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Service innovations in mobile banking for creating value for the poor in developing countries

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Abstract

Mobile banking is a service innovation in the banking industry. Extant research has demonstrated that the goal of any service innovation is to create value for stakeholders including consumers. Despite the consensus that information and communication technologies (ICTs) can be leveraged to deliver financial services to the poor, few studies have examined the process through which mobile banking service providers create value for consumers. . Building on concepts from service-dominant logic and service science, this paper posits that the delivery of such mobile banking services requires a repertoire of information and communication technology (ICT) as well as non-ICT resources. Specifically, Cashpor a mobile banking service provider, that provides mobile banking financial services to rural females is examined. The research traces the implementation of key service innovations by configurations of three resources— people, technology, and information, and three mechanisms – knowledge integration, technology integration, and governance – through which value-creating benefits of social, economic, and psychological benefits are achieved.

Keywords: *Mobile banking; Service innovation; Mechanisms; Female consumers; India.*

1. Introduction

Mobile banking refers to the use of a mobile device to remotely access one's bank account (Alalwan, Dwivedi, & Rana, 2017; Mallat, Rossi, & Tuunainen, 2004). In 2018, out of 5.1 billion unique subscribers of mobile phones across the world, over 4 billion subscribers lived in the Asia Pacific region and Sub-Saharan Africa alone, where the mobile banking industry is poised to experience exponential growth by 2025 (Stryjak & Sivakumaran, 2019). Over 2 billion mobile phone users who earn less than \$2 a day in the Asia Pacific region and Sub-Saharan Africa (Gupta, Yun, Xu, & Kim, 2017; Kemal, 2019; Malaquias & Silva, 2020; Qureshi & Najjar, 2017) present an opportunity for mobile banking service providers (MBSPs) to expand their outreach and benefit their customers in developing economies.. This study examines how MBSPs can create value for the people living in poverty.

Despite strong growth potential, adoption rates of mobile-based financial services do not always reach the expected level in developing countries (Alalwan, Dwivedi, Rana, & Williams, 2016; Potnis, Gaur, & Singh, 2020). Hence, it would be a proactive, profitable business strategy for MBSPs to help these billions of low-income consumers adopt and benefit from using mobile banking services (MBSs) regularly. Most of the information technology (IT) business value literature on mobile banking is limited to factors influencing the behavioral intention and adoption of MBSs (Shaikh & Karjaluoto, 2015). Sample factors include but are not limited to: technological, behavioral, and environmental factors (Oliveira, Faria, Thomas, & Popovič, 2014), demographic factors (Calisir & Gumussoy, 2008; Malaquias & Silva, 2020), innovation attributes (Lin, 2011), and service quality and characteristics (Motiwalla, Albashrawi, & Kartal, 2019; Shareef, Dwivedi, Kumar, & Kumar, 2017).

Most of the studies on mobile financial services (Mwangi & Brown, 2015; Potnis et al., 2020; Sharma & Sharma, 2019; Tam & Oliveira, 2019) focus only on consumer attributes that drive the usage of mobile financial services. For instance, Tam & Oliveira (2019) apply Hofstede's cultural dimensions and task-technology-fit model to investigate the role of culture in influencing the use of MBSs by consumers; similarly, Baabdullah, Alalwan, Rana, Kizgin, & Patil (2019) test the DeLone and McLean model, along with the Unified Theory of Acceptance and Use of Technology model to study the factors influencing the use of mobile banking in Saudi Arabia. A large body of literature has mainly focussed on identifying the issues related to perception, intention to use, socio-cultural and demographic factors (Kim, Zoo, Lee, & Kang, 2018). Few studies have investigated the issues of uptake and continuance of mobile financial services (Sanz & De Lima, 2013; Wamuyu, 2014).

In addition, academic literature on how MBSPs create value for people earning less than \$2 a day is sparse. There needs to be more empirical research on under-represented groups in diverse cultural settings in developing countries (Slade, Williams, & Dwivedi, 2013). Martins, Oliveira, & Popovič (2014) called for researchers to investigate the benefits of MBSs for less-educated consumers with low levels of computing/Internet skills. In addition, there is a lack of analysis on the process of demand-driven service innovation as an instrument to understand the factors that lead to the actual usage (uptake) of mobile financial services (Kim et al., 2018).

Our study addresses this gap by answering the following research questions:

- a. How do mobile banking service providers create value for the poor in developing countries?
- b. What key values are generated by the mobile banking service providers for their consumers?

2. Related research

2.1 Service systems and service-dominant approach

To answer our research questions, we adopt a service-dominant lens, a distinct approach to the value creation process (Barrett, Davidson, Prabhu, & Vargo, 2015; Laukkanen, 2016). Vargo & Lusch (2004), (2008) proposed a service-dominant (S-D) logic in which the roles of producers and consumers in the value creation process are intertwined rather than separate. The emphasis is on the requirements of the service consumers (users) and the offerings of service producers (providers) that aim at generating value (Malar, Arvidsson, & Holmstrom, 2019). Value is created jointly through mutual interactions, facilitating the integration of resources among the producers and consumers (Vargo, Maglio, & Akaka, 2008). The S-D logic has a user-centric perspective in which the producer and the consumer together create value by designing processes that mutually leverage available resources. However, service provision entails greater use of intangible resources such as knowledge and skills for value creation, in addition to tangible resources such as technology. Thus, S-D logic stresses an appropriate configuration of both tangible and intangible resources to create value for consumers. It is through these resources that service providers implement service innovations for users.

2.1.1 What is service innovation?

Service innovation is a process of accessing the necessary resources, (re)combining them, and converting them into new services (Witell et al., 2017). Service innovations, which can involve the design and development of new services, improvements in processes, and organizational innovation, refer to the “re-bundling of diverse resources that create novel resources” (Witell et al., 2017, p. 162). Service innovation also involves creating new sources of value for current and future consumers, perceived as

beneficial by the consumers (Chen, Batchuluun, & Batnasan, 2015). Finally, service innovation enables value creation through the interactions of service providers with consumers, who are active participants in the provisioning of service (Sukkird & Shirahada, 2015). Using service-dominant logic and concepts from the service science literature, we posit that the value creation for poor communities requires combining available ICTs with other available resources.

2.1.2 How can service innovation create value?

Service innovation is facilitated through several value-creating mechanisms that help organizations mobilize and combine tangible and intangible resources like technology, knowledge, and organizational capital and institutions (Srivastava & Shainesh, 2015). Chuang & Lin (2015) also emphasize that developing technology, human resources, and business resources lead to e-service innovation. Customer and business partner collaboration, customer orientation, employee engagement, and knowledge integration mechanisms are key antecedents of service innovation (Ordanini & Parasuraman, 2011).

Extant research has outlined value creation mechanisms to implement service innovations. For example, knowledge integration mechanism (KIM) represents formal structures and processes that facilitate combining existing organizational knowledge with newly acquired knowledge from internal and external sources to assimilate useful external knowledge and integrate it with existing knowledge organization possesses (Tsai & Hsu, 2014; Tsou, 2012a).

Technology integration mechanism (TIM) refers to the structural institutions and infrastructure that enable an organization to routinely transmit and acquire reliable, real-time, and consistent electronic data from its value network and assist in integrating its existing IT systems/infrastructure with that of its partners (Chang, Tsai, Fu, Chen, & De

Peng, 2016; Tsou, 2012b). Finally, Governance mechanisms (GoM) are a set of activities that organizations implement to govern relationships with their consumers.

Based on the past research, we conceptualize a preliminary framework for understanding service innovation based on the S-D logic in Figure 1 below.

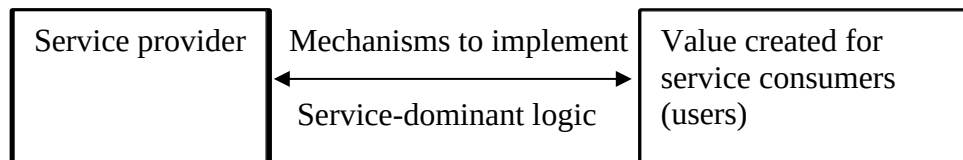


Figure 1: Framework based on service-dominant logic

2.2 Mobile banking and service innovations

Mobile banking, which serves as an extension of banking services over mobile devices (Baabdullah et al., 2019; Kemal, 2019), represents a service innovation in the banking industry (Alalwan et al., 2017). Mobile banking services require consumers to be digitally and financially literate to operate and benefit from financial services offered via simple message services, unstructured supplementary service data, or mobile applications (Potnis, Gaur, & Singh, 2020). This can create barriers to the use of mobile phones for finance for illiterate or semi-literate people living in poverty (Mohan & Potnis, 2015).

2.2.1 Service innovations in the mobile banking industry

Considering the use of mobile phones for banking, people are likely to face barriers related to education, digital skills, financial literacy, finance (e.g., the cost of owning and operating mobile handsets), technology (e.g., lack of 24/7 electricity, signal strength), human-computer-interaction (e.g., user interfaces of mobile phones), and psychology (e.g., lack of self-efficacy to use mobile phones, perceived risk) (Kemal,

2019; Martins et al., 2014; Oliveira et al., 2014). For instance, less educated people with low levels of computing/Internet access are likely to perceive a greater difficulty in the use of mobile banking and higher inherent usage risks (Martins et al., 2014); they might also find it challenging to fill out the paperwork involved in opening a bank account. Nayak, Priest and White (2010) also report that the absence of a computer, lack of internet connection, and inadequacies in necessary skills are the most common excuses for non-use of information and communication technologies (ICTs) by the elderly. Empirical studies have shown that individuals characteristics such as income, age, gender, education, disability, and race explain the low access to mobile devices and consequently the exclusion of the people with said characteristic from the digital society (Johansson, Gulliksen, & Gustavsson, 2020; Park, 2020).

Moreover, psychological barriers to owning and operating a bank account can prevent them from benefitting (Mohan, Potnis, & Alter, 2013). For example, customers, especially, women often lack the confidence to operate their devices for accessing MBSs (Mohan & Potnis, 2015). In addition, communities such as migrants often distrust the banking system and the technology, and thus, do not use MBSs (Siano, Raimi, Palazzo, & Panait, 2020). Finally, the learning curve involved in using a bank account regularly and cumbersome tedious banking transaction processes can further discourage the ongoing use of MBSs (Gupta et al., 2017).

Financial illiteracy, i.e., the inability of an individual to understand how money works or how financial service providers manage money is prevalent in developing countries (Amari & Jarboui, 2015), and is one of the main reasons people living in poverty are often unable to benefit from MBSs (Bisht & Mishra, 2016). Financial illiteracy can lower the confidence of consumers of MBSs (Hermes, Lensink, & Meesters, 2011), leading to discomfort in their use. Thus, MBSPs need to design and

implement business practices around contextual factors so that consumers can overcome the barriers to using and benefitting from these services (Dwivedi, Shareef, Simintiras, Lal, & Weerakkody, 2016). Lin (2011) found “perceived competence,” which represents the consumer’s perception of the service provider’s ability, knowledge, and expertise in understanding the financial needs of the consumer, as a significant predictor of the adoption of MBSs. Hence, they recommend MBSPs “pay attention to practical solutions and provide advanced functionalities (e.g., intelligent agent-based portfolio management and financial planning services) to enhance competence beliefs regarding mobile banking firms, subsequently reducing the risk of losing potential customers” (p. 258).

Sharma and Sharma (2019) highlight that better service quality (i.e., the type, degree, and availability of help offered by MBSPs) increases the level of customer satisfaction and intention to use mobile banking. Their study measures service quality in the form of type, degree, and availability of help offered by MBSPs to the consumers. Facilitating conditions are a significant factor in the adoption of MBSs in developing countries (Alalwan et al., 2016), where conditions can take the form of the consumer’s necessary knowledge in using mobile banking, and the degree of help the consumer receives from others when having difficulty with mobile banking.

Research has documented several examples of service innovation in the mobile banking space. For instance, to help the consumer address a range of challenges to use MBSs, banks can recruit and deploy their agents at the doorstep of the consumer to carry out financial transactions (Mohan, Potnis, & Alter, 2013). Bank agents serving consumers at their doorstep use a combination of mobile devices such as biometrics cards, personal digital assistants, near-field communication, and a handheld printer (Mohan & Potnis, 2015). This “door-step banking” is a high-touch and high-cost

delivery channel of loans that circumvents the difficulty of consumers in remote areas having to travel to a bank for financial services. Sometimes bank agents schedule meetings early in the morning when consumers are available, to prevent disrupting their work schedules in the fields (Mohan & Potnis, 2010).

Leonardi, Bailey, Diniz, Sholler, and Nardi (2016) present a few service innovations implemented by MBSPs in Brazil, which include providing financial advice to consumers, counseling consumers on personal matters, and welcoming consumers who fear banks. Financial transactions facilitated by human agents of MBSPs, service hours customized around the needs of consumers, and varying identity requirements for account registrations are a few other service innovations reported by past research (Foster & Heeks, 2013).

2.2.2 *Value Value-creation in mobile banking* consumers

Service innovations enable MBSPs to create value for their consumers. Value creation reflects how MBSPs (i.e., banks, telecom companies, and fintech) engage with consumers (Baden-Fuller & Haefliger, 2013). Efficiency, convenience, safety, saving time, location-free access, and the ability to use service are some of the benefits created by MBSPs for their consumers (Laukkanen & Lauronen, 2005). Research has documented several instances of value creation by MBSPs. For example, MBSPs facilitate access to finance. In many countries, there are severe institutional barriers to accessing banking services. Banks resisted the introduction and diffusion of mobile banking systems. However, international telecom companies have facilitated access to mobile banking for the poor (Teece, 2018). Thus, mobile banking serves as a means to achieve financial inclusion in developing countries (Donovan, 2012).

MBSPs also create value by allowing the consumers easily open an account. Ease of opening an account: Mobile banking would not be able to provide any value to its consumers if it made opening an account just as difficult as opening a traditional bank account (Smith & Colgate, 2007). MBSPs further create value for their consumers by enabling consumers to carry out low-value transactions (Donovan, 2014). MBSPs allow, its consumers to carry out small value transactions such as depositing/withdrawing money in small denominations. By availing doorstep banking services through MBSPs, users save their travel time and expenditure, which they normally spend on traveling to the bank branch (Potnis et al., 2020).

Finally, value-creation by MBSPs is exhibited through applications of mobile banking. For example, mobile banking can be leveraged for paying fees and bills, buying products and services, and remitting money, in a reliable, efficient, and inexpensive way (Ishak, 2019; Morawczynski, 2009).

Most of the literature on service innovations in the mobile banking industry focuses on how MBSPs provide access to consumers. However, access does not guarantee the benefits or value created by mobile banking services. Rarely do any studies identify and analyze the systematic ways in which MBSPs can help their poor consumers at the address the barriers to using MBSs, a pre-requisite for generating value for the poor using mobile banking. Kemal (2019) highlights the need to offer financial and digital training to women in Pakistan for using mobile banking, but extant literature does not offer insights about mechanisms and ways in which MBSPs create value for . We advance this literature by identifying service innovations that enable people living in poverty to benefit from using mobile banking services. Finally, by using concepts from the service-dominant logic to identify and explain service

innovations in mobile banking, we demonstrate that the value creation in such a scenario requires combining available ICTs with other available resources.

3. Research methodology

3.1 Research setting

This study focuses on Cashpor, a micro-credit established in 2002, in India, a country with over a billion mobile phone users (N. Singh, Sinha, & Liébana-Cabanillas, 2020). Reasons for selecting Cashpor as the case were two-fold. First, Cashpor is a poverty-focused, not-for-profit Company that provides microcredit and mobile-based financial services exclusively to below poverty line women in the states of Uttar Pradesh, Bihar, Jharkhand, Chhattisgarh, and Madhya Pradesh. Second, Cashpor is one of the few MFIs in India, that also serves as banking correspondent to commercial banks and provides mobile banking services to its female consumers (Singh & Padhi, 2015).

The loan amounts ranged from Indian National Rupee (INR) 2,000 to 8,000 (i.e., about \$33-133). In 2011, Cashpor partnered with: (a) ICICI Bank, India's largest private commercial bank capable of holding savings deposits; (b) Alpha Technologies, which equips the loan officers of Cashpor with the mobile technology solutions required for serving the impoverished consumers at their doorsteps, and also offers the middleware required to coordinate operations between Cashpor loan officers at the doorstep of the poor consumers and ICICI bank; and (c) Grameen Foundation, a third-party digital consultant. By 2013, Cashpor had helped over 157,968 women from the lowest stratum of society open a savings account over mobile phones (Gaur & Avison, 2015). It is the first financial service provider to use mobile-technology-based innovations to carry out its core operations in India (Skoch, 2015). In 2015, it received the Financial Inclusion

Award from the Skoch Foundation. As of 2019, Cashpor had over 3.5 million consumers in rural India (Cashpor, 2019).

3.2 Data collection

We adopted a case study approach since it provides the opportunity to produce a rich description of the phenomenon and its underlying mechanisms (Eisenhardt & Graebner, 2007). Furthermore, it allows for the inspection of the activities and experiences of the subjects by exploring the contextual features in which the subject and their actions are embedded. For instance, we collected data from multiple primary and secondary sources. Our study relies on the first author's 3-year work on the mobile banking rollout as part of the financial inclusion initiative by Cashpor. The lead author visited three villages near Varanasi in Uttar Pradesh to observe and experience the mobile-based financial service offered by loan officers of Cashpor at the doorstep of their female consumers. She attended weekly meetings to observe the interactions between groups of female consumers and loan officers, which facilitated a deeper involvement of the researcher in the relationships between Cashpor and these consumers. She took extensive notes of field observations, which lasted for three months. She also conducted 42 in-depth interviews with female consumers, loan officers, various managers of Cashpor, ICICI Bank, and Alpha. The interviews with female consumers were conducted immediately after the weekly meetings and lasted for about 45 minutes. This timing allowed the researcher to clarify and seek more information about specific procedures and group dynamics observed during the meetings.

Female consumers shared their personal stories and experiences with the researcher. The interviews with other respondents lasted for about 40-50 minutes. The interviews with female consumers and managers of Cashpor and the bank were

conducted in Hindi, whereas the interviews with Alpha representatives were conducted in English.

The interviews were guided by open-ended questions, focusing on each service provider's work history with Cashpor and their job description, the communication with consumers and other partners, the process required to deliver these services to the female consumers, the challenges related to delivering services over mobile devices, and the corresponding measures. The interviews with female consumers entailed questions such as their daily activities, the advantages, and disadvantages of using financial services over mobile devices, the consumer needs to be met by these services, and the benefits and impact of these services on the female consumers. As part of our secondary research, we gathered executive summaries, annual reports, PowerPoint presentations for loan officers and female consumers, and Cashpor training manuals, both from their managers and online. This information reveals the vision, mission, and strategic planning of Cashpor, along with its business process, which helped the lead author interpret her field observations and interview transcripts.

3.3 Data analysis

Data in different languages (i.e., Hindi and English) and modes (i.e., text, photo, voice) were triangulated to make sense of it. Fieldnote observations were used to corroborate the stories shared by female consumers and financial service providers. Strategic planning and operational plans presented in documents were verified using empirical data.

We employed thematic analysis to inductively analyze our data. Thematic analysis is a method for recognizing, examining, and delineating patterns or themes within a data set (Braun & Clarke, 2006; Winberry & Potnis, 2021). In the first stage, we went through the data collected to familiarize ourselves and noted down initial ideas.

In the second stage, we engaged in initial coding, wherein we analyzed the data to identify keywords, that then served as the initial unit of analysis. The initial set of keywords that emerged during this stage were grounded in the existing literature on service innovations and mobile banking. These codes/keywords were smaller components that would be developed into broad themes (Braun & Clarke, 2006). As an example, the following collection of keywords—” literacy,” “personalized training,” “digital literacy,” and “training to use mobile phones” led the authors to identify and propose the digital literacy training as one kind of service innovation.

Step 3 of the data analysis helped evolve the initial coding, for example, it emerged that the service innovations identified were facilitated through three key resources, namely people, technology, and information to create value for its consumers. The “People” resource comprises the wide network of loan officers that interact with the female consumers and play an important role in providing MBSs. Technology includes all information and communication technologies that assist in value creation by utilizing and integrating elements of Cashpor and other stakeholders. Finally, the information resource comprises the competencies, and tacit understanding that Cashpor and the female consumers possess. In Step 3, we also uncovered several mechanisms (knowledge integration, technology integration and governance) through which these resources are leveraged to implement eight service innovations to create value propositions for female consumers (see Table 1). Finally, in stage 4, the groupings were reviewed to ensure that keywords belonging to different groups were mutually exclusive. For example, this led us to distinguish between digital literacy and financial literacy, while the former refers to building literacy around digital skills the latter includes providing training about various financial instruments available.

#	Service innovations	Mechanisms	Value generated
1	Personalized training for using mobile phones (digital literacy training)	KIM: i) Loan officers help female consumers overcome the barriers in using a mobile phone, and ii) train them in a group setting to use mobile phones for financial transactions GoM: i) Identifying female consumers (e.g., tech-savvy youth) in the group who could teach and train others for using mobile phones in the absence of loan officers	Consumers get personalized training and guidance. Building digital literacy Enhanced social status
2	Building financial literacy among consumers	KIM: i) A customized financial literacy training toolkit to inform consumers about the benefits of savings and the account options available, such as fixed deposits and recurring deposits;	Consumers build financial literacy, which helps them in other walks of life as well, and gains financial skills and the knowledge to communicate using financial terms with others

		and ii) Roleplay and storytelling techniques using flip charts and other materials for emphasizing the significance of savings and other related financial operations	Consumers gain confidence for filling in paperwork, if needed, in the future
3	Ethical use of finance	GoM: i) Using appropriate disciplinary standards, and ii) All the attendees, including the loan officer, take an oath that reminds them of being honest and transparent in conducting financial transactions	Cashpor inculcates financial discipline in consumers who develop and practice financial planning
4	Building customer relationship	GoM: i) Center managers took an interesting approach in gaining consumers' trust by encouraging them to withdraw from their accounts frequently. This way, consumers could test the system and experience firsthand that their money was safe and accessible.	Consumers start trusting loan officers Consumers start using more of the services offered by Cashpor

5	Letting consumers use financial services covertly	GoM: i) Concealing information/hiding information about account status and balance and ii) Updating the passbook in writing without announcing it in a group setting	Consumers can avoid issues or fights with family members who are against their use of financial services More peace at home for consumers Loan officers strengthen their rapport with consumers
6	Offering mobile-enabled micro-savings schemes, presented in the form of different schemes such as goal-oriented savings, etc.	GoM: i) Setting small, short-term goals and working towards them, and ii) Encouraging consumers to regularly deposit small amounts	Consumers can save through existing credit account and formal channels Consumers can avoid “temptation expenses” and impulse spending Consumers are incentivized for saving - they can save for daughter’s marriage or child education Consumers are better prepared for financial emergencies in the future

			Consumers develop a habit of consistent savings
7	Linking savings bank account with the loan account	GoM: i) Letting consumers tap into their mobile banking savings for repaying loans TIM: i) setting up Aadhar-enabled Payment System for loan disbursement directly to the bank account of female consumers	If the female consumer does not have the full amount for the installment due, she can ask to withdraw money from her savings account at the meeting center Less reliance on the group for repaying installments
8	Rewarding “good” financial behavior	GoM: i) Rewarding consumers with a consistent savings track record, regardless of the savings amount, and ii) Creating incentives for consumers to save large amounts of money	Consumers can have access to additional financial products and services such as recurring deposits, fixed-term deposits, and sweep-in facilities from savings account to fixed deposits

Table 1. Service innovations, the mechanisms involved, and the value generated

4. Findings & discussion

Findings are organized around the eight service innovations implemented by Cashpor and highlight the role of resources and mechanisms in each service innovation and outline the values generated for the female consumers. To ensure anonymity of the respondents, we replaced their actual names with pseudonyms. Personalized, digital literacy training

Cashpor uses mobile devices to conduct transactions and mobile numbers as financial identities, which is implemented through a combination of knowledge integration and governance mechanisms. For instance, Vivek, a loan officer, elaborates, “Consumers who do not know how to operate a mobile phone get personalized training and guidance by agents. Initially, some females were apprehensive about using mobile phones. But then we trained them continuously with the help of other group members.” He further adds, “We also ask the females in the group who feel more comfortable in using the technology to assist or train the older ones.”

Ramdev, another loan officer, explains further: “To train them during the meetings is extremely hard since we have only 60-90 minutes in which we have to perform both savings and credit operations. So, we took some time after the meeting to explain to them the meaning of different numbers on the mobile phone...for example, the red button is to disconnect the call and the green button is to answer a call...for us, it was teaching a school kid.”

The training helps build digital literacy among women, making them feel confident in operating mobile devices and conducting transactions. In certain cases, the training also enhanced the social status of women consumers in their households. Satyawati, a female consumer mentioned, “Even the elders in my house now respect me because I am able to use mobile phones easily.”

Kalawati also added how she felt more confident in using mobile phones, *“I was apprehensive to use mobile phones earlier. Some people mock if you use it. They tell it is not meant for you. Go and work in the home. Now after saving money and seeing and doing transactions, I feel confident using mobiles. Sometimes, I also listen to the radio on my phone.”*

Sushma Devi, 55, a widow suffered from severe back pain due to carrying heavy loads of fruits on her head to earn a living for her family. But after she joined the microsavings program, she was able to buy a cart and her back pain has reduced. As she informs with a minor smile on her face, *“I am uneducated and struggled all my life. But thanks to Ramdev bhai I now know how to sign my name and how to check the balance in my savings account with my phone. My children are very proud of me”*.

To enable personalized, digital literacy training, it emerged that combining both knowledge integration and governance mechanisms was crucial. It emerged that involving another group member, especially those who are more skilled in the training helped the other females overcome the fear of using mobile phones. As a result, females enhanced their social statuses in the family.

Building financial literacy

With the help of a customized financial literacy training toolkit, a team of loan officers and managers at Cashpor inform consumers about the benefits of savings, and various options available to the consumers in the form of fixed deposits and recurring deposits. Abhi, a branch manager, clarified, *“We first begin the training sessions by asking them about the financial planning they have made for their family members and how different financial schemes such as bank accounts, fixed deposit, and recurring deposit accounts can be useful in materializing their financial plans for the family.”*

Cashpor uses role-play and storytelling techniques to emphasize how different financial products serve different needs at different points in time. Shruti, a senior training manager, explained: *“We use flipcharts that depict life cycle and different phases of the life cycle from birth till death and explain to them how the financial requirements change during the entire lifecycle.”*

In addition, training also involves informing the females about the pricing and fee structure of various financial products. Such an act helped build trust between the training managers, loan officers, and females. For example, Dhani, a young female, who recently moved to one of the villages near Varanasi, informed, “I find difficult to believe banking agents...they do not disclose the fees and in the past, always took money away. But when, Shruti didi (refers to training manager) she explained all products, benefits, charges, I felt that I can now trust my Cashpor bank”.

To confidently continue using mobile banking services and enhance the commitment of consumers to using mobile banking services, consumers need to understand the financial jargon used by MBSPs (Potnis & Gala, 2022). This is achieved by providing financial literacy, as a service innovation. The service innovation is implemented through a knowledge integration mechanism. Furthermore, this service innovation involves leveraging people and information as two key resources to create value in form of increased confidence and improved inter-person communication.

Ethical use of finance

Cashpor ensures that consumers utilize mobile-enabled savings accounts in a disciplined manner and adhere to the rules and regulations set up by the financial service provider. To achieve this, the loan officer starts with recording the attendance of each member in the group, as Cashpor believes that attendance rates are an important indicator of group quality. The host consumer ensures that all other female consumers

attend the meeting. All the attendees, including the loan officer, take an oath that reminds them of being honest and transparent when conducting financial transactions. Amit, a loan officer, mentioned: *“At the time of the center meeting, all the members sit in a U shape. The center meeting begins with the oral oath-taking of the member and the center manager and the termination of the meeting will also be with oath-taking in the name of God. The presence of the member is done from the mobile and then the member[s] [and] I sign the signature register. The beginning of the collection of savings amount starts from the member at the left-most position to right, the details are punched in on mobile and entered in the passbook. On completion of credit, savings, and pension, work starts.”*

The ethical use of finance influences the ability of money to create value in the lives of the poor (Mohan, Potnis, & Mattoo, 2013). It is important to make clients realize the significance and value of ethical use of finance.

Findings suggest the role of governance mechanisms in implementing ethical use of finance. Enforcing females to attend the group meetings and taking oath results in inculcating financial discipline among the females. The oath is framed in a way that reminds them that the financial services are delivered to them for realizing their objectives of achieving financial independence and so, the females must use the funds/money to realize those objectives. Such service innovation allows females to better plan both their household and personal finances, and thus, makes them independent in their decision-making.

Customer relationship management

Female consumers, who had no prior experience in accessing mobile phones, found it difficult to comprehend the idea of conducting transactions over mobile phones or saving money via mobile phones. Hence, loan officers encouraged consumers to

withdraw from their accounts frequently. This way, consumers could test the system via mobile phones, overcome their fears, and ensure their money was safe and accessible.

Ramdev elaborated: *“There were many fears that they had. When we introduced this product, what will happen to my money if my mobile is lost, what if I press a wrong button on my phone...these many concerns constrained our objective. Then we asked them to come to the branch and withdraw the money (even if they aimed to save the money) a few times; this way we build their trust in the system.”* To this Surbhi, the training manager, further stated, *“The fact that they could do the transactions, under the supervision of the branch manager and the loan officer, gave them a sense of belief in the technological system, and they were eventually able to believe in the functionality of the system”.*

To implement the customer relationship, knowledge integration mechanisms were seen as critical. For example, the loan officers realized after several interactions with the females that they were not using mobile banking owing to the charges levied on withdrawals/deposits, thereby leading to dormant accounts (Grameen Foundation, 2013). To counter this, Cashpor decided to do away with the charges on withdrawal/deposits. Research has documented the lack of grievance redressal mechanisms as one of the main reasons why females do not use digital financial services (ICT Works, 2021). Our findings reveal that allowing consumers to experiment with the system in presence of loan officers, establishes trust in using the system and overcomes their fears about using mobile banking. Our study also highlights that MBSPs, to encourage continued usage of the MBSs should learn new practices such as allowing consumers to test the system and unlearn existing practices like cancelling the account opening charges.

Letting consumers use financial services covertly

Cultural barriers discourage the ongoing usage of mobile phones by women in male-dominated societies (Potnis, 2016; Potnis, 2011). For instance, male members of the family often pressure female members not to use mobile devices or access financial services or act as gatekeepers by controlling the access and activity with mobile phones (Summers et al., 2020). In cases where the loan officers are aware of the family resistance experienced by a female consumer in conducting financial transactions, they try to protect the consumer by concealing their bank account information from family members. Loan officer Ramdev explained: *“I know their female consumers’ positions in their family and the villages, so, if I feel, they might want to hide the fact that they own a bank account from some family members. I do not divulge any information related to account status or balance with their family members or with other female members.”* Female consumers are not required to carry their mobile phones to the group meeting. They carry their passbook to the meeting with their mobile number written on the first page. Once the transaction is conducted by the loan officer, he updates the passbook by writing the final account balance in numbers, without verbally announcing the account balance. The consumer who carries her mobile phone to the meeting receives a notification in the form of short messaging service. Female consumers appreciate this mode of operation since it allows them to maintain complete confidentiality of their account information.

One of the female respondents, Shanta, a, 50, year-old also corroborated, she mumbled, *“I never held a bank account, in my name, because my family members feel I should focus on household chores...then to go to the bank you need to go out of the village. I cannot go alone, when I heard that I can open a bank account directly in our village, I enrolled. I only have a SIM card, If they (refers to male household members) found out I own a mobile phone, will create unwanted trouble.”*

Another female respondent, Bindu, explained, how she never carries back her passbook and SIM card back to her home, *"I keep my SIM card and passbook with Pyali didi (refers to an elder member of the group, a sister like figure), and she brings it with her to the next meeting."*

In male-dominated cultures, it is challenging for female consumers to use the financial services provided by MBSPs for saving money (Potnis, 2016). MBSPs can introduce mechanisms such as governance of MBSs in the manner that females can access MBSs in a confidential manner. Letting clients use financial services covertly is an example of another service innovation that MBSPs implement; this in turn results in psychological value created for females. They feel more relieved, are not afraid of accessing the MBSs, and also avoid unnecessary trouble at home. Offering mobile-enabled micro-savings

To make consumers' lives financially stable, Cashpor offers savings schemes that in turn increase the retention and loyalty of consumers. Cashpor encourages consumers to deposit small amounts as low as INR 20, a benefit that they do not get through bank branches. Nitin, an independent mobile money consultant, further explained: *"Women don't have the facility to save in small denominations with formal banks; with Cashpor they often save around 20-50 rupees in each meeting. Often with banks, they must save a substantial sum of money before going to the bank branch to save them."* Ramdev, a loan officer, mentioned: *"For many women, the main source of income earlier was 'skimming from the top' i.e., whatever little they could save from the amount given to them from the household. If after attending to all the expenses, some amount remained, they would often spend them on buying bangles or lipstick. We, at Cashpor, give them the flexibility to save in tiny amounts and encourage them to do so regularly."* Pushpa, a female consumer, corroborated the evidence provided by Ramdev: *"I always wanted an organized way to save the small amount of money that I had leftover every week, but without access to a savings account, I often spend it."*

Paro another female consumer informed how her role in the household changed from a passive to an active contributor after she started using these services, *“I am now, the queen of the house – I manage the household finances, help my husband with the family business.”*. Kalpana also mentioned how these micro-savings helped her set up a tiny tea stall with her friend. She mentioned, *“I deposit 20 rupees every week at the center meeting. Sometimes I deposit more. I saved 500 rupees. I and my friend opened a small tea stall. We earn a small amount and my savings helped.”*

Consumers need to save money consistently to reap benefits in the long run (Mohan et al., 2013). Hence, encouraging them to settle small short-term goals and depositing in small denominations inculcate consistent savings behavior among clients. This also results in fewer defaults on loan payments. Research has highlighted how females use the money deposited to pay their loan installments (Gaur & Avison, 2015). Governance mechanisms such as establishing short-term, goal orientation (child education, opening a small business) encouraged the females to do micro-savings; this in turn created financial value for consumers, for example, opening up new means of livelihood and enhancing their status in the family.

Linking savings bank account with the loan account

Cashpor allows consumers to tap into their mobile-enabled savings for repaying the loan installment due. Abhi Kumar, a branch manager, explained: *“Females might not be carrying the spare cash to repay...if a female is not carrying the full amount of cash for installment, she asks loan officers to withdraw money. By allowing withdrawal from the mobile-enabled savings, we ensure that there are lower rates of default and non-payments of the installment amount.”*

Cashpor’s Aadhar-enabled Payment System facilitates the disbursement of loans directly to the bank account of female consumers. Shruti, a senior training manager,

said: *“The main reason was to go cashless and avoid physical handling of cash to the female consumers and avoid the risk of robbery or snatching; this also gives the flexibility to the female consumers, to withdraw the loan amounts in parts and when the need arises.”*

Previously, females held two separate accounts, one loan account, and a second bank account. Managing both these accounts, became cumbersome. However, with the government’s mandate to link both accounts with Aadhar cards, the Indian biometric identity system, Cashpor, started to disburse the loans directly into the bank account of the females which they can also access either through mobile or through a biometric card reader. This Aadhar-based disbursement system is a form of technology integration mechanism, that has rendered the whole system toward less cash, if not completely cashless. Linking the two accounts, in turn enables females to avoid carrying loan installment in cash to the meetings (as they can directly pay loan installment from their bank accounts). this also results in reduced fear of robbery/snatching money and also makes the consumers less reliant on other group members in case they are unable to gather the whole amount for loan installment.

Rewarding “good” financial behavior

The group-lending service innovation does not fully mitigate the risk of default. Hence, Cashpor rewards consumers for their good financial behavior, measured in terms of a consistent savings track record. Additional credit is offered to the female consumers who save consistently, regardless of the amount transacted and the account balance. Dhananjay, the project manager, mentioned: *“If the females have maintained a savings account with a frequent transaction for over a year, they can avail additional credit. The credit amount that can be availed ranges from INR 2,000-25,000.”* Cashpor has established higher financial incentives for consumers who have managed to save a good

amount of money (i.e., INR 10,000 - 15,000) in a year. Abhi, a branch manager, noted:

“If they can mobilize savings and maintain a good bank balance, banks will believe more in repayment capacity of customers and thus, banks offer better lending rates and bigger loan tickets.”

Our findings indicate that MBSPs establish additional incentive structures in form of governance mechanisms to reward those consumers who demonstrate consistent savings records. This results in an instance of financial value created in form of access to additional credit, better lending rates, and a higher loan amount.

Based on our research findings, we present a revised theoretical framework (Figure 2) that summarizes the key results. Our results highlight that by configuring resources brought in by the service provider (Cashpor in our case) and the consumer (society) service system, the service provider generates value for the consumers. These resources are not wholly owned by the service provider, rather are shared between the provider and the consumer service system. For example, the information resource (e.g., bank account and transaction details) are owned and shared between ICICI bank, Alpha, and Cashpor. Similarly, the Aadhar based details are owned by the government (another example of an information resource shared between Cashpor, ICICI Bank, and the government). Finally, the mobile device interface (a technology resource) is provided by Alpha and shared with Cashpor.

We also delineate three service-centric value creation mechanisms—technology integration, knowledge integration, and governance that facilitate the configuration of the resources identified to generate different instances of value.

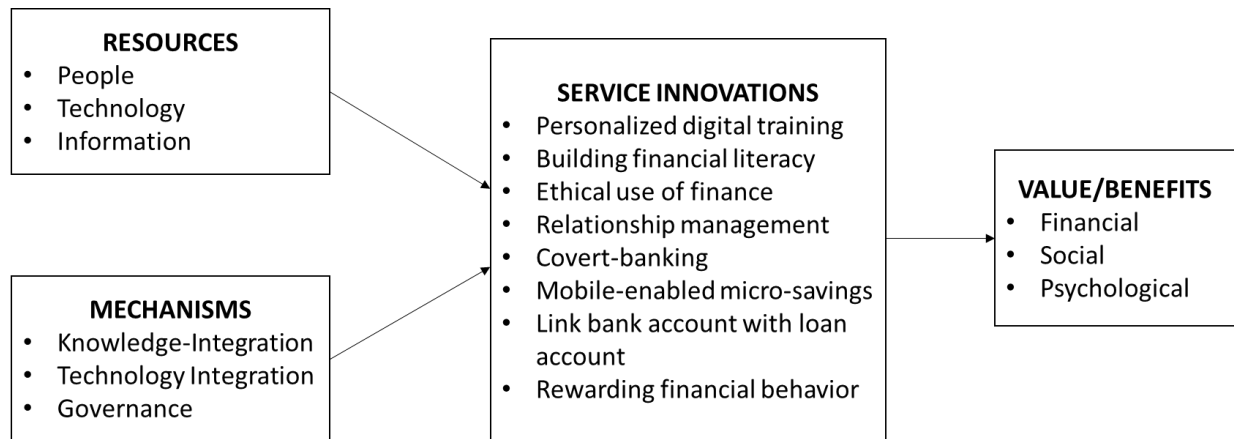


Figure 2: Resources and mechanisms for service innovations and the value created

5. Implications & conclusion

Theoretical contributions

This study presents rich empirical evidence on service innovations for creating value for the poor. Most past research on the use of MBSs (Mwangi & Brown, 2015; Sharma & Sharma, 2019) approaches it from the consumer's point of view, omitting the service provider's perspective. Barely any of those past studies investigate the efforts taken by MBSPs for creating value for their consumers. There is a need to inject fresh theoretical perspectives from other disciplines to enhance our ability to understand, explain, and interpret IT adoption and its value for the poor in developing nations (Potnis, 2015).

Our study contributes to research on service innovations, especially in the context of marginalized populations. Based on our discussion of the service-centric approach through the Cashpor case, we conclude that the innovation outcomes should be framed based on the end user's requirements (Ordanini & Parasuraman, 2011). This is especially important for service innovations in developing countries aimed at poor marginalized communities. . We also highlight value propositions that service innovations in MBSs can offer, which, include, enhancing financial discipline, improving access to a wide set of financial services, and establishing strong

communities of practice among the poor. Our study also uncovered some inhibitors that might prohibit inclusive service delivery (Srivastava & Shainesh, 2015). For instance, barriers such as lack of trust in the services, limited awareness, and apprehensions in using the services are some of the factors that could inhibit service delivery.

Service innovation literature originally involves people and technology as key resources. We propose information as an additional resource and show its role in creating value for consumers. For instance, financial and demographic information collected by the loan officers of Cashpor help them make decisions in real-time at the doorstep of the consumers in remote, rural India. Thus, people (e.g., loan officers and managers of Cashpor) and technology (i.e., a mobile app for loan officers to carry out financial transactions at the door-step of the consumers) resources are combined with information resources to create value for Cashpor's consumers. Our findings also contribute to the literature on value-creation in mobile banking services. Past research on value-creation by MBSPs for consumers in developing countries rarely presents the mechanisms or discusses the service innovations that generate value. Our research bridges this gap by highlighting the role of developing digital and financial literacy, allowing covert access to services, enforcing ethical behavioral practices, and rewarding good financial behavior as examples of service innovations that facilitate value creation by MBSPs.

Findings inform IT service management research, especially IT-enabled service innovation, which mostly focuses on factors influencing the implementation of IT services by organizations (Iden & Eikebrokk, 2013). Renewing service-delivery processes is critical for creating new sets of values for customers (Lehrer, Wieneke, vom Brocke, Jung, & Seidel, 2018). The interactions between the agents of the service provider and customers play a key role in enhancing the customer's experience of any

service (Chuang & Lin, 2015). Orlikowski & Scott (2015) highlight the importance of algorithms and online communities in shaping the design and delivery of a service. In contrast, we found that group cohesiveness and mutual trust among customers influence the service offered in an offline mode. The degree of similarity and mutual trust among female customers makes it easier for Cashpor to deliver mobile banking services. The degree of similarity in terms of socioeconomic conditions among customers influences the ability of the service provider to generate value for customers. The cohesive nature of the demographic characteristics of customers makes it easier for Cashpor to train customers to receive and benefit from the financial service.

Finally, our findings also contribute to the research on microfinance, ICT, and financial inclusion. Our study demonstrates that improving the technological and financial capability among microfinance consumers and creating awareness about mobile banking is crucial to promoting financial inclusion (Mushtaq & Bruneau, 2019).

5.1 Practical implications

Our study demonstrates the key service innovations implemented by Cashpor through a combination of resources and mechanisms. Due to the enhanced levels of financial, information, and digital literacy, female consumers of Cashpor can (a) expand their existing means of livelihood, (b) save through an existing credit account, (c) reinvest in their micro-businesses for asset expansion, (d) start new micro-businesses capable of running on low capital, saved with the help of Cashpor's savings accounts, (e) tap into their mobile banking savings to repay loans, (f) save large amounts of money in pursuit of the financial incentives offered by Cashpor, and (g) spend small savings at their own will for their preferred purposes and at preferred timings, through mobile-enabled savings made possible by Cashpor.

As a result of their financial success, female consumers experience enhanced status in the household, build their own identity in a male-dominated society, gain respect from family along with social recognition, and enjoy expanding their social capital. The financial independence achieved through the usage of mobile-enabled savings makes female consumers more independent in making decisions, which increases their self-confidence. Female consumers appreciate the way they are treated by Cashpor's loan officers and value their overall experience with this financial service provider. The success of MBSs largely depends on the extent to which customers are fully motivated to use them. Benefits experienced by female consumers are likely to encourage them to keep using MBSs.

5.2 Conclusion

Financial services offered by Cashpor are (a) compatible with the financial needs of customers, (b) implemented systematically through innovative approaches (e.g., training the customer for using the service), and (c) encompasses various services customized to meet the needs of multiple segments of customers. The newly acquired financial and digital literacies are likely going to create value for Cashpor consumers beyond accessing and using mobile banking services. The poor consumers can keep using and benefitting from these literacies beyond the realm of mobile banking.

As part of the service innovation, to create value for customers, other MBSPs should help their customers overcome the barriers to use mobile banking, a win-win solution for the customers, and the MBSPs. These innovative ways of offering service can ensure the ongoing usage of finance regularly, increasing the number of financial transactions and the profit margins of the MBSPs per customer. Several studies encourage MBSPs to undertake aggressive marketing campaigns for higher adoption rates of their services (Martins et al., 2014; Oliveira et al., 2014). This study goes

beyond this advice with the possible implication of adopting the financial service, showing the systematic ways in which MBSPs can create value through the usage of MBSs. Other MBSPs can benefit from study findings, especially for developing a service delivery model capable of benefitting consumers. .

We argue that it is the moral responsibility of MBSPs to help their consumers, especially women, in overcoming social, cultural, technical, financial, and educational barriers to using and eventually benefitting from financial services in male-dominated societies. The support system in the form of loan officers, literacy training programs, and a range of consumer-friendly financial services built by Cashpor generates not just financial, but social and psychological benefits for female consumers, which is likely to encourage their ongoing use of financial services in the future.

Declarations

Conflict of interest statement

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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