

Riding the Rails of Mobile Payments: Financial Inclusion, Mobile Phones, and Infrastructure

*Stephen C. Rea
Bucknell University*

*Ursula Dalinghaus
Institute for Money, Technology and Financial Inclusion*

*Taylor C. Nelms
University of California, Irvine*

*Bill Maurer
University of California, Irvine*

Abstract

This chapter analyzes payments as both technical and social infrastructures for “financial inclusion,” that is, political, business, and philanthropic projects designed to extend the benefits and functions of formal financial services to under- and unbanked populations around the world. Specifically, we are concerned with mobile payments—the use of mobile phones and networks for exchanging value in electronic form—as the “rails” upon which an increasingly broad range of financial products and services ride, e.g. insurance, credit, and savings. The ethnographic study of mobile payments offers a window into infrastructural change, the displacement of legacy systems, and the layering of new functionality onto existing systems that turn them into broader platforms. Platforms have a politics: they variously create, sunder, extend and transform relations. If infrastructures are settled political claims, mobile payments provide an example of what happens when these closed debates get reopened. We discuss three recent approaches to designing and implementing financial services that ride the rails of mobile payments: Kenya’s M-Shwari interest-bearing savings product, which works on top of Safaricom’s M-PESA mobile money infrastructure; the Reserve Bank of India’s creation of a new category of financial institution called “payments banks,” which allow non-bank entities to provide transfer, remittance, and savings services; and the Central Bank of Ecuador’s mobile payments system, the world’s first ever publicly mandated and central bank-led scheme of this sort. Different strategies for deploying mobile payments reveal the political and social entailments of financial infrastructures.

Introduction

The mobile phone has changed the world. Nearly 80% of the world’s population has access to a mobile phone, a way to charge it, and the cellular network to carry its signal (Hatt et al., 2013). With tiny, powerful computational and communications devices within reach of nearly every person on the planet, the mobile phone is heralded as a “disruptive innovation” (Christensen, 1997): not only for staying in touch with one’s friends, family, and ever-expanding social networks, but also as a force for making the world a better place. At least, this is the hype. While scholars have explored the social, political, and cultural impacts of mobile telecommunications—studying their impact on economic well-being and social life (Horst and Miller, 2006), transnational families (Singh, 2009), even political revolutions (Allagui and Kuebler, 2011)—most research has focused on peoples’ use of the mobile network to carry voice and text data (Ellwood-Clayton, 2006).

Since the early 2000s, however, mobile carriers, device manufacturers, and the mobile industry’s trade associations have been developing and promoting the use of the mobile network as a digital payment network. In doing so, they are attempting to use the networks they have built to carry another kind of data—financial data—and therefore muscling into banks’ territory, posing challenges

to the way states have regulated money flows, and potentially “disrupting” the payments industry itself. This chapter situates this development in light of the social and political consequences of new infrastructures that become platforms for services far from their originally intended use. It also points toward opportunities for ethnographic study of the rapidly changing landscape of digital and mobile payment. Many sites of traditional ethnographic fieldwork were, in the early 21st century, at the forefront of new mobile payment technologies. Alternately, ethnographers may find opportunities for working laterally with payments industry professionals, many of whom experience, once they get into the business of payment, the denaturalization of money familiar to anthropologists and have enlisted ethnographers in their work (Maurer, 2016). Indeed, some trace the mobile payments industry’s origin to the ethnographic observation by Jan Chipchase, formerly of Nokia, that people in Uganda were informally trading mobile airtime credits (Chipchase and Tulusan, 2007).

As they got into digital payments, however, mobile network operators (MNOs) realized that they would need to make a case to governments about why they should be allowed into the business of value transfer. Initially, some business leaders promoted the idea that mobile payments would better facilitate revenue collection since mobile phone transaction records—stored on MNO servers—could be useful in assessing and monitoring taxes. But around the same time, the United Nations released its Millennium Development Goals, the first of which focuses on poverty reduction. Working with state-based aid agencies, new philanthropic organizations with roots in Silicon Valley, the World Bank, and other international organizations, MNOs hit on mobile phone-based money transfer and payment as a means of “financial inclusion” (Schwittay, 2011). They would leverage the mobile network, which, unlike bank branches, was “everywhere,” to bring the un- and underbanked into the formal financial sector. In the developing world—where less than 50% of people have access to banks and other formal financial institutions, yet over 90% have access to mobile phones—the hope was that mobile payments services would be vehicles for poverty alleviation by furnishing poor or historically marginalized populations with tools that could help them to secure, manage, and *mobilize* their money, both literally and figuratively.

Early mobile payments deployments like Globe’s GCASH in the Philippines and Safaricom’s M-Pesa in Kenya (launched in 2004 and 2007, respectively) were primarily used for person-to-person (P2P) value transfers like remittances, and to a lesser extent for activities like bill pay and wage disbursement. The relative successes of these deployments encouraged the development of more complex financial services and products—such as savings, loans/credit, social welfare benefits, and insurance—that can be delivered via the mobile payments channel. As mobile payments “succeed,” insofar as new services are launched by MNOs and are adopted by their customers, MNOs and others are attempting to layer other functions and services on top of the new payment network infrastructure thereby created. When mobile payment services become platforms for still other services, they become more contested: it’s all very well and good for an MNO to offer a P2P micropayment service, but when it starts offering savings or insurance products, banks—and their regulators—start to worry about competition, oversight, and the politics of platforms (Gillespie, 2010). The transformation of the mobile network into a payment rail and platform (Kendall et al., 2012) is thus ripe for ethnographic attention.

In the following sections, we first introduce payments and their infrastructures, before discussing three recent approaches to designing and implementing products and services for financial inclusion that ride the rails of mobile payments: the M-Shwari savings and loans product in Kenya, which rides on top of mobile provider Safaricom’s M-Pesa mobile money transfer service; India’s “payments banks,” a new category of financial institution that enables non-bank entities to provide their clients with value transfer, savings, and remittance services; and the Central Bank of Ecuador’s (BCE) new mobile money system, “the first ever publicly mandated and Central Bank-administered mobile payments scheme to be implemented in the world” (Félix, 2014). Each example showcases a different kind of conversation about the role of MNOs, states, and banks in payments, with different

stakes and different players, as well as different assumptions about the public good. Indeed, we conclude that mobile money as an emerging platform is bringing to the fore questions about the role of payments in the public interest. Payment rails determine where your money can go, how fast it can get there and how much it will cost you to do so. Absent a kind of ‘network neutrality’ for payments, then, payment platforms are always going to present political problems.

What is payment?

Payments are not money itself, but rather the infrastructures that facilitate its movement, whether from hand to hand, over a proprietary network, or through the Internet.¹ People make payments for various reasons, from buying a cup of coffee, to paying a utility bill, to sending money to friends and family in distant places. Governments pay people social welfare benefits and tax refunds. Businesses pay wages to their workers, and pay each other for inventory or services. Businesses and people pay governments taxes. The payments industry consists of public and private entities that facilitate those transfers of value.² For example, the Visa network is a payments system; it facilitates the electronic transit of almost any of the world’s currencies between a person and a business almost anywhere that person happens to be. Payments professionals refer to their infrastructures as sets of “rails.” The metaphor comes from the 19th century extension of the railroads in the United States, and, with them, the first telecommunications lines, wires on poles alongside the rails (Swartz, 2015).

From an anthropological perspective, payments are significant because they are implicated in creating, maintaining, and dissolving social relationships with others that stretch across spaces and times. In terms of infrastructure, payments are significant because of how they bring together people, technologies, and regulations in different sociotechnical systems that make transactions possible. In today’s increasingly complex payments ecosystems, it can sometimes seem like new ways of paying for things are popping up every day (see Maurer, 2016), and with them new ways of using infrastructures and of relating to others.

No matter why people pay for things, how they do so, or with which media, all payments systems share some common features: they must 1) be able to move value from one party to another, including processing and settling the payment, 2) have rules that all participants in the system agree to, and 3) afford participants the means for communicating with one another about which system they agree to use for a given transaction. Often, payments systems and the infrastructures that support them only become apparent at points of transaction—e.g. handing over cash for goods, using a debit card at a point of sale terminal, entering credit card information into an online retail form—or in times of “breakdown,” such as when a card-reader machine stops working or a bank customer finds that her account has been hacked and her stored value used for unauthorized purchases. Most of the time, however, people remain blissfully unaware of the infrastructural arrangements that support payments activities. They think about the money; the payment system supporting its transfer is incidental.

The core payments systems since the mid-20th century have been the preserve of banks and states. Cash, checks, and interbank clearing houses derive from all of the operations involved in the state issuance of currency, as well as the chartering and regulation of banks and government-mandated systems for processing interbank payments. The credit and debit systems linked mainly to plastic cards derive from consortia of banks building their own networks to facilitate the electronic transfer of value through private systems (Stearns, 2011). With the rise of the Internet, businesses created new payment services that made using credit, debit, and interbank infrastructures possible online. PayPal, for example, is said to “ride the rails” of the credit, debit, and Automated Clearing House (ACH) systems, providing an online user interface into these existing systems. Even with the Internet, therefore, these state-mandated and private payments systems have remained relatively stable and unchallenged.

M-Shwari’s Alternative Credit

M-Shwari is a savings account product offered by the Commercial Bank of Africa (CBA) that

can only be accessed through the mobile money service M-Pesa, itself a product of Safaricom, Kenya's near-monopoly mobile telecommunications company. M-Pesa is the archetypal mobile money transfer service. Designed originally as a microfinance loan repayment product, M-Pesa took off shortly after its commercial launch in 2007, and as of 2015 was being used by over 40% of Kenya's population, or 61% of its mobile phone users.³ It allows Safaricom customers to convert physical cash into electronic credits (termed by regulators as "e-money") at any Safaricom location, and then send those credits via text message to another Safaricom customer. Users "cash in" at a kiosk, the same place they might purchase airtime or a new phone, and recipients can "cash out" at another such facility after they receive a text message indicating money has been sent to them. Shortly after its launch, a number of other companies sought to create products and services like health insurance or savings tools that would ride the rails of M-Pesa (see Kendall et al., 2012 for a survey).

Importantly, however, M-Pesa does not allow customers to earn interest on the funds held in their accounts. It is essentially a pre-paid value storage and transfer service. Were it to offer interest or credit, it would fall under Kenya's banking regulations. Most MNOs are loath to become, or be regulated as, banks. Doing so would require their adherence to stricter rules around verifying the identities of their clients, as well as complying with national and global anti-money laundering regulations, not to mention capital adequacy rules—the requirements that banks maintain a certain amount of their capital in reserve relative to their amount of risk to which they expose the funds under their management.

M-Shwari appears to be the most successful of the services that ride the M-Pesa rails. Not only a savings account at a bank linked to one's M-Pesa account, accessible primarily via one's phone, M-Shwari also makes use of M-Pesa payment data to create an alternative to a traditional credit score. This allows CBA to do the risk assessment necessary to offer small loans to M-Shwari customers. In our conversations with mobile money experts and regulators, we have found a certain degree of skepticism about M-Shwari's algorithm for determining credit risk. The company claims that it is done through a combination of "telecommunication variables from Safaricom's data related to airtime, airtime credit, M-PESA, and length of time as a customer" (Cook and McKay, 2015:6). Access to an alternative credit score is a potential boon to unbanked customers, who have no formal credit history. Leveraging payment data—its regularity, its amounts—along with historical data on a customer provides a way of gauging how much the bank might lend the client and the likelihood of its repayment. This, in turn, then builds that traditional credit history (Kiiti, 2014, 2015; Mas, 2013).⁴

M-Shwari seems to exemplify the goal of using mobile payment to provide access to finance. Because the CBA is a bank, Kenya's banking regulators can rest assured that it complies with prudential requirements, like "Know Your Customer" rules that verify the identity of account holders and prevent money laundering. In fact, CBA uses a novel "tiered" method for verifying customer identity: different levels of verification are required for different deposit thresholds (the higher the amount saved, the more identity documentation is required). This alleviates one of the key barriers to financial inclusion for the poor: the frequent lack of extensive identity documentation. With M-Shwari, a customer can begin with only their Safaricom phone: the CBA cross-references data in their phone's SIM card with the national ID database.

M-Shwari is also a way for Safaricom to maintain its near monopoly in Kenyan mobile money service provision. Providing another service on the M-Pesa rails starts to make those rails more indispensable to people. It also underscores the boundaries between Safaricom's network and those of its competitors. One of its competitors, Bharti Airtel, has been seeking government intervention into the mobile money market because M-Pesa charges high fees on transfers between M-Pesa and Airtel accounts—in fact, double the fee for in-network transfers. This points to a concern that regulators and others in the mobile money space often express: Mobile money services are generally non-interoperable. That is, MNOs offering mobile money services do not always permit transfers from their service to another competitor MNO's service. Bank-based payment rails were developed by consortia

of banks working together. Some of them, like check clearing and the ACH, were even developed under government mandate. MNOs beginning to operate in the payments industry are not similarly coordinating with one another—nor are they often compelled to do so by government regulators, though there are exceptions.

India's Payments Banks

M-Shwari exemplifies how mobile payments can become the rails upon which other financial products ride in regulatory contexts where MNOs are prohibited from offering banking services. But what if MNOs *could* act more like banks? What might this entail for financial inclusion, for payments infrastructures, and for how we think about banking activities? These are some of the questions raised by the Reserve Bank of India's (RBI) creation of “payments banks,” a new category of Indian financial institution introduced in 2014. In effect, payments banks make it possible for non-bank entities like MNOs to offer their customers some of the same financial products and services that banks do.

Payments banks are part of a larger financial inclusion agenda known as the *Pradhan Mantri Jan-Dhan Yojana* (PMJDY)—“Prime Minister's People Money Scheme”—launched by Prime Minister Narendra Modi's Bharatiya Janata Party (BJP) government in 2014. The PMJDY was founded on the principle that India's poor and unbanked need not only secure and reliable mechanisms for sending and receiving payments, but also “universal access to savings” (RBI, 2014a). The Payment and Settlement Systems Act of 2007 laid the regulatory groundwork for payments banks by allowing “non-bank” entities like MNOs to issue pre-paid payment instruments (PPIs), including cards, paper vouchers, and Internet- and mobile-based products (RBI, 2014b). Recall that services like M-Pesa essentially issue electronic credits in exchange for cash. These credits would be considered PPIs in the Indian environment. Yet PPI issuers experienced difficulties in delivering services; moreover, for the RBI, these credits failed to meet the country's prudential requirements. The RBI explicitly pitched payments banks as a solution to the problems associated with PPI issuers.

When the RBI announced the creation of payments banks in July 2014, it invited non-banking finance companies, corporate business correspondents, MNOs, supermarket chains, and co-operatives to apply for payments bank licenses. By the application deadline in February 2015, it had received forty-one applications, including from Bharti Airtel (India's largest mobile phone carrier) and India Post, the country's publicly operated postal system. Indian payments banks are restricted to the “acceptance of demand deposits and provision of payments and remittance services” (RBI, 2014a). These restrictions differentiate payments banks from other types of banks, which can offer their customers credit and savings products and services in addition to value transfer and deposit taking. However, a key provision in the RBI regulation guarantees that deposits held in payments banks will be covered by deposit insurance and will earn interest for account holders, features of formal banking services that financial inclusion experts had already been advocating for mobile money services (Ehrbeck and Tarazi, 2011). In this respect, payments banks resemble products like M-Shwari by taking the project of financial inclusion one step further toward offering the full benefits of formal financial services to the unbanked.

Although the RBI envisioned payments banks as solutions to the problems involved in financial inclusion projects like PPI issuance, it is difficult to imagine payments banks without the earlier experience of mobile payments in India. The Indian financial services firm Eko launched the country's first dedicated mobile payments service in 2007 (Chen, 2012). Other services like Bharti Airtel's Airtel Money and Vodafone India's mPesa followed, helping to make the case for the mobile network infrastructure as a means of delivering financial services to India's unbanked. At the same time, these providers learned that a successful mobile payments service needs a network of human agents who can receive deposits and remit payments to clients (Banerjee, 2012; Wright et al., 2013). This lesson has been crucial for understanding the infrastructural requirements of mobile payments, especially in rural contexts: payments depend just as much, if not more so, on social infrastructures as they do technical

ones (Eijkman et al., 2010; Maurer et al., 2013).

Yet despite the proliferation of bank- and nonbank-led options and efforts to build out agent networks, uptake of mobile payments in India has remained low (Tiwari and K.C., 2013). The RBI and others hope that payments banks could be the answer to the uptake dilemma by freeing non-bank entities like MNOs from the regulatory restrictions that prevented their customers from holding money in their mobile accounts (Mirani, 2014). Payments banks are not replacements for previous financial inclusion deployments, then, but rather complements to them. They encourage the development of new payment rails while riding the conceptual rails of mobile payments and eliminating some of the regulatory obstacles these services have encountered.

Payments banks can perhaps best complement existing mobile payments schemes in their scalability. The RBI's reforms allow entry into the financial services industry by organizations like MNOs that have the "distribution muscle to provide payment and deposit services at scale in India" (Kumar and Radcliffe, 2015b). Moreover, MNOs have historically done a better job of managing customer service than banks because their business models depend on creating and maintaining robust social infrastructures that are charged with handling customer complaints and needs. Operating in a regulatory environment where more formal financial services can ride the social and technical rails already established by mobile payments, payments banks have the potential to be "the engine that helps PMJDY get over the finish line" (Kumar and Radcliffe, 2015a).

Of course, getting PMJDY over the finish line means securing a victory for the Modi government. Critics have described the PMJDY as nothing more than "populism gone berserk" (Perumal, 2014), and have pointed out that the majority of accounts (63%) still show a zero balance (Singh et al., 2015). Providing a new kind of platform for payments is simultaneously a political platform from which to promote the agenda not just of financial inclusion, but also a particular political party. Can such legacies be extracted from an infrastructure once its lines have been laid down? The fact that we still use railroad metaphors to describe the payments industry—and still fight over payments' monopolistic tendencies (see Levitin, 2005)—would argue against the proposition. Still, this is a question for further ethnographic and historical investigation.

Ecuador's E-money

Many in the mobile money industry argue that the government-to-person (G2P) channel can be leveraged to help kick start mobile payments adoption. They look to the experience of card-based government assistance disbursements and tax refunds provided through prepaid cards in the US and elsewhere. In India, the key drivers that may ultimately determine the success or failure of payments banks are G2P payments, such as social welfare payments or tax refunds. If payments banks are able to deliver social welfare payments--particularly to people in rural areas--and can remain competitive with credit-issuing banks, then they would go a long way toward demonstrating the utility of these institutions and mobile payments infrastructures for unbanked clients (Kumar and Radcliffe, 2015a). And since G2P payments are typically disbursed on regular schedules, they establish reliable channels between the parties in a payments transaction that endure over time and create and cement relationships. But what relationships would they in fact foster? It is probably farfetched to believe that G2P payments delivered over corporate rails like a payments bank might generate brand loyalty to a private payment provider. If the service works and is invisible because it works seamlessly, it is the money, after all, not the payment infrastructure *per se*, that recipients really care about. At the same time, however, the provision of a government payment over a private rail may trap the recipient into certain relations with which she would otherwise not have to contend. In the US, the disbursement of tax refunds over prepaid cards has been controversial because of the large number of fees associated with the use of prepaid debit cards.⁵ G2P payments might also foster or reinforce relationships with state institutions or even the national community, and in some contexts, these might be similarly problematic—again, a question for ethnographic study.

The Central Bank of Ecuador (BCE) is banking on G2P payments with the launch in 2014 of a new public mobile payment system, the first of its kind anywhere in the world. For M-Pesa, Safaricom issues e-money in exchange for cash. Under the BCE's plan, however, the Central Bank will be the sole issuer of e-money as legal tender, although regulations require that e-money issuance be similarly anchored directly to liquid deposits denominated in U.S. dollars, which Ecuador uses as its official currency. As with other mobile money schemes, the explicit aim of the BCE is to facilitate the financial inclusion of those traditionally excluded from access to the formal financial system, while also redistributing national economic surplus more equally throughout the economy.⁶ Indeed, M-Pesa served as a model for the BCE (Nelms, 2015), demonstrating the effectiveness of electronic payments via the mobile phone as a way of reaching a large population of unbanked, especially in rural areas. The hope is that e-money will not only expand the reach of financial services, but also eliminate the dangers for taxi drivers, market vendors, and others who carry large quantities of cash.

The BCE's plan is unique in several regards. As in India's payments banks, these accounts are intended to complement commercial banks, credit unions, cooperatives, and other banking institutions, with public and private stakeholders essential to the viability and scalability of the system; other institutions act as cash-in/cash-out portals. The platform is designed to be interoperable with all national platforms and providers, subsidizes the cost of use, and will be operated under a non-profit model (Félix 2015). The full range of transactions will be accommodated by the system, including bill payments, remittance transfers, G2P social benefits, and P2P and B2P (business to person) transactions. Importantly, however, the design, management, and regulation of e-money and its platforms reside with the authority of the central bank. Furthermore, individual bank accounts for Ecuadorian citizens are held directly with the central bank.

The BCE is also ensuring that the system will be fully interoperable by requiring the participation of financial institutions and creating agreements with each of the country's MNOs. This is to ensure that different carriers do not assess fees for moving money between clients of different mobile carriers. Internet access and formal bank accounts are not requirements, and the primary goal is not the inclusion of everyone in the formal banking system *per se* (Félix 2015:55). Rather, the aim is to provide people with a viable mobile option, in addition to the formal financial system, while preserving choice of payment. Having multiple places where BCE-issued mobile money will be accepted helps keep cash transactions to a minimum; that enhances safety in places where robbery is common and facilitates transactions by eliminating the need to give change, which itself poses a problem in a dollarized economy where fractional currency can be scarce. At the level of daily transactions, national ID numbers and password security are built in to ensure privacy and protection of user data. Transactions have an upper limit, with the emphasis on small amounts necessary for daily consumer needs and basic necessities like food and transportation (Félix, 2015). Transaction limits also address money laundering and consumer protection concerns.

Ecuador's e-currency is still in its early stages, with around 50,000 accounts opened since its initial launch,⁷ so it remains to be seen how people will embrace e-money in their daily transactions in favor of cash. Interesting for our discussion of mobile money and infrastructure, the project has provoked controversy in Ecuador: the dollarization of the economy was supposed to insulate economics from politics. Since the BCE project is aimed at the state's broader financial inclusion goals, it is seen as reintroducing politics in the form of the state's development agenda. In addition, the system is both operated by and regulated by the same entity, the central bank, which sets up the conditions for potential conflicts of interest. Critics also worry that it could be used to increase the supply of money in the country and undermine the dollar's official status there (Nelms, 2015). The hope, however, is that other services will eventually be built on top of its rails, like the services riding the rails of M-Pesa. Scalability and an enabling ecosystem will be essential to building trust in the system among its various agents, institutional stakeholders, and the public. These are just as important as the BCE's legal guarantee that e-money be backed by equivalent value in dollar assets—a

concession intended to quell anxieties over the impact of e-money on dollarization.⁸

The BCE's project thus envisions not only money, but also its infrastructure as a "public good" (Nelms, 2015; see also Félix, 2015). To ensure the stability of this national monetary platform will require its own communications rails—customer service and technical support—among other infrastructural supports. Trust in the system and winning people over to it will depend on how well the technical platform works with mobile and electronic transactions, how smoothly one can cash in or out, and that there is a critical mass of end-users who benefit from the system. Electronic, central bank-issued currency, will in this sense perhaps make people more aware of the infrastructural arrangements that support their payments activities since these will be the backing of the system as much as dollars and other liquid assets. It will make payment public, and it will publicize payment, making the infrastructure visible and, presumably, the politics as well.

Conclusion

If money is a public good, it is important to keep in mind that what counts as a public good, and to whose and what 'ends' it is used, will differ historically and culturally. In most democracies, central banks and states form part of a political framework that is crucial for ensuring among other things that the unit of account will settle at par—that when I give you US\$10 via cash or check, you actually receive US\$10. This political achievement allows the perception that money is a neutral medium of exchange and the payment infrastructures are incidental to economies. Yet most private electronic value transfer systems do not settle at par. There are fees and tolls, albeit often limited by state regulation and limiting the potential for private entities to charge fees and tolls for use of payment systems (Maurer, 2012: 285). The Ecuadorian project of state-issued mobile e-money will surely contribute to broader debates about the role and mandate of monetary policy, the capacity for electronic money and mobile money payment platforms to improve state-led efforts to improve financial literacy and inclusion, and the digital means of value transfer more generally.

Consider the contrasts among M-Shwari, India's payment banks, and Ecuador's e-money. M-Shwari rides the rails of what was essentially a P2P money transfer service, provided by a private network infrastructure. Its relational paradigm is individualist, capitalist, one might say economically liberal insofar as it is an effort to disentangle the user from the strictures of government regulations around bank supervision, and the constraints of banks that favor elites. Indian payment banks are part of a specific political agenda. In opening payment provision to multiple providers, but disallowing other banking functions to ride those rails, it sets up the potential for a profusion of new digital payment providers—but with some important restraints. This is a kind of controlled capitalism. The Ecuadorian example is state-controlled and animated, and seeks to make an explicit and visible political statement, preserving the state's position as the issuer of the unit of account in the last instance while quite explicitly seeking to suture relationships between citizens and a specific vision of the nation. For the BCE, e-money is a political project. It is meant to be a publically accessible and negotiable collective good. But it is also fueling debates over the hierarchy of digital forms of inclusion relative to cash and other forms of payment. In so doing, it spotlights what had been implicit in M-Pesa and made somewhat more explicit in India's payment banks: Payments are not neutral. Infrastructures channel choices and relationships. Platforms have politics.

Payments systems can shunt people and transactions in one direction or another—they can charge different amounts for their services, subtly pushing someone toward the use of one network over another; they can be completely opaque to end-users and thereby charge even more; or they can set hidden rules that trap unsuspecting consumers when something goes wrong. As different corporate systems vie for market share with one another, they may simply not work everywhere, cutting off the possibility of a transaction if the user does not have the "correct" means of payment available.⁹ In southern California at the time of our writing, private toll roads only accept payment via an electronic transponder that must be linked to a credit or debit card account, effectively excluding drivers without

credit or debit cards from using the road. In December 2010, PayPal, Visa, MasterCard and Western Union blocked donations to the whistle-blower website, Wikileaks, demonstrating the political power that comes with control over the payment rails.¹⁰ As infrastructures, payments systems can channel and block relationships.

These differences have implications for the points of entry for the ethnographic study of digital payment. They also have implications for whether or not we think about payment infrastructures—and payments themselves—as public utilities. We note that G2P payment programs like conditional cash transfers, or salary and bill payment are currently clustered regionally in Latin America, with a scattering of deployments elsewhere. Mobile money services on the M-Pesa model exist in most countries of the former British Empire in Africa. India’s payments banks are, for now, unique hybrids. This would suggest that payment also rides other rails, legacy infrastructures going back centuries laid in the heyday of colonialism and imperialism. If new digital payment systems are reopening questions of infrastructure and politics settled in the mid-20th century, while exposing tracks laid down hundreds of years ago, what new rails are they building now that will channel and route our relations in the next hundred years? And how can ethnography anticipate, or respond, to the call and challenge they pose?

-
- ¹ The parties in a payments transaction need not be single individuals, and in fact rarely are. Rather, “party” in this case refers to the functional role of participants in a payments transaction. The most basic payments model involves a payer and a payee, while more complex models may involve a number of intermediaries including—but not limited to—processing and settlements services, security firms, and transmission and/or delivery companies.
 - ² Throughout this chapter we use the term “private” to refer to non-state controlled corporate entities—business enterprises or corporations, whether or not they are publicly traded or privately held. By “public,” we refer to state entities.
 - ³ http://letstalkpayments.com/kenyan-mobile-transfer-business-to-see-a-major-shift-with-government-regulators-stepping-into-check-dominance-of-safaricom-m-pesa/?utm_source=Subscribe+to+LTP&utm_campaign=3e5b399aec-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_aa5e7321a3-3e5b399aec-90762693.
 - ⁴ At the time of our writing, research and writing on these issues is only now being published, mostly in non-academic venues. See Ignacio Mas <http://blog.imtfi.uci.edu/2013/10/founding-myths-of-mobile-money.html>, and Ndunge Kiiti <http://blog.imtfi.uci.edu/2014/11/lessons-from-field-m-shwari-and-jua.html>; http://blog.imtfi.uci.edu/2015/03/imtfi-at-unctads-expert-meeting-on_23.html.
 - ⁵ <http://www.consumerreports.org/cro/news/2012/03/prepaid-debit-cards-booming-but-beware/index.htm>.
 - ⁶ Unless otherwise noted, discussion of the BCE financial architecture drawn from Javier Félix (2014, 2015), <http://www.imtfi.uci.edu/Ecuador2pager-FINAL.pdf> and http://www.imtfi.uci.edu/files/JavierFelix_ReporteFinal%20_Spanish.pdf.
 - ⁷ Taylor Nelms (2015) “‘Ecuador Bans Bitcoin!’ A Monetary Mix-up” <http://kingsreview.co.uk/magazine/blog/2015/10/20/ecuador-bans-bitcoin-a-monetary-mix-up/>; Almazán and Frydrych also note that is unclear how “oversight and compliance mechanisms [will be] put in place for an e-money issuer that is also a regulator and financial authority” (2015: 18).
 - ⁸ See BCE information in English at: <http://www.bce.fin.ec/en/index.php/electronic-money-system>.
 - ⁹ VISA famously ran ads in the 1990s that pointed out the limited reach of its lesser rival, American Express, e.g. “... In Fog City Diner, they take things easy. But they don’t take American Express” (Visa 1990 commercial, available at https://www.youtube.com/watch?v=Mqy2l6m9s_U).
 - ¹⁰ <http://www.forbes.com/sites/timworstall/2011/10/25/wikileaks-to-close-over-funding-blockade/>.

Bibliography

- Allagui, Ilhem, and Johanne Kuebler. "The Arab Spring & the Role of ICTs: Introduction." *International Journal of Communication* 5, no. 8 (2011): 1435-1442.
- Almazán, Mireya, and Jennifer Frydrych. "Mobile Financial Services in Latin America & the Caribbean: State of Play, Commercial Models, and Regulatory Approaches." *GSMA Mobile for Development*, May 2015, accessed October 23, 2015, http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/09/2015_GSMA_Mobile-financial-services-in-Latin-America-the-Caribbean.pdf.
- Banerjee, Shweta S. "Building India's Model of Agent Banking." *CGAP* (blog). June 6, 2012. <http://www.cgap.org/blog/building-india's-model-agent-banking>.
- Benson, Carol Coye, and Scott Loftesness. *Payments Systems in the US: A Guide for the Payments Professional*. Menlo Park, CA: Glenbrook Press, 2010.
- Central Bank of Ecuador. "Electronic Money," accessed October 23, 2015, <http://www.bce.fin.ec/en/index.php/electronic-money-system>.
- Chen, Greg. "Eko's Mobile Banking: A Basic Payments Product." *CGAP* (blog). March 13, 2012. <http://www.cgap.org/blog/eko's-mobile-banking-basic-payments-product>.
- Chipchase, Jan, and Indri Tulusan. "Shared Phone Practices: Exploratory Field Research from Uganda and Beyond." 2007. *Future Perfect* (blog). <http://www.janchipchase.com/sharedphoneuse> (site discontinued).
- Christensen, Clayton M. *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Cambridge, MA: Harvard Business School Press, 1997.
- Consumer Reports News. "Prepaid Debit Cards Booming, but Beware." *ConsumerReports.org*, March 29, 2012, accessed October 23, 2015, <http://www.consumerreports.org/cro/news/2012/03/prepaid-debit-cards-booming-but-beware/index.htm>.
- Cook, Tamara, and Claudia McKay. "How M-Shwari Works: The Story so Far." *CGAP Access to Finance Forum* no. 10, April 2015, accessed October 23, 2015, <http://www.cgap.org/sites/default/files/Forum-How-M-Shwari-Works-Apr-2015.pdf>.
- Desan, Christine A. *Making Money: Coin, Currency, and the Coming of Capitalism*. Oxford: Oxford University Press, 2014.
- Ehrbeck, Tilman, and Michael Tarazi. "Putting the Banking in Branchless Banking: Regulation and the Case for Interest-Bearing and Insured E-money Savings Accounts." In *The Mobile Financial Services Development Report*, edited by James Bilodeau, William Hoffman and Sjoerd Nikkelen, 37-41. New York: World Economic Forum USA Inc., 2011.
- Eijkman, Frederik, Jake Kendall and Ignacio Mas. "Bridges to Cash: The Retail End of M-PESA." *Savings & Development* 34, no. 2 (2010): 219-252.
- Ellwood-Clayton, Bella. "All We Need is Love—and a Mobile Phone: Texting in the Philippines." Paper delivered at Cultural Space and Public Sphere in Asia 2006. March 15-16, 2006. Seoul, South Korea.
- Félix, Javier. "The New Financial Architecture and the Public Mobile Money System in Ecuador." *IMTFI*, 2015, accessed October 23, 2015. <http://www.imtfi.uci.edu/Ecuador2pager-FINAL.pdf>.
- "El Contexto Socio-Político de la Nueva Arquitectura Financiera y el Sistema Público de Dinero Electrónico en Ecuador." *IMTFI*, 2014, accessed October 23, 2015,

-
- http://www.imtfi.uci.edu/files/JavierFelix_ReporteFinal%20_Spanish.pdf.
- Gillespie, Tarleton. "The Politics of 'Platforms.'" *New Media and Society* 12, no. 3 (2010): 347-364.
- Hatt, Tim, Corina Gardner, Adam Willis and Martin Harris. "Scaling Mobile for Development." *GSMA Intelligence*, August 2013, accessed October 23, 2015, <https://gsmaintelligence.com/research/?file=130828-scaling-mobile.pdf&download>.
- Helleiner, Eric. *The Making of National Money: Territorial Currencies in Historical Perspective*. Ithaca: Cornell University Press, 2003.
- Horst, Heather, and Daniel Miller. *The Cell Phone: An Anthropology of Communication*. Oxford, UK: Berg, 2006.
- Ipsita. "Kenyan Mobile Transfer Business To See A Major Shift, With Government Regulators Stepping In To Check Dominance Of Safaricom's M-Pesa." *Let's Talk Payments* (blog), July 7, 2015. <http://letstalkpayments.com/kenyan-mobile-transfer-business-to-see-a-major-shift-with-government-regulators-stepping-into-check-dominance-of-safaricom-s-m-pesa/>.
- Kendall, Jake, Philip Machoka, Clara Veniard and Bill Maurer. "An Emerging Platform: From Money Transfer System to Mobile Money Ecosystem." *Innovations* 6, no. 4 (2012): 49-64.
- Kiiti, Ndunge. "Lessons from the Field: M-Shwari and the Jua Kali in Kenya." *IMTFI* (blog), November 20, 2014. <http://blog.imtfi.uci.edu/2014/11/lessons-from-field-m-shwari-and-jua.html>.
- "IMTFI at UNCTAD's Expert Meeting on the Impact of Access to Financial Services (Part 2)." *IMTFI* (blog), March 23, 2015. http://blog.imtfi.uci.edu/2015/03/imtfi-at-unctads-expert-meeting-on_23.html.
- Kumar, Kubir, and Dan Radcliffe. "Can India Achieve Universal Digital Financial Inclusion?" *CGAP* (blog), January 20, 2015. <http://www.cgap.org/blog/can-india-achieve-universal-digital-financial-inclusion>.
- "What will it take for Payments Banks to Succeed in India?" *CGAP* (blog), January 27, 2015. <http://www.cgap.org/blog/what-will-it-take-payments-banks-succeed-india>.
- Levitin, Adam J. "The Anti-Trust Super Bowl: America's Payment System, No-Surcharge Rules, and the Hidden Costs of Credit." *Berkeley Business Law Journal* 3, no. 1 (2005): 265-336.
- Mainwaring, Scott, Bill Maurer, Taylor Nelms and Lana Swartz. "The Economy of 'Just Us': A Dispatch from the Cambrian Explosion in Payments." *Theory, Culture & Society* (forthcoming).
- Mas, Ignacio. "Founding Myths of Mobile Money." *IMTFI* (blog), October 21, 2013. <http://blog.imtfi.uci.edu/2013/10/founding-myths-of-mobile-money.html>.
- Maurer, Bill. "Credit Slips (But Should not Fall)." *Distinktion: Scandinavian Journal of Social Theory* 13, no. 3 (2012): 283-294.
- How Would You Like To Pay? How Technology is Changing the Future of Money*. Durham: Duke University Press, 2016.
- Maurer, Bill, Taylor C. Nelms and Stephen C. Rea. "Bridges to Cash: Channelling Agency in Mobile Money." *Journal of the Royal Anthropological Institute* 19, no. 1 (2013): 52-74.
- Mirani, Leo. "A New Kind of No-Frills Bank Could Kickstart India's Long-Awaited Mobile Money Revolution." *Quartz* (blog), July 21, 2014. <http://qz.com/237847/a-new-kind-of-no-frills-bank-could-kickstart-indias-long-awaited-mobile-money-revolution/>.
- Nelms, Taylor. "'Ecuador Bans Bitcoin'! A Monetary Mix-Up." *King's Review* (blog), October 20, 2015. <http://kingsreview.co.uk/magazine/blog/2015/10/20/ecuador-bans-bitcoin-a-monetary-mix-up/>.
- Perumal, Prashanth. "Jan Dhan Yojana: Populism Gone Berserk." *Live Mint*, September 1, 2014, accessed October 23, 2015, <http://www.livemint.com/Opinion/9huedGeHxU770Gq7vvi13M/Jan-Dhan-Yojana-populism-gone-berserk.html>.

-
- Reserve Bank of India (RBI). "Committee on Comprehensive Financial Services for Small Businesses and Low Income Households." *Reserve Bank of India*, January 7, 2014, accessed October 23, 2015, <https://rbi.org.in/scripts/PublicationReportDetails.aspx?UrlPage=&ID=732>.
- "Guidelines for Licensing of Payments Banks." *Reserve Bank of India*, November 27, 2014, accessed October 23, 2015, <https://rbidocs.rbi.org.in/rdocs/Content/PDFs/PAYMENT271114.pdf>.
- Schwittay, Anke F. "The Financial Inclusion Assemblage: Subjects, Technics, Rationalities." *Critique of Anthropology* 31, no. 4 (2011): 381-401.
- Singh, Aishwarya, Lokesh Kr. Singh and Mukesh Sadana. "PMJDY: Improved Financial Inclusion, but Roadblocks Remain." *CGAP* (blog), March 26, 2015. <http://www.cgap.org/blog/pmjdy-improved-financial-inclusion-roadblocks-remain>.
- Singh, Supriya. "Mobile Remittances: Design for Financial Inclusion." In *Internationalization, Design and Global Development*, edited by Nuray Aykin, 515-524. Berlin Heidelberg: Springer-Verlag.
- Stearns, David L. *Electronic Value Exchange: Origins of the VISA Electronic Payment System*. London: Springer-Verlag, 2011.
- Swartz, Lana. "Token, Ledgers, and Rails: The Communication of Money." PhD diss., University of Southern California, 2015.
- Tiwari, Mudita, and Deepti K.C. "Mobile Payment Systems: What Can India Adopt from Kenya's Success?" *CGAP* (blog), April 2, 2013. <http://www.cgap.org/blog/mobile-payment-systems-what-can-india-adopt-kenya's-success>.
- VISA. "Fog City Diner (San Francisco)." 1990, accessed October 23, 2015. https://www.youtube.com/watch?v=Mqy2l6m9s_U.
- Worstell, Tim. "Wikileaks to Close Over Funding Blockade?" *Forbes* (blog), October 25, 2011. <http://www.forbes.com/sites/timworstell/2011/10/25/wikileaks-to-close-over-funding-blockade/>.
- Wright, Graham A.N., Manoj K. Sharma and Puneet Chopra. 2013. "Behind the Big Numbers: Improving the Reach and Quality of Agent Networks in India." *MicroSave*, Policy Brief no. 9, August 2013, accessed October 23, 2015, http://www.microsave.net/files/pdf/1377583661_PB_9_Behind_the_Big_Numbers.pdf.

Routledge Companion to Digital Ethnography – author queries for **Part VII**

Please answer the queries in this Word document rather than making any changes to your own chapter files. Page numbers have been removed from the edited files but I have supplied enough text for you to search electronically to locate the queried text. If anything is not clear, please do not hesitate to contact me.

Chapter 33 Rea et al.

1. Accessed dates have not been given for some of the URLs in the references. Please supply these if possible.
2. Singh 2009 is listed in the references but I did not find it cited in the chapter. Can it be deleted from the refs?

Answers to queries:

1. Here are the access dates for the URLs that were missing from the references:

Banerjee, Shweta S. 2012. "Building India's Model of Agent Banking," *CGAP*, June 6.

Accessed August 9, 2016. <http://www.cgap.org/blog/building-india's-model-agent-banking>.

Chen, Greg. 2012. "Eko's Mobile Banking: A Basic Payments Product." *CGAP*, March 13.

Accessed August 9, 2016, <http://www.cgap.org/blog/eko's-mobile-banking-basic-payments-product>.

Ipsita. 2015. "Kenyan Mobile Transfer Business To See A Major Shift, With Government Regulators Stepping In To Check Dominance Of Safaricom's M-Pesa." *Let's Talk Payments*, July 7. Accessed August 9, 2016. <http://letstalkpayments.com/kenyan-mobile-transfer-business-to-see-a-major-shift-with-government-regulators-stepping-into-check-dominance-of-safaricom-s-m-pesa/>.

Kiiti, Ndunge. 2014. "Lessons from the Field: M-Shwari and the Jua Kali in Kenya." *IMTFI*, November 20. Accessed August 9, 2016. <http://blog.imtffi.uci.edu/2014/11/lessons-from-field-m-shwari-and-jua.html>.

- Kiiti, Ndunge. 2015. "IMTFI at UNCTAD's Expert Meeting on the Impact of Access to Financial Services (Part 2)." *IMTFI*, March 23. Accessed August 9, 2016.
http://blog.imtfi.uci.edu/2015/03/imtfi-at-unctads-expert-meeting-on_23.html.
- Kumar, Kubir, and Dan Radcliffe. 2015. "Can India Achieve Universal Digital Financial Inclusion?" *CGAP*, January 20. Accessed August 9, 2016.
<http://www.cgap.org/blog/can-india-achieve-universal-digital-financial-inclusion>.
- Kumar, Kubir, and Dan Radcliffe. 2015. "What will it take for Payments Banks to Succeed in India?" *CGAP* (blog), January 27. Accessed August 9, 2016.
<http://www.cgap.org/blog/what-will-it-take-payments-banks-succeed-india>.
- Mas, Ignacio. 2013. "Founding Myths of Mobile Money." *IMTFI*, October 21. Accessed August 9, 2016. <http://blog.imtfi.uci.edu/2013/10/founding-myths-of-mobile-money.html>.
- Mirani, Leo. 2014. "A New Kind of No-Frills Bank Could Kickstart India's Long-Awaited Mobile Money Revolution." *Quartz*, July 21. Accessed August 9, 2016.
<http://qz.com/237847/a-new-kind-of-no-frills-bank-could-kickstart-indias-long-awaited-mobile-money-revolution/>.
- Nelms, Taylor. 2015. "'Ecuador Bans Bitcoin'! A Monetary Mix-Up." *King's Review*, October 20. Accessed August 9, 2016.
<http://kingsreview.co.uk/magazine/blog/2015/10/20/ecuador-bans-bitcoin-a-monetary-mix-up/>.
- Singh, Aishwarya, Lokesh Kr. Singh and Mukesh Sadana. 2015. "PMJDY: Improved Financial Inclusion, but Roadblocks Remain." *CGAP*, March 26. Accessed August 9, 2016. <http://www.cgap.org/blog/pmjdy-improved-financial-inclusion-roadblocks-remain>.
- Tiwari, Mudita, and Deepti K.C. 2013. "Mobile Payment Systems: What Can India Adopt from Kenya's Success?" *CGAP*, April 2. Accessed August 9, 2016.
<http://www.cgap.org/blog/mobile-payment-systems-what-can-india-adopt-kenya's-success>.
- Worstell, Tim. 2011. "Wikileaks to Close Over Funding Blockade?" *Forbes*, October 25. Accessed August 9, 2016.
<http://www.forbes.com/sites/timworstell/2011/10/25/wikileaks-to-close-over-funding-blockade/>.

