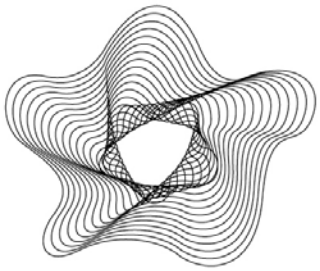

IMTFI

INSTITUTE FOR MONEY, TECHNOLOGY
& FINANCIAL INCLUSION

Monetary Ecologies and Repertoires: Research from the Institute for Money, Technology and Financial Inclusion

First Annual Report
Design Principles

January 2010

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Monetary Ecologies and Repertoires: Research from the Institute for Money, Technology and Financial Inclusion

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The Institute for Money, Technology and Financial Inclusion at the University of California, Irvine, was founded in 2008. Its mission is to foster a community of inquiry and practice on new forms of money and financial technology among the world's poorest people. IMTFI awards fellowships to researchers in the developing world to conduct 12-month projects, many with a strongly qualitative component. This report discusses IMTFI's research in 2008-09.

Background: Mobile Money in the Developing World

IMTFI focuses on people's everyday innovation with money and mobile technology.[1] People in the developing world are the inheritors of ancient monetary cultures and practices that long predate modern, Western money. With mobile communications, they are now linking their monetary practices to new technologies in surprisingly innovative and original ways. This has caught the attention of industry.

In Kenya, over 6 million people subscribe to a service called M-PESA to send money cheaply and securely to their friends and relatives over their mobile phones. In the Philippines, 2 million people can remit money to family members on remote islands through a similar service called Globe GCASH. And in India, a company called Eko is trying to use people's existing familiarity with instant messaging to provide funds transfer and financial services to the 'unbanked'—this in a nation where mobile phone subscriptions are increasing at a rate of 10 million *per month*. In each case, everyday people's existing practices of mobile phone sharing, text-messaging and airtime-minute transfer have been taken up by industry actors seeking to provide new services. The original innovation, however, often lies with people themselves.

Such practices are usually captured with the terms "mobile finance," "mobile banking," and, most broadly, "mobile money." These practices have rapidly attracted the interest of a wide range of actors: the telecommunications industry, nonprofits and philanthropic foundations, economic development and

[1] The term "everyday innovation" is borrowed from the anthropologist R.S. Merrill's (1968) concept of "routine innovation," which captures the originality in people's everyday technological practices. I would like to thank Jane Guyer for the reference. Her work and that of other anthropologists underscores the need to attend to the originalities of people's own practices, the "new ideas and novel configuration[s] of older components … from unexpected quarters" (Guyer, personal communication, 2010).

microfinance organizations. Although industry analysts had earlier used the name "mobile money" sporadically, it was not until the first "Mobile Money Summit" in 2008 that the term was widely applied to a variety of technological systems newly harnessed to serve as channels for financial services. I adopt the term here because it has achieved wide currency. But it is important to remember that this term originated from a specific site in industry: the Mobile Money Summit was hosted by the GSM Association (GSMA), the industry group representing mobile network operators (MNOs).[2] That Summit brought together industry professionals who are developing a variety of money transfer systems. Those systems included mobile telecommunications networks and handheld devices like mobile phones, branchless banking via networks of agents in retail stores or other venues, and various silicon chip-enabled systems for making payments and transferring funds from one account to another.

Advances in mobile technology and the worldwide spread of the mobile phone, especially in the developing world, have encouraged industry participants to add functionality to mobile devices to increase average revenue per unit (ARPU), thus placing new demands on network operators. Mobile payments or funds transfer from one phone to another is one such functionality.[3] This functionality is attractive to mobile providers in developing world markets where many people – even non-subscribers – have access to a mobile phone but limited access to banking and financial services, and where the premiums for entry into the latter are relatively high. Industry actors have essentially calculated that extremely high volume, low value transactions – propelled by the billions of "unbanked" people in the world – can become a significant revenue stream. Mobile phones, some believe, could be turned into a cheaper, more efficient – and highly profitable – replacement for wire transfer services or informal couriers. The addition of a money transfer service to the mobile phone, it is hoped, will both encourage people to increase phone usage and enhance customer loyalty to their telecommunications network provider. The dramatic success stories of two or three early entrants into the mobile funds transfer market – particularly M-PESA in Kenya, a service of Safaricom, and GCASH in the Philippines, a service of Globe Telecom –sparked intense industry interest. Those success stories also caught the attention of NGOs and philanthropic organizations concerned with access to financial services for poor people around the world.

The burgeoning mobile money industry is moving forward often without acknowledging the everyday innovation of people on the ground whose practices provide inspiration for the development of new systems. And new innovation is taking place all the time. Already, people using new systems like M-PESA are repurposing them to meet their existing needs and putting them to use in ways

[2] Founded in 1995 as a network of interest groups and formalized with a board in 2003, the GSMA is named after the Global System for Mobile communications (GSM), the most prevalent worldwide standard for mobile telephones and other mobile devices

[3] These payments or transfers can be from person to person, from person to business or government (for goods or bill pay) or from government to person (for social benefits payments, e.g.).

never intended by their designers. There is a rich zone of innovation where the informal practices of the world's poor meet the formal services of telecommunications and finance.

Development NGOs, international poverty alleviation organizations, and some prominent philanthropic foundations have exhorted mobile network operators to do more than simply provide funds transfer and payment capabilities. They want operators to design mobile phones that can act like piggy banks or full-fledged savings accounts as well. As Bob Christian, Director of the Financial Services for the Poor program at the Bill and Melinda Gates Foundation, stated to the attendees of the second Mobile Money Summit in 2009, "it's time to meet the savings challenge." By this Christian refers to the potential to leverage tiny transactions carried over phones into a savings mechanism for the world's poor and unbanked, rather than simply offering a way to send remittances or make bill payments. "Banking the unbanked" – heretofore a concern mainly of microfinance institutions and poverty alleviation programs – has become a rallying cry of mobile network operators and device manufacturers.

Many people in the United States are already familiar with online banking and bill payment, but with the exception of early adopters of next-generation smart phones, mobile phone based payment systems are virtually unknown.[4] In the developing world, in contrast, mobile payment systems are growing at a rapid clip, where computers and conventional brick-and-mortar banks are far less accessible or culturally relevant than the mobile phone. Mobile phone service and devices are now within reach of nearly 85% of the world's population (GSMA 2006). And they are not just used for talking. Even in the most remote or impoverished areas, everyday people have found remarkable ways to gain access to mobile communications and to add functionality to the phone (Donner & Tellez 2008). For example, before the formal advent of mobile money and to this day, people use pre-paid airtime minutes as a form of currency. They transfer minutes to one another to pay back small loans, and to send gifts or remittances (Chipchase 2009).

Taking the lead from these everyday innovators, most mobile money services in the developing world rely on the text interface of the mobile phone and existing aspects of the underlying technology: the Subscriber Identity Module (SIM) chip inside the phone, instant-messaging capability through Unstructured Supplementary Service Data (USSD), or standard text messaging capability (SMS). All three allow phone-to-phone communication and, potentially, funds transfer. In the developed world, in contrast, digital money services have to date often been based on adding new technology to a device or creating a wholly new

[4] There have been several failed attempts to create mobile payment services in the US. Obopay, a Bay Area startup offering funds transfer via mobile phone, has recently partnered with MasterCard and several mobile network providers. Other companies involved in electronic payments and wire transfers are exploring mobile phone based models (e.g., Visa, PayPal, Western Union). Interestingly, within the US, the effort does not seem to have been primarily led by the telecommunications industry.

payments device, rather than exploiting existing technology. Examples include the addition of radio frequency ID (RFID) or near-field communication (NFC) chips to cards, key fobs or mobile phones. Unlike phone-to-phone services, these systems involve the installation of new point of sale terminals at shops and businesses and thus higher costs. They have only really taken off in Japan and in a few other vendor-specific arenas, and are not tied to mobile phones by virtue of any technological necessity.[5]

The first mobile phone-based money system was probably the informal sharing and trading of airtime minutes and their sale back to a vendor for cash (Chipchase 2009). Industry actors took this everyday innovation and modeled new systems on it. Industry actors who developed mobile phone-based money systems did so with the world's poor and emerging middle classes in mind. This was in part a function of the specific way in which mobile phones have come to reach global markets. As scholars of mobile telecommunications have long noted, the mobile phone has become ubiquitous in the developing world as a means of communication, but also because it does not require cables or wires to be strung from point to point, village to village, and because its use patterns in the developing world often involve sharing, informal repair, and networks of distribution agents overlaid on existing networks (Chipchase 2009; Donner 2008; Rangaswamy & Singh 2009). Hence, development NGOs and poverty alleviation organizations are drawn to the mobile phone as a tool for economic development (Mas & Kumar 2008).

IMTFI's Role in Researching Mobile Money

IMTFI funds research on mobile money through a competitive peer-review process. In 2008, IMTFI issued its first call for proposals, and did so globally, disseminating the CFP via postal and electronic mail to over 1000 individuals, organizations and universities around the world. The first CFP resulted in 49 proposals from every continent except Australia and Antarctica. 17 projects were funded, for research in 14 different countries, involving 25 researchers, 19 of whom are from developing world countries. In addition, IMTFI awarded 3 scholarships to non-recipients of grants. In 2009, IMTFI issued its second CFP and it is currently in the process of reviewing the proposals received. It will issue its third CFP in 2010. At that point, IMTFI will evaluate its progress overall and decide whether and how to continue as a research facility.

IMTFI has two advisory boards, an internal board made up of an interdisciplinary group of academics from UC Irvine, and an external board made up of professionals from key sites in industry who have collaborated with the Institute Director in the past and who come from the world of information and communication technologies (ICTs) and interaction design. Importantly, members

[5] RFID and NFC-based prototypes – like Visa's EasyPay service that uses a plastic card or key fob with an RFID chip inside – are available in the US.

of the external board all have international experience in conducting ethnographic research.

The first cohort of funded researchers is diverse. Of the 25 individuals funded, 60% are women. 16% are students; 36% are professors, 32% are non-professorial researchers, and the rest are consultants or administrators. 68% are associated with a university or college, and the rest with NGOs, non-profits or government or private research centers and think tanks. Although IMTFI focuses on qualitative and ethnographic research, generally associated with the discipline of anthropology, only 32% of the researchers are anthropologists. Another 32% are economists; 12% in business studies; 8% in urban studies and 8% in design (and the rest in education and political science). In terms of region of origin, 24% are from Africa, 24% from South Asia, 20% from the United States, 16% from Latin America, 12% from Southeast Asia, and 4% (1 researcher) is from Russia. The African researchers are the most diverse in terms of academic discipline.

IMTFI represents a unique collaboration in at least four respects. First, it brings together researchers from academia and industry under the auspices of a philanthropic organization. Second, although its researchers use a variety of social scientific methods and are from a number of disciplines, they are also conducting long-term research projects that generally include qualitative or ethnographic methods. As anthropologist George Marcus (Marcus 2007; see also Lassiter 2005) has noted, collaborative ethnographic research remains the exception in anthropology, not the rule. Anthropologists have emphasized the open-ended, exploratory work of discovery of people's everyday practices. IMTFI takes advantage of anthropology's expertise in studying everyday innovation through a large-scale collaboration involving a number of researchers dispersed around. The researchers are conducting independent projects but under one collaborative rubric. In this, it is reminiscent of other large-scale collaborative projects in the history of anthropology like the Harvard Chiapas Project or the Committee for the Comparative Study of the New Nations (Vogt 1994; Geertz 1965).

Third, many of IMTFI's researchers are from the countries where they are conducting their research. While not necessarily "native ethnographers" (they are mostly from different class backgrounds, regions and/or ethno-religious groups from their subjects) they do have the advantage of a greater appreciation of local context, and greater long-term commitments to their country of research, than most "outsider" researchers would have. The researchers are living in the context of intense and rapid innovation on the ground – as soon as new service or product is unleashed, people adapt it to their own uses. By virtue of their deep knowledge of the contexts they are studying, they have experience with the seasonal surges of local agricultural and religious cycles that others might lack; they are familiar with dealing in currencies that require lots of zeros; they know what it is like to experience a sudden and dramatic drop in the value of a currency and how to manage issues of identity and privacy in developing world

contexts. Fourth, they are trailblazers in a new terrain of research: mobile money services. In that terrain they are filling important lacunae in the research conducted to date.

IMTFI currently is funded for three years under a grant from the Bill and Melinda Gates Foundation. It is housed in the Department of Anthropology at the University of California, Irvine, and operated autonomously from the Foundation. Indeed, it was envisioned originally as providing a grounded reality-check on philanthropic and development organizations' efforts to harness the potential of mobile technology to provide banking and financial services to the world's poorest people. As is often the case with such university/foundation or university/industry collaborations, the divergence in mission between the Institute and its sponsor creates challenges for each partner. Long-term ethnographic research, by definition, takes time; more time than the quarterly cycles governing most modern organizations – non-profit or otherwise – modeled on the corporate form. In addition, it is often difficult to convey the depth and nuance of ethnographic material. Discovery in science takes time. With a three-year time horizon, IMTFI is in the position to see everyday innovation as it occurs. The data are necessarily contingent, and ethnographic discovery involves a difficult and exacting road toward understanding people's original ways of doing things as they face new circumstances and new technologies. People expecting quick and broadly relevant generalizations or actionable results may need to be more patient. At the six-month mark, therefore, IMTFI has worked up some "design implications" from its provisional research results. These are included in this report as an appendix. Pushing ourselves to think about the actionable implications of the research to date has not been an altogether unproductive or speculative exercise. In fact, the challenge of being responsive to its foundation and industry partners has helped IMTFI hone in on some key questions while still allowing its researchers freedom to continue their own explorations. All scientific work on fundamental issues like people's management of value and worth is bound to be revised as more of people's own everyday innovations come to light. IMTFI is in a unique position to contribute to this discovery.

Explorations in Monetary Ecologies and Repertoires

Money, despite its ubiquity, remains relatively uncharted territory. Anthropologists and sociologists continually remind us that people do far more with money than its core functions – means of exchange, method of payment, store of value, standard of value, unit of account – would indicate (Maurer 2006; Guyer 2004; Bohannan 1959; Zelizer 1994; Lave 1988). Similarly, people use many things to serve the functions of money besides state-issued legal tender and bank money (i.e., debt).

Even classic functions of money such as method of payment can take many forms besides the offering of money for services rendered. It can also index relationships of obligation, rank, clientage, social belonging or state sanction.

People calculate the amounts of such payments often outside of market exchange relationships: they are not set by "market price" but often arbitrarily, or ritually, or as the outcome of a formal or informal political process. Why does a parking ticket cost $47? Why is a good luck offering made in multiples of eight?

Much research to date on the poor and their money overlooks these issues. Existing frameworks flatten the diverse monetary ecologies and repertoires in which people generally operate, and the multiple systems of calculation, scales and standards of value, temporal cycles, and forms of literacy and numeracy with which they do so. Where other research acknowledges, say, the use of cattle as a kind of currency, it still very often treats all quasi-moneys as commensurable into one another: as all "money" or "wealth," equally fungible, and able to become liquid under the right conditions. This is hardly the case, however, even in Western industrialized societies. "We" still maintain "inalienable possessions" (heirlooms, keepsakes; see Weiner 1992) and place moral boundaries around some pockets of our money (the child's piggy bank, the "swear jar") or boundaries of convenience around others which, nevertheless, are rather difficult to dislodge (the change in the car's ashtray or in the desk drawer). Pennies are treated differently than quarters. It is bad to tap into the child's piggy bank to buy groceries, and even worse to do so to buy drugs or alcohol.

Even modern, Western money, then, the supposedly flat wash into which all things can be dissolved, the rational and rationalizing force in contemporary commodity economies, is, on closer inspection, a complex delta of rivulets, side-currents, eddies and pools (see Zelizer 1994). It is also a "memory bank" (Hart 2001), a record of relationships extending across space and in both directions in time, linking us to our ancestors, descendents and fellow humans in a vast network, giving us – if we just look carefully – a picture of ourselves as a species in all our diversity and complexity. And it is a value descriptor and standard of comparisons in conversations about worth that carry implicit ethical or moral judgments.[6]

Understanding money therefore means not just understanding legal tender. In contrast to other researchers, IMTFI accepts a broad definition of money to include quasi-currencies, alternative currencies, and a range of objects of wealth and value that sometimes serve some or all of money's classic functions. This is a decidedly different stance from the perspective that relegates physical assets (land, livestock, vehicles, capital equipment, jewelry, special ritual items) to the sidelines.

In their financial diaries project, Collins et al. (Collins, Morduch, Rutherford, & Ruthven 2009), for example, decided to focus solely on "financial rather than physical wealth" because households' physical assets changed very little over time, while cash and other financial assets varied dramatically (p.11). This

[6] Jane Guyer (personal communication, 2010) provides the examples of "the $64,000 question, the million dollar home (or baby), the $5 cup of coffee."

narrowing of focus usefully illuminated households' cash flow and allowed for the creation of comparable balance sheets across contexts and time. However, it left unasked the question of *why* people's physical assets seem to remain stable while financial assets fluctuate. The assumption that finance is "where the action is" because it seems to be moving so much and so quickly may miss why people may be more eager to move money than other objects of wealth. It also may miss the dynamics of conveyance within distinct spheres of exchange and conversions between such spheres (Bohannan 1959; Guyer, 2004). Ultimately, the assumption that finance is where the action is may overemphasize liquidity and fungibility (see Collins et al. 2009:30) – the way people convert objects into and out of legal tender – and downplay people's preferences for making things illiquid and inconvertible (Shipton 1995). After all, it may be quite rational for poor people to try to convert their money into land, cattle or jewelry as quickly as possible, given currency instability, inflation or corruption.

Indeed, in his important study of savings in the Gambia, Parker Shipton notes that not all things are allowed to enter into the cash nexus, cattle in particular. In some circumstances cattle are not even counted, for enumeration may allow them to enter into a calculation of price measured in units of money. Shipton writes, "cattle and cash are not considered commensurable in a qualitative sense, no matter what the prices involved" (Shipton 1995: 256). People maintain an "illiquidity preference," seeking to convert cash into illiquid, more durable and longer lasting forms of wealth as quickly as possible. Money is "contestable" – people can make claims on it in a way that they cannot so easily with illiquid wealth – and hence people try to balance the sequestering of value in other wealth objects than cash as quickly as possible, with the maintaining of their social obligations which may sometimes demand loans of cash (ibid., 257).

In addition to the expansion of the concept of money to include other assets besides legal tender, and the problem of illiquidity, existing research has been limited in its conception of what constitutes a financial portfolio. Collins et al. use the term financial portfolio to describe the collection of relationships with friends, neighbors, moneylenders, savings associations, and formal, semiformal and informal service providers. They show how poor households use such relationships to secure savings, borrowing and insurance services. They also note that the distinctions among these services do not always match reality on the ground (Collins et al. 2009:19). People "combine many kinds of instruments to achieve their needs," leading their portfolios to be "surprising complex" (ibid.).

As Collins et al. clearly recognize, financial portfolios are a complex and dynamic field of *practices* in webs of *social relationships*. Some of these practices and relationships are contradictory. Some operate according to different temporal cycles or logics. Some use alternative systems of number and counting, as many IMTFI researchers have discovered. We find the notion of monetary ecologies and monetary repertoires to be useful supplements to the idea of "portfolios of

the poor." That they apply equally well to the non-poor indicates their greater generalizability, as well.

The concept of *monetary ecology* recognizes the different currencies, quasi-currencies and para-currencies that may co-exist in any particular place and time. A currency is a state-issued, local, or commodity item which assumes some of all of the functions of money (e.g., the US dollar, Ithaca HOUR, or gold ingot, respectively). A quasi-currency is an item that sometimes but not always functions as money (e.g., livestock, land). A para-currency may be an item that works in conjunction with a currency or quasi-currency (a loyalty card or coffee house stamp card which can be used in exchange for goods). Monetary ecology also refers to the complex ways in which these varieties of currencies operate, and the varieties of use-cases in which they become caught up.[7] The concept of *monetary repertoires* helps capture the nonconsonant ways that people have for dealing with moneys, the repurposings and reappropriations of elements of their monetary ecology in particular temporal cycles and with particular and often incommensurable calculative rationalities.[8] Repertoire emphasizes the practical unfolding of people's actions involving money and currency objects. It allows for the element of performative mastery in the use and negotiation of diverse monetary ecologies and the "horizons of contingency" within which people operate (see Guyer 2004:130).

Money is, after all, a technology. Just as technologies afford all kinds of uses for which they were never designed or intended, just as technologies can be hacked or tweaked or wired together with other technologies to create new assemblages that do different things, so too with money.

[7] The concept of a monetary ecology is inspired by the work of J.K. Gibson-Graham, particularly the concept of "diverse economies." The ecological metaphor carries the risk of naturalizing social relationships and arbitrary arrangements, but usefully captures the sense of human and non-human actors existing in an interconnected web of relationships. It also travels across disciplinary and practitioner boundaries easily – which may, of course, be a problem. See Gibson-Graham 2005.

[8] See Guyer 2004:128. The approach here is also inspired by Muniesa, Millo, & Callon 2007 and Calıskan & Callon 2009.

[$2 bill for Persian New Year, inscribed for luck, Orange County, California]

[A prayer for prosperity, Los Angeles, California]

[Audience members at lectures on the social uses of money often reveal some hidden secret in their wallet or purse. A folded bill for good luck when traveling outside of South America]

From Pathology to Epidemiology to … What?

Two trends in practice and in the academic and grey literature are converging with the advent of mobile money services: work on financial services for the poor, from microfinance to the development of innovative new savings products, which have not focused much on technology (see e.g.Hirschland, 2005); and work on ICTs for development, which has not focused much on financial services (see e.g (Harris 2004). Both share a similar blind spot: The former is hindered by its lack of attention to money itself as a technology subject to alternative "use cases" – the rivers and streams of people's practices and repertoires in diverse monetary ecologies. The latter is hindered by treating money as the outcome of technologically-mediated development schemes. In both, money is something that people need to be helped to hold onto and/or to use more productively, however that may be defined. People may get more of it, but its roles in the social, cultural, religious and technological machinery, so to speak, are sidelined. Both blind spots also miss the long history of people's monetary ecologies and repertoires – a history far longer than that of modern, Western money. These blind spots be the reason for all of the attention to rotating savings and credit associations (ROSCAs) in the literature to date on poor people's money: they are found all over the world, in one form or another, and it is easy to see them as a means of providing savings, credit and insurance, based on social ties and family connections. They also disprove the hypothesis that the poor cannot or do not want to save (Rutherford 2001, Collins et al. 2009).

This has proven to be an extremely useful contribution. At the same time, however, when researchers and practitioners devote their attention to informal mechanisms like ROSCAs and formalized savings systems based upon them, they miss an opportunity to ask the question: *what* is money for the poor? A

prestige item? A spiritual force that taps into other such forces, like the power of numbers, abstractions, ancestors, gods or high status people? What else do people do with money, and what else does *it* do for them, besides what we assume when start from the vantage point of money's classic functions? *When* and *how* does something become "money" that can enter into a system like a ROSCA or a formal service in the first place? Why is something money in one context, but not in another; or why is something a special purpose money in one instance, and a general purpose money in another? Why does it get taken out of circulation and put it back in again? In other words: What social and technological arrangements have to come into alignment *beforehand* in order for people to get to the point of objectifying, discussing and implementing their "portfolios" for spending, storing and transferring money and how do those pre-existing socio-technical arrangements press upon their actual practice?[9]

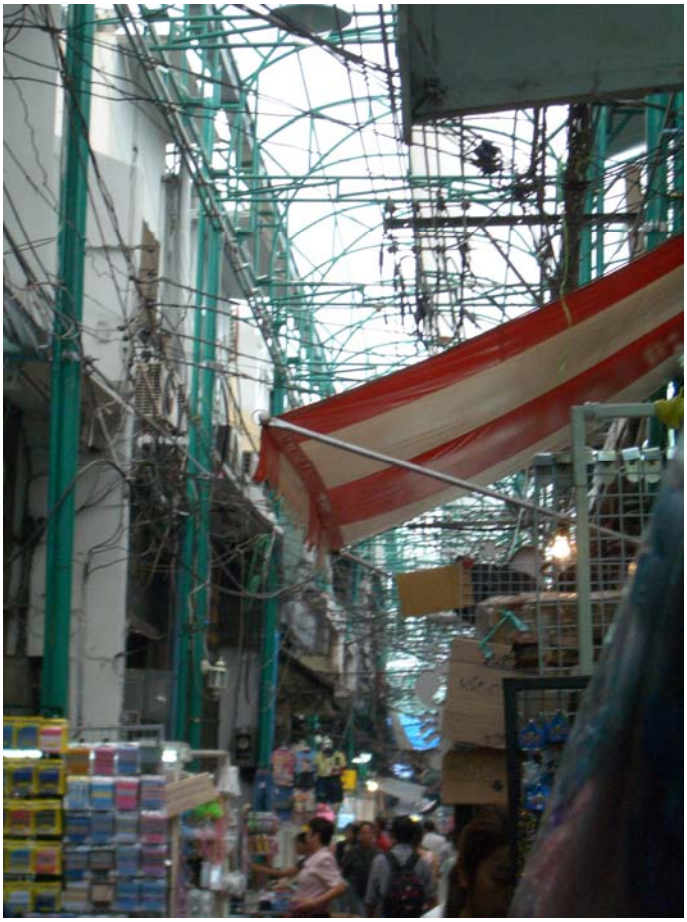
When Stuart Rutherford's groundbreaking book, *The Poor and Their Money*, dispelled the myth prevalent in some policy circles that the poor were "too poor to save," the discourse – and practice – shifted. Recognizing that poor people already want to save and, in fact, have a number of ways to do so at their disposal freed up development and policy professionals to look differently at the poor and their money. The shift that took place can be characterized as a shift from pathology to epidemiology. Before, some in the development and policy community saw the poor as constitutionally incapable of saving. Either they were simply too poor to save, and/or they lacked the foresight, discipline or financial literacy skills to enable them to save. After the conceptual shift recognizing that the poor can, want to, and do save, however, pathology was replaced by epidemiology. Practitioners became convinced that the poor, having already demonstrated a number of informal savings arrangements in their portfolio, simply needed assistance – *treatment* – in order to achieve their (and others') savings goals. The epidemiological discourse is not just an extended metaphor: the methodologies of choice in assessing design and adoption of new saving services by major players in this space is the randomized controlled trial (RCT), taken directly from clinical biomedical and epidemiological research.[10] Trials come complete with control groups and treatment groups. And, indeed, RCT based studies can be quite useful for understanding factors impacting uptake and adoption of new services.

From the perspective of anthropology, it is striking how this shift in recent work on financial services for the poor replicates the old ethnographic problem of relativism. Are "the poor" radically different from "us," or just like us, only, well, poorer? Anthropology still struggles with the relativism/universalism issue. Many

[9] There is a significant anthropological and sociological literature on ROSCAs which captures these dynamics. See Elyachar in press; Bahre 2007; Velez-Ibanez 1983. A key insight of the anthropological literature is that social relationships and hierarchies are rarely obviated by such informal savings mechanisms, especially if they become formalized. The nature of hierarchy is such that not everyone gets to be on top, after all!

[10] FAI specializes in this type of research. Some examples can be found at http://financialaccess.org/research.

anthropologists, in attending to the processes and structures that continually make and remake social and cultural worlds, defer this question by asking how "irreconcilable difference" is itself a product of various social forces and practices. Anthropologists also question why Westerners perennially seem obsessed with the problem of difference while other peoples, not part of the history that attempted to create isomorphism among "race," language, culture and nation – may simply note it but move on. Following this lead, the issue could be framed differently: neither that the poor are different and thus poor, nor that they are similar but only poorer and in need of assistance or treatment. Rather, they are stitched into modernity's institutions and processes unevenly (as we all are, really). This uneven connection results in a Byzantine network of confounding practices, beliefs, trajectories and social and technical arrangements. People send out grappling hooks of their own making into the institutions and processes of modernity, thus making it anew – and they actually make it what it is, in fact, since "modernity" itself is as much convenient fiction as description of a total or complete project. This network can be visualized in the complex and unexpected infrastructures that poor people around the world create for themselves all the time to gain access to utilities like water or electricity. Designing savings services for poor people in the developing world might learn from these existing alternative infrastructures.



[alternative infrastructures: electrical wires in Bangkok]

The work being done on poor people's money today is silent on its historical antecedents. The sociologist Viviana Zelizer (1994) has documented the myriad ways that poor people's money in the nineteenth century was an object of intensive intervention on the part of various state, non-state and religious actors seeking to "uplift" the lower classes morally and spiritually, not just financially. Money was an integral part of social and religious programs for training, disciplining and oftentimes controlling the poor in the name of modernity. Monetary practices around poor people were arguably also important in the very conceptualization of them as "the poor," a clearly identifiable group or class for whom other well-meaning agents then devised programs. To the exhortation that researchers be attentive to diverse monetary practices and ecologies, then, the following additional caution must be added: that researchers and practitioners in this domain today acknowledge their position in a long history of powerful others descending upon "the poor" and "their money."

This is especially important because of the very prominent role of for-profit, large-scale industry actors operating often outside state regulations to provide mobile money services for poor people with the implicit and explicit aim of enhancing their own average revenue per unit (ARPU). The quest for increased ARPU is explicit in industry actors' efforts to "bank" the "unbanked," after all. In this respect, such actors take a page from C.K. Prahalad's (2009) influential book, *The Fortune at the Bottom of the Pyramid*, which sees the world's billons of poor people as an untapped market, or other movements in social entrepreneurship that replace development aid with profit-seeking enterprise in the hope of both enhancing people's lives and generating returns. Such a dual aim is not necessarily bad. Where some critics might see another form of extraction – sapping wealth from the bottom to the top, from the global South to the North – the short history of mobile money thus far presents a far more complex picture. The complexity comes first and foremost from the prominent role of poor people's own strategies in making mobile money a reality: from informal airtime-minute transfers to cell phone sharing practices, people around the world are already making money "mobile," harnessing mobile technologies for their own ends. And technological and regulatory actors in the global South are assuming real leadership positions in devising new frameworks for what money will become in this new world.

IMTFI Research to Date

At the time of this writing, as noted above, IMTFI's first cohort of researchers is at the mid-point of 12-month long projects. In order to provide an opportunity for networking, sharing and peer collaboration, IMTFI held its first conference of funded researchers around the 6-month mark. The conference took place at UC Irvine from November 4-6, 2009. 23 of the 25 researchers attended, as did 2 individuals who were awarded scholarships from IMTFI specifically to attend the

conference. Participants delivered progress reports and attended a closed-door seminar to discuss research methods, synthetic themes across the projects, and plans for completion and publication. A collaborative web space was created for the researchers to continue to network and receive feedback with one another. In addition, researchers were asked to complete a questionnaire about the experiences in conducting the research, about any administrative issues or concerns, and about their own experiences with money and finance. IMTFI is in the process of compiling the data and stories from these questionnaires (some of which provide fascinating examples of indigenous money practices).

The conference was attended by approximately 100 people, including university faculty, students and administrators; independent researchers; representatives of microfinance organizations and mobile banking start-ups; and IT and design professionals. The first two days were open to the public. The third day consisted of a closed-door seminar for the researchers. Researchers were grouped into 6 thematic panels. Each panel was assigned a chair/discussant from IMTFI's network of collaborators.

Panel 1: Traditional money management. Chair/Discussant: Professor Paul Dourish, Department of Informatics, UC Irvine; member, IMTFI Academic Advisory Board.

- Mani Nandhi's study of Delhi rickshaw pullers showed the importance of shopkeepers as agents as well as the emphasis placed on the storing of money on one's person. Rickshaw pullers are extremely mobile and may live in a number of encampments over the course of a month. It is difficult to build trust. Still, the few owners of mobile phones share them with strangers in the encampments when needed. This project raises some potentially interesting issues from a design/action perspective: how to create a shared mobile-phone based system in a context of low trust and high mobility? Can mobile owners be turned into agents?
- Syed Aiman Raza's project on Shia embroidery workers, like many of the research projects, revealed a kind of "sliding scale" for wages and payment based on the type and/or social rank of one's client, and the indigenous categories of measuring money in terms of time and labor. It also demonstrated the role of ethno-religious segregation in fostering trust in rotating credit associations, which simultaneously limits their scalability.
- Magdalena Villareal and Maria Eugenia Santana's research on poor communities in Chiapas, Mexico, also demonstrated the importance of religious affiliation and ritual cycles that involve saving to fulfill social obligations rather than personal goals, as well as to mark status (the buying of a new dress every year, for example).

Each of these projects revealed the different and often incommensurable *calculative rationalities* at play in people's everyday conversions of money, time, labor and various forms of value (ritual, social, religious).

Panel 2: Existing indigenous money practices. Chair/Discussant: Mohammed Mohammed, FSP, Bill & Melinda Gates Foundation.

- Kenneth Omeje's discussion of the role of keepers of the shrines of particular deities among the Igbo of Nigeria showed the importance of religious figures and places, and documented a system of lending with low interest and no default. It also underscored the importance of saving and lending for important obligations or events to which banks tend to be blind (such as weddings – "a bank will not loan you money to marry," one of his informants stated).
- Omeje's project and Svetlana Tyukhteneva's research in the remote Altai region of Russia also described fascinating practices related to money and number: the importance of making offerings in specific denominations or with certain numbers of currency objects (in twos, for example). In Altai, state-issued currency has not achieved the status of the standard of value: coins and cash get treated not necessarily as items for saving but for offering to various deities for safe water or safe passage.
- Thanuja Mummidi's project among a scheduled tribe in India similarly demonstrated that, for people who do not accept state-issued currency as the primary standard and store of value, imagining savings can be tricky: the Konda Reddis see state money as mainly necessary for short-term exchanges and cycles; other forms of wealth, particularly land and trees planted for lumber, are slotted into long-term cycles.

Mummidi underscored, and the other projects in this panel exemplified, the contemporaneity of different *standards* of value all coexisting in one social milieu.

Panel 3: Impact of m-banking and ICTs. Chair/Discussant: Jan Chipchase, Nokia Design; member of Year 2 External Review Panel.

- S.S. Colombage reported on the preliminary results of a large-scale survey of urban, rural and plantation households in Sri Lanka (n=1000), finding conditions potentially ripe for mobile banking applications, especially linked to microfinance and to inward remittnces. Discussion after his progress report revolved around the fact that banking the unbanked does not necessarily lead to people actually using bank accounts, and to brainstorming around mechanisms for encouraging use.
- Beatrice Magembe and Alice Shemi reported on very early results of their research in Botswanan villages. They focused on some of the challenges they faced in conducting their project, as few people trusted them and/or expected them to be social service workers who would

give them gifts or money. In the closed-door session on November 6, researchers discussed strategies for getting research subjects to open up about their money practices, as well as the pros and cons of offering gifts or payment for interviews. The researchers documented informal sharing practices, and are starting to get data on informal savings practices (money in the mattress or hidden in the hut). They also underscored the extent to which the poor feel forgotten by formal financial institutions, and the importance of state currency as a status symbol ("my neighbors think I am a thief because I don't have money," one interviewee stated).

- Finally, Francis and Akosa Wambalaba and Philip Machoka's presentation on M-PESA discussed Safaricom's cultivation of partnerships with other companies and its expansive network of agents. In addition to providing information on the regulatory environment, the technical specifications of SMS versus USSD services, and the transformation in intermediation caused by M-PESA's service (mainly to the detriment of bus drivers who had previously served as informal couriers), the presentation also contained interesting reflections on "researcher-fatigue" among M-PESA professionals and agents. It also included provisional data showing that the M-PESA system's value as a source of jobs in certain communities outweighing – at least at the level of perception – its importance as a means of transferring money.

Panel 4: Multiple currencies and local money systems. Chair/Discussant: Scott Mainwaring, Intel Labs; member, Year 1 and Year 2 External Review Panel. Although this panel focused on situations where multiple currencies interact in one social space, the common theme that emerged had to do with questions of debt and repayment; time; and representational qualities of money.

- Marco Crocco's research on Banco Bem in Vitória, Brazil documents the history of this community bank as well as its lending strategy of offering a lower interest rate for repeat borrowers whom it presumes are more established, and thus able to pay more. It also nicely illustrated the extremes of monetary representation: on one hand, the bank's official status was enhanced by its specially printed, ultra-localized, state-sanctioned paper currency; on the other, the bank operated with almost no paper-trail of accounts and transactions, these representations often existing only in the minds of its workers and clients.
- Caroline Schuster's project on the tri-border region of Paraguay is situated in a fascinating region where money movements are fraught with concerns about secrecy, theft, and the origins and trajectories of funds. The *trajectory* of money is often seen as authorizing its value as real or counterfeit, in this country without a national mint. People are caught up in the details of money's circulation in order to deduce its

origins and its future movements. Schuster also found that borrowers were less concerned with debt than they were with "being late" on payments: lateness signified failure with social obligations in a way that mattered more to people than being indebted. This project places importance on how loans are reworked and how formal and informal credit operates alongside the pawning of household items. It also sets the role of the credit bureau in calculating and formatting risk alongside the role of neighbors as a regulating, disciplinary force. Like many of the projects, this one also drew attention to the overlapping and often incompatible temporal cycles within which people manage their money and other objects of value.

- Mrinalini Tankha's project on the dual currency system in Cuba revealed how representations of a state currency's "real" worth is reflected in iconography and everyday social practices (like crumpling bills, refusing bills, or creating separate secret stashes of bills).

Panel 5: Microfinance and technology. The Chair was slated to be Douglas Sabo, Visa, Inc., however, he was unable to attend. Michael Ferguson, Microfinance Opportunities, stepped in as Chair/Discussant.

- Anke Schwittay and Paul Braund were unable to attend the conference. However, their research on kiva.org is investigating how this innovative and widely-touted organization had created the appearance of peer-to-peer microlending before a controversy sparked by bloggers led kiva to become more transparent about its use of a complex network of intermediaries. Schwittay and Braund are also exploring what happens when an organization previously funded in part by kiva severs its relationship, and whether new microfinance organizations can grow out of kiva. In the course of their research they are learning how MFIs in southern Mexico are trying to promote the concept of life insurance to indigenous women, and introducing different concepts of life, death, prudence and foresight in the process.
- Crystal Murphy Morgan's research in the refugee camps of the Sudan found that people's prior experience with money and savings institutions made a huge difference to their levels of trust, stability, and sense of the future. She is in the process of documenting the wide range of informal currency trading practices and the calculative rationalities at play in currency trading, and suggested that a savings product linked to a currency exchange "calculator" might be successful in contexts like this one.
- IMTFI invited Mark Pickens from CGAP to provide an overview of CGAP's technology work, and to give the researchers the opportunity to network with him.

Panel 6: Alternative methods of managing finance and protection against risk. Chair/Discussant: Wendy March, Intel Labs; member, Year 2 External Review Panel.

- Catur Sugiyanto, Sri Yani Kusumastuti, and Duddy Donna presented preliminary results of a survey on risk management and savings in Indonesia. The research is at a very preliminary stage, though there was some discussion about units of analysis, proxy variables and his data analysis plan.
- Harsha De Silva echoed some of Colombage's research from Sri Lanka, and underscored the differences between estate laborers, rural agriculturalists and urban dwellers. In focusing on how mobile phones may help poor people smooth consumption, he showed how airtime transfers set the stage for a large number of very small transactions which, over time, may help build creditworthiness and, for estate workers, help break people's dependence on the plantation. Putting food on the table remains a primary concern among his informants.
- Melissa Cliver provided stunning visuals from her research with coffee farmers in Mexico, and highlighted the question of cultural framing: for example, rather than seeing people's informal, casual labor as "intermittent," "unreliable," "risky" and the like, the people themselves viewed this kind of labor as an unqualified good because it is social, because it affords opportunities for creating new social relationships and fulfilling longstanding social obligations, and because it is often pegged to a ritual or religious cycle. Similarly, she provoked the audience to reflect on people's own definitions and cognitive associations of financial matters. Her informants associate remittance income with home construction. So, "if remittances look like buildings," she asked, "what does savings look like?" She proceeded to show images of women reacting strongly against the word "savings" in a workshop she held, because, in their words, "we never have enough!" However, re-framing savings as part of the work of making "livelihood" – providing for one's cyclical obligations to family members, saints, or friends – opened up a dialogue on how the community might imagine collective savings projects.

A number of issues repeatedly arose throughout the conference:

- What to do about the problem of keeping money on the person in some contexts, and with agents or in "secure" religious establishments, in others? Intermediation through the use of agents is a hot topic in the mobile money space, as it is more generally in the ICT for development literature (see Sambasivan et al. 2009). Yet in many cases described by our researchers, intermediation was either impossible or deemed unnecessary. While the lack of intermediation might be seen as due to a lower risk of crime or theft in some contexts, it also may have to do in some circumstances with different perceptions of and kinds of social relationships – relationships of rank or patronage, relationships within social groups defined by age set or age grade, etc.

- How can savings products be devised in conditions of instability, political violence, and mobility? Many of the researchers are working in places either currently or recently experiencing political, ethnic or religious violence and displacement. Researchers reflected on the challenges that this poses for their projects, as well as the challenges faced by their interviewees, who often had displacement on their minds. In many such contexts, people's monetary ecologies include state-issued currencies they viewed as inherently unreliable and institutions they deemed to be preferential toward people holding specific ethnic, religious or political affiliations.

- How should "savings" be promoted where people do not consider state-issued money to be a store of value? People distrust banks not only because they lack understanding, feel that banks serve only the wealthy, or are uncomfortable approaching a bank for services. They also, quite rationally, distrust banks because banks – and state-issued currencies – fail. Many of the researchers are working in contexts where people's monetary repertoires include practices meant to hedge against such institutional failures. The researchers themselves have their own stories of having lost their savings due to political and economic instability, and IMFTI experienced numerous frustrating – and fascinating – challenges in reimbursing researchers for their expenses given state-backed currency instability.

- How can savings be connected to people's understandings of dignity, prestige, and pride? Throughout the conference, researchers remarked on the role of money in alternately serving as a prestige item, and as potentially devaluing other prestige goods. People sometimes prize money as a symbol of their modernity. People also frequently worry about money's ability to erode the value of other things that matter to them because of its uncanny ability to bring everything into its calculative rubric.

Some researchers suggested specific products:

- conversion calculators linked to a savings product (convert + "keep the change" in a savings account)

- products that alleviate the shame of "being late" or that allow for savings toward a particular goal, which can be renegotiated or cashed out if circumstances change

- making state money "valuable" by tying it to religious, ritual or social contexts of use or allowing other standards of value (land, trees, animals) to interact with state currencies through an innovative savings vehicle.

Contributions to the Emerging Mobile Money Literature

In a recent meta-analysis of research reports on mobile technology and financial services in the developing world, Richard Duncombe and Richard Boateng (Duncombe & Boateng 2009) show that existing research has been "too narrowly defined and largely a-theoretical" (p. 1). Mainly due to the heavy involvement of practitioners in research, most studies have looked at design and adoption, while few have explored pre-existing needs or ex ante impacts of new systems. In addition, in their survey of 43 peer-reviewed and non-peer-reviewed research articles, they found that only 5 made use of primary data to assess micro-level impact of new mobile money initiatives. They thus echo Jonathan Donner's concern that existing research has left relatively unexplored the relationship between new systems and existing practices. In fact, Duncombe and Boateng find only one study that looked at people's needs before the introduction of a mobile money system from a micro-level perspective, and it was based on survey research.

Based on their review, Duncombe and Boateng identify the following gaps in the research. IMTFI researchers are helping to fill these gaps.

Gaps identified in existing research[11]	How IMTFI fills these gaps
Little attention to identifying needs or assessing ex ante or ex post impact	IMTFI explicitly asks its researchers to assess the on-the-ground social and cultural ecologies of money. It also asks that they attend to money in all of its forms, not just state currencies, both before and after interventions or implementations occur
Lack of studies analyzing how mobile phones are interrelating with pre-existing informal financial practices	IMTFI focuses on the potential impact of new technologies and new systems on existing ecologies
Lack of emphasis on social and cultural contexts, particularly with regard to potential negative impacts of new systems	IMTFI's forte is the social and cultural ecologies of money and technology. It explicitly directs researchers to be attentive to positive and negative potential impacts.
Lack of in-depth, qualitative studies analyzing primary data	IMTFI is interdisciplinary and methodologically diverse, but with a decided emphasis on in-depth, long-term qualitative research projects lasting at least one year. All of the

[11] These are taken almost verbatim from Richard Duncombe and Richard Boateng (2009).

	researchers are directly collecting primary data themselves
Lack of participatory, user-oriented or user-led methodologies	Several funded projects are explicitly participatory, involving research subjects in the design and implementation of the research and in creative exercise to create design innovations
Lack of research being done by developing country institutions and researchers	Unlike the majority of projects being conducted by other organizations, IMTFI's researchers are predominantly developing world researchers at institutions in the countries where the Foundation's work on innovative financial service products for the poor has the potential to be most impactful

In studies where a treatment group is given access to information or services not given to the control group, the former may experience it as another handout from powerful outsiders or another paternalistic intervention. There is also "intervention fatigue" in some communities. There is already a place for people to slot "treatment" experiences, and people often already have expectations for what will happen next (researcher arrives; introduces experimental condition; conducts study; leaves). Ethnography is different: it entails a degree of intimacy that is difficult to achieve and can be uncomfortable, for both researcher and subject. As a result, however, it produces a different kind of data often missed by large-scale quantitative studies. IMTFI's researchers drill down into the difficult subject area of money and finance. Some of their data can challenge traditional models of product design and service provision by unsettling the conceptual categories framing those models.

Traditional categories	Reframed categories	Ethnographic Examples
Individuals and groups of individuals	Social persons and cultural contexts; the person as a sum of relationships, not as an individual; ranked statuses	Individual-focused intervention vs. subgroup-focused intervention: rank or caste in southern Mexico or India
Lack of (use of) available services as illnesses to be treated	Inventory of social assets as resources to be harnessed	Leveraging attachments to place (Konda Reddis, Altay)
Culture or religion as	Culture or religion as	Saving for large

interfering with rational decisions	creating alternative rationalities	festivals (beesi networks in Lucknow); oracular deities in Nigeria
Motivation and commitment: individual-level attachment to self or group	Obligation and fealty: societal-level network creating bonds	Religious obligation; obligation to patrons or elders (numerous cases)
Saving money = saving state currency	Saving "money" = diverse objects, practices and systems of wealth	Contexts where state currency is useless or only for short-term debts, not long-term needs (numerous examples)
Calculation and numeracy: people do simple math equations requiring basic numeracy	Diverse calculative rationalities and numerology: people use sliding scales, different kinds of numbers (interval, ordinal); place countable things in discrete sets with boundaries around those sets; and attach special significance to certain numbers	Ritual emphasis on the number 2 in Nigeria and Altay; on 6 and 8 in China. Calculations change depending on who is asking the question: "sliding scale" to calculate how much one earns in a day (beesi networks; rickshaw pullers; Botswanan villagers)

Several IMTFI researchers with quantitative backgrounds have reported that doing ethnographic work has allowed them to see everything that goes on before a respondent provides an answer to a survey question: in rural Mexico, in Indian slums, Botswanan villages and elsewhere, people employ elaborate calculative rationalities to determine how much time they spend on particular activities, how much money they derive from those units of time, and whether and when to use different scales of value and standards of value to assess their financial standing and needs. The answers they record on a survey or provide to an interviewer are thus not always the most interesting kind of data; what they do to arrive at that answer is more revealing. Understanding those diverse modes of calculation is essential to understanding how the poor conceptualize their economic well-being and how systems might be devised to assist them in keeping hold of more of their money.

Researchers and development agencies also have to realize that sometimes poor people view saving state-issued currencies as the wrong solution – or even a contributor – to their problems. Saving money is not the best strategy when

currencies and banks are unstable and unreliable. The very word “savings” produces discomfort because it underscores people’s fear that they never have enough money on hand. It also evokes fears that powerful elites will use money in a gambit to acquire poor people’s resources: land, livestock, or other illiquid wealth. We should never forget that poor people have good reason to be ambivalent about state-issued currency, banks and savings accounts.

Conclusions: IMTFI Research in the Mobile Money Space – The Institute as Participant-Observer

In the remote Altay region of Russia, people are far more comfortable using cattle as a standard of value than national currencies. Many such currencies circulate there, but are more useful as offerings to deities than as money. In Sri Lanka, the success in “banking the unbanked” has been shown to be more apparent than real: people set up bank accounts, but then never use them. In a region of Nigeria, powerful deities are thought to strike dead defaulters who have borrowed from the gods. The gods have become lenders of last resort, but at the same time are able to leverage a community’s assets toward productive ends, as people borrow not just cash but capital equipment like motorcycles and wheelbarrows for use in their entrepreneurial activities. The snapshots provided in this Report are just a small part of the range and depth of diverse practices uncovered by IMTFI research so far. By funding researchers to carry out ethnographic work in the developing world on new money ecologies, IMTFI is providing a rich archive of use cases and narratives about money, mobile money, and financial inclusion. Fine-grained social research on existing monetary ecologies and repertoires, we believe, is necessary to understand the potential for uptake and impact of new systems. Those monetary ecologies and repertoires are complex: people use multiple currencies as stores of wealth or means of exchange, not just one; they make social payments (for funerals, weddings, as special gifts, for religious purposes) even under the guise of economic transactions; they convert from one system to another often with amazing rapidity; they have ambivalent relationships to state currencies, and sometimes use more than one.

IMFTI, unlike other research institutes, is more than just a collector, analyzer, and generator of data, insights, and business ideas. It is also a nexus for bringing together for more persistent connection a globally distributed network of researchers, designers, field sites, local institutions, and global companies and practitioners. The future value of IMTFI’s nascent network is, like the value of the learnings produced by this network, likely to be broad, multifaceted, and usefully unpredictable.

However, at least a couple themes at this “network” level are starting to emerge. The flow of value between people/institutions in the developed and in the developing world is far from unidirectional. For researchers based in poor countries, participation in the network provides important opportunities for

professional development. For the range of stakeholders in affluent countries, opportunities to interact directly, even non-verbally, with the grant recipients can provide new perspectives on our shared design space difficult or impossible through other means.

In addition, IMTFI's network is likely to be heterogeneous, flexible, and innovative. Ethnography, though grounded rigorously in a rich research tradition, is practiced in at least as many ways as there are ethnographers. The research that IMTFI funds is not a matter of applying a self-contained methodology to a well-defined question. While such methodologies are necessary and even desirable for hypothesis testing and effect measurement, they are insufficient and even damaging for the kind of open, in-depth, always-contingent exploration of indigenous practices and experienced intervention that is IMTFI's mandate. In fulfilling that mandate, IMTFI replicates the contingent explorations of poor people worldwide who are continuously repurposing money and new technologies as they work to make a life for themselves.

Appendix:

11 Design Principles for Financial Services for the Poor

- Design for social obligation
- Design for social rank
- Flexibility with sanctions
- Structured illiquidity
- Change the iconography, design with local values
- Design for convertibility
- Help calculate convertibility
- Design for relative volume, not increment
- Lucky Numbers
- Tranches and Tiers
- Design for Cyclical Events

The differences in organizational culture and temporality between industry, development and philanthropic organizations, on the one hand, and academia, on the other, have lead to some productive friction in IMTFI's first year of operation. To attempt to bridge the divide between academic research and the industry and policy communities, IMTFI's Director, Administrator and External Advisory Board held a meeting after the first conference to think about how the research findings to date might be worked up into design principles that might provoke new kinds of inquiry and practice, and might lead to experimentation – or provide cautionary checks and balances – in the design and implementation of savings services for the poor. The following text represents the effort to help translate the research thus far for these other constituencies. They are presented in a more graphic form following the text outline below.

I. Poor people's existing savings behavior involves social obligations and commitments, not just individual self-discipline or planning for the future. New savings systems should be designed to allow people to meet their social obligations as a means toward enhancing their individual savings behavior. Social obligation does not just mean trust or commitment. It can mean patron/client relationships, quasi-feudal fealty, a "networked self" that is defined not by an individual but by a network of relationships. It has long been known that social obligations are important. Still, however, existing products for the poor do not adequately take social obligations into account and are modeled on individual savings accounts, or on pooled accounts modeled on ROSCAs that treat groups as aggregations of individuals rather than focusing on social relationships. Social obligations, however, are not merely a matter of an individual's commitment to others. In several of the contexts studied by IMTFI researchers, people are operating within systems of rank that differentiate people from one another. By rank, we refer to a

naturalized hierarchy reflected in ritual relationships as well as everyday practice – such as walking single-file in rank order down the road (senior men of high status first, then junior men of high status, then senior men of lower status, then junior men of lower status, then women of high status, etc., as is still done in many parts of southern Mexico). Savings has the potential to level rank distinctions, but this might not be the best starting point for promoting a new product or system. A product that helps people escape hierarchical rank will be seen as promoting selfishness or anti-group sentiment, or even as going against the gods or saints. People often do not want to escape rank or patronage relationships: they provide security, predictability, and order.

a. Design principle 1: [product; technology] Foster earmarked income outside of rank. Develop an alternative income stream outside of ritual or social obligations, specifically for "saving" toward a particular social end. One IMTFI researcher is in the process of a participatory design intervention to attempt to do just that: to develop an earmarked, unique revenue stream collectively envisioned for infrastructure development that "helps everyone," while also bolstering savings activity outside of traditional relationships of rank. Such an income stream might come from marketing part of a community's agricultural produce as "special" and for community needs, pricing it higher and tapping into an alternative market – the organic foods market, the sustainable trade market – and then earmarking the profits for community uses that individual members of the community can tap into.

b. Design principle 2: [product, technology] Design for rank. While not pleasing to our own democratically-attuned ears, different products for people of different statuses which allow them to be "good" members of that status may be appropriate in situations where patron/client relationships or rank are important.

II. Poor people's informal practices of lending and saving, whether in a rotating credit association or in a ritual or religious context (i.e., making a contribution toward a seasonal festival), are often negotiable and flexible. There are informal mechanisms for making up for a missed payment or for putting saved funds toward other uses if necessary. The social sanctions that befall a defaulter or non-payer are strong enough to ensure eventual payment, since people will often place their social or ritual obligations above their own personal goals.

a. Design principle 3: [product] Flexibility with sanctions. New systems to encourage savings need to provide this element of flexibility, together with social sanctions. Such a new system might start with the ritual leader who collects alms or offerings rather than the

individual saver. Convincing the ritual leader to allow people to "borrow" against the money they have provided for ritual purposes may help create a new kind of savings account. Several of IMTFI's researchers are in the process of documenting elaborate ritual practices that combine with social and religious sanctions and revolve around a ritual leader or a site of ritual significance. As the research progresses, these researchers will be pushed to highlight the design implications of their research findings.

b. Design principle 4: [product] Structured illiquidity. Existing savings products vary with respect to the relative liquidity of savings. More illiquid products – tied to time or goals – are generally viewed as helping people control their behavior through self-discipline. In contexts where other forms of discipline or belief are operating simultaneously, however, illiquidity might be tied to different temporal cycles or goal structures, such as religious ones. For example: A saving account structured to help people save toward a religious festival or pilgrimage would disburse a percentage of a pre-determined profit or interest payment based on how close the clients comes to the predetermined goal. Clients who reach their full goal receive 100% of the profit or interest payment, and special recognition on a wall or board placed near a religious site (modeled on existing haj savings accounts and Buddhist temple "donation walls" or "money trees" that record people's contributions to the temple and earn them "merit).

III. Poor people use multiple standards of value. In some contexts, state-issued currencies are used as the measuring rod against which other goods and services are evaluated. In other contexts, but in the same society, cattle, agricultural commodities, or ritual titles or offices are used as the standard of value. New systems for savings need to be attentive to these different and co-existing standards: either encouraging savings in state-issued currency by compensating people in other "currencies" like cattle, or allowing savings in multiple "currencies" to be counted as savings or as collateral.

a. Design principle 5: [policy; technology] Change the iconography: design with local values. Change the iconography of savings and/or state currency itself. In marketing its new currency to the people of Papua New Guinea, the PNG government incorporated images of traditional shell valuables and birds whose feathers are important markers of renown (see Foster 2002). In contexts where state currency is imagined as being for short-term obligations, while land or natural resources like forests or cattle are imagined as being for long-term savings or insurance, incorporate imagery and emotional associations from the latter in order to market the idea of money

itself. The FAO years ago promoted currency designs that promoted awareness of agricultural production. Alternative currencies like Ithaca HOURS similarly evoke value through iconography related to landscape features that are locally valued.

b. Design principle 6: [policy; product] Design for Convertibility. Create systems that work with, rather than against, different standards of value. Allow savings accounts in “cattle” – notional currencies based on herds that can intermingle with state currency in one account, to encourage the commensuration of cattle with money.

IV. Poor people use multiple scales of value: in one context, they measure value in equal increments, in terms of whatever standard they are deploying (one dollar, two dollars; one head of cattle; two heads of cattle). In other contexts, they measure in ordinal or categorical scales (“enough” or “not enough;” collective measures like “herds” or volumetric measures like “cups,” units within which there may be variability in the number of discrete objects). Scales of value intermingle with each other depending on context and social use. A person might use an interval scale with one kind of person or transaction, and an ordinal or volumetric scale with another. Designing new systems to account for these scales and their intermingling with one another may help re-frame how “savings” is presented to people: as saving discrete units, or as saving bundles or sachets with a range of units within them. Several researchers reported elaborate numerological systems that structured how people made offerings of money (in multiples of 2s, 5s, etc.).

a. Design principle 7: [product; technology] Calculate convertibility. The copresence of different scales of value is difficult to convey to people unaccustomed to it, and is also the topic of some of the most innovative academic research taking place in the anthropology of money (see Guyer 2004). It is relatively straightforward where the scales are simply different national currencies. Here, researchers recommend systems that allow for quick currency conversions tied to savings products: e.g., a calculator that allows one to convert and to “keep the change” in a savings product.

b. Design principle 8: [product; technology] Design for volume, not increment; or Design for “enough”. In situations where the different scales have to do with incremental versus volumetric measures, the situation is considerably more complicated. Imagine a world where people treat pennies as discrete and equivalent units of value, and a world where people treat pennies measured in terms of units of volume like a measuring cup. Such worlds exist. They are also not bounded from one another but interpenetrate, often with relationships of rank (people of higher rank getting a “rounded cup”

and people of lower rank getting a cup “just shy,” for example). Researchers will be pushed to think about design implications of these social realities. For example: a set of savings products differentiated by rank; special “cups” for people of higher rank; a technology that allows a client to visualize when they have saved “enough” without specifying a cash-equivalent amount.

c. Design principle 9: [product] Use lucky and unlucky numbers. In contexts where numerological practices are common, use them. There are informal Chinese practices around “lucky numbers.” New incentives or delivery channels for savings could be structured around local numerologies. Twos are important in several of the contexts studied by IMTFI researchers; 6s and 8s are important in areas influenced by Chinese culture while 1s, 4s, 7s and 14s are bad. In Persian communities 2-dollar bills are given as gifts for New Year; in areas impacted by Chinese culture, money in auspicious denominations are given at New Years. Devise products that exploit these numerologies by helping people save toward a multiple of these special numbers or that spur people to avoid bad numbers.

V. Poor people’s existing savings systems are often tied to multiple, intersecting and overlapping temporal cycles – seasons, ritual cycles, secular and religious calendars, the life cycle. New savings products can be pegged to one or several of these cycles in order to facilitate savings behavior. Saving “toward” a goal, especially the end of a ritual cycle or an important marker in a life cycle, may be more effective than promoting “savings” in general, especially in contexts where people use non-incremental scales of value. That is, if people understand money as volumetric (enough or not enough), they will be unwilling to “save” since if there is “not enough,” then there is nothing “left over” to save. But if people are taught to frame savings activity in terms of markers in a temporal cycle – putting away money to help meet a ritual obligation – their volumetric scales of value may help them meet that goal.

a. Design principle 10: [product; policy] Tranches and tiers. Model new products on existing “haj savings accounts” in many Muslim-majority countries. One researcher reported on savings activity oriented around Muharram, the first month in the Muslim calendar. These savings, however, are frequently completely expended on special gatherings that are so expensive and elaborate they often result in debt. Create a two-tiered account: part of the savings is put toward the coming year’s celebration, but a percentage sequestered for the next year’s celebration. Such a system may aid in financial planning and literacy, as well as provide a separate store of capital to offset future debts.

b. Design principle 11: [product] Design for cycles. Tie savings account use to prestige and special cyclical events. Numerous savings products have been explored that employ a lottery to encourage savings. This introduces an element of fun and chance. Instead of a lottery, imagine a savings product that rewards people who meet ritual, religious or life-course savings goals and enhances a person's prestige in the community in the process. This may be especially relevant in cultural contexts where games of chance are forbidden.

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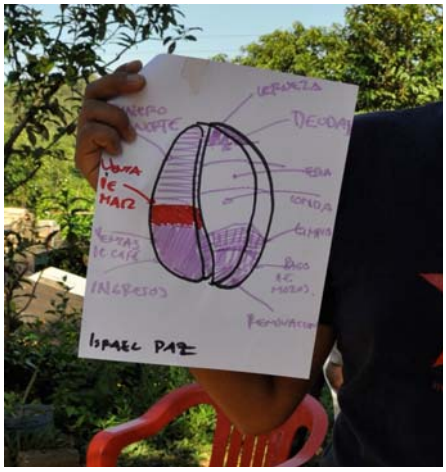

Melissa Cliver's research uses a participatory design framework to help coffee farmers imagine alternative income streams that benefit the community while preserving ritual obligations and special purchases for life course goals.

Design Principle 1:

Earmarked Income Outside of Rank.

- Identify cash stream personalities: Government payments are for school; Remittance money is for houses; Loans are for equipment; Flower money is for clothes.
- Create a new cash stream: Income "for everyone" or income "to be distributed by the patron" in a separate savings product from other cash streams.

Poor people's existing savings behavior involves ***social obligations*** and commitments, not just individual self-discipline or planning for the future. New savings systems should be designed to allow people to meet their social obligations as a means toward enhancing their individual savings behavior. ***Social obligation does not just mean trust or commitment***. It can mean patron/client relationships, quasi-feudal fealty, a "networked self" that is defined not by an individual but by a network of relationships.

It has long been known that social obligations are important. Still, however, existing products for the poor do not adequately take social obligations into account and are modeled on individual savings accounts, or on pooled accounts modeled on ROSCAs that treat groups as aggregations of individuals rather than focusing on social relationships. Social obligations, however, are *not* merely a matter of an *individual's* commitment to others.

In several of the contexts studied by IMTFI researchers, people are operating within systems of ***rank*** that differentiate people from one another. By rank, we refer to a naturalized hierarchy reflected in ritual relationships as well as everyday practice – such as walking single-file in rank order down the road (senior men of high status first, then junior men of high status, then senior men of lower status, then junior men of lower status, then women of high status, etc., as is still done in many parts of southern Mexico).

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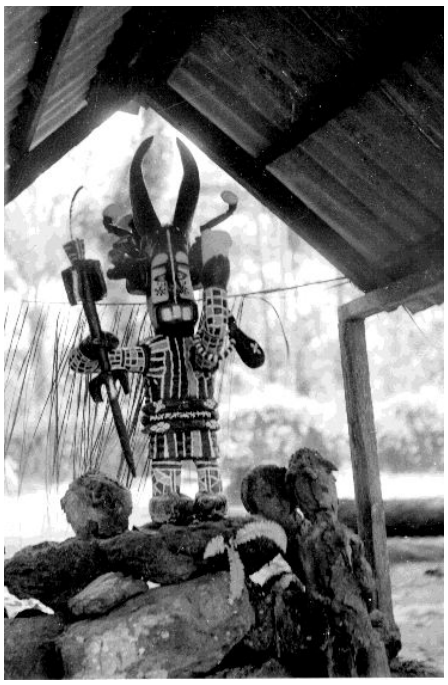
María Eugenia Santana and Magdalena Villareal's research highlighted the importance of patron/client relationships in flows of wealth for ritual events. People earn prestige by providing wealth for festivals and demonstrate their fealty to saints and patrons. Patrons collect wealth in people, not money, to demonstrate their own fealty.

Design Principle 2:
Design for Rank.

- Identify social and ritual obligations. People are not always individuals, but nodes in networks of relationships. Who are the key nodes? How are they ranked?
- How can people demonstrate that they are "good" members of their rank?
- Help people save wealth items necessary to support their rank obligations, while saving state currency for their own goals.

Savings has the potential to level rank distinctions, but this might not be the best starting point for promoting a new product or system. A product that helps people escape hierarchical rank will be seen as promoting selfishness or anti-group sentiment, or even as going against the gods or saints. People often do not want to escape rank or patronage relationships: they provide security, predictability, and order.



Kenneth Omeje is documenting how oracular deities "manage" wealth in Igbo communities by confiscating property of those who displease them and lease it out – renting wheelbarrows, bicycles and tools taken from those believed to have been killed in retribution for their offences to the gods. Shrines and oracles become key sites in the management of savings and credit. Default = death!

Design Principle 3:
Flexibility with Sanctions.

- Start with the ritual leader. Can the ritual leader become an agent or intermediary for savings? Can the property confiscated by the gods be leveraged?

- Intertwine conventional savings products with ritual savings and credit systems: if the "banks won't lend for weddings," could the bank work with the ritual sanctions to provide other forms of savings that would help in accruing funds necessary for life course and ritual events?

- Model savings rituals on religious rituals.

Poor people's informal practices of lending and saving, whether in a rotating credit association or in a ritual or religious context (i.e., making a contribution toward a seasonal festival), are often *negotiable and flexible*. There are informal mechanisms for making up for a missed payment or for putting saved funds toward other uses if necessary. The social sanctions that befall a defaulter or non-payer are strong enough to ensure eventual payment, since people will often place their social or ritual obligations above their own personal goals.

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Syed Aiman Raza is documenting the beesi networks of religiously-demarcated embroidery workers in Lucknow who save for religious festivals but often incur debt as a result.

Design Principle 4:

Structured Illiquidity.

- Respect people's preferences for illiquidity. In contexts where state currencies are weak and banking institutions are fragile, illiquid, nonfinancial wealth (land, livestock) can matter much more than money.

- Illiquidity can be tied to individual, group or religious goals: you can deposit, but a portion of your deposits are withheld until you reach that goal.

- Products can be structured in accordance with religious precepts and on ritual calendars.

Existing savings products vary with respect to the relative liquidity of savings. More illiquid products – tied to time or goals – are generally viewed as helping people control their behavior through self-discipline. In contexts where other forms of discipline or belief are operating simultaneously, however, illiquidity might be tied to different temporal cycles or goal structures, such as religious ones. For example: A savings account structured to help people save toward a religious festival or pilgrimage would disburse a percentage of a pre-determined profit or interest payment based on how close the clients comes to the predetermined goal. Clients who reach their full goal receive 100% of the profit or interest payment, and special recognition on a wall or board placed near a religious site (modeled on existing haj savings accounts and Buddhist temple "donation walls" or "money trees" that record people's contributions to the temple and earn them "merit).

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The land and the forest hold the most important value for the Konda Reddis studied by Thanuja Mummidi. The forest is a long-term savings account. State currency is seen as useful only for short-term obligations or for dealings with the state. It is the land that matters and endures.

Design Principle 5:

Change the Iconography, Design with Local Values.

- Change the iconography of savings and/or state currency itself.

In marketing its new currency to the people of Papua New Guinea, the PNG government incorporated images of traditional shell valuables and birds whose feathers are important markers of renown. In contexts where state currency is imagined as being for short-term obligations, while land or natural resources like forests or cattle are imagined as being for long-term savings or insurance, incorporate imagery and emotional associations from the latter in order to market the idea of money itself. The FAO years ago promoted currency designs that promoted awareness of agricultural production. Alternative currencies like Ithaca HOURS similarly evoke value through iconography related to landscape features that are locally valued.

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All over the world, livestock are often held as a standard of value – the measuring rod against which everything else is evaluated, even state-issued currency. Svetlana Tyukhteneva's project in Altai highlights the importance of dealing creatively with contexts where state currencies are *not* the universal standard of value.

Design Principle 6:
Design for Convertibility.

- Create systems that work with, rather than against, different *standards* of value.
- Allow savings accounts in "cattle:" create notional currencies based on herds that can intermingle with state currency in one account.
- Encourage the commensuration of cattle or other wealth items with money through iconography, calculators, or games.
- Support people's use of livestock as a form of savings: often, it makes good sense!

Economists understand money as unifying several disparate functions: means of exchange (to buy and sell), method of payment (to settle debts or pay fees), store of value (to save wealth in a form that will not rot or decay) and standard of value (the measuring stick, the "price" that can be applied to all goods and services). Yet not all peoples accept the bundling-together of these functions in state-issued currency. They may not trust the state; they may not trust the currency; they may not accept the "abstraction" required to see value in paper or coin. What if the store of value function could be fulfilled by other standards of value, like livestock?

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In most cases, they trade with Uganda. Actually at this time, because they are using the Uganda Shilling. Before the CPA was signed, it was easy, but right now you have the burden of selling in Sudanese Pounds. [One must] convert actually the [microloan] money first of all in dollars, then go into Uganda and get in Uganda Shillings and make your purchases. So whether you like it or not, you are going to convert your currency three times and will experience losses. So they will always complain….they want to find options out of this.

– An informant from Crystal Murphy Morgan's project, southern Sudan

Design Principle 7:

Calculate Convertibility.

- Create systems that work with, rather than against, different *scales* of value.
- Create currency exchange calculators with a savings component built-in.
- Convert + "keep the change" in a savings account.

Border zones, conflict zones, remittance corridors, transnational migration circuits: not only do different standards of value co-occur; each is also measured according to a different *scale*.

Poor people use multiple *scales* of value: in one context, they measure value in equal increments, in terms of whatever *standard* they are deploying (one dollar, two dollars; one head of cattle; two heads of cattle). Scales intermingle all the time, especially where multiple currencies are in circulation (dollars and pesos) and the increment between one unit of each currency is different – the difference between one and two dollars is not equivalent to the difference between one and two pesos.

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In many cases studied by IMTFI researchers, poor people measured items of value – including coins – in terms of units of volume. If coins are like grains, measured in bushels or packets, can savings products be designed that measure money not in terms of interval value but in terms of "cups" filled or "bundles" completed?

Design Principle 8:

Design for Volume, Not Increment; Design for "Enough."

- People measure in interval scales (one dollar, two dollars). But they also measure in ordinal or categorical scales ("enough" or "not enough)."
- Use collective measures like "herds" or volumetric measures like "cups," units within which there may be variability in the number of discrete objects. Design savings "bundles" or savings "pots" with a different number of discrete units of money within them.

Scales of value intermingle with each other depending on context and social use. A person might use an interval scale with one kind of person or transaction, and an ordinal or volumetric scale with another.

Designing new systems to account for these scales and their intermingling with one another may help re-frame how "savings" is presented to people: as saving discrete units, or as saving bundles or sachets with a range of units within them.

Imagine: A set of savings products differentiated by rank: special "cups" for people of higher rank. A technology that allows a client to visualize when they have saved "enough" without specifying a cash-equivalent amount.

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IMTFI researchers found people using money in multiples of 2, 5, 8 and other "lucky" numbers in a variety of cultural contexts, from Africa to Asia and Latin America.

Design Principle 9:

Lucky Numbers.

- In contexts where numerological practices are common, use them.
- New incentives or delivery channels for savings could be structured around local numerologies.
- Devise products that exploit these numerologies by helping people save toward a multiple of these special numbers or that spur people to avoid bad numbers.

Twos are important in several of the contexts studied by IMTFI researchers.

6s and 8s are important in areas influenced by Chinese culture while 1s, 4s, 7s and 14s are bad. In areas impacted by Chinese culture, money in auspicious denominations is given at New Years.

In Persian communities 2-dollar bills are given as gifts for New Year.

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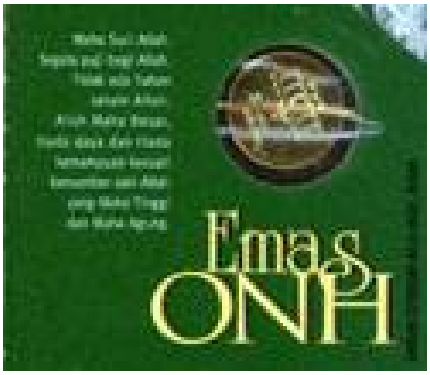

This Indonesian "Koin Emas Onkos Naik Haj" (Gold Coin for Pilgrimage Expenses) helps people save to go on the pilgrimage to Mecca. People buy the coins and save them. They are not easily convertible and can't be mingled with other money in a bank account. They also do not accrue interest, which is forbidden in Islam. Can the effect be replicated in a safer, more secure way in a tiered bank account?

Design Principle 10:
Tranches and Tiers.

- Poor people's existing savings systems are often tied to multiple, intersecting and overlapping *temporal cycles* – seasons, ritual cycles, secular and religious calendars, the life cycle.
- New savings products can be pegged to one or several of these cycles in order to facilitate savings behavior.
- Create a two-tiered account: part of the savings is put toward the coming year's celebration or ritual obligation, but a percentage sequestered for the next year's celebration.

Such a system may aid in financial planning and literacy, as well as provide a separate store of capital to offset future debts.

Saving "toward" a goal, especially the end of a ritual cycle or an important marker in a life cycle, may be more effective than promoting "savings" in general, especially in contexts where people use non-incremental scales of value. That is, if people understand money as volumetric (enough or not enough), they will be unwilling to "save" since if there is "not enough," then there is nothing "left over" to save. But if people are taught to frame savings activity in terms of markers in a temporal cycle – putting away money to help meet a ritual obligation – their volumetric scales of value may help them meet that goal.

Birth and death, marriage and childbirth, rites of passage, voyages, ritual cycles, secular calendars, work days and seasonal harvests, lean days in the megacity for Mani Nandhi's rickshaw pullers (pictured below right): people are caught up in scores of intersecting and overlapping temporal cycles. Money can be sequestered within those cycles, creating savings accounts for special purposes that are removed from the "big bucket" of static funds and set in motion along distinct trajectories.

Design Principle 11:
Design for Cycles.

- Tie savings account use to prestige and special cyclical events.
- Recognize the rationality of these cycles: buying large numbers of flowers to put on graves in southern Mexico (pictured at left) is not just a ritual obligation, but a way of demonstrating one's claim to one's ancestors' land – land that is an important store of value in times of need.

Numerous savings products have been explored that employ a lottery to encourage savings. This introduces an element of fun and chance.

Instead of a lottery, imagine a savings product that rewards people who meet ritual, religious or life-course savings goals and enhances a person's prestige in the community in the process. This may be especially relevant in cultural contexts where games of chance are forbidden.