taxes	0.4%	7.7%	32.1%	0.0%
F: paying pension fund contributions	2.5%	0.0%	1.9%	2.0%
G: receiving payments from customers	74.1%	64.6%	41.9%	50.9%

Table 9 displays what informal businesses that use mobile money use it for. Generally one would expect that in a country where mobile money use is not widely spread that it will mainly be used for larger transactions, such as paying suppliers. This is confirmed for Rwanda and Tanzania for example. Once mobile money is more widely used paying supplier is over taken by receiving money from customers as primary use, as is the case for Uganda and Kenya.

Table 10: Share of informal businesses that agreed with the following statement	Kenya	Uganda	Tanzania
Mobile Money helps the business to save transport costs	97.7%	95.2%	96.2%
Mobile Money helps the Business get access to loans	19.8%	7.6%	46.7%
Mobile Money helps the business better manage the cash flow	75.5%	51.0%	92.6%
Mobile money helps the business pay suppliers more easily	73.9%	59.0%	94.0%
If the supplier gets paid faster, the business gets the goods faster and hence can deliver to customers faster	76.4%	58.9%	92.2%
Mobile money did not make any difference in the way we conduct business	8.8%	10.5%	37.7%
mobile money helps the business recover money from customers much faster	67.2%	66.3%	71.1%
sales increased since the business used mobile money	51.8%	47.7%	58.6%
credit exposure to customers was reduced since the business started using mobile money	47.8%	31.3%	53.6%
the business use mobile money to pay suppliers from outside my city	43.1%	27.4%	51.8%
sending and receiving money with mobile money reduced banking transactions	70.7%	49.9%	82.1%

Table 10: Share of informal businesses that agreed with the following statement	Kenya	Uganda	Tanzania
it would help the business if i could use MM pay suppliers from other countries	47.4%	32.5%	56.0%
I trust that my business information are safe with the use of mobile Money services	75.1%	59.5%	62.0%
Agents capacity to hold cash and float are two main barriers for businesses	25.9%	15.8%	54.7%
Agents are far from my location	14.2%	21.3%	10.4%
mobile money allow s the business to reach more customers	63.7%	65.9%	69.2%
Mobile money has improved the efficiency of the business	91.5%	67.1%	88.9%
Agents opening hours are not convenient	18.1%	38.5%	24.8%
Agents only allow me to make small transactions	18.6%	27.3%	30.6%

Most businesses agreed that mobile money had improved the way they run their businesses in terms of saving on costs and facilitating financial transactions. On the whole, few businesses indicated that mobile money had helped them in accessing loans, except in the case of Tanzania. This is one area where mobile money agents, operators and banks could work together to allow businesses to be able to have easy access to loans. Mobile money transaction histories can provide banks with a way to assess the viability of a business and provide thus a tool to extend loans with a lower risk. This may even be done automatically based on mathematical formula and probability to avoid expensive human interaction.

What is clear from the collected data is that the adoption and the use of mobile money and consequently the economic potential depends on the entire financial and ICT ecosystem of a country. Rwanda has for example, a higher number of bank branches per 100,000 inhabitants than Uganda and Tanzania (Table 6). At the same time it has a lower mobile penetration than Tanzania, Kenya and Uganda. A further factor that comes into play is the cost of sending and transferring money. In Rwanda one may use a bus company to deliver money from one village to the next or even into neighbouring countries.^{10 11}

A further aspect is the price of alternatives or substitute services. The price for delivering money via a bus driver, sending it from a bank account to another or transferring it via mobile money. Table 11 establishes a price comparison of mobile money providers in the selected countries and compares them to bank transactions. It prices two transactions from hand to hand for a one US\$ value and a 50 US\$ value. The cost of depositing the money into the mobile money system or bank account, the transfer of the value and the withdrawal via a mobile money agent or ATM is being priced into these calculations. The calculations are based on two registered users of the same mobile money service and two bank account holders at the same bank. Bank account products without a monthly maintenance fee were used for this comparison.¹²

Table 11: Cost of cash of USD1 and USD 50 value changing hands via 1) mobile money or 2) bank account and ATM						
			1 USD Registered user		50 USD	
			Total cost US\$	% of transfer amount	Total cost US\$	% of transfer amount
Uganda	Mobile Money	MTN Mobile Money	0.32	32.4%	1.28	2.6%
		Airtel Money & Warid Pesa	0.28	28.3%	1.01	2%
		UTL M-Sente	NA	NA	0.89	1.8%
	Standard Chartered Bank (Easy Go Account)		5.18	518%	5.18	10.4%
Kenya	Mobile Money	Mpesa	0.18	18.0%	1.19	2.4%
		Airtel Money	0.24	24.0%	0.84	1.7%
		Yu Cash	0.06	6.0%	0.48	1%

¹⁰ http://mail.newtimes.co.rw/news/views/article_print.php?i=13821&a=3075&icon=Print

¹¹ <http://focus.rw/wp/2009/07/when-money-takes-the-bus-it-is-delivered-quickly-and-easily/>

¹² Free deposits and transfers are available for some products that require a monthly fee of 850 KES in Kenya, for example. Most bank account types require a minimum opening balance: <http://www.standardchartered.co.ke/ke/personal-banking/deposits/current-accounts/en/>

Table 11: Cost of cash of USD1 and USD 50 value changing hands via 1) mobile money or 2) bank account and ATM

			1 USD Registered user		50 USD		
			Total cost US\$	% of transfer amount	Total cost US\$	% of transfer amount	
		Iko Pesa	NA	NA	0.90	1.8%	
	Standard Chartered Bank (Hifadhi Account)		1.62	162%	1.62	1.8%	
	Tanzania	Mobile Money	Vodacom M-Pesa	0.34	33.9%	1.79	3.6%
			Airtel Money	0.45	44.8%	1.09	2.2%
Tigo Pesa			0.33	33.3%	1.28	2.6%	
Standard Chartered Bank (Hifadhi Account)		0.48	48.0%	0.48	1.8%		
Rwanda	Mobile Money	MTN Mobile Money	0.25	25.0%	1.42	2.8%	
		Tigo Rwanda	0.28	27.5%	1.09	2.2%	
	Equity Banks		0.63	63.4%	0.63	1.8%	

What is clear from the comparison is that neither mobile money nor bank transfer are suitable for smaller transactions. Sending a money of the equivalent to one US\$ would cost 25 cents in Rwanda, 33 cents in Tanzania, 6 cents in Kenya and 28 cents in Uganda via mobile money. Bank transfers for such small amounts would not make any sense in Uganda and Kenya. In Rwanda and Tanzania however, despite it being more expensive and less convenient to send a small amount via the formal banking system it is relatively affordable (Table 11). For the 50 US\$ value transfer costs both for mobile banking and traditional banking becomes more realistic. However, 2% transfer fee is still a whole lot more expensive than just transaction in cash, which is the main reason why cash will always be preferred where possible.

Understanding the procurement and distribution channels

Informal businesses often limit their suppliers or agents from which they obtain goods to those that are within a reasonable distance from where they operate. This is usually the case as businesses seek for convenience in terms of procuring goods, the payments issues and transport cost. Mobile phones and mobile money can potentially improve and lower the total cost of procurement through communication, better information availability and a facility to transfer money over large distances.

Most of the key suppliers were within a 50km radius of business operation and tend to be small formal businesses. Informal businesses showed a preference for direct (face-to-face) communication with their suppliers, which could explain why they limit their suppliers to those that are within a closer distance to them. The majority of businesses in all the countries used the mobile alongside. The share of businesses using mobile phones for communicating with suppliers reflects the general penetration of mobile phones in the selected countries.

Table 12: Key suppliers characteristics		Uganda	Kenya	Tanzania	Rwanda
Size of key suppliers	informal business	30.3%	32.9%	24.3%	43.2%
	small formal business	56.6%	35.5%	46.0%	53.4%
	large formal business	13.1%	31.6%	29.7%	3.3%
Where key suppliers are located	within 50KM	58.2%	76.9%	76.2%	81.9%
	between 50 and 150 km	33.1%	9.7%	19.6%	16.9%
	150 km or more	8.3%	13.2%	3.6%	0.8%
Communication (multiple response)	mobile phone	58.8%	75.9%	36.5%	45.1%
	face to face	89.4%	94.9%	97.7%	89.7%
frequency with which businesses make payment by mobile phone	daily	5.6%	6.4%	9.0%	34.3%
	weekly	40.4%	44.0%	28.4%	34.4%
	monthly	18.6%	27.6%	25.5%	5.7%

Acquiring customers, retaining them and meeting and satisfying their needs are key to improving and growing a business and building a reputation that can help the business become sustainable. Table 13 summarises customer characteristics of informal businesses, which are mostly individuals that live close by and interaction is face-to-face mostly.

Table 13: Key characteristics of customers		Uganda	Kenya	Tanzania	Rwanda
Type of customers	individuals mostly	98.1%	95.0%	97.9%	98.0%
	small Enterprises mostly	1.6%	5.0%	1.6%	1.8%
	big Enterprises mostly	0.3%	0.0%	0.5%	0.1%
Where most important customers are located	within 50KM	86.4%	95.2%	92.9%	93.9%
	between 50 and 150 km	10.7%	1.1%	6.7%	4.4%
	150 km or more	2.9%	3.7%	0.4%	1.7%
Communication (multiple response)	mobile	48.0%	68.2%	31.6%	42.0%
	face to face	94.6%	98.5%	95.0%	89.3%
	daily	3.5%	3.3%	1.5%	1.7%

Mobile Money as a platform to support Informal Business

Given the face-to-face and cash nature of informal businesses in Africa, banks find it difficult to service them profitable. First there is the problem of information asymmetry. In the absence of transaction histories or a business plan which is based on recorded revenues and expenses banks have no means to assess the viability of an investment for which a loan is sought. Informal businesses usually do not keep books of accounts and do not have an inventory system or a point of sale system in place that tracks revenues and expenses. This makes it difficult for them to demonstrate the profitability of their business (McCormick, 2012).

Collateral would be the alternative in the absence of reliable information to assess a loan application. However few informal businesses have collateral that would be accepted by banks.

When banks try to address these challenges by trying to reach out and getting closer to informal businesses, they create another challenge related to cost asymmetries. Given the geographical dispersion of informal businesses and the small loan amounts required, a bank would have to hire a large distributed workforce in order to be able to reach informal businesses and be able to collect meaningful information that helps gauge their risk profile. Such manpower comes at high-cost, flying into the face of the goal of serving customers at low-cost. In addition, informal businesses thrive on cash, which is cheap for them because they individually deal with smaller amounts. Conversely, the bank would need to aggregate, handle and secure more cash along this distributed workforce, making cash more expensive for the bank to handle. All of these make micro-credit manpower intensive and expensive for banks to offer to informal businesses (Ivatury, 2009).

The increasing popularity of mobile money could provide a platform to address most of these issues at two levels-the technology and the human level, thanks to the ubiquity of mobile phones. At the technology level, mobile money enables the movement of money between different parties (proximate or remote from one another). Although the technology is largely used for transfers-money moving from person to another, without an accompanying exchange of goods or services, payments-where money exchange accompanies exchange of goods or services are catching on. The movement of money generates an electronic trail that provides a rich dataset that can be used for a wide range of financial analytics. At a basic level, mobile money transaction data provides amounts, frequencies and reasons for transactions that together can provide rudimentary insight into use of mobile money amongst informal businesses. At an advanced level, operators have data linking transactions to actual user locations. This can be augmented with CDR data creating rich datasets of user interactions across time and space that would be the envy of any bank. The combination of mobile money transaction data with other operator data provides a powerful platform for tracking informal business behaviour that can be used for better risk management within banks.

At the human level, mobile operators run the most extensive agent/distribution network within East Africa. These include mobile money agents and airtime sellers that provide trusted points of presence even in the remotest villages

in the country that can serve as a two-way distribution channel not only for cash and information, but also for goods and services. What differentiates this network of agents that includes many informal businesses is that they have a vested interest in the success of mobile money because they have invested their own resources in order to operate as agents. The more successful a mobile money platform becomes, the more successful agents become as entrepreneurs.

The emergence of mobile money offers a versatile platform on top of which third-parties can offer value-add applications that support informal businesses. Besides addressing financial needs of informal businesses like access to capital, credit and insurance options, other needs that can be addressed by third-party applications may include access to information, sourcing for products, managing cash flows, pricing information, etc.

A commonly cited obstacle for value-add applications is the prevalence of feature phones that restrict interaction to SMS and the prohibitive cost of Internet access. Thankfully, big smart phone manufacturers have turned their focus onto Africa (ComputerWorld, 2013) and operators are increasingly competing on data as differentials on voice tariffs evaporate. A clear indication of this shift is the increasing attention of East African operators towards smartphones (Humanipo 2, 2013).

Conclusions & Recommendations

Banks need to get back to the basics and focus on making money through financial intermediation rather than through transaction fees. The popularity of mobile money has banks in East Africa already cornered and most banks now offer accounts with free deposits and transfers, albeit against a high monthly maintenance fee. Mobile money is cheaper and has a wider distribution network than banks. The popularity of mobile money means lower revenues from deposit fees, transfer fees and withdrawal fees. Banks have responded to this by making these services free, subject to maintenance fees. While this is a suitable approach to keep existing clients it would not be enough to grow the client base.

The unbanked are unbanked for a reason. They will only transact electronically if there are limited or no transaction costs involved, and if doing so is convenient and secure. Serving the currently unbanked profitably and sustainably requires a radically different approach. Tweaking the existing banking system will not achieve a breakthrough in service provision to informal businesses. A paradigm shift needs to occur in order to determine how the informal sector can be profitably brought into the banking sector. Mobile Money has the potential to provide an urgently needed breakthrough. The challenge to policy-makers and regulators is two-fold: Firstly, to encourage banks and mobile operators to develop solutions that are not proprietary, and secondly, to allow access to potential new entrants that can disrupt the lucrative business models of the banks and mobile operators. The key challenge is to do this while at the same time ensuring high levels of security and trust.

Just like convergence forced the integration of broadcasting and telecommunications, so mobile banking is forcing the convergence of the financial and telecommunications sectors. Unfortunately, the convergence of two such heavily regulated industries means that this potential is unlikely to be met unless policy-makers lay the ground rules for innovation. Recommendations could include encouraging the development of industry standards for mobile banking security based upon open access principles and changing regulatory systems to allow mobile operators to become banks, or banks to operate Mobile Virtual Network Operators (MVNOs).

Mobile money provides a potentially powerful tool to do so profitably for the informal sector. Transaction histories can be built-up and trial balances automatically generated. Overdrafts can be extended without human involvement based on this data. This overcomes the information and cost asymmetries.

Policy-makers and regulators need to ensure that evolving systems serve the broader objectives of economic growth and development as well as protect consumer interests, while creating an environment that encourages and rewards innovation.

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