

THE MOBILE MONEY EXPERIENCE IN SUB-SAHARAN AFRICA

LESSONS FROM THE INSTITUTE FOR MONEY, TECHNOLOGY & FINANCIAL INCLUSION (IMTFI)

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Think back to 2008: the first iPhone had just been released. M-Pesa, Safaricom's mobile money transfer service, was just beginning to hit the Kenyan countryside. The extent of the global financial crisis was becoming known.



At the University of California, Irvine, south of Los Angeles, researchers had just begun thinking about the collision between mobiles

and money. Founded that same year, the Institute for Money, Technology and Financial Inclusion (IMTFI) was in the process of supporting its first set of research projects, in countries ranging from Nigeria to Indonesia. When it funded its first cohort of 17 researchers from around the world in 2009, only a handful were exploring the expansion of mobile money technology. Three of the projects were in sub-Saharan Africa—in Kenya, Botswana and Nigeria. The other projects focused largely on alternative currencies, informal savings practices,

and microfinance and microcredit programs. Five years later, in 2014, almost all of IMTFI projects involved research on mobile money, and 50% were being conducted in countries in Africa.

Over these past few years, IMTFI's researchers have used their data to shift the global conversation about mobile money - for example from the sluggishness of uptake to questions about consumer protection, or from mobile money as a simple money transfer service to a whole electronic payments ecosystem. IMTFI has also set the research agenda around issues of community remoteness and mobile money, hierarchical social relations in determining uptake, and the role of deep histories, often much longer than the current quarter or business

cycle, in assessing the successes or failures of mobile phone-enabled financial products and services. IMTFI's trajectory has reflected and helped to drive the burgeoning worldwide interest in and expansion of mobile phone technology as an instrument of financial inclusion. Here, we take a closer look at IMTFI's unique methodological approach and highlight its findings over the years to provide key insights into the shifting stakes and new directions for mobile money research in sub-Saharan Africa.

IMTFI's Approach and Methodology

IMTFI, housed in the Department of Anthropology at the University of California, Irvine, specializes in research that explores the intersection of everyday monetary behavior



Mobile Phone with SMS credit in Sierra Leone

and technological change. IMTFI funds original research on cultures of money around the world, and it serves as a clearinghouse for research on the emerging mobile money phenomenon, as well as an archive of people's everyday socio-economic, ritual, and religious engagements with money. It issues an annual call for proposals and invites researchers from around the world to apply for small grants to support projects of 9-12 months in duration. Proposals are reviewed by a team of academics and industry experts. The process is competitive—last year, only 11% of the 192 proposals received were funded. IMTFI uses this process to find researchers interested in money, mobile and technology, who can then contribute to the worldwide discussions about mobile money and financial inclusion.

Over the years IMTFI projects have focused on user perspectives of the social uses and meanings of money and mobile money, design innovation in the mobile money space and qualitative research on the interface of money and the mobile platform. More than 70% of projects are un-

dertaken by scholars and practitioners who are themselves from the countries where they are conducting their research. This international network of scholars has broadened and deepened global understandings of digital financial inclusion by adding voices from the Global South, especially Africa. With an emphasis on in-depth, qualitative approaches to researching people's financial lives, IMTFI informs a range of policy, advocacy, and design agendas.

Monetary Ecologies and Monetary Repertoires

IMTFI's approach to conducting research on people's engagements with mobile money technologies builds on prior work in the anthropology of money as well as industry perspectives. IMTFI has developed the paired concepts of "monetary ecologies" and "monetary repertoires." Monetary ecologies are those assemblages of technologies, objects, animals, people, relationships, forms of property, and methods of record-keeping that, together, make up the world of value and exchange in people's everyday lives. A monetary ecology might con-

sist primarily of paper notes, coins, bankcards and online computers. Or it may involve small herding animals, cattle, family-owned land, kinship relationships, gold jewelry and a small store of cash. Cataloging the various entities and devices (broadly defined) in a person or community's monetary ecology provides the opportunity to understand the relationships and flows among them.

Monetary repertoires refer to all the ways people might use, deploy or manipulate the components of their monetary ecology. This could be the actions a person might undertake with a monetary ecology as well as the skill, style and effectiveness with which they do it - like a conductor with an orchestra. IMTFI's objective then, is to understand the place of mobile money in the shifting monetary ecologies and repertoires within which people operate and make meaning in their lives. Paying attention to a given community's "traditional" monetary pragmatics and attitudes toward finance has been influential in designing new mobile financial services deployments that people will actually use. IMTFI



IMTFI researchers mapping mobile money social networks at the 2014 conference workshop

research suggests that insights like these can only come from engaged, qualitative research with the populations for whom such services are intended.

In-situ Research

IMTFI stresses the importance of researchers who are accepted into and are often from the communities they are studying. The backgrounds of IMTFI researchers allow them to be more attuned to local nuances of how people use and understand money and technology. As part of this methodological approach, IMTFI organizes a conference in Southern California for its funded researchers to present their preliminary findings and receive feedback from their peers. One day of the conference is dedicated to brainstorming about patterns across the countries and field sites, and addressing unanticipated occurrences and findings. This is the time when researchers' own biases and local knowledge get expressed more vividly. In one workshop session, after much deliberation about how informants reported that their mobile money use was largely for school fees, a researcher studying Kenya finally threw up her arms in frustration and called everyone out for not discussing what they knew mobile money was often re-

ally being used for: male circumcision rituals.

Being from the communities that they are studying gives researchers privileged access to information that can only be gained through their own participation in the community and insertion into social networks and cannot be grasped by (or is often misrepresented in) large surveys or questionnaires. In the open session at one of the IMTFI conferences, one researcher from Nigeria recounted how he had deposited money in a local bank in Nigeria before going abroad to study, but when he returned the bank had failed and he had lost all his money. This led to a spirited discussion during the closed session, when other researchers openly discussed how no one—not even themselves—trusted the banks in their countries. Thus researchers' own experiences of financial instability contribute to their conclusions about whether, for example, a mobile network operator's mobile money service can be a more reliable instrument for savings than a bank.

In this way, IMTFI researchers bring their own historically and culturally situated understandings to their research, and the workshop sessions allow for moments of self-reflexivity

where they can both acknowledge and question their own expectations and assumptions about how money ought to circulate. For instance, one researcher from Ghana casually stated that since someone was a “queen” (of high status) she was supposed to be generous and share her money. He suggested that common statements that “mobile money is only for rich people” sometimes refers not to economic wealth, but social position, expressing dominant normative frameworks of how hierarchy functions in some parts of sub-Saharan Africa. IMTFI researchers' own financial lives and engagements with money are therefore critical for new scholarly reflections on money and technology and lead to new industry-relevant insights.

Shifts in the Mobile Money Landscape: Money Transfer to Money Ecosystem

It is easy to forget that mobile money really began as an ancillary service to microfinance operations that gained prominence in Africa and all around the world with the awarding of the Nobel Peace Prize in 2006 to Muhammad Yunus and the Grameen Bank. But microfinance has always had problems with “back office” operations. Monthly meetings with peo-



M-Pesa Kiosk in Nairobi

ple exchanging small sums of money needed a central record keeper and accounting system, usually being done by hand. Microfinance donor agencies and technology companies interested in microfinance to impact their own double bottom line saw in the mobile phone a promising solution to facilitate both transfers of money and the back-end accounting and processing of these numerous transactions. It is important to remember that these devices, like the old Nokia mobile phones, had very basic features that in the age of smartphone proliferation seem exceptionally simple. At the time, however, trading cash for electronic value solved many problems all at once, from cash handling to transportation. The risk of theft and the accounting problem were both taken care of by the mobile network operator that could track all the transactions. Mobile money also did not require heavy investment in infrastructure because cell towers could be set up in the countryside and could run on generators rather than being wired into an electricity grid.

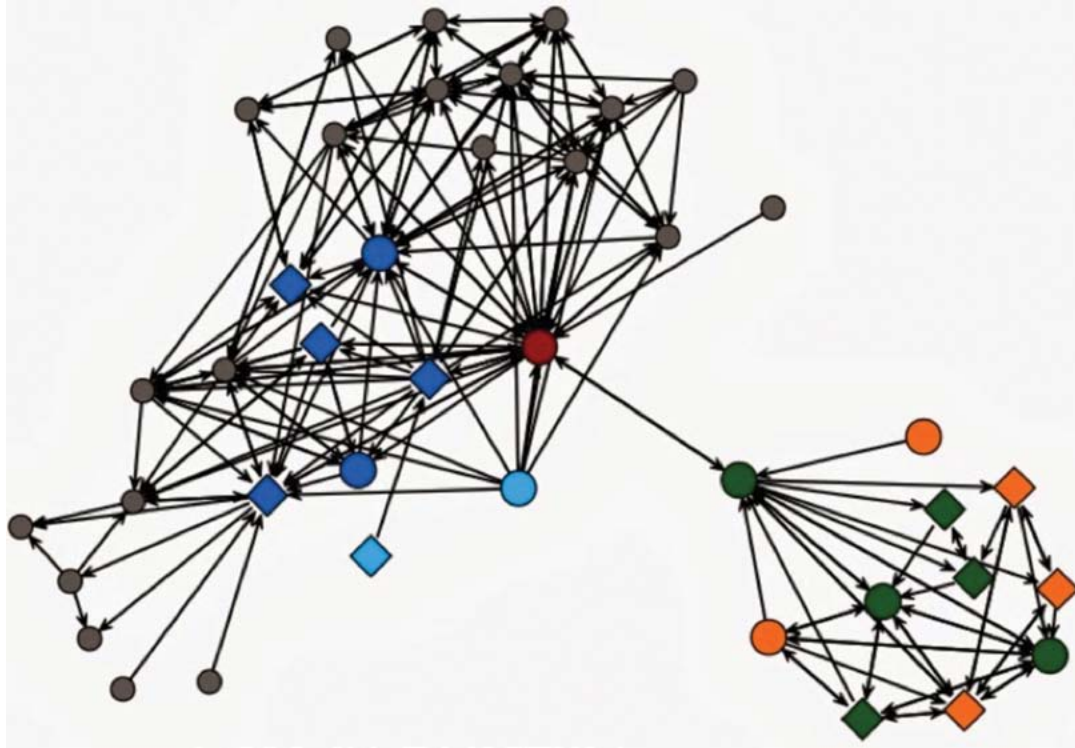
If solving the back-end problems of microfinance was the initial motivation for mobile phone-enabled money transfer systems, on the ground and in the donor community there was inter-

est in channeling the service for something more. As the dangers of credit became more apparent, especially in the wake of the global financial crisis, several critiques were levied against microfinance and some began to argue that the mobile phone could be used not just for microcredit, but also for microsavings. The mobile phone was considered to be a good corrective to the problems of microcredit by being a doorway to the formal financial sector - banking and savings. It was anticipated that other services, like insurance and even credit services could be added down the line. There was a big push for this savings agenda at the Global Savings Forum sponsored by the Bill and Melinda Gates Foundation, held in Seattle in November 2010.

Even as some data was coming in that showed various uses of the mobile phone to facilitate small savings—such as people sending money to themselves as a way to prevent them from spending it—other data showed an even wider range of uses. In fact, savings was also problematic: in countries with weak currencies, saving in the form of money might be less rational than saving in the form of land or livestock. People in the mobile money space began to wonder wheth-

er the mobile network should be agnostic as to what financial service was carried over it. At the Global Savings Forum, paradoxically perhaps, IM-TFI Director Bill Maurer and other partners started wondering aloud whether mobile money was better seen not as a potential savings system, but as an electronic payments system. Could mobile money operate like a payment network that could be used for anything, not just for mini savings banks? This insight led him and other researchers to start exploring how the payments industry in Europe, the United States and the global South actually functioned and to seek to understand the infrastructures that serve as the backbone for any kind of financial product. In the United States, for example, the electronic movement of money is facilitated by the Automated Clearing House (ACH), as well as the debit and credit networks created by banks.

Prompted by the realization that perhaps we should be looking more closely at payment, IM-TFI and its researchers did a landscaping exercise of M-Pesa in Kenya. Instead of being proscriptive, they took stock of what was happening on the ground as new businesses and startups popped up to build on top of M-Pesa other kinds of



Nodes in Mobile Money Social Networks in Kenya

services for consumers. Researchers in Nairobi went door to door to see what products these new companies were offering—savings, medical insurance, life insurance, agricultural insurance, different kinds of credit, etc. The conclusions of this study can be found in an article titled “An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem” in MIT’s journal *Innovations* where the authors argue that M-Pesa was transitioning from being simply a money transfer system, whether for microfinance or peer-to-peer transactions, into supporting an entire payment ecosystem. By payment ecosystem, the authors mean a service that enables a whole host of other services to operate on top of it, each of which is dependent to some extent on all the others.

With any electronic payment system, there need to be enough opportunities for customers to use electronic value in multiple locations for different products and services. For instance, if there is electronic disbursement of government benefits but no way to pay utility bills electronically, people will just cash out the government benefits and walk over to pay the bill

in cash to the electricity company. In order for these mobile money services to really take off, and to provide benefits to people in the form of reducing their reliance on physical cash and the time and distance cash transactions can require—not to mention the threats they pose—a large number of institutions need to be able to accept electronic payments in order to see the multiplier effect of a payment ecosystem.

The World Bank Group’s Global Findex Database 2014 shows that sub-Saharan Africa has the highest rate of mobile money penetration, with 12% of adults (64 million adults) having mobile money accounts. Several other studies discuss the explosive growth of mobile money schemes and the large percentage of global mobile money transactions taking place in Africa. While the M-Pesa model in Kenya has been much celebrated, its success is widely attributed to a confluence of specific circumstances that include Safaricom’s sizeable national market share and the enabling regulatory environment. While other countries in sub-Saharan Africa evince conditions similar to that of Kenya, with poor financial brick and mortar infrastruc-

ture and large unbanked populations, the M-Pesa model has not been easily replicated. This is in large part due to differences in political economic and socio-cultural arrangements, religious practices, and rural-urban and transnational migration patterns—all of which impact cultural sensitivities around money, not to mention the diversity of monetary instruments and their repertoires of use.

Nonetheless, there is a rapidly evolving mobile money ecosystem in sub-Saharan Africa. Providers are finding ways to combine the back-end systems of existing financial institutions with the mobile money platform to offer a range of person-to-person (P2P) and government-to-person (G2P) transfer services and savings, as well as credit and micro insurance products. This developing industry has enabled other mobile-based products and services in the agricultural sector such as providing market prices for crops, weather forecasts and microinsurance for agricultural harvests. A number of health-related mobile applications have also emerged to give health advice and assistance as to well as determine the authenticity of medication.

Cross-border money transfers have proven a particularly difficult use case to solve. There are foreign exchange problems, regulatory differences between countries, and infrastructural incompatibilities, among other issues. Informal channels like hawala have been indispensable for end-users who do not trust or feel they cannot afford other money transfer services. But recently, “pan-African” mobile network operators (MNOs) such as Airtel (Zambia, Rwanda, and DRC) and Tigo (Tanzania and Rwanda) have been expanding their domestic P2P services to facilitate the movement of cross-border remittances. Where their network coverage maps onto existing trans-boundary remittance corridors, we can expect them to be successful.

Enduring Questions and the Role of Deep Histories

Despite these shifts in the assemblage of services, technologies and operators in the mobile money ecosystem, the work supported by IMTFI to date reveals several enduring themes and organizing frameworks for countries in sub-Saharan Africa. Many of these questions echo the concerns of anthropological investigations in Africa long before the advent of mobile money. Sub-Saharan Africa was a major research site for anthropologists due to European colonialism as well as its diverse and complex socio-economic exchange systems. Anthropologists have spent decades studying the ways people in parts of sub-Saharan Africa historically classified and made distinctions between money and non-money “spheres of exchange” that preserved social relationships of status and power particularly through the movement of bride wealth. The money sphere was associated with self-interest and personal consumption whereas exchange in non-money spheres (particularly cattle) was seen to foster social relationships of trust and solidarity. In practice however, hybrid systems prevailed, even though conversions between the two spheres involved some tension. Understandings of historical cultural schema are imperative to frame and situate similar differentiations made between mobile money and other transactions in cash, livestock, or land in contemporary sub-Saharan Africa and to ascer-

tain how mobile money complements or conflicts with existing financial practices.

Rank and Hierarchy

IMTFI has found that rank and hierarchy play a critical role in determining people’s perceptions and adoption of mobile money. Rank refers not specifically to socioeconomic status, but a person’s position in what are generally descent-based or community-based groups organized hierarchically. Practices of mobile money are often determined by how social relationships are ordered among kin and peers. One consistent pattern found in IMTFI research is the variation in Eastern and Western African countries’ mobile money experience. Whereas some of these differences can be attributed to regulatory differences or contrasts in the state of the market and competition among mobile carriers, there are also distinctions in mobile money use based on the ways people have experienced social hierarchy historically in these different regions. In Eastern Africa, mobile money is more easily integrated into pre-existing kin networks. We therefore see a lateral diffusion of mobile money, which permits people to use it to draw in even far-away nodes into their social networks, linking relatives across time and distance (Kusimba et al. 2013). In West Africa, on the other hand, mobile money is seen as something for people of high status that poor clients shy away from adopting it (Dzokoto & Appiah 2014; Omeje 2013); people of higher social or economic status are thus expected to distribute funds through mobile money. IMTFI research shows how these differences in systems of social organization affect how mobile money circulates more horizontally in East Africa than in West Africa where transactions are oriented more vertically.

Researchers who study how people interact with mobile technology have long noted the phenomenon of intermediated use: that is, the person who uses the phone often has assistance from kin, children or friends (see Sambivan, Cutrell & Nardi 2010). IMTFI researchers too have found that intermediated use plays a key role in mobile money adoption. Our research shows that since mobile money

is layered on top of communications networks it also gives expression to and can change social networks. In such networks, specific individuals often become key nodes linking relatives, reactivating relationships, and accumulating power within a group. These can be elders or sometimes even children. In cases from West Africa like Ghana and Nigeria, we also find that intermediated use is hierarchically organized. What this means for the industry is that product designers should not assume that the owner of a phone or the user of a service is necessarily one person—it may be a person plus a helper, and the social characteristics of that helper and his/her relationship to the end user may matter a great deal in how the service or device ultimately gets used.

The sharing of mobile phones by many individuals has been widely documented in Africa and IMTFI researchers show how in Rwanda, for instance, women are more likely to share phones and the owners of mobile phones tend to be wealthier, better educated men (Blumenstock and Eagle 2012). In a recent discussion with MasterCard’s Inclusion Hub, the IMTFI team advocated for any good financial inclusion strategy to take gender into account. Several IMTFI studies have shown how mobile money has led to the empowerment and social and financial inclusion of women in rural and urban contexts. Research from Southern Uganda shows how rural women have benefited from access to mobile phones and mobile money, especially for support from kin during times of crisis and need (Guma 2015). In Kenya, we see that women, grandmothers in particular, have gained power as brokers that manage the flow of mobile money through social networks of trust and reciprocity (Kusimba et al. 2013). While mobile money technology has provided new financial and livelihood opportunities for many women and women’s groups in Africa, IMTFI researchers also provide reminders of the persistence of hierarchically defined gender roles and experiences of financial exclusion and poverty experienced by more vulnerable groups of women, such as those with disabilities (Kiiti and Mutinda 2011).



Coming of Age Ceremony in Kenya

Ritual and Religion

Research also shows that mobile money is not just about economic exchange but is influenced greatly by social practices of ritual and religion. Anthropologists have demonstrated extensively that despite the constant emphasis in sub-Saharan Africa on communal ties, reciprocal obligations, and notions of “wealth in people,” hierarchies based on gender, age-sets, lineage, ancestors and deities are pervasive and often strengthened through ritual. However, in the context of shifting rural/urban labor arrangements, kinship networks and domestic and international migration patterns, mobile-money as a new channel of monetary transfer and store of wealth is often seen as disturbing or undermining traditional hierarchies by redirecting value flows.

The work of several IMTFI researchers supports these claims and also shows how ritual and religion sustains differentiated uses of money to uphold traditional kin relations, hierarchies and social institutions. For instance, in coming-of-age circumci-

sion ceremonies in Kenya, M-Pesa is used for hidden transactions as a “contingency fund,” whereas cattle is used to publicly express the continuity and solidarity of the patriline as well as an informal savings mechanism (Kusimba et al. 2015). In Nigeria, borrowing and saving from deities is common and chief priests have the final word in financial matters (Kenechi and Uchenna 2015; Omeje 2013). In rural Ghana, the “dead decide” the ends toward which mobile money can be used but the ancestors themselves do not accept fees in mobile money because they want their worldly intermediaries to touch the cold, hard cash (Santuah 2015); in urban Ghana the intangible and invisible nature of mobile-based contributions make them undesirable in church activities such as funerals and weddings where donations are markers of status and religious merit that have to be seen (Dzokoto & Appiah 2014).

The importance of visible cash donations for ritual have also been documented in Ethiopia and show that for mobile money to be adopted into these practices, design features will

have to include ways of personalizing gifts and recording contributions to religious institutions (Mesfin 2012). In addition to the ritual uses of cash, IMTFI researchers also stress taking the preference for cash more seriously because of the larger social, moral and “spiritual” functions it fulfills in cultivating and nurturing social relationships through face-to-face interactions that go beyond just monetary exchange (Omwansa and Waema 2014).

Stickiness of Trust

Social lending groups, such as ROS-CAs, have long been viewed as effective financial strategies for the poor because their group nature contains mechanisms for building and maintaining trust. Digitizing such groups is sometimes a goal of mobile money projects. Yet there are more kinds of groups and more kinds of trust than the academic or policy literature is generally attuned to. IMTFI researchers paint a more complex picture of trust and the role of groups by considering men’s gambling groups formed around sports betting in Uganda (Yawe and Ssenooba 2014); old forms of informal banking such



Small ruminants as sources of financial security in Nigeria

as Susu savings operations in Ghana (Osei-Assibey 2014); as well as how mobile money facilitates and extends *njangi* sociality and social solidarity in Cameroon (Nyamnjoh and Fuh 2014). Trust in different instruments in a monetary ecology is also a critical site of inquiry and is embedded in deep contextual histories. People in many countries of the global South have in their own or their parents' lifetimes experienced profound economic shocks, political crisis, violence and displacement, and the failure of institutions. These histories help account for why, for instance, banks may be more trusted in some countries than others. Insights from IMTFI researchers also show that people prefer to store value in gold or buy land or plant trees as more stable long term investments or in small animals or ruminants (Oluwatayo & Oluwatayo 2012).

There is a large body of literature on the “illiquidity preference” of the poor and we see this preference endure in Africa with the introduction of mobile money. Even in cases where mobile money services have

developed around more formal services relying on “institutional trust” in banks, unreliable network quality can undermine trust in the service and affect adoption rates (Nartey and David-West 2015). IMTFI studies also show the ways long standing systems of money transfer such as hawala and newer technologies like mobile money get reinvented and play a critical role in providing security and mobility during times of political volatility, forced migration and displacement, as seen in the case of Somali refugees (Iazzolino 2014). On the other hand, amidst its lack of international recognition as an independent nation state, in Somaliland we see how mobile money service Zaad capitalizes on trust in US Dollars by enabling the transfer and storage of hard currency at a time of economic and political instability and profound mistrust in Somaliland's state institutions (Iazzolino 2015).

Future Directions for Mobile Money Research

How people handle, count, store, hide, show off, and even alter their money lends insight into broader un-

derstandings of value and impacts how people adopt a new technology of money. A deeper understanding of the several instruments that constitute monetary ecologies alongside mobile money will also allow designers to develop products, services and interfaces that target the specific uses of the mobile platform and reflect everyday practices of earmarking—that is, setting aside different stores of money for special uses. Attention to denomination, metadata and the aesthetics of mobile money (Mesfin 2014) could offer insights for design solutions and improvements of the user interface. Such solutions might, for example, take into account the needs of populations such as the illiterate, develop voice-enabled software for mobile money transactions, or offer transfer amounts in multiples of numbers that are consistent with local systems of accounting. Research can, in short, help the industry design more socioculturally appropriate products and services (see also IMTFI Design Principles 2010).

IMTFI research, for example on ATM fraud in Nigeria (Tade and

DO USERS VIEW MOBILE MONEY AS A GOVERNMENT SERVICE, A PROFIT-ORIENTED BUSINESS OR A DONOR-DRIVEN ENTERPRISE?

Adeniyi 2014), shows that there is a need for more work on fraud and data privacy in mobile money systems, particularly as they get linked to biometric identification systems, suggesting avenues for consumer protection for mobile money users (Donovan 2013). IMTFI researchers have spotlighted the specific needs of vulnerable populations, such as the elderly and the visually impaired (Kiiti and Mutinda 2011). While there is overall consensus about the urgent need for development policy to address women's financial inclusion, more consideration is required of the specific culturally embedded and differentiated ways that women and adolescent girls use and deploy mobile technology; a theme being explored by some of IMTFI's current cohort of researchers in Nigeria, Kenya and Ivory Coast. A closer look at the curricula, trainings and strategies of financial literacy and education programs is also of particular importance to understand their role in mobile money adoption. Initiatives such as the Bank of Zambia's National Strategy on Financial Education and its Financial Literacy Week 2014 would be a good test case to see how mobile money is explained and advocated for, and whether the way mobile money is presented in educational materials starts from an understanding of what people are doing with it now.

The bundling of different mobile-based financial services (bill pay, credit and microinsurance etc.) and other e-services in sectors like health, agriculture, disaster management and social assistance programs needs to be further investigated in relation to money transfer. One IMTFI study shows how clients used M-Pesa more when it was bundled with more complex financial services such as microfinance loan receipt and repayment (Omwansa and Waema 2014). Another IMTFI study, currently in pro-

gress, is examining services such as M-Shwari for M-Pesa customers operating small-to-medium-sized informal businesses in the Jua Kali sector (Kiiti et al. 2014). Such work needs to be elaborated upon, alongside inquiries into new cross-border remittance services provided through tie-ups such as Tigo (Tanzania and Rwanda), and between Safaricom (Kenya) and Vodacom (Tanzania) to see how they affect mobile money adoption.

To further unpack the stubborn nature of trust in mobile money uptake, a firmer grasp on mobile money users' (and non-users') sense of who or what is behind the service would be beneficial. Do users view mobile money as a government service, a profit-oriented business or a donor-driven enterprise? Do they lump it with other services or institutions like banks or particular government agencies? Answers to some of these questions could provide a better understanding of how trust in these institutions or organizations, or the reliability of infrastructure, attaches itself to associated mobile money services. It also helps assess the potential benefits—as well as the possible pitfalls—of financial inclusion, understood as the greater incorporation into (and dependence on) corporate or government-run financial services as opposed to communal, familial and/or traditional practices.

Meanwhile, the technological landscape is shifting—rapidly. Smart phones are achieving wide distribution. The rise of the smart phone will bring with it a series of network and platform shifts. How will people adapt to these shifts, just as they are beginning to use mobile money more and more successfully to manage their everyday financial lives? Further-more, smart phones are much more data-intensive devices than feature phones. How will people and companies think about, manage and use this

data? What opportunities and pitfalls lie in the rise of Big Data for mobile money? Finally, smart phones require a lot more electricity. IMTFI has consistently argued that we cannot understand mobile money separate from the other infrastructures—such as the electrical grid—on which it relies. If there is room to expand the financial inclusion research agenda to include, say, goats, there must also be room for it to include electricity provision.

Since 2008, the Institute for Money, Technology and Financial Inclusion has developed a rich archive of the use cases for money, mobiles and mobile money throughout the world. It has done so by fostering a globally distributed and locally embedded network of researchers who add their unique perspectives and in-depth, grounded observations to the larger conversation on digital financial inclusion. In the process, IMTFI has contributed insights that inform academic, policy and industry discussions. It has also perhaps generated more questions and provided fodder for future debates, all the while keeping a watchful eye on how technology is changing the future of money in sub-Saharan Africa and beyond. ■

*For more information, please visit www.imt-fi.uci.edu, or read Bill Maurer's new book, *How Would You Like to Pay? How Technology is Changing the Future of Money* (Duke University Press, 2015).*

Works Cited

- Blumenstock, Joshua and Nathan Ea-gle. "Divided We Call: Disparities in Access and Use of Mobile Phones in Rwanda, Information Technology and International Development" Research Paper, USC Annenberg School for Communication & Journalism. 8(2): 1-16.
http://www.jblumenstock.com/files/papers/jblumenstock_itid2012.pdf
Donovan, Kevin. 2013. "SIM Registration and Financial Inclusion in the "Silicon

- Savannah" *IMTFI blog post*, January, 22, 2013 <http://blog.imtfi.uci.edu/2013/01/sim-registration-and-financial.html>
- Dzokoto, Vivian A. and Elizabeth Appiah. 2014. "Making Sense of Mobile Money in Urban Ghana: Personal, Business, Social, and Financial Inclusion Prospects." *IMTFI Final Research Report*. (2014) http://www.imtfi.uci.edu/files/docs/2014/dzokoto_final_report_feb2014.pdf
- Guma, Prince Karakire. 2015. "Reimagining Rurality in Mobile Money Times: Life, Identity, and Community in Southern Uganda (Part I & II)" *IMTFI blog post*, September 21, 2015. <http://blog.imtfi.uci.edu/2015/09/reimagining-rurality-in-mobile-money.html>
- Iazzolino, Gianluca. 2014. "Contingency Routes: Somali Financial Flows and Transnational Spaces between Kenya and Uganda." *IMTFI Final Report 2014*. http://www.imtfi.uci.edu/files/docs/2014/gianlucaiazzolino_report_final_101414_2.pdf
- Iazzolino, Gianluca. 2015. "Following Mobile Money in Somaliland" *Rift Valley Institute Forum Research Paper 4*. <http://riftvalley.net/download/file/fid/3870>
- Kendall, Jake, Bill Maurer, Phillip Machoka, and Clara Veniard. "An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem" *Innovations*, Volume 6, Issue 4, pp. 49-64, 2012. http://www.mitpressjournals.org/doi/pdf/10.1162/INOV_a_00100
- Kenechi, Onyima Jude and Onugu Charles Uchenna. 2015. "Wealth Without Currency: Social Money Usage in Rural Nigeria." *IMTFI blog post*, August 3, 2015. <http://blog.imtfi.uci.edu/2015/08/wealth-without-currency-social-money.html>
- Küiti, Ndunge and Jane Mutinda. 2011. "Mobile Money Services and Poverty Reduction: A Study of Women's Groups in Rural Eastern Kenya." *IMTFI Working Paper 2011-2* http://www.imtfi.uci.edu/files/blog_working_papers/2011-2_Küiti_Mutinda.pdf
- Küiti, Ndunge, Jane Mutinda and Charles Nzioka. 2014. "Lessons from the Field: M-Shwari and the Jua Kali in Kenya" *IMTFI blog post*, November 20, 2014 <http://blog.imtfi.uci.edu/2014/11/lessons-from-field-m-shwari-and-jua.html>
- Kusimba, Sibel, Harpieth Chaggar, Elizabeth Gross and Gabriel Kunyu. 2013. "Social Networks of Mobile Money in Kenya." *IMTFI Working Paper 2013-1* http://www.imtfi.uci.edu/files/2013-1_kusimba_1.pdf
- Kusimba, Sibel, Gabriel Kunyu and Alexander Wanyama. 2015. "The Contingency Fund and the Thirteenth Cow: Mobile Money and Coming of Age in Western Kenya." *IMTFI Final Research Report (2015)*. <http://www.imtfi.uci.edu/files/docs/2015/Final%20Report%20Kusimba.pdf>
- MasterCard Inclusion Hub, 2015. "Expert View: Any Good Financial Inclusion Policy Must Address Gender." September 14, 2015. <http://inclusionhub.mastercardcenter.org/features/5943/expert-view-any-good-financial-inclusion-policy-must-address-gender/>
- Mesfin, Woldemariam F. 2012. "Understanding Social Relations and Payments Among the Poor in Ethiopia" *IMTFI Working Paper July 16, 2012* http://www.imtfi.uci.edu/files/blog_working_papers/2012-6_mesfin.pdf
- Mesfin, Woldemariam F. 2014. "One researcher's thoughts on money and metadata based on fieldwork in Ethiopia." *IMTFI blog post*, May 20, 2014 <http://blog.imtfi.uci.edu/2014/05/one-researchers-thoughts-on-money-and.html>
- Nartey, Lite J. and Olayinka David-West. 2015. "Mobile Money Utility & Financial Inclusion: Insights from Unbanked Poor End-Users in Nigeria and Ghana." *IMTFI blog post*, November 15, 2015 <http://blog.imtfi.uci.edu/2015/11/mobile-money-utility-financial.html>
- Nyamnjoh, Francis and Divine Fuh. 2014. "Njangi Sociality: Mobility, ICTs and Mobile Money Usages and Practices amongst Poor Rural Farmers in the Cameroon Grassfields." *IMTFI Final Report 2014*. <http://www.imtfi.uci.edu/files/docs/2013/Nyamnjoh%20and%20Fuh%20-%20FINAL%20REPORT.pdf>
- Oluwatayo, Isaac B., and Titilayo B. Oluwatayo. 2012. "Small Ruminants as a Source of Financial Security: A Case Study of Women in Rural Southwest Nigeria." *IMTFI Working Paper 2012-2*. http://www.imtfi.uci.edu/files/blog_working_papers/2012-2_oluwatayo.pdf
- Omeje, Kenneth, 2013. "Oracular Deities as Traditional Sources of Credit among the Igbo of Nigeria." *Folk Life: Journal of Ethno-logical Studies*. 51.2: 107-129
- Omwanza, Tonny and Timothy Waema. 2014. "The Impact of Pure Mobile Micro-financing on the Poor: Kenya's Musoni Experience" *IMTFI Working Paper 2014-2* http://www.imtfi.uci.edu/files/blog_working_papers/2014-2_Omwanza_and_Waema.pdf
- Osei-Assibey, Eric. 2014. "What Drives Behavioral Intention of Mobile Money Adoption? The Case of Ancient Susu Saving Operations in Ghana." *IMTFI Working Paper 2014-1* http://www.imtfi.uci.edu/files/blog_working_papers/2014-1_osei-assibey.pdf
- Sambasivan, N., Cutrell, E., Toyama, K., & Nardi, B. 2010. *Intermediated technology use in developing countries. Proceedings of CHI 2010, Human Factors in Computing Systems, Atlanta.*
- Santuah, Francis Niagia. 2015. "One Option, Divided Opinion." *IMTFI blog post*. May 26, 2015. <http://blog.imtfi.uci.edu/2015/05/one-option-divided-opinion.html>
- Tade, Oluwatayo and Oluwatosin Adeniyi. 2014. "Automated Teller Machine (ATM) Uses and Challenges in Southwest Nigeria" *IMTFI blog post*, September 22, 2014 <http://blog.imtfi.uci.edu/2014/09/automated-teller-machine-atm-uses-and.html>
- Yawe, Bruno and Kizito Ssengooba. 2014. "Gambling and Mobile Money Payments: A Case Study of Sports Betting in Uganda." *IMTFI Final Report 2014*. http://www.imtfi.uci.edu/files/docs/2013/Yawe_and_Ssengooba_FINAL_REPORT.pdf
- IMTFI Design Principles, 2010* http://www.imtfi.uci.edu/files/docs/2013/imtfi_dps_2010.pdf