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Conference Paper

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22nd European Regional Conference of the International Telecommunications Society (ITS2011), Budapest, 18 - 21 September, 2011: Innovative ICT Applications - Emerging Regulatory, Economic and Policy Issues

Provided in cooperation with:

International Telecommunications Society (ITS)

Suggested citation: Jain, Rekha (2011) : Business model innovations and ICT based national financial inclusion programs: An Indian case study, 22nd European Regional Conference of the International Telecommunications Society (ITS2011), Budapest, 18 - 21 September, 2011: Innovative ICT Applications - Emerging Regulatory, Economic and Policy Issues, http://hdl.handle.net/10419/52193

22nd European Regional ITS Conference Budapest, 18-21 September, 2011

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Business Model Innovations and ICT based National Financial Inclusion Programs: An Indian Case Study

Abstract:

Recognizing that Financial Inclusion (FI) is an important driver of national growth, the Indian government had undertaken several policy initiatives. The extent of FI efforts is huge as less than 40% of people have bank accounts and only 5.2% of India's nearly 600,000 villages have any bank branch, making it expensive to serve rural populations. The small size of individual deposits driven by the low income segments (LIS), and large number of low value transactions makes it even more commercially unviable for banks to support FI.

The increasing penetration of the telecom network in India (about 700 million subscribers with nearly 250 million in rural areas) gives rise to the possibility of using Information and Communication (ICT) infrastructure and applications for strengthening FI.

Owing to the complexities on the ground related to poor infrastructure, lack of data and information, high cost structures of banks, the low propensity to pay for the target customers, innovation in business models are required for FI to take off. Since start-ups are important in developing much needed business model innovations, especially in high-technology and knowledge-intensive sectors and, it is important to explore the role of start-ups in the innovation process.

So far, there has been little empirical and theoretical work in the context of mobile and ICT based service provision for FI by start-ups in an emerging economy.

This paper is based on the field based case studies of ICT pilot projects developed by the author and will be supported by secondary research.

This paper proposes a framework that integrates the ground level experience of ICT based projects with the national technology framework. It also furthers the empirical and theoretical work in this area by developing model of value creation and appropriation and identifies the role of the external environment in value appropriation for the start-ups.

JEL Codes: O3; G28; G18.

Keywords: Mobile Banking, Low Income Segment, National ICT Framework, Financial Inclusion, Business Model Innovation, Value Creation and Appropriation, Start-ups.

Background

Financial Inclusion is an important aspect of economic growth in India. It is estimated that 134 million households out of a total of nearly 192 million are financially excluded, which is nearly 70 per cent of country's population. Financial exclusion in urban India is about 44 per cent and that in rural India is about 76 per cent. A vast majority of transactions are cash based (Figure 1).

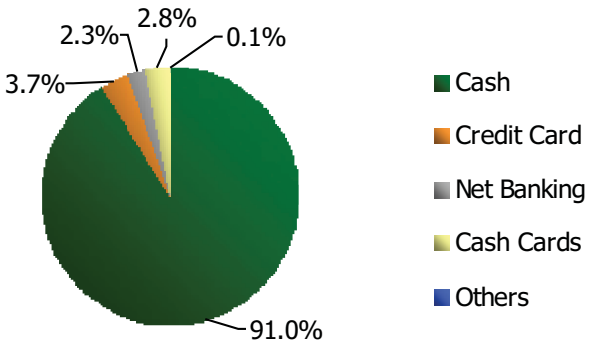

Figure 1: Extent of Adoption of Different Payment Systems

Source: bda: Overview of Mobile Banking and Convergence, FICCI Communications & Digital Economy Committee, September 2008.

Less than 40% of people had bank accounts and only 5.2% of India's nearly 600,000 villages have any bank branch, making it expensive to serve rural populations. The small size of individual deposits and large number of low value transactions makes it even more commercially unviable for banks to support FI.

Given the low levels of participation of a large part of the population in the formal economy and the increasing electronic payment system in the rest of the economy, it is going to lead to ever increasing levels and depth of exclusion. The key issue in providing FI coverage was designing low cost service provision for low income segments (LIS). Recognizing the grave implications of this exclusion, the government came out with a national policy framework for financial inclusion and created a Committee on Financial

Inclusion (CFI) in June 2006 that proposed a strategy and financial inclusion targets for various banks including support for *evolving new* models for effective outreach and leveraging on technology-based solutions (Appendix 1).

The low penetration of bank branches on one hand, and the increasing penetration of the telecom network in India (about 700 million subscribers with nearly 250 million in rural areas), on the other, Information and Communication (ICT) infrastructure and applications can play an important role in strengthening FI. With the proliferation of mobiles, and their increasing adoption even by the relatively poor, handsets have become mechanisms for extending the reach of financial services to play a transformational role by dramatically reducing the cost of service provisioning, while increasing the geographical spread. To put in place a framework for supporting FI through mobile banking, the government set up an inter-ministerial group (IMG) that provided the " Framework for Financial Inclusion Using Mobile" (http://www.mit.gov.in/sites/upload_files/dit/files/ReportoftheInterMinisterialGroup.pdf)

A number of different types of entities constitute the FI ecosystem. The Reserve Bank of India (RBI) as a central bank along with a number of other institutions is concerned with the policy and regulatory issues regarding FI. RBI introduced third party agent banking in 2006 through "Business Correspondents (BC)". While on one hand, banks need to be compliant with these guidelines, on the other hand, they must be able to design the requisite services tailored to a rural customer or a self help group in a cost effective manner, including ensuring security and integrity of transactions. Equipment vendors (handset manufacturers, smart card readers, routers), telecom service providers, application developers provide the ICT infrastructure support.

While the RBI as a central bank is concerned with the policy and regulatory issues regarding FI, apex level banks such as National Bank for Agricultural and Rural Development (NABARD), and other bodies that provide regulatory and operational frameworks are the MPFI (Mobile Payments Forum of India), TRAI (Telecom Regulatory Authority of India) etc. All public, private and regional rural banks are

service providers in the FI process, as are MFI, micro insurance companies, NBFCs, cooperative societies.

The banking correspondents, SHGs and other such entities were the last mile service providers that link banks to the citizens. They were the "feet on the street" and played a significant role.

Besides entities such as banks and other institutions providing financial services, there are facilitating organizations that help run the transactions smoothly such as the NPCI (National Payments Corporation of India). IDRBT (Institute for Development and Research in Banking Technology) provides the technology framework. Equipment vendors from handset manufacturers to smart card readers, switch and router providers are important elements as specific designs that are tailored to the Indian conditions can greatly facilitate the implementation of ICT based FI initiatives. Figure 2 gives the framework for financial inclusion showing the inter linkages between different stakeholders. Figure 3 provides the details of a specific linkage between selected stakeholders.

Owing to the complexities on the ground related to poor infrastructure, lack of data and information, high cost structures of banks, the low propensity to pay for the target customers, innovation in business models are required for FI to take off. Since start-ups are important in developing much needed innovations, especially in high-technology and knowledge-intensive sectors and in business models (Drucker, 1985; Kirchhoff, 1994; Timmons and Spinelli, 2003; Hayton, 2005), it is important to explore the role of start-ups in the innovation process. It is also important to identify the processes by which value is created by the start-up and the role it plays vis-à-vis the external policy and regulatory environment on one hand and the market consisting of banks and customers on the other.

So far, there has been little empirical and theoretical work in the context of mobile and ICT based service provision for FI by start-ups in an emerging economy. Prior studies of innovative business models have focused on established organizations. Further, when these have the central theme as serving the LIS in emerging economies (Seelos and Mair,

2007; Casadeus-Masanell and Ricart, 2008), there has been no focus on ICT and mobile based businesses. On the other hand, the existing work on business models and business model innovations using ICT (Amit and Zott, 2001; and Amit and Zott, 2010) is in a developed country context and does not incorporate the institutional and infrastructure context of LIS in emerging economies and specific characteristics of the target segments identified above.

Given the gaps identified above, the objectives of the paper are to:

a) Contribute to the empirical body of knowledge by developing case study of FI and through this mechanism, examine the organizational and technological challenges in implementing a national ICT based FI initiative. This enables integration of the ground level experience of ICT based pilot projects with the above technology framework.

b) Provide a theoretical basis for business model innovation and identify the processes by which value is created by the start-up and its ability to capture value vis-à-vis the role of the external policy and regulatory environment on one hand and the market consisting of banks and customers on the other in leveraging such value.

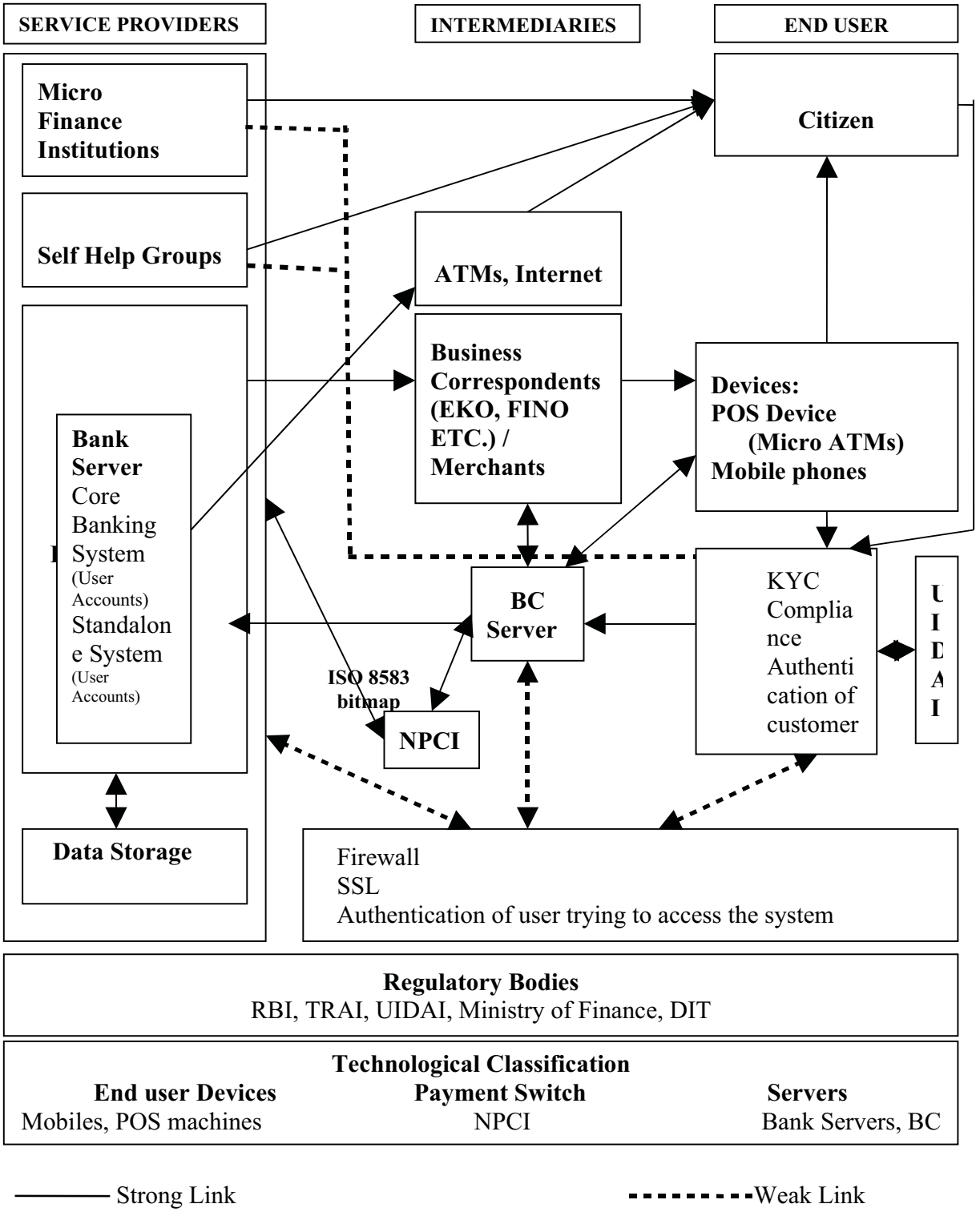

Figure 2: Framework for Financial Inclusion

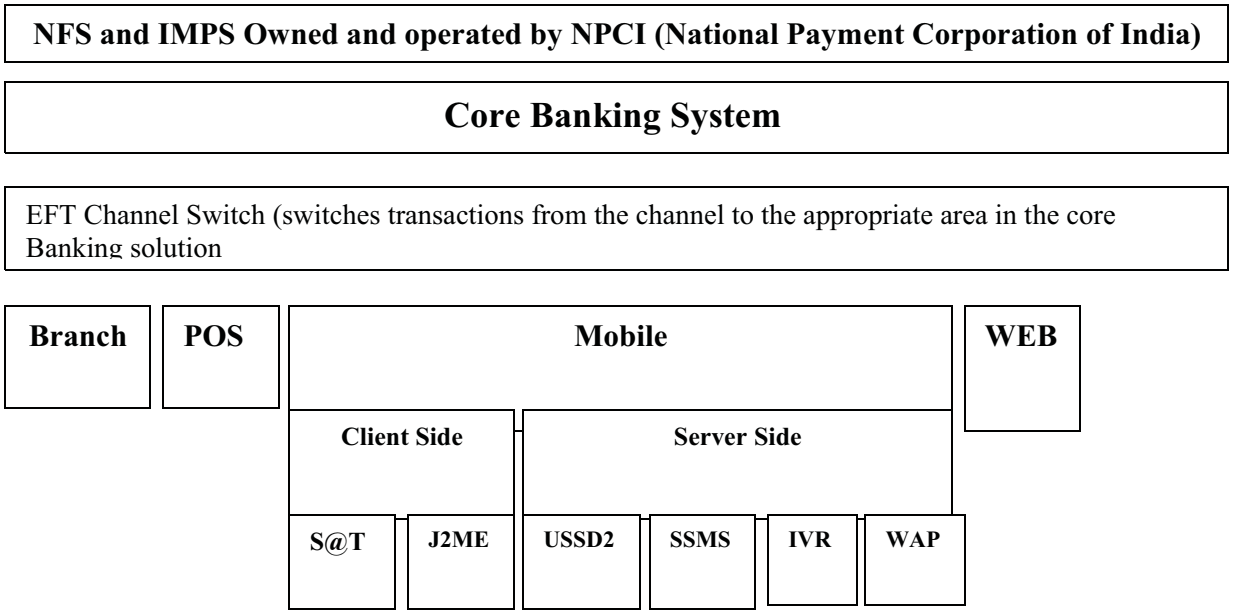

Figure 3: Linkages between NPCI, Banks and Mobile Customers (Adapted from: Mobile Banking Technology Options, Finmark Trust Report, August 2007)

Theoretical Foundations for Mobile and ICT Service based Business Model Innovation for FI

A business model has been proposed as a construct for analyzing strategy, competitive advantage, linkages with suppliers, and customers and internal process of the firm (Amit and Zott, 2001; Chesbrough and Rosenbloom, 2002; Li and Whalley, 2002; Shafer et al., 2005; Casadeus-Masanell and Ricart, 2008; Zott and Amit, 2008; Amit and Zott, 2010; Sanchez and Ricart, 2010). A business model articulates how, using existing resources and configuration of the existing activity system, firms can get competitive advantage. In addition, this approach removes the focus from technological innovation to the aspect of organizing business and creating and appropriating value around it (Amit and Zott, 2001). Amit and Zott (2001) have built on the concept of business model innovation for value creation in e-business. Casadeus-Masanell and Ricart, 2008, gave a more generic definition of the business model and its linkages with strategy as was also done by (Shafer et al, 2005). Ricart and Sanchez (2010) have applied the concept of business

model innovation for low income segments in emerging economies, principally building on prior work (Casadeus-Masanell, 2008).

Amit and Zott (2001) define the business model as an articulation of how using the firm's existing resources and configuration of the existing activity system, firms can get competitive advantage. This approach removes the focus from technological innovation to the aspect of organizing business and creating and appropriating value around it. They examine three constituent elements of a business model: the content of the activity system or the selection of the activity to be performed; sequencing of activities, or the information exchange mechanism among the linked activities; and the governance structure of the activity system specifying as to who performs the activity. Since the previous work focused on business models in an e-business context, Casadesus-Masanell and Ricart (2008) gave a wider definition to the business model as "(1) a set of choices and (2) the set of consequences derived from those choices. Sometimes, in addition to choices yielding consequences, consequences enable choices," which provides a mechanism for possibility of feedback loops generated by the dynamics of the business model.

Amit and Zott, (2001) and Zott and Amit, (2008) have brought together theories based on value chain analysis, Schumpterian innovation, strategic networks, and transaction cost economics to develop the concept of business model innovation. Business model innovation creates value not only for the firm but also for partners and customers. The innovation arises due to the unique design and configuration of activities and processes across the firm, its partners and customers; creation of novel products and possibly complementary products and services and through lock-in. Business model innovation could happen along one or more activity system dimensions as identified above, with changes in one dimension possibly triggering changes in other dimensions.

In the context of e-business, the business model is considered a "source of innovation, for example, when it connects previously unconnected parties, links transaction participants in new ways, or introduces new transaction mechanisms. Business model innovation thus conceived may complement innovation in products and services, production, distribution

or marketing methods, and markets. An innovative business model can either create a new market or allow the firm to create and exploit new opportunities in existing markets" (Amit and Zott, 2010).

Sanchez and Ricart (2010) have applied the business model theory to low income markets, where service delivery is characterized by co creation, lack of awareness about services, lower propensity to pay, poor institutional infrastructure (Brugmann and Prahalad, 2007; Seelos and Mair, 2007), all of which require innovation in service delivery.

However, there are hardly any studies that integrate the work on business model innovation and start-up in the context of mobile and ICT based FI and examine the process of value creation and appropriation.

4.0 Methodology

Given the limited availability of work on the various dimensions, we felt that a case based approach was most appropriate (Yin, 1994; Eisenhardt and Graebnee, 2007) as it would bring out the richness of the context. We adopted this method as a case study is "most appropriate in new areas of research with little extant literature because it does not rely on previous literature or empirical evidence". Our selection of the case was based on the premise that it should highlight various aspects: business model innovation, serving the LIS, and mobile and ICT based service delivery by start-ups (Eisenhardt and Graebnee, 2007).

Nearly 67% of Indian population lives in rural areas, majority of who are poor and nearly 54% of urban population lives in slums. Despite this, it has one of the fastest growing and the second largest mobile service sector, with a total of nearly 800 million phones to date. Of these, nearly 350 million are in rural areas.

Initial secondary research was done to identify those applications where there was a banking application linked to the LIS and there had been a significant spread of services.

We felt that a pilot implementation that had not been commercially rolled out may not be an indicator of success of business model innovation.

On this basis we selected A Little World (ALW) (www.alw.com). ALW had more than 5000 retail points as at the time of writing the case. Their business processes were formalized, although still evolving.

We did in-depth interviews (semi structured) with the CEO, senior managers, key designers, proponents, and users of the service. The documented case study were sent back to the organizations for validation. The case study were developed from August 2008 to November 2008 during which several site visits were undertaken.

Case Study: A Little World (ALW)

The Reserve Bank of India (RBI) set a target of covering nearly half of the 100 million households with comprehensive financial services through commercial and regional rural banks by 2012. To further strengthen financial inclusion, the government has mandated that all payments made as part of its welfare schemes would be through a bank.

ALW had an m-banking solution and saw this as a business opportunity. Most banks would have a use for it since otherwise they find it financially unviable to cover rural areas. ALW provided m-banking through either as a stored value card or as an application on the mobile. ALW was the developer of ZERO and mZERO, payment systems with focus on reaching out to masses claiming that it had the lowest cost communication. These platforms enabled timely disbursements of cash benefits under various government schemes such as National Rural Employment Guarantee Scheme, housing assistance, pensions, scholarships, etc.

As according to banking regulations prevalent in India, ALW itself could not offer banking services, it set up Zero Microfinance and Savings Support Foundation (ZMF) as a business correspondent. (Since bank branches were usually far from rural locations, RBI had introduced the concept of business correspondents (BC) as bank agents. It had identified NGOs, post offices, e-kiosks, to act as BC.) ZMF provided field operations for

the ZERO platform and managed the field force, account creation, appointment of representatives for customer service points (CSPs), and management of cash and other logistics at the last mile (village locations). ZMF collaborated with strongly placed local organizations, and district and state administration to ensure smooth deployment and operations. Its last mile operations network in villages worked under pre-defined service agreements with banks and front-ended the delivery of full-featured transactional services on behalf of banks. Its funding model was founded on retaining 1.75-2.00 per cent commission on government disbursals.

ALW's product worked on a modified mobile augmented through biometric authentication and mobile camera and the associated software. This solution had been designed to use minimum amount of electricity. Design considerations included combining the finger print reader with the printer, thus reducing the total number of components and hence electricity consumption, moving from a laptop to an offline gathering of data using the modified mobile. ALW felt it could deploy this solution to enable the beneficiaries to open bank accounts and do transactions while at the same time helping banks reach their financial inclusion targets in a cost effective manner.

In order to provide the last mile support, ZMF trained the representative at CSP to:

- use the modified mobile phone that had a digital fingerprint capture device and camera for the enrollment process. This was to fulfill the Know Your Customer (KYC) mandate of RBI.
- carry out enrolment and transactions (augmented through voice prompts) and provide a printout of each transaction to the villager. The first part ensured that even with low levels of literacy and familiarity with formal systems, CSP using the m-banking solution could provide RBI compliant services. The second part ensured that villagers trusted the system. This was important as this mode of banking was totally new to them.

The enrollment process involved capturing of facial photograph and finger print. ALW processes replicated the complex flow of information between the citizens, banks and government departments, so as to assure the stakeholders that it was maintaining the

mandated integrity and security requirements during data transmission between them. CSP's mobile was updated whenever there was a transaction at the bank (Figure 4). For withdrawal, CSP verified the identity through the finger print and match of the stored facial photograph at the server end with the person (Figure 5). ALW had earlier given smart cards to villagers which increased the costs. So it designed a system for assigning unique serial number to all villagers and augmented this with finger printing and photograph verification. This contributed to ensuring its financial viability.

Figure 4: The beneficiary being photographed using a mobile

Figure 5: Finger prints being taken for storing for authentication at the time of disbursal

Even though most individual account deposits were likely to be small, the huge base of such accounts would justify a business case. Increasing base of government services whose benefits could be disbursed through the ALW solution would mean more revenues. Because the first mover advantages were significant, it was important for ALW to tailor its solution to have a successful business model. The increasing base of mobiles would ensure volumes.

As of the time of writing, ZMF operated in 21 states and 83 districts and had partnerships with 22 banks. There were 5800 CSPs and 1.96 million customers with the current rate of enrolment being 20,000/day. However, given the rural profile of population and its partners (government department and public sector banks), there were bound to be implementation delays. For the specific handset that is used by CSPs, ZMF partnered with Nokia and NXP.

Challenges

Like other start-ups, ZMF faced challenges in getting funds but could overcome it through venture funds for initial operations. In the past, ALW had developed commercially viable innovative technology solutions that had been hived off as separate business entities. For example, MCHQ (now mChek), a mobile to mobile payment solution developed by ALW, was sold off in mid 2006 to an independent special purpose vehicle (SPV). Another initiative – Go-Mumbai — was a low cost contact-less smart card (branded GO-Mumbai) for automatic fare collection in public transport. This was sold to an independent SPV formed by Khaleej Financial Investments (KFI, Bahrain – now Capivest) in May 2006. Funding came from other partners including Legatum Capital and Enam Financial. RBI's current 10 per cent cap on such investments created bottlenecks for ALW's growth.

Linking with a National Framework

ALW banking solution is a stored value solution in that the transactions are not in real time. Most transactions are disbursements from government schemes and therefore, the issues of overdrawing bank accounts are not significant. However, if mobile banking

solutions are to take off, then there must be a mechanism to do transactions in real time, using a variety of devices.

The IMG has highlighted the following elements for a national ICT based framework whose functions and responsibilities can easily be linked to the case study.

- Interbank Mobile Payment Service (IMPS): For this, the Inter ministerial group recommended that the National Payment Corporation of India (NPCI) that provides the National Financial Switch interconnecting various banks and their ATM systems would design systems for real time settlements. Currently, interbank mobile fund transfer transactions are channelized through NEFT mechanism, which is a batch processing system and transactions are only settled during the working hours of the RTGS. NPCI developed the Interbank Mobile Payment Service (IMPS) through its existing NFS switch.

- Aadhar: If mobile banking applications take off in a significant way, then these transactions need to be low cost. Since a large part of the cost of FI for banks was in enrollment, the government initiative to provide a unique identity ("Aadhar") to all Indian citizens would facilitate the FI, as banks would no longer be required to bear the cost of enrollment.

- INFAST: Interoperable Infrastructure for Accounting Small Transactions, especially those done over mobile. This is proposed as an additional infrastructure to create and manage mobile based no frills account. This should have a limited Core Banking System implementation to allow small regional rural banks that otherwise do not have full fledged core banking systems to participate in FI. This could be managed by NCPI or by third party service providers on behalf of all participating banks. This may be envisaged as a single central repository or a cluster of interoperable repositories.

- REMIT (Real time Micro Transaction Switch) that would be an interoperable payment switch for real time transaction routing between BCs, banks,

INFAST, Aadhar, and mobile service providers, especially for large numbers of small value transactions. REMIT will have to follow the usual banking protocols for information exchange and also interface with UIDAI for authentication. It needs to be low cost, so as to make FI initiative commercially viable. It is expected NPCI will develop, maintain and run this.

- Account Mapper is an address translation system that links either the mobile number or the UIDAI to a bank account number, to be operated in a similar manner as INFAST.

- Point of Sale Devices: these are envisaged as Micro ATM (or Micro Banking POS): a device (or a mobile) with mobile connectivity, finger print scanner, mobile application for managing transactions, display screen and a small printer. The micro ATM will connect to the REMIT switch through mobile connectivity. UIDAI will provide the standards for biometric authentication for banking services

Figure 6 gives the relationships between the different ecosystem components identified above in the context of a banking transaction.

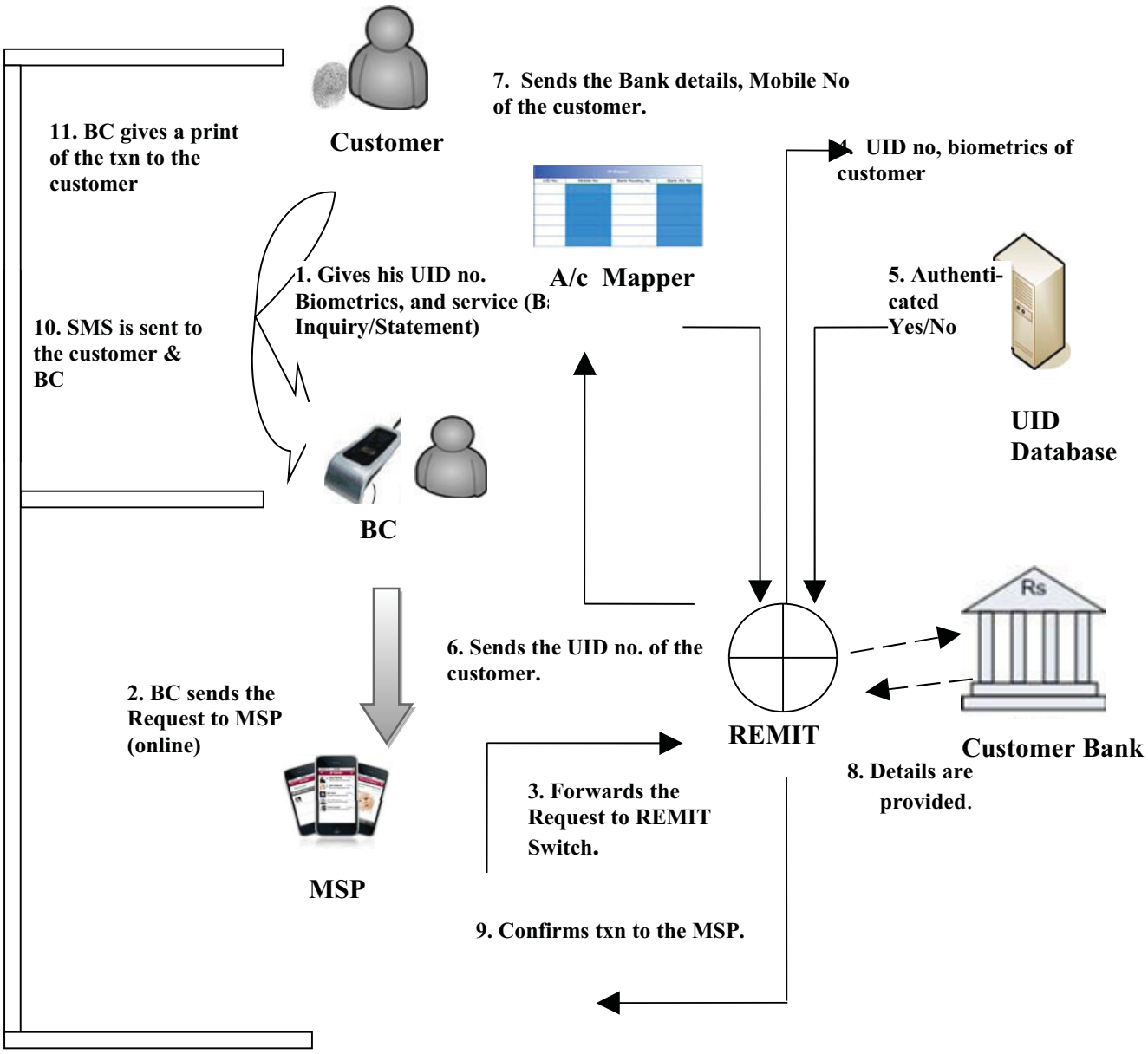

Figure 6: Relationship between different Ecosystem Partners for Mobile Banking Transaction

(*Source: Framework for Delivery of Basic financial Services Using Mobile Phones, http://www.mit.gov.in/sites/upload_files/dit/files/ReportoftheInterMinisterialGroup.pdf)*

Source: Framework for Delivery of Basic Financial Services Using Mobile Phones

Conceptual Model for Value Creation for Mobile and ICT Based Services in Emerging Economies

Amit and Zott (2001) have developed a framework for the success of business model innovation and value creation through i) Increased Efficiency, ii) Provision of Complementary Services iii) Creation of Lock-in and iv) Provision of Novel Service. These value creation mechanisms are inherently dependent on the intrinsic characteristic of electronic networks and applications. However, in a LIS context in emerging economies, these four factors by themselves may not be sufficient to create value. We propose that the start-up's creation and appropriation of an intermediary role for itself led to releasing the value created by the business model innovation. The start-up acted as boundary spanners between the institutional and infrastructure environment on one hand and the business model innovation embedded in the mobile and ICT based service delivery model on the other. The role of boundary spanners in ICT based ventures has been developed in (Levina and Vaast, 2005). According to them, successful boundary spanners are those who are able to "transform their practices in local settings so as to accommodate the interest of their counterparts".

***Appropriation of an Intermediary Role as a Driver of Value Creation*:** By effectively managing all aspects of the service value chain (developing appropriate products, creating the ecosystem, developing the channels), ALW able to create an intermediary positions for themselves. Mobile and ICT based services helped in the creation and appropriation of an intermediary role. The start-up could do this as it played a dominant role in the creation of the ecosystem. It recognized the institutional voids and created appropriate processes to strengthen its role. By developing suitable products and services, it entrenched its positions in the ecosystem. By using proprietary technologies and dovetailing its business processes with those available with the customers and suppliers, so that there was appropriate balance between formal and informal governance processes, it was able to create value for itself and ecosystem partners. The adapted model for value creation can then depicted as shown in Figure 7.

In the following we discuss the influence of "intrinsic" factors and how they contributed to value creation in our study using the framework of Amit and Zott (2001):

- **Increased Efficiency**: The role of efficiency in value creation has been highlighted by transaction cost theory Williamson, (1983); Williamson, 1989) .ALW successfully implemented a system that allowed it to reduce transaction costs for its customer. ALW brought in efficiency by reducing the time and effort for villagers to seek disbursements from bank branches.

- **Provision of Complementary Services**: ALW leveraged the potential for value creation by offering complementary products and services. For example, ALW offered banking services in addition to pension disbursements. While in several cases, complementary products are offered by partners and suppliers (Katz and Shapiro, 1986; Teo et al., 2003; Srinivasan et al., 2004; Lai et al., 2007;) the ALW chose to provide itself. One possible reason could be that the small scale of revenue generated from the core service encouraged it to offer other services itself. Further, though the complementary services did not fit with the capabilities of core products/service offerings, from the perspective of users, these services were viewed as related. So the complementarity came from the demand rather than the supply side.

- **Creation of Lock-in**: Several studies have identified the role of lock-in in providing competitive advantage (Viard, 2007; Dube et al 2009, Jaing et al., 2009; Nakamura, 2010,). Further, the demand side complementarities identified above played an important role in increasing the lock-in or switching costs for customers.

  ALW leveraged the lock-in potential of its products and services by increasing the propensity of customers to do business with it. This was ensured, as it was difficult for customers to enrolment if they switched to other suppliers. The strong position of banks with which ALW had tie-ups gave little option to customers. Further the cost of switching by banks

would be high since they would have to redesign their IT systems.

- **Provision of Novel Services**: The creation of entirely new ways of doing business using ICT has been highlighted in the literature (Magretta, 1998; Simatupang and Jiang et al., 2009). Examples are Dell's direct model, Amazon as a site for buying books and later its diversification into a variety of services, and eBay as an exchange site. ALW conceptualized, designed and implemented novel services and products and developed appropriate processes and systems to implement a successful business model.

In addition, there were interdependencies in these four dimensions. For example, the product/service innovation helped to bring about efficiency and created opportunities for developing complementary products. This created lock-in for customers (CSP and retailers) as more and more complementary products could be offered on the same platform. The interdependence led to the creation of virtuous cycles. Social value was created as in the case of ALW, the end customers have access to a banking channel that provides them with a sense of participation in the formal economy. However, the creation of social value was a by-product, unlike the case of social entrepreneurs where economic value is created as a by-product of the social value.

Appropriation of Created Value

In prior work, Amit and Zott (2008) posit that business model design and the performance of the firm are mediated by the environment. We interpret the first part i.e., the business model design as contributing to value creation and the influence of the external environment as contributing to the ability or capacity of the firm to appropriate value.

While ALW was able to design the product and services so that value was created as examined above, its ability to appropriate that value was strongly influenced by the external environment that constituted the national FI framework. Despite the possibility of using ICT for FI, the complexity in terms of number of customers and ecosystem

partners, varying degrees of existing IT usage, and differing service delivery mechanisms (smart cards or mobiles) creates challenges for scaling up and implementing security for the start-up.

A critical issue in scaling up is the number of linkages ALW could form with a number of banks. Forming commercial agreements was one aspect and while difficult due to the differences in scale of operations between ALW and majority of banks involved in FI, an added dimension was competition amongst various start-ups to tie up with banks.

The other aspect related to scaling up that start-ups faced was the technological issues of interfacing their existing transaction processing software (Core banking) with proprietary software and hardware that start-ups like ALW used. Although agencies such as the Mobile Payment Forum of India (MPFI) had devised standard formats for such interactions, it was necessary for the banks and the start-ups to develop the interfacing software themselves. With the deployments of Aadhar, the start-ups and the banks would have to adopt the changed KYC norms.

Other issues start-ups such as ALW faced were related to charges or fees from beneficiaries and this affected their financial viability. The government may be driven by the concern that since it had involved private enterprises, these should not be seen as making profits at "the cost of the poor". However, since these entities need to be viable for the governments' FI initiatives to be successful, the government needs to develop a proper framework for the same.

Summary and Conclusions

The paper presents the organizational and technological challenges in implementing a national ICT based FI initiative through the empirical development of a case study and secondary work on the regulatory frameworks. It develops a theoretical framework for value creation through business model innovation and highlights the role of the external environment in value appropriation.

While ICT based pilot projects have worked, there are issues in scaling up. This paper integrates the ground level experience of ICT based pilot projects with the above technology framework. Such a framework would have lessons for future such initiatives both for India and other countries undertaking such an endeavor.

The paper posits a strong role for the start-up as a driver for business model innovation that is critical to the national FI initiative. It develops a model for value creation and shows how the by effectively managing all aspects of the service value chain (developing products/services, creating the service related elements of the ecosystem, developing the channels) the start-up created the role of the intermediary for itself, thus, facilitating and enhancing the value creation process.

By recognizing the institutional voids and creating appropriate processes to strengthen their role and developing suitable products and services, it entrenched its positions in the ecosystem. By using proprietary technologies and dovetailing its business processes with those available with the customers and suppliers, so that there was appropriate balance between formal and informal governance processes, it was able to create value for itself and the ecosystem partners.

However, despite the value created by the start-up, its ability to appropriate it is strongly dependent on the external environment. From a policy perspective, it is not only important that support for such start-ups be strengthened, the technological and regulatory issues that bring down the cost of service provision will need to be addressed. The value created by the start-up can effectively be appropriated by it only when significant changes happen in the external environment. The paper has discussed the changes and magnitude of changes. Such changes will require continuous deliberations, discussions and political will for implementation.

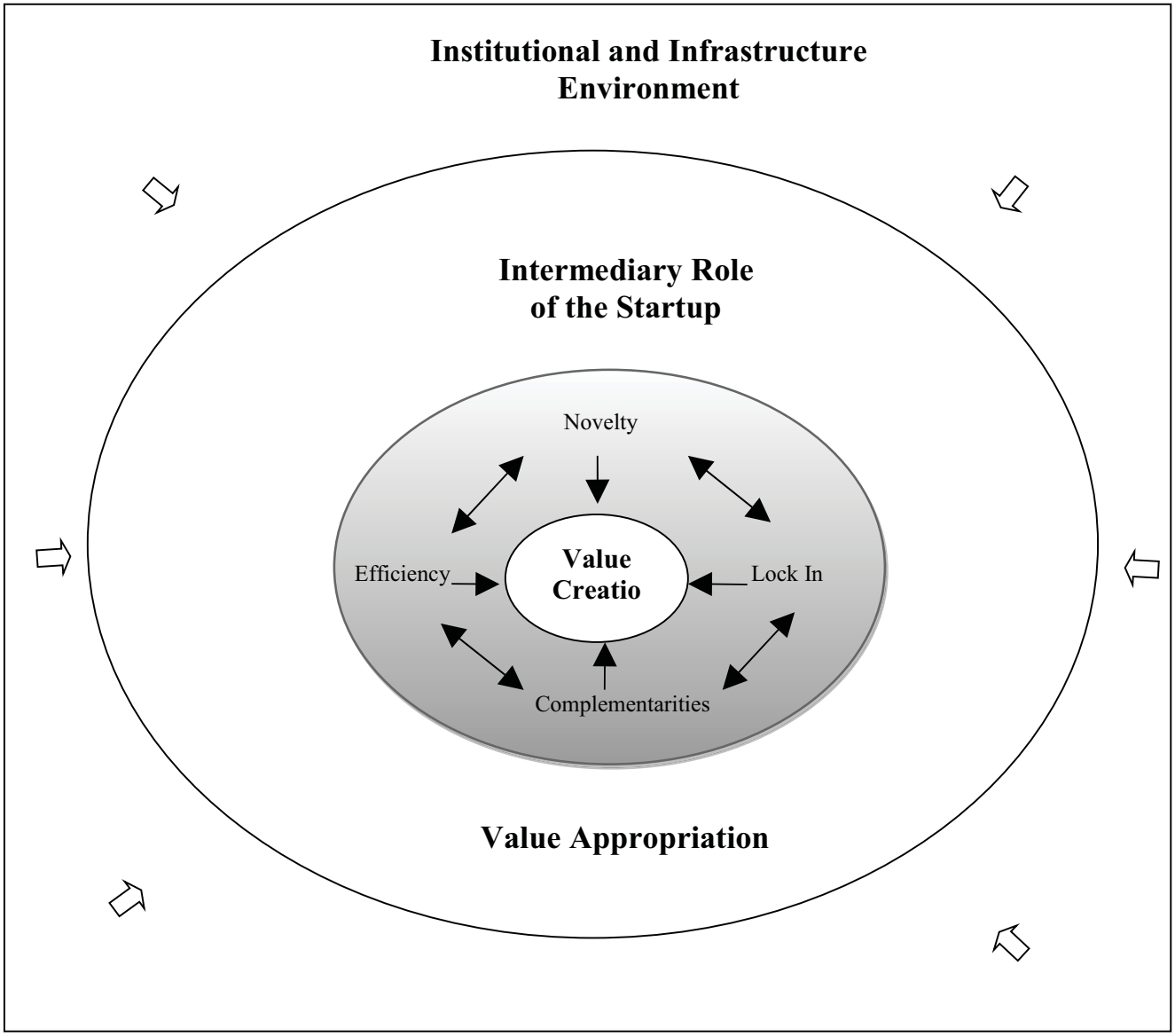

Figure7: Model for Value Creation for mobile and ICT Based Services for LIS in Emerging Economies (The shaded portion refers to the model developed by Amit and Zott

Appendix 1: Initiatives Taken to Expand the FI Reach

Business Correspondent and Business Facilitator Model

Third party agent banking was launched in 2006 in India. To support the financial inclusion effort, as well as leverage advances in banking technology, two kinds of third party banking agents were created – Business Facilitators (BF) who would primarily be involved in processing and opening accounts and Business Correspondents who could, in addition to the BF functions mobilize deposits and disburse credit on behalf of the bank. This has been the latest initiative by the Government of India but this has not scales up as expected.

Regional Rural Banks (RRBs)

RRBs account for 37% of total rural offices of all scheduled commercial banks and 91% of their workforce is posted in rural and semi-urban areas. They account for 31% of deposit accounts and 37% of loan accounts in rural areas. RRB's have a large presence in regions marked by financial exclusion of a high order.

SHG (Self Help Group) – Bank Linkage Scheme

Recognizing the role of SHG in establishing ground level contacts, the government has come up with SHG – Bank Linkage scheme. These groups manage and lend their accumulated savings and externally leveraged funds to their members. One major drawback is only about one-third of the SHG members are able to access loans out of external funds in the initial years.

Scheduled Commercial Banks

RBI has mandated various banks to target rural areas for improving the access to financial services. Various banks are keen on achieving the plans they have submitted to RBI.

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