

Business Model Innovations for ICT Based Services for Low Income Segments in Emerging Economies

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ABSTRACT

Although proliferation of mobile services in emerging economies like India has made it possible to provide a variety of services such as banking, health, education etc., to low income segments (LIS) through mobiles, it is challenging to do so. This is owing to a variety of factors, including, low levels of digital infrastructure and literacy and poor propensity to pay. On the other hand, these networks offer a mechanism to improve this state. Therefore start-ups that develop contextual business model innovations (BMI) are important. Notwithstanding its importance, there is very little work on what factors contribute to BMI for LIS in emerging economies in this area. This study contributes to both empirical and theoretical knowledge by developing case studies on business model innovations using ICT based services in India. It identifies the dimensions of differences between developed countries and emerging economies with respect to i) the factors that contribute to ICT based business model innovations for LIS and ii) the role of the start-ups in this situation. Further, it integrates two existing strands of theory: value creation through BMI in e-business and low income segments in emerging economies.

KEYWORDS

Business model innovation, Emerging economies, Mobile services, Start-ups, Low income segments

INTRODUCTION

The proliferation of mobile services in emerging economies like India has made it possible to provide a variety of services such as banking, health, education etc., to low income segments (LIS) through mobiles. Owing to the higher cost of infrastructure provision in rural areas and lower propensity to pay of LIS, providing such services to LIS may be unviable. Further, there are challenges in designing products and services and revenue streams for an environment characterized by low levels of literacy (digital literacy in particular), and poor digital infrastructure. Notwithstanding such challenges, some start-ups in India have developed innovative business models for LIS incorporating state-of-the-art technology. However, there is little empirical and theoretical work in the context of innovations in ICT based service provision to LIS by start-ups in an emerging economy.

This study contributes to both empirical and theoretical knowledge by developing case studies on business model innovations using ICT based services in India. It identifies the dimensions of differences between developed countries and emerging economies with respect to i) the factors that contribute to ICT based business model innovations for LIS and ii) the role of the start-ups in this situation. Further, it integrates two existing strands of theory: value creation through BMI in e-business and low income segments in emerging economies.

LITERATURE REVIEW

A review of the literature shows four strands of work in this area: business models and business model innovation, role of ICT in business model innovation and value creation, business model innovation in LIS for emerging economies, and role of start-ups in leveraging business model innovations. We review each area.

Business Model and Business Model Innovation

A business model articulates how, using existing resources and configuration, firms can leverage competitive advantage. Here, the focus shifts from technological innovation to organizing business and creating and appropriating value around it (Amit and Zott 2001). 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; Casadeus-Masanell and Ricart 2010; Chesbrough and Rosenbloom 2002; Li and Whalley 2002; Morris et al. 2005; Shafer et al. 2005; Zott and Amit 2008). A business model not only specifies the strategic choices that an organization makes but also the sources of value creation and mechanisms for value capture (Shafer et al. 2005). Amit and Zott (2010) suggest two sets of parameters for business models – design elements and themes. The design examines three constituent elements: 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. The design theme refers to what elements are used to bring in novelty, lock-in, complementarities and efficiency. These describe the sources of value creation. Casadesus-Masanell and Ricart (2010) give 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 the possibility of feedback loops generated by the dynamics of the business model.

Business model innovation can happen along one or more activity system dimensions as identified above, with changes in one dimension possibly triggering changes in others. Since the underlying logic of business model innovation is value creation, such innovations do so by either creating a new market or allowing the firm to create and exploit new opportunities in existing markets” (Amit and Zott 2010). This creates value not only for the firm but also for its suppliers and customers.

Role of ICT in Business Model Innovation and Value Creation

The ubiquity of ICT networks and the Internet has created business model innovations as exemplified by new kinds of businesses. Innovation may arise due to the provision of complements to existing products and services, or could occur in the production, distribution or marketing methods, and markets (Amit and Zott 2001; Teece 2010). Increasingly, ICT networks are being used to develop such innovations in business models not only for developing products and services but also for interacting with and influencing value creation drivers.

Amit and Zott (2001) identify four dimensions of value creation in ICT networks: (a) provision of novel services, (b) improving the efficiency of operations, (c) providing complementary services, and (d) creation of lock-in. These value creation drivers leverage the intrinsic characteristic of electronic networks and applications. The innovation could be along one or more dimensions. Further, the presence of one driver could enhance the effectiveness of one or more other drivers. The linkage between these dimensions could create virtuous cycles, enhancing value creation. The aspect of virtuous loops and value creation has also been identified by Casadesus-Masanell and Ricart (2010). There are strong interdependencies in the “sources of value to the locus of value creation” (Amit and Zott 2001; Amit and Zott 2010; Zott and Amit 2009). It is to be noted that these studies do not focus on factors that facilitate value creation in different business and institutional environments characteristic of developed and emerging economies and the role of the ecosystem.

Business Model Innovation in LIS in Emerging Economies

Markets for LIS in emerging economies are considered commercially unviable, owing to institutional voids, both political and economic, poorly developed markets, low spending power with often low levels of literacy in the target segment, lack of awareness about services, and lower propensity to pay (Brugmann and Prahalad 2007; Seelos and Mair 2007), all of which require innovations in service delivery. Prior studies on business models for serving the LIS in emerging economies (Hart and Christensen 2002; Sanchez and Ricart 2010; Seelos and Mair 2007) have highlighted the institutional context, the ecosystem and how it can alter the nature of business model choices and consequences, and how business model choices influence the ecosystem and therefore “lead us to better knowledge of the sources of value creation”.

Sanchez and Ricart (2010) have identified the factors influencing business model innovation for LIS in emerging economies and have categorized them as isolated or interactive depending on whether these allow a firm to use its existing resources to enter new markets (exploitation strategy) or those that require the firm to not only leverage its resources but also to collaborate with others to create new business opportunities (exploration strategy). They have identified different sources of value creation in both models. In the isolated model, the efficiency creating processes within the firm create internal virtuous cycles, while in the second model, innovations created by the firm “increase the willingness to pay by enhancing the value created for and the capacity to pay of the customers”. For this, the firm must be able to understand and remove the constraints in the customers’ or suppliers’ value chain that hinder the creation of virtuous cycles and change those factors in a way that allows the firm to create value through different ways of combining and integrating resources and capabilities. Since the ecosystem is integral to the virtuous cycle, interactive models often involve co-creation of services and products. Thus innovation is part of value creation (Amit and Zott 2001; Sanchez and Ricart 2010). On the other hand, Weidener et al. (2010) explore the marketing aspects and focus on “strategies and tactics being used in social and commercial enterprises” but has little focus on innovations.

While emphasizing the role of the ecosystem for LIS in emerging economies in value creation, this strand of literature does not provide insights into what factors contribute to ICT based business model innovations for LIS.

Role of Start-ups in Leveraging Business Model Innovation

The role of start-ups is critical in developing technological and business model innovations, especially in high-technology and knowledge-intensive sectors (Drucker 1985; Lin et al. 2010; Wu 2007). While start-ups face both internal and external challenges, some of these are accentuated in emerging economies. Internal challenges are in designing suitable governance processes within the firm and external challenges are related to finding funds and customers, and keeping at the cutting edge

of technology. Start-ups in emerging economies also face greater resource constraints, higher levels of firm informality, and stronger levels of institutional turbulence (Bruton and Rubanik 2002; Siqueira and Bruton 2010). The agility of start-ups allows them to deploy innovative technology or new ways of linking different activities to address these challenges. However, in emerging economies, there are constraints to the adoption of new technology owing to lower awareness, literacy and propensity to pay (Seelos and Mair 2007). Further, linking different activity systems is relatively more difficult, as the ecosystem is fragmented, loosely coupled and there is paucity of formal networks such as industry associations, etc. (Moyi 2003). Sequeira and Brunton (2010) focus on start-ups using high technology in an emerging economy, but do not focus on business model innovations and how start-ups develop linkages with the ecosystem.

RESEARCH GAPS AND RESEARCH QUESTIONS

The increasing spread of ICT networks has created opportunities for a variety of service provision and business model innovations. Despite its importance, there is little empirical and theoretical work for ICT based service provision and business model innovation for LIS in emerging economies. The existing work on business model innovations using ICT (Amit and Zott 2001; Amit and Zott 2010) is in a developed country context and does not incorporate the institutional and infrastructure context of LIS in emerging economies. Sanchez and Ricart (2010) examine the factors in provision of services and products for LIS in emerging economies by existing organizations. However, their study does not examine the factors in provision of ICT based products and services and the role of start-ups as they study existing organizations. In a similar vein, there is hardly any empirical and theoretical work that examines the role of start-ups in the context of business model innovation for LIS using ICT in emerging economies.

The research question is: what are the dimensions of differences between developed countries and emerging economies with respect to i) the factors that contribute to ICT based business model innovations for LIS and ii) the role of the start-ups in this situation.

Further, there is no theoretical model for value creation using ICT based service delivery to LIS in emerging economies. This study creates such a model and integrates two existing strands of theory: value creation through BMI in e-business and low income segments in emerging economies. Further, the model delineates the role of start-ups in this process.

METHODOLOGY

Given the limited availability of work on the various dimensions, we felt that a case based approach was most appropriate (Eisenhardt and Graebner 2007; Yin 1994) as it would bring out the richness of the context. We adopted this method as a case study is “the most appropriate in new areas of research with little extant literature because it does not rely on previous literature or empirical evidence” (Eisenhardt, 1989). Our selection of cases was based on the premise that they should highlight various aspects: business model innovation, serving the LIS and ICT based service delivery by start-ups (Eisenhardt and Graebner 2007).

The organizations investigated in this study are based in India, an emerging economy, that has a sizeable LIS and significant penetration of mobiles among them. Nearly 69% of Indian population lives in rural areas, majority of who are poor and nearly 29% of the urban population lives in slums (United Nations 2013). Despite this, it has one of the fastest growing and the second largest mobile service sector, with a total of nearly 850 million phones to date. Of these, nearly 300 million users are in rural areas (TRAI 2011).

Research was done to identify those applications where there was an explicit commercial value proposition linked to a specified customer segment and where there had been a significant spread of services. On this basis we selected two organizations: A Little World (ALW) (www.alw.com) and Oxigen (www.myoxigen.com). Both had more than 5000 retail points at the time of initial choice of cases. Their business processes were formalized, although still evolving. For example, the process of receiving payments was formalized, although when new channels (such as payment on the Internet) emerged, new processes were designed. We did in-depth interviews (semi structured) with the CEO, senior managers, key designers, and users of the service. There were 15 face-to-face interviews that lasted around 40-45 minutes each. These covered aspects related to the factors inherent in service delivery using ICT networks for LIS and the issues that they faced. We covered aspects of the linkages that these start-ups established with the ecosystem. The transcripts of interviews are available from the authors on request.

Documented case studies were sent back to the organizations for validation. The changes suggested by them were reviewed and incorporated. The major part of the study was done between August 2008 and November 2008. Between November 2008 and November 2011, we made several visits and conducted interviews to review the longitudinal developments. We also attended workshops and conferences where ALW or Oxigen made presentations and examined media reports.

A LITTLE WORLD (ALW)

In India, nearly 40% of the population does not have access to formal channels for payments and banking, leading to their financial exclusion. In rural areas,

this figure is much higher. Only around 7% of Indian villages have bank branches¹. Reasons for this exclusion are the high information barriers, lack of availability of such services in several areas, financial non-viability of providing services in rural areas, and high costs of service provision. In order to improve the situation, the Indian government has mandated financial inclusion targets for all banks and created two funds: India Financial Inclusion Fund and India Financial Inclusion Technology Fund². In a related but separate context, the government has mandated that all payments made as part of its welfare schemes would be through a bank and all beneficiaries are required to have bank accounts. This has been done to mitigate lack of transparency and possibility of misappropriation and corruption in a manual system.

ALW had developed an m-banking solution that it felt would be useful for most banks for meeting their financial inclusion targets. The solution was a modified mobile augmented through biometric authentication, mobile camera, and associated voice prompted software that enabled 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. It also enabled timely disbursements of cash benefits under various government schemes. ALW had two payment systems, ZERO and mZERO, with focus on reaching out to masses and which it claimed had the lowest cost communication.

According to banking regulations prevalent in India, ALW itself could not offer banking services as it did not have a bank license. Therefore, it set up Zero Microfinance and Savings Support Foundation (ZMF) as a business correspondent (BC), an entity that operated as a bank agent. ZMF provided field operations for the ZERO platform and managed the field force, account creation, appointment and training of representatives for customer service points (CSPs), and management of cash and other logistics at the last mile (village locations). The BC and the last mile services were provided by ZMF. As of November 2010, ZMF had partnerships with 14 banks. There were nearly 10,000 CSPs and nearly three million customers with the rate of enrollment being 20,000 customers/ day. ALW generated revenue by retaining 1.75-2.00 percent commission on government disbursements.

Since ALW's operations required handling cash, either as a deposit or as a disbursement to villagers, it was important to select people who had an established reputation for trustworthiness. The selected person was also required to have the capability to understand the ALW processes. Therefore, it collaborated with strongly placed local organizations to identify such people. ALW had a difficult time in

¹http://articles.economictimes.indiatimes.com/2013-09-24/news/42361542_1_financial-inclusion-bank-branches-ultra-small-branches, accessed on November 9, 2013

²http://www.inclusion.in/index.php?option=com_content&view=article&id=550&Itemid=77, accessed on March 13, 2012

developing sources of knowledge to plan for these operations as little data was available.

For ALW's business to take off, it was necessary to coordinate with district and state administration and design operational processes to get beneficiary lists in time and ensure that all benefits were disbursed, else inefficiencies in government systems could lead to ALW operating at a lower level.

Its last mile operations network in villages worked under pre-defined service agreements with banks and also front-ended the delivery of full-featured transactional services on their behalf. This implied that ALW needed to be able to design the output of its system in a way that it could seamlessly integrate with the IT systems in the banks. The bank management needed to be convinced that ALW's proprietary system would not cause any problems on integration with their existing systems.

ALW had contextualized the design of its solution to a village scenario such as integrating the fingerprint reader with the printer, thus reducing the total number of components and electricity consumption, moving from a laptop to an offline gathering of data using the modified mobile, etc. as electric supply in villages was poor and erratic. Its voice-prompted system created trust since villagers who could not read could hear the stages of progression of the transaction.

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. For withdrawal, CSP verified the identity through the fingerprint and matched the stored photograph at the server end with the person.

Challenges

Like other start-ups, ALW faced challenges in getting funds but overcame them through venture funds. In the past, ALW had developed commercially viable innovative solutions that had been spun off as separate business entities. Funding came from a number of partners including Legatum Capital, Enam Financial and Financial Inclusion Technology Fund. The Reserve Bank of India's current 10 percent cap on such investments created bottlenecks for ALW's growth. The State Bank of India, India's largest bank, had acquired 20% stake in ALW, in the hope that this would help it to meet its financial inclusion targets³.

Besides the financial and regulatory challenges, there were others such as identifying CSPs, training and retaining them, working with banks and state

³<http://indiamicrofinance.com/sbi-little-world.html>, accessed on March 1, 2012

governments for them to accept its solution, developing new products that could be put on its platform and the attendant training for CSPs and additional tie ups with service providers.

OXIGEN

Oxigen started its operations in 2005 by developing services for the disintermediation of the supply chain of recharge coupons for mobile services. Recharge coupons were physical paper coupons printed with a unique number and a denomination. The customer could buy this from a retailer/distributor by paying the denomination value printed on the coupon. For crediting the amount printed on the coupon in the customer's account, she would input the unique number by using the handset/calling up the customer care of the service provider.

The distribution chain for recharge coupons consisted of service providers, distributors, retailers, and customers. Coupons were printed and were operator and tariff plan specific. Although retailers could recharge electronically, each service provider had its own SIM card for recharging. This led to multiplicity of handsets/SIM cards for the retailer to service customers of different service providers, thus making the operation cumbersome. Retailers paid distributors/service providers on the value of coupons or airtime inventory. Unused coupons could not be returned. In order to reduce unsold coupons, distributors/retailers needed to be able to make accurate demand estimates of the coupon values and service provider combinations. Addition of more service providers and introduction of new services like Direct-to-Home (DTH) TV required additional investments from distributors/retailers as well as created a more complex scenario for demand estimation.

Retailers ranged from full service shops in high-end markets to single-person run outlets stocking a variety of snacks, soft drinks, etc. If small retailers ran out of specific denomination of recharge coupons they would have had to physically leave the store to restock, leading to a possible loss of business. In order to stock a minimum level of recharge coupons, investment of about Rs. 50,000⁴ was required.

Recognizing this supply-demand estimation gap, Oxigen came out with a point of sale (POS) terminal that could print recharge coupons for any denomination for a variety of service providers with whom it had tied up. The terminal connected to the database of service providers thus ensuring online update of recharge coupons. This changed the supply chain from being operator-specific to operator neutral. Initially, service providers insisted on exclusive tie-ups with Oxigen. However, top

⁴Approximately Rs. 45 =1US \$ in 2009.

management at Oxigen recognized that the real value of their POS terminal lay in providing recharge coupons of all denominations for all service providers.

Retailers were required to buy the terminal at a one-time cost of Rs. 5000. Service providers bore the cost of connection. Oxigen physically collected cash from retailers through fund collectors called “Feet on Street”. To augment the service basket, Oxigen provided retailers with an option of utility bill payments through its platform and developed other products such as a mobile wallet called OxiCash which could be used to transact for a variety of services such as bill payment, buying prepaid services such as DTH, etc. Over a period of time, Oxigen’s platform was used by banks for implementing financial inclusion mandate. To ensure customers trusted its service provision, Oxigen provided complete audit trail. Oxigen’s platform was quickly adopted by a large number of businesses, retailers, etc.

By December 2011, there were more than 75,000 points from which Oxigen’s services could be accessed. Oxigen tied up with a variety of fast moving consumer goods providers to launch digital promotions with them. In one such example, instead of giving the same gift to all targeted customers, the companies gave free talk time coupons on the network of customer’s choice. Although Oxigen had a solution for implementing peer to peer transfers, existing banking regulations prevented it from doing so.

Challenges

At the strategic level, getting venture funding was critical. The network of the founding member, his credibility, and the value of the proposed idea ensured that Oxigen got funding from a variety of sources, including venture investors. At the time of writing, Microsoft owned 35% of Oxigen’s equity.

At the operational level, one of the challenges that Oxigen faced was to get retailers to switch to operator neutral platform, because often operators gave retailers/distributors benefits that Oxigen did not. Updating data regarding various service plans from variety of operators in real time, convincing retailers to use alternate distribution channel, and training them in new product/service offerings that came on the Oxigen platform were other difficulties. These arose as operators came out with a variety of plans at frequent intervals and Oxigen needed to keep its database up-to-date. Oxigen had to train/communicate to retailers/distributors about the new plans so that they could answer queries at the time of purchase, and enable the customer make a purchase decision.

Small retailers did not want to invest in the terminal. Their inability to understand the different products on the Oxigen platform and communicate and market them to customers, identifying retailers who were willing to install the POS, training them and putting more and more products on the POS were also difficult.

Dovetailing the operational physical system of cash collection through its Feet on Street, the need to replace POS terminals based on their age in the field, limitations on computing power and the consequent investments, users' resistance to change in a sensitive area such as payments, etc. were issues that needed to be sorted out for more effective service provision.

DISCUSSION

Despite the rapid proliferation of mobiles and the pressure on operators to provide new services, start-ups have faced organizational and regulatory barriers to innovations which they attempted to overcome. Given that the adoption of mobile financial services has been rather low even in developed countries (Lee 2010; Lee et al. 2012), the start-ups assessment appears to be that the poor availability of banking services would create a need to adopt ICT and mobile based services more easily. The start-ups saw this poor level of service as a value creating opportunity for themselves, their partners, and customers. Thus the start-ups used an exploration strategy for value creation by identifying new business opportunities and linking suppliers and customers.

We expect ICT based business model innovations for LIS in emerging economies to exploit factors that are inherent in ICT networks as well as those that are specific to a LIS environment. This is because there are differences in the manner in which ICT based service delivery is provided in developed and emerging economies. We expect such factors to also influence value creation mechanisms. In a developed country, ICT based services usually augment existing services, whereas in an emerging economy, services over mobiles may be the only channel for service provision. Therefore, user acceptance plays a greater role. Since the target population is not literate and it has lower exposure to digital/electronic environment (such as cash machines), it may resist adopting technology-based services, especially financial transactions. Further, in a low literacy environment, service delivery using a SMS service and textual interface is difficult. The lack of well-established delivery chains and poor connectivity, in rural areas also makes it difficult to integrate the electronic and physical chains, a prerequisite for efficient service delivery. The pre-requisite of high-end handsets is another hindrance.

Exploiting Factors Inherent in ICT Networks

Despite the challenges identified above, the start-ups were able to leverage the inherent characteristics of ICT networks for value creation by (a) provision of novel services, (b) improving the efficiency of operations (c) providing complementary services, and (d) creation of lock-in (Amit and Zott 2001). Both ALW and Oxigen

created platforms for service and payment deliveries. Both brought operational efficiency to an existing service. In the case of Oxigen, the upfront investment was reduced from Rs 50,000 to Rs 5,000. Daily collections by the Feet on Street reduced the liability of retailer/distributor to the daily value of business. The low cost of labor and high rates of unemployment, inherent characteristics of the ecosystem in emerging economies, created an opportunity for Oxigen to employ Feet on Service personnel easily. ALW's mobile banking solution reduced the banks' investment in opening branches in rural areas. Both were able to offer a variety of complementary services offered on the mobile platform which increased the financial sustainability of both start-ups. The provision of complementary services, created a lock-in effect. Customers for both start-ups would find it difficult to switch to a different platform for services.

Exploiting Factors Inherent in LIS Environment

The literature on business model innovation in the LIS context has identified a number of contributory factors such as creation of an ecosystem, co-creation of services, developing benefits for all partners in the ecosystem, creation of virtuous cycles, building local capacity, etc. (Hart and Sharma 2004; London and Hart 2004; Prahalad and Hart 2002; Seelos and Mair 2007). Our study brings out additional factors which have been captured only to a limited extent.

- Dominant Role in the Construction and Linking of an Ecosystem
- Finding the Balance between Formal and Informal Governance Mechanism
- Exploiting Opportunities Created by Institutional Voids
- Developing Products and Services Specifically for LIS Markets

We discuss each below.

Dominant Role in the Construction and Linking of an Ecosystem

Sanchez and Ricart (2010) have highlighted the need for the construction of an ecosystem while devising innovations in service offerings for LIS. The role of the feedback loop and creation of virtuous cycles within the ecosystem in influencing the strategy and business model and consequent generating value for all partners in the ecosystem has been highlighted (Casadesus-Masanell and Ricart 2010; Sanchez and Ricart 2010). This is in contrast to developed country markets where more established ecosystems comprising existing channels, institutions, and industry associations may exist (Simon 2004). Thus challenges in designing service offerings for LIS are not only related to the development of efficient service value chain but also in internalizing the cost of construction of the ecosystem and establishing the processes for service delivery. Oxigen's success was dependent on the creation of an ecosystem of selected retailers and that of ALW was dependent on developing linkages with banks, appropriate selection of CSP, developing the cash management system end to end, etc. In order to create an effective ecosystem, both Oxigen and ALW designed

appropriate processes such as selecting retailers, Feet on Street, and CSP respectively. Oxigen too needed to identify retailers willing to participate on its ICT network.

We found that the start-ups' reliance on and linkages with the ecosystem were strong. This is particularly important, as start-ups, have little or no fall back mechanisms unlike established firms providing services to LIS (Sanchez and Ricart 2010). They established virtuous cycles for the network alliance partners, a feature which is more critical in LIS because the resource base of some partners may be low and an existing ecosystem may be fragmented and loosely tied (Moyi 2003). Oxigen's retailers got additional income by tying up with utilities for bill payments. In emerging economies, since the business ecosystem is loosely connected, start-up have the scope to use ICT to link up different elements to create value for the target segments. The increased number of tie-ups led to more retailers becoming part of the network. Although, creating virtuous cycles is difficult in emerging economies since this often requires understanding the business of other network partners, the start-ups were able to manage this aspect. Since the resource base of the start-up is low, deficiencies in the ecosystem exacerbate the situation. For ALW, interfacing with a large number of government organizations with varying levels of computerization and little standardization were barriers. In the case of Oxigen, retailers were independent small businesses who lacked financial resources and ability to understand the benefits of integration and were averse to risks associated with integration across different service providers' systems.

Balance between Formal and Informal Governance Mechanisms

The literature on governance processes usually refers to the governance structure and processes within the enterprise and rarely refers to the informal mechanisms outside the enterprise. Yli-Renko et al. (2001) highlight the role of contractual governance flexibility in the case of new technology based firms with respect to key customers. Contractual governance flexibility allows "the parties to adjust the terms of exchange in a manner congruent with the spirit of the contract as circumstances change" (Yli-Renko et al. 2001). However, dependence on some form of contractual basis is examined by Beale and Dugdale (1975) and Ring (1997). While these studies focus on business to business relationships, flexibility in contract governance is highlighted as important. In the case of LIS in emerging economies, the role of informal governance process is significant (Weidner et al. 2010) as existing social norms of doing business based on trust, high cost and low availability of legal expertise. Further, low levels of education may preclude more formal contracts. Payment systems implemented over mobile and ICT networks exploited the nature of this trust-based relationship between the customer who has little understanding of formal processes and the backend which is governed by formal processes. Since several of the steps are executed in a virtual environment which is alien to the rural customer, physical and social presence, especially in transaction-oriented setting, is valued (Travica 2002; Simon 2004; Sridharan and Viswanathan 2008), thus creating

opportunity for some measure of trust-based informal relationships.

The operation of the start-ups involved retaining money from customers, an aspect which is governed by strict financial and banking regulations and formalized relationships. But with regard to the end customer, the relationship was governed loosely. For managing service delivery over a large number of retailers, CSPs required some degree of formal mechanisms. Both ALW and Oxigen entered into agreements with direct customers (CSPs and retailers). However, in both cases, no service level agreements were specified. There was little insistence as the start-ups understood that a CSP or a retailer would need to prioritize the delivery of services depending on their understanding of the social context. In the case of ALW, although the CSP might get a lower share on government disbursements, they may prefer them over personal transactions, as the former are for the underprivileged. This prioritization of the social dimension over business helped both firms to generate goodwill and acceptance. The start-ups also understood that governance mechanisms would need to be tailored differently for each situation and could not be very formal. They ensured that not only did their ICT systems comply with existing banking and financial regulations, but also that their systems and manual processes were designed to get the trust of their end-customers (Crabbe et al. 2009; Hoang and Antoncic 2003; Morawczynski and Miscione 2008).

Service delivery in this kind of situation is possible when informal governance mechanisms sometimes have primacy over formal mechanisms, as it helps to build acceptance in the minds of the target population. Implementing a formal contract is questionable in a rural context where formal systems and work culture are not prevalent. For such a situation, social contracts in furthering the proliferation are important, since the services are provided using new mechanisms.

Exploiting Opportunities Created by Institutional Voids

In emerging economies, public service provision, especially in rural areas, is inadequate owing to weak institutional infrastructure (London and Hart 2004; Mair and Marti 2009; Ray and Ray 2010; Seelos and Mair 2007; Siqueira and Bruton 2010). LIS customers have difficulty in accessing these services owing to high cost lack of information, low literacy levels, and concerns regarding their own ability to deal with formal systems. Lack of established institutions that could play a coordinating role increases the cost of service provision and reduces access to services.

While start-ups, in general, leverage gaps in business and institutional environment to create opportunities for product/service delivery, our study showed that doing so in an emerging economy may require additional efforts due to paucity of formal linkages and information and uncertainties created by having to deal with governments or formal organizations. A larger number of opportunities in emerging

economies arise due to institutional voids than in developed countries owing to poorer institutional infrastructure in the former. For example, the lack of banking infrastructure led ALW to get involved in the financial inclusion initiatives of the government. When banks in India found it financially unviable to cover rural areas, they entered into partnerships with entities like ALW. Similar results have been reported by Diniz et al. (2009) where they examined the role of ICT in integrating banks with microfinance institutions in Brazil. They also show how these linkages helped banks to increase their access to customers. Oxigen was able to overcome the lack of IT based established marketing channels and electronic payment systems by designing a system for disintermediation of recharge coupons. Both ALW and Oxigen were able to not only design products/services that filled the gap, but also successfully linked them to the target segments.

Developing Products and Services Specifically for LIS Markets

The role of contextual knowledge in bringing about service innovation is highlighted in several studies (Cavusgil et al. 2003; Song et al. 2010; Stuart 2000; Van de Vrande et al. 2009). Therefore, processes that increase proximity to customers (Foster and Heeks 2010) would need to be designed.

ALW and Oxigen realized that mobile and ICT based services needed to be designed afresh *de-novo* while keeping in mind the specific characteristics of the target population. Further, the required solution must be scalable to deal with a large number of customers and customized. This necessitated innovations in product/service design. Voice enablement in the case of ALW and POS design in the case of Oxigen were contextual innovations. Stripped versions of successful products and services in developed markets for serving the LIS may not work as these may not be designed specifically to serve the needs of target markets.

A CONCEPTUAL MODEL FOR VALUE CREATION FOR ICT BASED SERVICES IN EMERGING ECONOMIES

After identifying the factors contributing to value creation in business model innovations, we develop a model for value creation that integrates them.

Creation and Appropriation of an Intermediary Role as a Driver of Value Creation

We propose that the start-ups' creation and appropriation of an intermediary role for themselves led to value creation. The start-ups acted as boundary spanners between the institutional and infrastructure environment on one hand and the business model innovation embedded in the ICT based service delivery model on the other. According to Levina and Vaast (2005), successful boundary spanners are those who

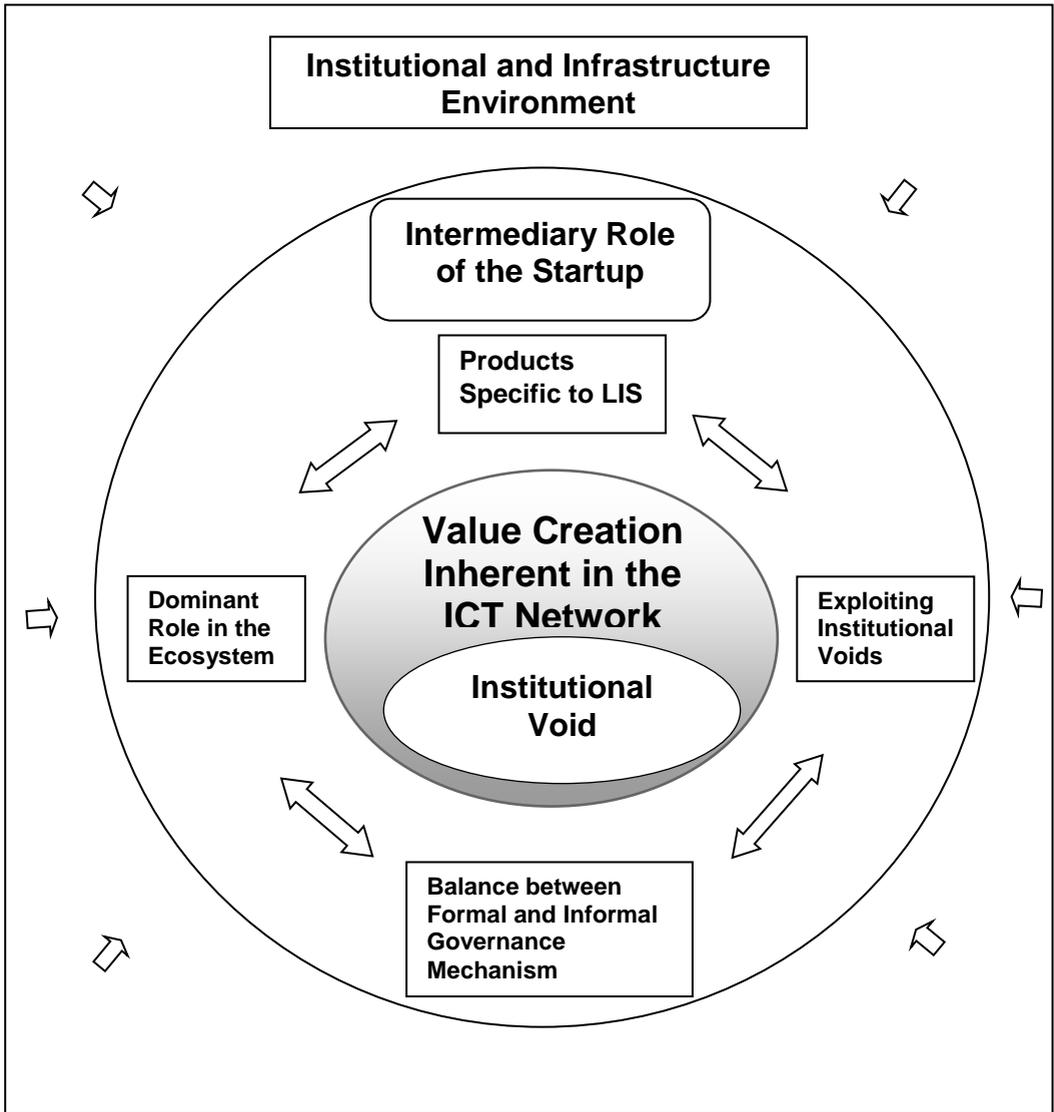
are able to “transform their practices in local settings so as to accommodate the interest of their counterparts”.

By ensuring that they played a dominant intermediary role in linking the different ecosystem partners, the start-ups effectively managed all aspects of the service value chain. ICT based services helped in the creation and appropriation of this role. The start-ups recognized the institutional voids and created appropriate processes to strengthen their role. By using proprietary technologies and dovetailing their business processes with those available with customers and suppliers, so that there was appropriate balance between formal and informal governance processes, they were able to create value for themselves and ecosystem partners.

The model for value creation is shown in Figure 1. In this model, we have extended the existing model of value creation in e-business in a developed country to the LIS in emerging economies and also identified the value creation activities in the role of the start-up as an intermediary. Earlier, we developed the logic for this role. We have also integrated two existing strands of theory: value creation through business model innovation in e-business and LIS in emerging economies.

Prior studies of ICT networks have highlighted the role of disintermediation and re-intermediation in service provision (Aguila-Obra et al. 2007; Nissen 2000; Nissen 2001). However, they largely focus on the inherent characteristics of the ICT networks and do not focus on the contextual factors. Further, they do not elaborate on the value creation process. Our study has highlighted the contextual drivers of value creation and has extended the existing models which are based primarily on the characteristics of ICT networks.

Figure 1: Model for Value Creation for ICT Based Services for LIS in Emerging Economies



SCOPE FOR FUTURE RESEARCH

Our work is exploratory and is focused on innovation in business models for serving LIS in India. With developments in technology, tele-education, agro advisory and health are considered as important areas of development for serving LIS. Business models in these areas could contribute to the existing body of knowledge and provide insights into factors that contribute to business model innovation. Studies in other emerging economies such as Brazil, Russia, and China can also throw light on how different institutional environments influence business model innovation. While we have studied innovations for serving LIS, studies of innovations in ICT based services in general would also be useful. Comparative studies between the business models of start-ups and established enterprises are important as is the need to take forward the current work towards a more rigorous theory building exercise.

SUMMARY AND CONCLUSIONS

This study contributes to empirical work by studying two start-ups and analyzing their business models for ICT based services specifically targeted at LIS in India. We have developed a model for value creation using ICT based service delivery to LIS in emerging economies by extending and integrating the existing model of value creation in e-business and LIS. The article identifies the characteristics of business model innovation in the LIS context as the ability to play a dominant role in the construction and linking of an ecosystem, finding the balance between formal and informal governance mechanisms, exploiting opportunities created by institutional voids, and developing products specifically for target segments. These have received little attention in literature.

Furthermore, this study posits a critical role of the start-ups as an intermediary in linking the weak institutional and infrastructure environment on one hand with the business model innovation embedded in the ICT based service delivery model on the other, thus creating value for all partners in the ecosystem. Based on prior work in business model innovation in developed countries, we also identify how innovations differ in developed and emerging economies. Finally, innovations in business models in emerging economies is a nascent area of research; we encourage others to conduct similar research as it would have enormous theoretical and practical implications.

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