Retail Electronic Payments Systems for Value Transfers in the Developing World

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Summary

A new "payments space" has emerged in the past five to ten years that promises to bring access to funds transfer, banking and financial services to millions of unbanked people in developing countries and in the diasporas that remit funds to them. This payments space is characterized by the innovative use of new information and communications technologies. This paper summarizes the experience to date of such new electronic payments systems.

The Payments Space

- New electronic payments systems are of two broad types: those that rely on national banking and financial institutions and are extensions of existing retail electronic payment systems; and those that remain outside of national banking and financial institutions and involve new technologies for retail payments.

- Payment and communication technologies from the developed world are merging with the informally developed systems of migrants and the poor around the world.

- A hurdle facing the development of new payments systems and their uptake is conflict between regulatory systems designed for banking, on the one hand, and telecommunications, on the other.

- Cross-boundary funds transfers that occur outside of national banking institutions pose special regulatory challenges for states and formal banking institutions that must be addressed if new electronic payments systems are to be successful over the long term. Existing regulatory infrastructure is as important as technological infrastructure in setting up new electronic payments systems.

It Matters Who "Owns" the Payment Space

- The interest in these existing informally-developed systems represents an effort to create a new space – the "payments space" – for investment and appropriation by harnessing these informal systems as social infrastructures.

- The payments space is not just a conceptual heuristic of people in industry, the public sector, non-governmental organizations and civil society. It is also a "territory," the boundaries of which and ownership of which are being contested by the various actors in it. These contests over ownership can affect uptake, given people's prior understandings of and experiences with the different actors involved. Whether that new space is conceptualized as a commodity or as a public good, as private property or a commons, will have an impact on the adoption of new electronic payments systems and the benefits that adoption is imagined to bring.

- Similarly, whether the players harnessing the payments space are public or private entities will impact adoption and benefit of new electronic payments systems. Some observers might argue that the creation of new electronic payments systems is an effort to wrest payments away from state banking authorities and institutions. Potential clients, for their part, vote with their feet: where state banks are perceived as more trustworthy or stable than private service providers, non-bank payments systems will founder.

- Some electronic payments systems seek to gain market share from existing funds transfer businesses like Western Union, and to create fee-based revenue streams for service providers, rather than reach (or create) a new client base.

What Electronic Payments Systems Replace

- Informal funds transfer systems, and savings institutions ranging from the less institutionalized or routinized (like rotating savings and credit associations) to the more institutionalized (like postal banking) currently occupy the space that new electronic payments systems are seeking to capture. Some of these existing systems take place outside national banking systems; others link up to such banking systems.

- New payments systems may also seek to replace currency itself – coin and paper notes – if they can be shown to be more useful than money (safer, more secure, more convenient). Assessing this will require careful studies of existing everyday monetary practices.

- There is a low comfort level with banks as places to go, but a high level of trust in banks as institutions. People can trust a bank but not feel welcome or comfortable there. Branchless banks capitalize on this.

- Some of the features of traditional, informal funds transfer systems that appear inefficient, exploitative, or unnecessarily risky may in fact be valued by their users, especially when faced with the uncertainties of the alternatives.

Infrastructure and Uptake

- The technological platform on which electronic payment systems are built often structures access, demand, and use, and not always in an obvious or trivial manner. Electronic payments systems that build on top of existing electronic systems such as transit passes or prepaid telephone cards are more successful than those that do not tap into existing systems.

- Chip-based systems may be good for situations where there is no telecommunications infrastructure. Otherwise, they are generally viewed as more abstract, difficult to understand, or complicated to use.

- Adding other, familiar services to a new electronic payment system that is not built on an existing system may help with uptake and adoption.

- Adding functionality to a familiar system, or mimicking a familiar system, may help with uptake and adoption.

- Pre-paid services are preferred over other kinds of services, although there is an educational hurdle to be overcome in order to encourage adoption.

- Adoption tends to be enhanced when an electronic payments system is paired with the disbursement of employee wages or state welfare payments.

The Market and the Client Perspective

- Migrants and the unbanked do not explicitly demand these new electronic payments systems, but can be educated to adopt them when presented with their benefits.

- Existing clients of many new electronic payments systems, especially senders of funds, are stereotypical “early adopters” – younger, more educated, wealthier – but there are promising experiments going on to enhance participation among other demographics. Some of these rely on harnessing existing, trusted institutions like NGOs and credit unions.

The Reality Test

- Some new electronic payments systems may be the vanity projects of a small set of elites seeking to burnish their reputation or benefit from development or venture capital funds.

- Systems that exist on paper or on websites but are not used outside of a small set of early adopters may not be successful in the long run.

- If the regulatory environment is not favorable to a new payments system, it will fail unless clear steps are taken both to change policies and to disseminate the policy change widely so that early adopters who become discouraged do not abandon the product.

Opportunities

- There are different sets of opportunities depending on the goal, but they are interrelated. If electronic payments systems are to replace currency objects like coin and notes, then there is a need for research on people's existing practices around currency. How do they stash it, retrieve it, share it, spend it, save it?

- If electronic payments systems are to replace informal funds transfers, then there are opportunities to partner with existing organizations and institutions attempting to formalize the informal practices of the poor and to channel those practices toward savings and investment.

- If electronic payments systems are to replace banks, which are inaccessible to the poor, then there are opportunities to partner with other organizations seeking to increase access to financial services for the poor.

- The regulatory challenge is huge, but not insurmountable. Getting a seat at the table in regulatory discussions around cross-boundary financial flows; deposit-taking; and telecommunications will be important to ensure that the interests of the world's poorest are represented when regulators and industry representatives seek to address the new challenges posed by the intersection of financial services and telecommunications.

An Introduction to the Payments Space

This paper summarizes the experience to date of electronically-mediated payment systems used to transfer and save money (and other kinds of value)[1] in developing countries, as well as in the diasporas that remit large sums to those developing countries. This paper focuses on new systems for transferring money that rely on information and communications technologies (ICT), some tried and true, others quite novel. It asks (1) what such systems seek to replace or supplant; (2) how the technological and regulatory

[1] An implicit assumption in this paper is that more than just money is being transferred in these transactions. For the purposes of this paper, however, I focus mainly on funds transfers.

platform on which the systems are built may structure access, demand, and actual use; and (3) whether the adoption of an electronic payments system has a spillover into the uptake of other financial services or other new technologies. The paper also provides an overview of the sources available for such an inquiry. Good data is often lacking, but the social science and policy literatures provide ample cases of informal money transfer systems that can ground new research questions and policy proposals. The focus in this paper will be payment systems in Africa, Latin America, Southeast Asia and the Indian Subcontinent, although I will cite research on electronic payments systems in Europe, Australia, North America and East Asia for comparative purposes.

The electronic payment systems discussed here could be called retail payment systems, that is, payment systems for use between customers and businesses for the purchase or goods or the payment of bills or fees. Retail payments between customers and businesses are distinguished from wholesale payments between banks by their much higher transaction volume and much lower average value (see FFIEC 2004). Unlike many standard retail payments systems, however, the new systems discussed here often lie outside of the purview of national, formal systems. What they represent, instead, is a meeting up of the national, formal system with the funds transfer practices of migrants and the unbanked. Part of what is happening, in other words is that the technologies of payment from the developed world are merging with the informally developed systems of migrants and the poor around the world.

In addition, the development of electronic payments systems is also being spurred by a convergence between telecommunications and financial services. In the United States and other wealthy countries this convergence is less apparent than in the developing world: innovation has happened on the periphery in response to perceived and actual need. It has also been facilitated by the lack of telecommunications and financial services infrastructure: without landlines, telecommunications companies jump directly to wireless services. Boyd and Jacob (2007) note that there is also more market penetration of mobile financial services in the Third World than in the US due to the high degree of fragmentation in mobile service provision in the latter. Not all the action is in the developing world, however: several electronic payments systems in the United States have been targeted to poorer people, for example, electronic benefits transfer (EBT) cards.

The new retail payments systems are based on four main technologies: magnetic stripe plastic cards; chips of various kinds; mobile phones; mobile networks; and combinations of these. They include pre-paid cards; new kinds and new uses of debit and credit cards; smart cards and plastic fobs employing some form of stored value (chip-based, including contactless radio frequency ID (RFID) and near-field communications (NFC) chips); mobile phones employing RFID or NFC systems; mobile phones using Subscriber Identity Module (SIM) chips to store and transmit data; mobile phones using wireless application protocol (WAP) or other wireless protocols and/or standard text messaging (short-message service, SMS); point-of-sale (POS) terminals, either wireless or connected to a land line, used for third-party payments; and electronic funds transfers (EFTs) and forms of branchless banking that rely on any one or a combination of these

technologies. Some of these new electronic retail payments systems are familiar to people living in the major industrialized economies—such as FeliCa-chip stored value cards for transit fare and small purchases in Japan (March, Mainwaring and Maurer 2008). Others, however, are relatively unfamiliar even to technologically-sophisticated Americans living in tech-friendly urban centers—such as mobile transactions or m-payments using mobile phones. In other words, innovation is not necessarily happening where we are accustomed to seeing it, but rather in places where there are no classic nation-state developed systems of banking and funds transfer, or where existing nation-state systems do not reach large segments of the population.

M-payments systems like M-PESA in Kenya and G-cash in the Philippines rely on mobile phones with SIM chips and SMS capability. A user can charge up value onto their mobile phone and then text message funds to the user of another mobile phone. This beneficiary can redeem the funds by visiting an agent. Senders must use agents to charge up their mobile phone (although regulatory changes in the Philippines now permit users to load up their mobiles using their Bank of the Philippine Islands (BPI) account). Most are used for payments and remittances. There are anecdotal reports that M-PESA is increasingly used as a means of protecting one's own money from thieves while traveling by text-messaging a funds transfer to oneself or to an agent at one's destination. M-PESA is also being used for funeral payments. As for G-cash, despite being touted as a success in bringing financial services to remote islands, many do not trust the service and there has been quite a bit of blogging about the limitations of the service and its fee structure. Informants in the Los Angeles area consistently prefer bank-to-bank transfers over G-cash because they consider the former both safer and easier.

Branchless banking systems like Lemon Bank, Caixa Economica, and services offered by Banco do Brasil and Bradesco (Brazil), Prodem (Bolivia), and Banco Azteca (Mexico) rely on third-party agents like merchants and employers to use POS terminals for bill payment and banking services. These are generally fee-based checking and savings services. Some also allow the purchase of mobile phone time, and with bank partners allow the submission of paperwork for loans and credit (though the decision to extend credit remains with the bank partner, not the agent). Branchless banking has been a success in Brazil and experiments are being developed elsewhere in Latin America. National regulations prohibiting non-bank institutions to handle financial transactions (in India, for example), limit the potential for replication elsewhere, though these regulations are rapidly changing. Some of the other limitations of branchless banking will be discussed further below.

Card-based payments systems include remittance cards for sending money to relatives abroad. These include card-to-cash, card-to-card, card-to-institution and recipient-only card systems. All are pre-paid. Developers are beginning to expand into card-to-institution arrangements to promote other forms of financial activity besides payments and transfers (see Orozco et al. 2007 for a comprehensive study of card-based remittance systems). Other card-based payments systems involve stored-value smartcards, mainly chip-based. Most of these began as transit pass cards, but are being adopted for other uses.

There has been an explosion of interest in academic, policy, ICT, and development communities in these electronic payment systems in the past five to ten years. That heightened interest is due to three main factors:

> 1) the increasing interest among financial and communications service providers in enhancing fee-based revenue;
>
> 2) the awareness that information and communications technology can reach deeper into the global South than many other institutions and industries because of the relatively low infrastructural requirements and light footprint compared to laying cable or building bank branches; and
>
> 3) the increased attention given to microfinance, particularly since the awarding of 2006 Nobel Peace Prize to Grameen Bank founder, Mohammed Yunus, which has in turn drawn increased attention to problems of access to financial services in general.

Despite the heightened interest, however, there is not much good research on the implementation and use of electronic payments systems anywhere, whether in the Third World or the major industrial powers. The literatures consulted to prepare this paper include academic studies (particularly on human-computer interaction and financial exclusion—two fields generally considered to be far apart from one another), industry projections and analyses, development and policy reports, regulatory and law enforcement papers, and mass media accounts.

One of the most interesting aspects of the phenomenon of these new payment systems is their conceptualization as a "payments space" – a term used by those involved in it (including participants in this convening). Development experts, industry analysts, entrepreneurs, potential or actual clients or others are beginning to construct the repeated interactions, financial transfers, and movements of people across borders as a regularized and "real" geography. Once they do so, that payments space can then function as "infrastructure" for various projects – here, for providing access to banking and financial services to the world's poor. And that imagined infrastructure can be commoditized, or made into a free good; it can be privatized, or made into a global commons. It is also important to bear in mind that there are two distinct modes of harnessing that infrastructure: one would work through national banks and state authority; the other would circumvent the national banking systems of states, much as many informal funds transfer systems currently do. Some of the experiments with electronic payment systems in the Third World combine these modes, but many conform to one or the other. This has consequences for adoption and for spillover effects.

Given the variety of the available sources and the nature of the phenomenon of the emerging "payments space" itself, for the purposes of this paper I identify four overlapping story-lines or narratives about electronic payments systems. These narratives

frame the discussions of those seeking to understand, shape, make use of, and profit from the payments space.

I do not intend these narratives to sound cynical and I do not intend to paint those involved in the payments space as disingenuous or as having hidden intentions. Rather, if we are to come to grips with the emergence of retail electronic payments systems in Third World countries and their diasporas, we must be attentive to these existing story-lines so that the various claims proffered by all the parties involved can be evaluated, and so that we can reflect on our own participation in some of them. This evaluation is particularly important when trying to assess the client's point of view and the client's insertion into this payments space. Indeed, the very conceptualization of potential users as "clients" automatically inserts them into a business model. It is telling that all the existing story-lines imagine potential users as clients.

I call these narratives the Empowerment Story, the Market Share Story, the Commoditized Payment Space Story, and the Tulip Story. My account of these stories is meant to be heuristic rather than descriptive of a "real" story being told by any particular individual, although many people concerned with the payments space—researchers, industry practitioners, and clients alike—will sometimes narrate their experience with electronic payments in these terms. These stories provide a touchstone for the discussion that follows, and a resource for clarifying users' and potential users' perspectives in the emerging electronic payments space.

The Empowerment Story is best encapsulated in Vodafone's policy paper, *The Transformational Potential of M-Transactions* (Vodafone 2007). The key fact orienting the narrative presented in this report is the exponential growth in mobile communications infrastructure in the developing world. The Vodafone report contrasts the extensive mobile telephone penetration in the developing world with the extremely low level of access to banking and financial institutions. If only mobile phones could be harnessed to supply financial services, then the world's poor and un- or under-banked would have needed access to money and capital. They would be able to connect to microfinance institutions even if they were located in remote rural areas, and they would be able to benefit from remittance flows from friends and relatives living abroad without having to depend on middlemen or wire services that only reach the major cities and charge high fees. At the center of the Empowerment Story is the relative success of Safaricom and Vodafone's M-PESA service in Kenya. M-PESA is a mobile-phone SMS and SIM-chip based application that targets Kenyans without access to banking services; it was piloted in 2005 as a public/private initiative (with funding from the UK's Department for International Development) and was launched commercially in 2007 (Vaughan 2007). M-PESA does not require users to have bank accounts; they can purchase digital funds using cash at an authorized agent and then send it to any other mobile phone user, who can redeem the cash at another agent. M-PESA's often-reproduced billboard (Figure 1) nicely captures the story-line here: m-payments are "transformational" in that they allow greater access to money and finance to the rural and poor without access to banks, as well as to elderly parents and kin living in the countryside; in that they foster greater social connection among kin and countrymen widely dispersed in geographic space; and in that

they do so safely, securely, and above all easily. After all, nothing could be simpler than using your mobile phone. The ubiquity of the mobile phone in the stereotypical Third World landscape is harnessed to unleash the latent potential of existing social and technological networks for the growth of capital, social and otherwise. This is obviously a very seductive, utopian narrative. The Empowerment Story is about changing the world and empowering the poor through mobile technologies. It is also good copy for businesses seeking to enhance their reputation for corporate social responsibility.

The Market Share Story is also seductive and utopian, but it is organized differently and told through a different cast of characters. Here, the story is about international migration and the enormous flows of money going from north to south in the form of remittances, which are on a scale on par with flows of foreign direct investment. This story centers on Western Union and other wire services like MoneyGram and Orlandi Valuta (which was purchased by Western Union in 1999 and went through a major expansion throughout Latin America in 2007). Such wire services provide money transfer services to increasing numbers of immigrants seeking to remit money to relatives and friends. With 320,000 locations worldwide and a network of agents who are often established community members or local business owners, Western Union works hard to promote itself as a trusted brand that enables migrants abroad not just to send money, but also to express love:

> Having once stressed efficiency ("the fastest way to send money"), Western Union now emphasizes the devotion the money represents. One poster pairs a Filipino nurse in London with her daughter back home in cap and gown, making Western Union an implicit partner in the family's achievements. "Sending so much more than money" is a common tag line (Deparle 2007).

The branding backfires, however, when the fees charged for the services come under scrutiny. Western Union fees range from 4-22% of the transaction, depending on the source and destination countries. Here, the narrative shifts from viewing Western Union as a savior to migrants—even a defender of immigrants' rights—to viewing the company as profiting off the backs of the poor and crassly promoting itself at cultural festivals and employment agencies (Figure 2). It is in this context that new electronic payments systems enter the story as an alternative that will allow migrants and others to send money without having to pay large fees. The narrative is thus utopian in terms of social justice and financial access. It is also utopian according to a market logic: creating alternatives to Western Union and MoneyGram demonstrates the market working at its best, with new entrepreneurs providing a competitive service to a known customer base. At its core, the Market Share Story is thus about using electronic payments systems to shave market share from existing corporate money transfer agents.

The Commoditized Payment Space Story is about the increasing importance of fee-based income for financial, network and communications service companies. Banks have long been interested in charging for the added value of different services. Citibank's John Reed has touted fee income over other more traditional forms of bank income since at least the 1980s (Budnitz 1997). This management model differs from the traditional

industrial emphasis on producing things; here, corporations charge for intangibles and services deemed to add value to the experience of the transaction (Vandermerwe 1997). The Federal Reserve Bank of Philadelphia's Payment Cards Center has discussed the possibility for electronically-mediated micropayments (of $5 or less) as a new revenue stream for service providers, and MasterCard and Visa have both explored fee income from small (usually <$25) transactions (McGrath 2006). For financial service companies in particular, a large number of small transactions can generate a significant fee-based revenue stream that is not subject to the same risk profile as activities like lending or investing. In this story, charging lots of small fees is a hedge against the risk of a major market meltdown in other sectors. It also presents opportunities for profiting from the "bottom of the pyramid," the world's billions of poor people whose numerous small transactions can add up to a relatively constant source of income and flow of wealth from south to north, less affected by the turbulence of the financial markets than the world's wealthy. The promise of remittances for development hinges not just on the money remitted but the transfer fees that accrue to service providers. As Datta et al. (2007) have argued, development policies focused on remittances also depend on people remaining categorized as "migrants" rather than "citizens" and on states shirking their responsibility to provide for the social welfare needs of their workers. Central banks are concerned about the possibility that the provision of private electronic payments systems will impact their monetary policy and seignorage revenues—the revenue that central banks earn from the issuing of currency—to the extent that the Bank for International Settlements has issued a series of reports on the matter (BIS 2004). While this is perhaps a more cynical story than either the Empowerment Story or the Market Share Story, it nonetheless captures some of the motivation behind and the excitement around electronic payments systems for the developing world. As *Information Age* reported, "the development of mobile banking is an attempt by the banking community to squeeze profits out of the increasingly commoditized payments space, which has come under severe commercial pressure" from efforts to simplify, speed up and enhance retail payments in the European Union and elsewhere since 2005 (*Information Age* 2007).

Finally, the **Tulip Story** takes its name from an offhand comment by a professional during an conversation I had while preparing this paper. This industry specialist worried that the excitement around M-payments for microfinance might be a "Dutch tulip or dot com" affair. This statement references the "tulip mania" of 1636–37, in which Dutch traders' speculative frenzy around tulip bulbs—even ones not yet planted, in so-called empty "windgardens"—raised the price of bulbs to impossible heights. It also references the "dot com" bubble of the 1990s that brought speculators to invest in all things having to do with the Internet. Both manias ended spectacularly badly.

Each of these stories—the Empowerment Story, the Market Share Story, the Commoditized Payments Space Story, and the Tulip Story—captures important elements in the development, uptake and transformation of electronic payments systems in the developing world and its diasporas. Each relies on a different set of assumptions and a different case of characters, yet they are not mutually exclusive or antagonistic.

Consider, for example, the place of the presumed client in each of these stories. Who and where is the client in the Empowerment Story? She is an unbanked rural inhabitant in a developing country who has access to a mobile phone or access to some other electronic communications network, but no access to retail financial services. She has relatives in the city or abroad who earn money and send it to her, or she has goods to trade but no means of banking her profits and no security for her hidden stash of cash. She may depend on informal middlemen to transfer funds, who can be unreliable, charge unreasonable fees, and may be connected to shady characters. She has skills and perhaps even land, but no way to leverage her existing capital to raise herself out of poverty. Electronic payments systems here represent an onramp to economic empowerment.

In the Market Share story, the presumed client is a migrant to an industrialized economy or a Third World city who wants to send money to his kin or friends at "home." Regardless of whether he imagines his current situation as permanent or temporary, he seeks a safe and secure way to transmit money and at the same time express his devotion to family, friends, and possibly hometown or country. Yet a significant share of his remittances are gobbled up by the high fees levied by money transfer agencies. Additionally, the beneficiaries of his remittances must travel long distances to find an agent where they can receive the funds he has sent to them. Electronic payments systems here represent an escape from predatory middlemen or corporations that seek to profit from migrants' vulnerability, and easier access to funds for the beneficiaries of migrant remittances.

In the Commoditized Payment Space Story, the client is virtually absent: the client's characteristics do not matter so much as their ability to pay microfees, many times over, in a constant trickle of repeated, small transactions that ultimately generate profitable returns for companies tapping into the payment space. If anything, this client is simply a person anywhere in the world who uses small amounts of money on a daily basis to get any number of things done—to purchase small convenience items like bottled drinks, to pay small bills, to ride transit, or to purchase tickets for entertainment. Electronic payments systems here simply take the place of cash for micropayments.

Finally, on a cautionary note: is there a client in the Tulip Story? That is, do migrants or the unbanked poor who rely on their own social infrastructure to transfer funds to one another actually want the services being developed? Or are the presumed clients, like the windgardens of the 17th century Dutch, merely figments of speculators' imaginations? If the latter, what would it take to turn people into clients, and what would be the implications of this transformation? In using the term speculators, I refer not only to financial speculators or venture capitalists, but also those who pin development hopes on some of these new electronic payments systems. Whether or not there are "clients" out there for these systems, and whether it is best to think of them as clients at all, of course, is an important empirical, economic and political question. It can be difficult to get through the hype to assess the promise of these systems for development goals or for profit.

As we will see in the discussion that follows, these four narrative themes are brought into play in discussions of what electronic payment systems are meant to replace, how they are taken up—or not—by their intended client base, and what, if any, spillover effects they have on the adoption of other financial and technological services. The remaining sections of this paper take up each of these issues in turn.

What New Electronic Payments Systems Are Meant to Replace

It is sometimes assumed that electronic payments systems are meant to replace existing funds transfer systems that are deemed risky because of their "informality." Creating an electronic payments system will free people from moneylenders or other shady characters (a version of the Empowerment Story). In other contexts, it is quite clear that the designers of electronic payments systems are simply seeking a piece of the money transfer business (a version of the Market Share Story): what they seek to replace is not a traditional or informal funds transfer system but rather Western Union or MoneyGram. Regardless, in order to understand electronic payments systems, we need an account of the monetary and financial ecology into which such systems are being introduced. Mindful of the narratives discussed above, then, this section attempts to provide a sketch of that ecology.[2]

Passas (2003) coined the phrase "informal value transfer system" (IVTS) in his research on the policy and especially law enforcement issues surrounding such systems since the 1990s, an effort that gained intensified attention in the wake of the attacks of September 11, 2001. I find this a useful concept because it emphasizes the unregularized or informal quality of these systems as well as the fact that they can involve multiple forms of value besides money. Some IVTS are more oriented toward funds transfer; others, like rotating savings and credit associations (ROSCAs), Latin American *tandas*, and Indoneian *arisan*, serve a savings function. Many involve the extension of social relationships, the creation of community, and the transmission of cultural or religious values in addition to monetary value.

Passas's work has the virtue of being based on a comprehensive review of existing sources as well as first-hand data collection on a range of geographically diverse systems. He defines an IVTS as "any system or network of people facilitating, on a full-time or part-time basis, the transfer of value domestically or internationally outside the conventional, regulated financial institutional systems" (Passas 2003:11). This definition encompasses funds transfer networks like the Pakistani hundi and Indian hawala as well as "flying money" or fei ch'ien in China, phei kwan in Thailand, and casas de cambios in Latin America (see also Maimbo 2004; de Goede 2003). Such funds transfer networks essentially involve a sender and a beneficiary linked to one another through a series of mediators. In the simplest scenario, a Sender provides cash to a Mediator in one location who contacts a counterpart Mediator in a location geographically proximate to the

[2] In using the term ecology, I do not mean to imply that these systems are a natural emergent phenomenon of social groups; indeed, it takes an awful lot of conscious effort to create these systems. Rather, I seek to capture that they exist within an interconnected web of mutually determining and reinforcing systems.

Beneficiary. The second Mediator is assumed to have regular access to a pool of funds that can be disbursed to the Beneficiary upon the presentation of some form of identification. The Mediators settle their accounts with one another on a periodic basis, and maintain contact with one another via telephone, FAX, email, or post. Passas's definition of IVTS also encompasses other methods of transferring value that intentionally obfuscate their origin, such as invoice manipulation; I will not discuss these here, but they do have implications for money laundering detection and interdiction. While broad, his definition has the virtue of encompassing systems that involve the transfer of funds from a sender to a beneficiary via a mediator outside the purview of regulatory agencies, financial institutions or states.

Passas questions whether it is appropriate to call these systems forms of banking and finance. They are surely not forms of banking and finance recognized by state. They are not national economy banking; and they are not forms of "capital" because they are not self-expanding value (although some seek to harness them toward this end). The starting point, in other words, is not the kind of banking and finance imagined when we talk of microfinance or expanding access to banking, when that access is imagined to create expanding value and increased regularization in terms existing national banks. Rather, these systems have to do with money, and the movement of money. While these transfer systems are not "banks," they are institutions, regularized over time, and also infrastructures. So they are not "merely" the transfer of funds. They are not a phenomenon of the regulated national economy – though many states are seeking to bring them into it – nor are they strictly individual phenomena, but more a distributed process.

It is this matter of being outside the regulatory apparatus of states and institutionalized market actors that marks IVTS as "informal," and often as "traditional" or "cultural." As national banks seek to harness this source of funds as part of development strategy, the distinction between "formal" and "informal" becomes more difficult to sustain. The distinction between formal and informal is useful to the extent that these traditional IVTS stand outside the national banking system. Different technologies used for ITVS can be ranked according to their level of regularization or standardization:

Less regularized	Using couriers (including self as courier)
	Mailing cash (using formal postal services)
	Using "informal" mediators (e.g., hawala)
	Using corporate mediators (e.g., Western Union)
More regularized	Bank account-to-bank account transfers

The difficulty, of course, is that people use combinations of these mechanisms for transferring funds or making payments. A hometown association for Salvadoran migrants in Los Angeles might pool resources in a *tanda* and then remit using a combination of informal couriers (money in an envelope), more formalized courier services, or a money transfer agent like Orlandi Valuta. South Asians in Dubai may carry value on their person in the form of gold jewelry and then transfer funds to kin in the countryside through a

hawaladar, who may rely on a corporate agent like Western Union or a bank together with an Excel spreadsheet to help manage his transactions, settle his accounts with other *hawaladars*, and keep track of the relationships in his network. Julia Elyachar (2006) and other scholars have discussed the manner in which such non-regularized practices gradually become formalized and standardized as they are incorporated into the national economic planning of state central bankers and other officials.

Many seeking to intervene in the payments space assume that any technological innovation applied to value transfer tends to formalize it, in the sense of providing the opportunity for a record of a transaction that can be accessed by "formal" institutions or agencies. However, four caveats are in order. First, that opportunity may not automatically be seized upon. Even though a record may be produced during an electronically mediated value transfer, it might not be easily accessible to others, and the data it contains may be murky. Second, non-electronic payments systems often *do* rely on paper records-keeping; it is a stereotype of those involved in "formal" institutions that "informal" ones lack ledgers or other kinds of accounting (de Goede 2003). Passas (2003) notes that *hawala* and *hundi* often rely on extensive documentation, as well as paper receipts, letters of credit, and bills of exchange. "Informal" systems also often rely on electronic communication technologies like telephones and FAX machines, and increasingly email as well. They may very well *depend* upon the "formal" financial institutions they supposedly circumvent: mediators in such systems generally have bank accounts and have to rely on wire transfers to settle their accounts with one another. Thus, the boundary between the formal and the informal is permeable both in terms of definitions and practices. People may use "formal" channels like Western Union to transfer funds obtained through "informal" networks, such as resource pooling derived from ROSCAs; and those involved in facilitating "informal" networks for funds transfer often rely on banks and other established institutions to help them carry out their work. A third caveat is that it is generally assumed that the "informal" tends to rely on trust and obligation while the "formal" does not. However, a vast literature in the social study of financial markets has amply demonstrated the role of social networks, "weak ties," and trust in the mainstream markets (see Thrift 1994, de Goede 2000). Finally, many formal systems are used in very "informal" ways: a common example is the sharing of credit cards or bank account information, sometimes together with forged documents.

So far, I have discussed the "funds transfer" function of IVTS. Electronic payments systems also have the potential to replace the "savings" functions of these existing systems. Many innovations in "branchless banking" specifically aim to supplement or replace postal banking or postgiros, common in much of the world and originating in the United Kingdom. The British Parliament in the 19th century permitted the postal service to accept small savings deposits as a way to promote saving among the poor (and to provide more funds for government activities and finance the public debt; see http://en.wikipedia.org/wiki/Postal_savings_systems). Postgiro or giro refers to a funds transfer based on a pre-payment by the sender and a redemption by the beneficiary. Unlike a check, which requires the beneficiary to submit it to a bank which verifies whether the sender's funds are sufficient to cover it, a giro is a direct payment by the sender to his bank, which then transfers the funds to the beneficiary (directly, in the form

of cash, or into the beneficiary's bank account). A money order is similar to a giro, except that it does not require the mediation of a bank. Money orders and giros have traditionally been more trusted than checks: checks can bounce because of insufficient funds, whereas giros and money orders are always pre-paid.[3]

In addition to providing access by only accepting small deposits, postal savings systems are attractive to poor people who feel uncomfortable in bank branches. Branchless banking services based in supermarkets or drugstores capitalize on this fear of banks. One of Kumar et al.'s informants described this as the "revolving door" phenomenon: security guards in Latin American banks sometimes freeze the bank's glass revolving door when a person they deem suspicious enters the facility; poor clients are trapped in the revolving door until the guard assesses their legitimacy (Kumar et al., 2006:20). Giros and money orders are attractive to poor people because they do not require a bank account, they can only be redeemed by the beneficiary and are therefore safer than cash, and because they are pre-paid and therefore more secure than a check. Some branchless banking schemes and innovations in plastic cards combine the giro with a debit card, giving the user the flexibility of using the card in other locations—at shops, in ATMs, and for telephone or online payments—and reportedly confer a sense of being an economic citizen.

When considering what these new systems replace, it is important not to lose sight of the fact the branchless banking can have effects other than simply replacing postal banks or enhancing the services of merchant POS terminals. Like many of the systems discussed in this paper, one of the advantages of branchless banking from the point of view of some elites and business owners is that it can circumvent high labor costs and strong unions (Kumar et al. 2006:4). Branchless banking essentially offloads bank service provision to merchants and other third-parties, who either profit from more foot-traffic into their stores or from fee-sharing arrangements. They provide much of of the work of bank tellers and other service providers, essentially for free. This should be an important consideration for entrepreneurs and, on the other side, state agents—especially in countries with a unionized civil service and a history of strong state involvement in the banking and financial sector. It is no wonder that the Bank for International Settlements and national central bankers have raised the issue of the potential of various electronic payments systems and e-money schemes for privatizing money itself.

It should also be remembered that states continue to play a crucial role in the regulation of banking and financial services and that new electronic payments systems raise a host of regulatory issues ranging from clearing and settlement to due diligence and know-your-customer concerns. It is surprising that in many Third World contexts, state-run banks and state-guaranteed financial institutions are more trusted than private entities. Where people chose a non-state-guaranteed financial institution, as many wealthy Americans currently do for their retirement income, it is often because of lack of complete knowledge (or a lack of a real choice), and the incredible success of explicit

[3] The literature on the history of forms of banking that rely on these sort of technologies is vast and I do not intend to review it here. I mention postal banking, giros and money orders because, as colonial-era institutions that endured into the postcolonial period, these are the forms that are most directly relevant for the discussion of the development of branchless banking in the Third World.

neoliberal ideological programs that sought to discredit all state institutions, rather than a vote against the state-insured alternative. This is not the place to go into a lengthy consideration of the state in the Third World. But I do want to flag the importance of states for thinking about new electronic payments systems' potential for replacing what came before them. One might imagine states as partners in harnessing IVTS for national economic goals (as discussed in the accompanying paper on remittances), for example, formalizing informality in order to protect its poorer citizens from the vagaries of the market, rather than turning them into little capitalists.

Designers of electronic payments systems are generally not thinking about the state. If they do so at all it is in terms of the state's regulatory authority or central banks' interest in payments. Their intention is to break into the payments income stream. Some designers of electronic payments systems want to get money to people whose access is currently limited by their poverty, remote location, or social or physical distance from other support networks (kin-based or otherwise). The intention is also to profit from facilitating such funds transfers by offering a competitive service to existing systems. A third motivation may be to enhance the security of the transaction: informal systems may lack protections of other, more formal mechanisms for transferring funds. Mail gets lost; couriers can't always be trusted; middle-men in far away cities go missing or their phone numbers change. One might assume, therefore, that emerging electronic payments systems are seeking to replace the kinds of informal value transfer systems discussed above. At the same time, however, in seeking to create a competitive alternative to existing systems, the designers of electronic payments systems clearly have in their sights a few leading players whom they would like to supplant by offering cheaper services and greater penetration, especially in rural areas: Western Union, MoneyGram, postal banks, and national central banks. In other words, it may not be the case that all new electronic payments systems set out to replace IVTS. Some may merely seek to cut into existing services' established business, or generate a new revenue stream based on fees. It important, in other words, to always bear in mind the cautionary tale provided by the Market Share and Commoditized Payments Space stories when reviewing the development of these new electronic payments systems: that these new electronic payments systems are less about serving a need of a set of *potential* clients to assist them gain access to financial services and economic empowerment, and more an effort to capture a slice of an *existing* market segment and to garner increased profits from it in new ways.

How are Electronic Payments Systems Adopted?

This section considers how electronic payments systems are taken up in everyday life. One key finding is that the technological platform on which the systems are built often structures access, demand, and use, and not always in an obvious or trivial manner. The second key finding is that some designers of these systems try to add other services to their product that are already familiar to potential clients. The goal is to enhance the familiarity and comfort with which these new systems can be adopted, as well as to

increase their "stickiness," that is, the degree to which clients stick with the new systems over time. However, as we will see, sometimes that process happens in reverse, with implications for adoption: the apparently peripheral additional services play a key role in shaping the form of the electronic payments. This section is divided into two subsections. The first enumerates the electronic payments systems that currently exist in terms of their technological and regulatory infrastructure, while the second explores social and cultural factors impacting adoption.

Technological/Regulatory Infrastructure

Electronic payments systems in the developing world can be divided most broadly between those that rely on a bank and those that rely on a non-bank entity. Those that rely on banks include:

- *E-money and plastic, including debit and credit cards*: stored-value or pre-paid devices, generally card based, relying on traditional magnetic stripe or chip technologies linked to a remote account. Some of these systems do not directly rely on a bank account but ultimately require one. These include new uses of debit and credit cards, as well as giro cards which permit card-to-card and card-to-account transfers. While I lump together stored value cards with debit and credit cards for the purposes of this paper, the user experience and adoption of these technologies can differ, with stored value cards being more heavily resisted than debit and credit cards, and with debit increasingly being preferred over credit despite the higher cost of such systems. At the same time, stored value cards based on chips may be the only practical alternative when telecommunications infrastructure is absent (Dorsey and Jacob 2005:9).

- *Internet-based payments*: relying on an existing bank account and providing access and funds-transfer capabilities remotely via email or web application (PayPal and Skype with PayPal are examples).

- *Mobile payments*: mobile phone based applications using chip, SMS, or WAP or other software driven mobile interface providing access to an existing bank account or credit card account (e.g., Wizzit and MTN Banking in South Africa; Obopay in the US). Some of these, like Obopay, give the appearance of person-to-person (P2P) transfers—the user experience is an instantaneous transfer of funds from one phone to another—despite the fact that a financial institution serves as intermediary.

- *Correspondent banking or branchless banking*: third-party systems in which a non-bank retail outlet serves as the agent for an existing bank using POS terminals already present in the retail outlet.

Those that do not require any bank involvement include:

- *E-purses*: Stored value and pre-paid cards not linked to an existing bank account. Can be recharged by retail agents of the non-bank entity or by third parties (e.g., G-Cash, MEPS Cash; transit cards; phone cards).

- *Mobile wallets*: Stored value and pre-paid mobile phone applications, based on an embedded SIM chip or other technology (e.g., M-PESA in Kenya), or based on an interface permitting access to a remote account with a non-bank entity.

The Bank for International Settlements (BIS) distinguishes between e-money products which can store and/or transmit value, and Internet and mobile payments which use a computer or mobile phone interface. The former rely on magnetic stripe or chip-based cards; the latter on existing computer and communications networks. In its survey of available systems, the BIS notes a number of e-money systems in the developing world. Many are simply enhanced Visa or MasterCards; those not part of the Visa or MasterCard networks tend to be smaller, less successful affairs aimed at early adopters (young, educated, and relatively wealthy urban dwellers) or products launched simply for the sake of being launched (as a demonstration of a country's or a banking system's modernity or high-tech-friendliness). Table 1 lists the card-based systems identified by the BIS, and Table 2 lists the technological and regulatory capabilities of various countries surveyed by the BIS for internet and mobile payments. These tables are not exhaustive, and are somewhat dated by now (the product of a BIS survey conducted in 2003-04). Some of the most prominent new electronic payment systems in the developing world like G-cash in the Philippines, M-PESA in Kenya, and Wizzit in South Africa do not appear on the tables. But these tables do help explain some limitations of emerging electronic payments systems.

Take Globe G-cash in the Philippines. G-cash clients add value to their account stored in their mobile phone by visiting an agent and paying cash. They can then text-message funds to any other mobile phone, even to the phone of someone lacking a G-cash account. G-cash is touted as bringing access to funds transfer and financial services to people living on remote islands and rural areas. One of the system's early limitations, however, was that users could not transfer value from their bank accounts to their G-cash account. They instead charged up their account at a G-cash agent. For users in remote locations who are more comfortable going to a known merchant to charge up their account, this is not a problem. But for those who are more technologically-savvy and who want a convenient way to transfer funds to others, this is a serious limitation. It is borne of the fact that the Philippines' regulatory environment did not permit Internet and mobile funds transfers within and between bank and non-bank accounts (this was changed by a special exemption by the Philippines Central Bank Monetary Board in 2005). The point, however, is that new electronic payments systems depend on the interoperability of existing systems, and a regulatory environment where the activities they enable are not expressly forbidden (as in India, where the handling of money by non-bank institutions is restricted; see Kumar et al., 2006:4). Even in the United States, many Internet banking and bill-payment capabilities offered by banks and financial institutions have been unavailable as recently as 2004 due to legal requirements of national bank acts. For example, the Check Clearing for the 21st Century Act ("Check

21") of 2004 allowed images of checks to be used in place of paper for clearing and settlement; many U.S. banks have only begun to exploit the potential of Check 21 for online banking. A serious regulatory impediment to the development of card-based systems is that the United States does not permit the issuance of a card for use in a foreign country. As a result, some developers are exploring the possibility of issuing cards in offshore jurisdictions like Panama, with the potential to introduce a whole new layer of due diligence and "know your customer" (KYC) issues, not to mention the possibility of fraud.

The BIS tables also help explain some of the successes. The Thai SCB SmartCard or MEPS Cash and Touch n Go in Malaysia are pre-paid and stored value systems for transit purposes (Touch n Go is a fast-pass system for automobile commuters) and small transactions. Like other such systems in Japan and Korea, these are transit payment systems that have the ability to be expanded into other payments domains—recalling how magnetic stripe cards in the United States and United Kingdom were initially designed for transit and then expanded into other kinds of payments (see Evans and Schmalensee 2005). The pre-payment function reduces the risk for merchants accepting them; the transit function harnesses the ubiquity of mass transit (in areas with access to it) for the ubiquity of small cash transactions—often occurring along transit lines—in order to replace such cash transactions. The irony here is that, from the point of view of increasing access to the world's poor, these systems are relatively limited by their connection to urban mass transit. Disarticulating the pre-paid feature from the transit feature may better serve this population, but at the risk of increasing the sense of unfamiliarity with the system. Harnessing transit cards for e-money works because transit cards are familiar. The question for the rural, unbanked poor is: what already-existing, familiar system might similarly be harnessed, on top of which a new payments system might be built?

Social and Cultural Factors Impacting Adoption

Literature on the adoption of retail electronic payment systems is scant. There have been a few studies of users in East Asia, Australia, the United States, Canada, the United Kingdom, Switzerland, the Netherlands, and the Scandinavian countries (see Cheney 2005, Humphrey, Pulley and Vesala 2007, Jonker 2005, Penz et al. 2003, Bailey and Caidi 2005). Some of those studies may be instructive for the problem of distribution and adoption in developing countries. This is particularly the case for those systems that are seen in the Third World as a symbol of being successful, modern, or technologically-savvy. At the same time, the symbolic value of some of these systems tends to limit them to early adopters: young, well-educated, relatively well-off and perhaps even cosmopolitan individuals who may try to use these new systems at first for fun or convenience, and only later to carry out meaningful funds transfers or to save and invest. This subsection reviews some of the factors impacting adoption that I have gleaned from the literature, as well as from talking to industry experts and users.

Card caché: One industry expert explained that Salvadoran immigrants who were the intended users of a giro card system he helped create were attracted to "the caché of

having a Visa card." A news item about Visa América Latina's Visa Giro card (another giro system first rolled out in the Dominican Republic and now expanded for Latin American immigrants to the United States) imagines the emotions of a young, first-time cardholder:

> You're really excited because you're also getting your first VISA card, and it makes you feel important and grown up. You don't care that it's a debit card; you're just happy that you can buy the stuff you want with it (tickets over the phone, products over the Internet, and dinner for your date). Your parents like it because transferring funds to the card is a convenient way to give you your allowance each week and it's safer than carrying cash—plus you can't exceed the limit or get yourself into debt. (http://www.jcwarner.com/writing/12-02-02-VISA.htm)

Cheney's (2005) report on payroll and remittance cards in the United States notes a similar effect: MasterCard and Visa's branding of payroll cards contributes to their success.

The caché of having a Visa card, of course, extends only to those with some experience of those cards in the first place. For many clients, credit and debit cards are mysterious and magical and often to be feared because of their connotation of indebtedness. People "distrust cards," I was told by industry professionals and potential clients. "Once you educate people, there's a high adoption rate," one professional said, "but getting over the hump is hard." Pre-paid systems require a lot of education and behavior change: people need to learn to charge up their cards and may have to develop new weekly or monthly routines to remember to do so. The Center for Financial Services Innovation (Orozco et al. 2007) reports that the supply of new electronic payments systems is there, but that the demand on the sending side has not caught up with that supply. Migrants, for example, have not been quick to adopt card based systems; beneficiaries may shy away from cards because of the small number of locations at which the cards can be used in the receiving country, especially in rural areas.

Stickiness and building with familiar features: One solution to this distribution and adoption problem is to attach other, more familiar services to cards. For example, pre-paid telephone cards have 74-96% market penetration in Latino immigrant communities in the United States (Orozco et al. 2007:2). Adding phone card capability to a giro card or remittance debit card might increase the adoption and the "stickiness" of the product, or the degree to which the addition of services to the same technology encourages clients to keep using them. As noted above, this reverses the pattern of many existing successful systems in the developed world: credit cards began their existence as transit cards. In addition, new kinds of RFID or NFC transit cards are taking on a new life as pre-paid smart-cards (like Japan's Suica card, used for transit and for small purchases along transit lines). Additionally, users in some East Asian countries have been able to employ such transit cards for unintended uses, like South Korea's RFID *kyotong* transit card (agents will cash out the card for users who want to make small purchases).

In situations where cards are unfamiliar to start with, however, rather than adding features to the card, designers must start with familiar ideas and concepts – like the transfer of airtime credit for mobile phones, for example – and then add financial services functionality. This is how M-PESA developed. This is also the key to systems that are retailer-based: start with the familiar retail exchange relationship in a small shop and add additional services at the point of sale (Jacob 2005). Fine et al. (2006) similarly make an argument for harnessing existing worker centers for day laborers in the United States as a route for the provision of financial services.

Pre-payment is good: Pre-paid systems tend to be more successful than services that depend on existing bank or credit card accounts. Existing regulatory frameworks also favor pre-payment over savings-type systems (see Mortimer-Schutts 2007:1). Pre-payment can also remove such services from the national banking system, however, which has consequences for the service's future articulation to the banking system as well as for the banking system's ability to harness the value of funds mobilized. For example, SMS and SIM-card based mobile payments systems, like M-PESA, have been more successful than those that use WAP or a proprietary application (like Obopay) that tap into an existing account. The latter can also be more difficult to use since they rely on an unfamiliar interface. In addition, pre-paid systems tap into an apparent preference for pre-paid electronic money because such systems structure the experience as drawing from an existing and known store of money.

A survey by the Federal Reserve Bank of Boston (Benton et al. 2007) found greater use of debit cards than expected, especially among younger (<30) people; the Fed report notes that given the often higher fees for using debit over credit cards, this preference for debit cards is "perplexing" (Benton et al. 2007:4) and finds that payment size is a strong determinant of choice of payment method (with cash still "king" for micropayments, and debit cards taking the $20-50 range, p.22). The presence of POS terminals also is a factor in determining payment choice: survey respondents indicated a switch from check to debit card when presented with a POS terminal. One key factor here is that respondents viewed debit cards, but not credit cards, as the functional equivalent of checks and therefore as a means to draw from a known, existing store of money. This sort of user reaction to debit cards, however, does not explain the low adoption everywhere outside of East Asia of stored value cards, which tend to be less trusted than debit cards because of their stand-alone nature. Not backed by a remote account, stored value cards are often seen as more prone to theft and loss. Pre-paid cards may have similar drawbacks but on balance seem more successful than other systems.

The agent question: Another solution has been the use of trusted third-party agents. As noted earlier, the unbanked may have well-founded fears of entering into bank buildings. Interfacing with a trusted merchant may be more comfortable. It might also, of course, tap into difficult client-patron relationships or credit relationships that may have pre-existed the introduction of a branchless banking or funds transfer function to the merchant's store. Furthermore, many of the world's poor and unbanked do not shop at stores; instead, they acquire goods via vast informal markets where transactions take place in cash or informal credit.

Some developers are trying to create systems that rely not on an agent but on a trusted organization such as an NGO, credit unions, or an existing microfinance institution (MFI). The hope is that card-to-institution transfers will ultimately provide greater access for beneficiaries than card-to-card transactions. They can become an "interim step to banking," as an industry professional explained. The trust issue here looms large, however, given bank failures in many developing countries. Still, card-to-institution transactions avoid the problem of having to educate beneficiaries on how to use these systems; by circumventing agents, they also mitigate against actual or potential patronage relationships among beneficiaries and agents. Of course, at the same time, it may very well be a beneficiary's existing client-patron relationship with an agent that makes a system work: even exploitative relationships can be comforting when they provide a social safety net in times of need or even the lack of surprises that comes with known evils as opposed to unpredictable markets.

Distribution through social service provision and place of employment: A fourth solution to the distribution and adoption problem is to issue debit cards and other electronic payment systems at places of employment or for the provision of government welfare payments. One experiment involved the provision of stored value cards to US servicemen and women in Iraq and Kuwait in 2006 as a means of distributing their pay (EagleCash and EZPay). This project mirrors similar payroll card systems being promoted as a way to provide access to the unbanked population of the United States either through stored value cards or pre-paid cards (see Fine et al. 2006 for a discussion of the latter). Some of these systems are also being used to distribute social welfare payments. CGAP's Pernambuco study found that minibranches at places of employment in municipalities in Brazil that did not have bank branches were relatively successful, but that clients still mainly used the service for bill payments and the receipt of welfare benefits rather than other financial activity.

A potential area for experimentation is the distribution of new payments methods through retailers who offer installment financing. Banco Azteca in Mexico is partnering with Grupo Elektra stores to combine financial services with the installment purchasing of furniture. However, this system has been criticized as the "ugly side of microlending" by *BusinessWeek*, due to the endebtedness it creates.[4] Informally, the use of retailers to transmit goods – which can be resold for money or kept by the beneficiary – has been going on for some time with retailers on either side of the US-Mexico border, like FAMSA furniture stores: a remitter pays for a piece of furniture in a California FAMSA store which is delivered to a relative in Mexico from a local FAMSA outlet.

Other social factors impacting adoption in the developed world: As noted earlier, there has been some research conducted on the adoption of electronic payment systems in the developed world which may be applicable to the developing world.

[4] http://www.businessweek.com/magazine/content/07_52/b4064038915009.htm?chan=magazine+channel_in+depth

Many of these studies focus on user perceptions of the privacy or anonymity afforded by cash as compared to stored value cards (Bailey and Caidi 2005). Some studies also show that users are hesitant to adopt electronic payments systems because they see them as too abstract or less able to control than the cash in one's wallet (Penz et al. 2003). Cash is seen as "free" to use; electronic systems are seen as costly (Jonker 2005). In a cross-national survey of the use of different payment technologies, Humphrey, Pulley and Vesala (2007) found that factors such as inflation, interest rates, and crime rates affected users' preferences for cash versus debit or credit cards. Cash holdings per capital fall with increasing inflation and rising interest rates. They rise with lower crime rates and the ready availability of ATMs. This study confirms the often-repeated finding that debit cards rather than credit cards are replacing cash for small value payments. Finally, familiarity with the use of electronic devices in countries like Japan and Switzerland accounts for the greater acceptance of non-cash payment systems.

The lessons of these studies for the developing world are that crime rates and the stability and level of concentration of the banking industry impact people's adoption of non-cash payment systems. Demonstrating the benefits of a non-cash system to users experiencing high crime rates and national financial instability would seem crucial to enhancing the uptake of a new electronic payment system.

Finally, a reality check: Some of the systems in the developing world are "vanity" projects of elites, either those seeking to bolster the image of the nation as on the information superhighway, or those seeking to bolster their own individual reputation locally and internationally. Donor organization funds are attractive in these cases not just for brute material gain, but for the aura of legitimacy that they confer upon people and organizations. So, for example, while Nigeria appears to be a leader in the development of new electronic payments systems—and everyday Nigerians, even those of limited means, are indeed beginning to experiment with new forms of investing like the stock market, due to unprecedented oil revenues—many of these payment systems are merely for show. Most Nigerians continue to purchase items at large, informal markets with cash. Even experience with the stock market does not propel people into new electronic payments systems. The two activities—stock market investing, and paying bills and buying daily necessities—are conceptualized as distinct.[5]

What would be the reality test for existing or experimental payments systems? First, the institutions or organizations facilitating new payments systems should be known entities. The imprimatur of a trusted international entity is also a plus, especially when that trusted entity maintains a tangible presence in the country in which a new payment system is being developed. Second, there should be a clear business model. Third, prior experience in the payments space for reaching the unbanked and poor – for example, experience in the remittance space – lends credence to a project.

Opportunities in the Payments Space

[5] Anecdotal information from two scholars of Nigeria.

As noted at the outset of this review, there are different sets of interrelated opportunities for impacting the payments space. One of the central tasks is to better understand the monetary practices of the world's poor, who live in a cash economy and make almost all their purchases in informal or open air markets. If electronic payments systems are to replace currency objects like coin and notes, then there is a need for research on people's existing practices around currency. There has been very little research on how such people interact with currency objects on an everyday basis: how they stash them, retrieve them, share them, spend them, and save them. If electronic payments systems are meant to replace or supplement cash and coin, then we need a much richer understanding of how people currently make use of such objects—not just on the economic level, but on the material and cultural level.

If electronic payments systems are to replace informal funds transfers, then there are opportunities to partner with existing organizations and institutions attempting to formalize the informal practices of the poor and to channel those practices toward savings and investment. Similarly, if electronic payments systems are to replace banks, which are largely inaccessible to the poor, then there are opportunities to partner with other organizations seeking to increase access to financial services for the poor. In both cases, state central bankers can be enlisted to help formalize informal practices as well as to help shift the regulatory burdens off the providers of new electronic payments systems.

The regulatory challenge cannot be underestimated. The case of the United States is instructive: a 1999 ruling by the Department of Treasury required all money services businesses to comply with the Bank Secrecy Act (Boyd and Jacob 2007:4). This has placed rather heavy due diligence and know-your-customer burdens on money service businesses like check cashing outlets and currency dealers, who now must be in compliance with anti-money laundering regulations. Any new entrant into the remittance sector, for example, would be classified as a money service business and subject to the same regulations. In addition, many countries forbid non-bank entities from accepting deposits. For these reasons, Mortimer-Schutts recommends that regulatory agencies consider creating a new category of financial institution, a "transaction bank," that would focus:

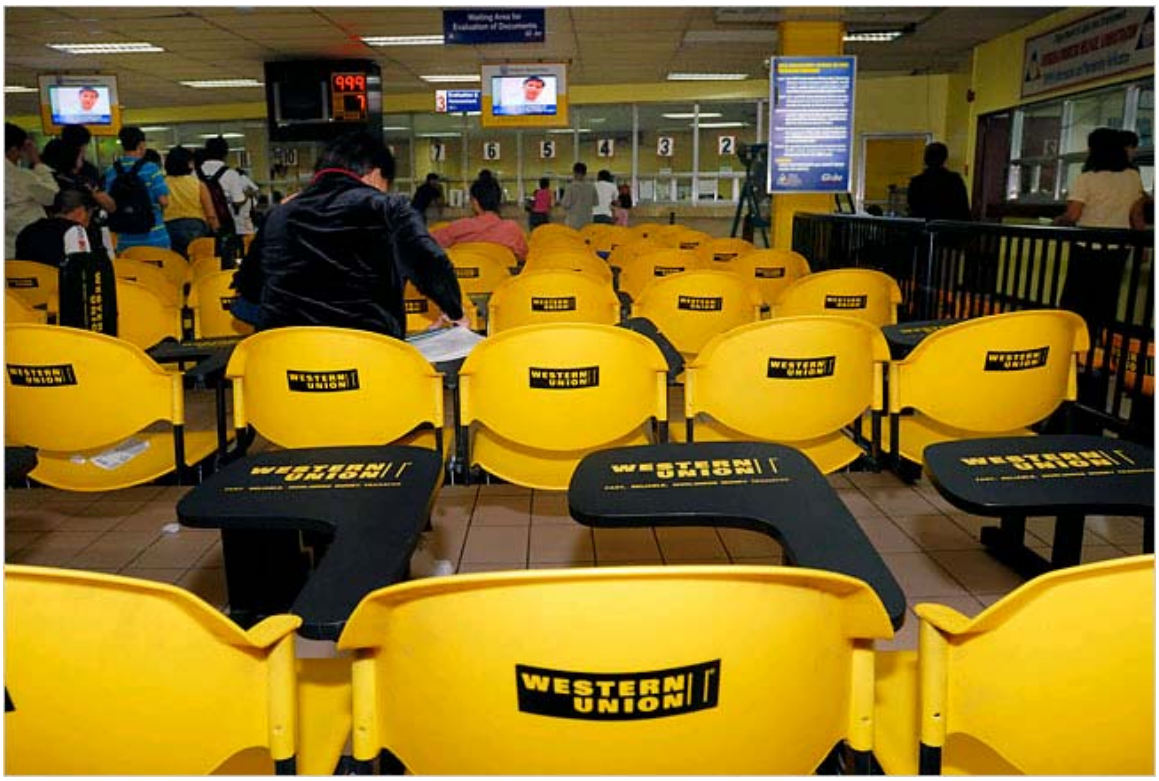
> on providing payment services, receiving and disbursing funds on behalf of its clients but not itself "producing" balance sheet based financial products that put client's deposits at significant risk. Such an institution would hold these funds in low risk assets and act as an introducing agent for the purchase of more specialized credit, savings or investment products (Mortimer-Schutts 2007:10-11).

Getting a seat at the table in regulatory discussions around cross-boundary financial flows; deposit-taking; and telecommunications will be important to ensure that the interests of the world's poorest are represented when regulators and industry representatives seek to address the new challenges posed by the intersection of financial services and telecommunications.

Finally, while there are excellent opportunities to partner with existing organizations to formalize existing informal credit and savings practices, it is important to allow informality to flourish alongside whatever formal systems are developed. One of the chief lessons of the payments space stories is that innovation in electronic payments is an unanticipated outcome of the formal systems of the First World intersecting with the informal systems of the Third World. Interventions in the payments space should be careful not to stifle the potential for creating new payments systems out of practices that escape the gaze of formal institutions.

Figure 1: M-PESA advertisement

Figure 2: Employment office in the Philippines



Source: Deparle 2007.

Table 1: E-Money Systems in the Developing World
Source: BIS 2004 and country-specific central banks

Brazil	VisaCash
Ghana	Sika Card
	Mondex Card
Jamaica	PayPlus Card
	PayCash Link
	Visa Travel Money
Malawi	SmartCash
	Sparrow [?]
Malaysia	MEPS Cash
	Touch n Go
Nigeria	Valuecard
	SmartPay
	Esca
	Paycard
	MasterCard
	Diamond Bank epurse
Philippines	Master Electronic
	Visa Electronic
	Ace Arizona
Thailand	SCB Smartcard
Turkey	Kampus Karti
	ODTU Akilli Kart Sistemi

Table 2: Internet and Mobile Payments Capabilities of Regulatory/Technological Infrastructure (BIS-surveyed developing countries only)

Chile	internet banking
Fiji	E-banking, phone banking to accounts within the same bank; bill payment
India	transfers into savings account; bill payment; e-checks using EFT
Kenya	various credit transfer and direct debit capabilities
Malawi	various credit transfer and direct debit capabilities
Malaysia	various credit transfer and direct debit capabilities
Mauritius	funds transfer from account to account
Mongolia	funds transfer and account balance
Sri Lanka	various credit transfer and direct debit capabilities
Turkey	internet banking

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