Final Research Report

Mobile Payment for Financial Inclusion: Investigation of a Pilot Project In Brazil

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Abstract

This paper presents an investigation of a pilot project that implemented a mobile payment platform in a poor community in Brazil. This project involved the creation of a network of organizations that includes a local microfinance institution, a large retail bank, a mobile phone operator, an international credit card company, and an acquirer, as well as small local merchants. The objective of this paper is to describe the process in which this platform was created and how it was maintained through time, considering the business objectives of the partners involved. Two conceptual approaches were combined for developing a theoretical understanding of this pilot project first to describe the process of inter-organizational network establishment and second to analyze its evolution during its first year of operation. The study points to the critical role played by governance processes, the environmental dynamics, the two dimensions of adoption (users and merchants) in mobile payments platforms, and how it can compromise the success of establishment and maintenance of such inter-organizational networks.

Introduction

With the current ubiquity of mobile telephony, mobile payment platforms have the potential to change the landscape of monetary transactions. Access to mobile devices is widespread in contrast to the much more limited access to traditional financial services such as bank accounts and savings. For this reason, mobile payment is considered a key instrument in improving financial inclusion and it opens opportunities for lowering the costs of services that are offered to the financially underserved in society (Alampay and Bala 2010; Duncomb and Boateng, 2010).

Mobile payment systems are, by their own nature, based on the establishment of a network of companies having different approaches to the market and under regulation originated in specific areas, such as the financial and the telecommunication sectors. For that reason, mobile payment systems environments are commonly treated as “ecosystems”, in which firms from various industries have to “negotiate the exchange of their complementary resources and capabilities in order to provide a mobile payment platform” (Gaur and Ondrus, 2012:171).

The establishment and management of the highly complex and interdependent networks behind mobile payment platforms poses considerable challenges. Continuous emergence of new technologies, lack of clarity in the regulatory framework, and accommodation of competition rules coming from the diversified market sectors are some of the challenges posed in establishing mobile payment platforms. Furthermore, another important factor to be considered is the demand side: the public acceptance of new ways of payment is deeply intertwined with cultural aspects of money. Maurer (2012) points to people adapting and modifying payment systems as their experience with mobiles and money grows, in contrast with simply adopting a new system for value transfer and storage.

With an intention to contribute to the research pertaining to mobile payment platforms, this paper investigates a pilot project implementation of mobile payment in a poor community in Brazil. The study about this project implementation was developed with a focus on the question: “what are the challenges to create and maintain a very diversified network of organizations needed to develop a mobile payment platform focused on financial inclusion?” To capture the different perspectives raised by this question, we spoke to all the actors involved in the pilot project, including a local microfinance institution, a large retail bank, a mobile phone operator, an international credit card company, and an acquirer. We also conducted interviews with small local merchants and final consumers, which will also be included in the analysis and relevant actors

that could have some influence on the environmental dynamics of the project, such is the Central Bank and the Ministry of Social Development.

This paper is organized as follows: the next section will present a review of mobile platforms in general and mobile payment platforms in particular, then point to the relations between mobile payments and financial inclusion as well as potential innovations in mobile payments. The third section will introduce the Brazilian case and explain why it should be considered as relevant. The fourth and fifth sections will respectively describe the conceptual approach and the research strategy applied to this study. The sixth section will present the results of the field research while the seventh section will include a discussion based on the findings of the study. The paper ends with some concluding remarks and a list of references.

Theoretical Background

Mobile Platforms and Ecosystems

Platform architectures are modular, complex systems built in such a way that a stable core group of components (the platform itself) interacts with another group of complementary systems that vary in cross-section or over time (Baldwin and Woodard 2009). Those platforms are meant to provide economies of scale and scope within and across firms, offering low-cost, decentralized solutions for the various groups that transact with each other, either within a single firm or a supply chain or spread over ecosystems consisting of many different firms. Platforms can also vary a great deal in terms of application objectives, from architecture that either provides the ability to download new applications onto a mobile device, or one that allows stores in any city in the world to sell goods to a customer with a credit card.

The control (or ownership) of the stable core of the platform is critical to its performance and is related not only to technical issues, but also to business models' arrangements involving all the participant firms (Ballon, Bouwman, & Yuan 2011). When a platform is not locked down, it can be adapted by the addition of new modules to reach a range of new uses (Tilson et al. 2013). Thus, the decision process of what a platform effectively does and who approves its future directions is vital for its technical performance and business success.

Fransman (2002) proposes a model to analyze the emerging dynamics in the telecommunications industry, including new services and new agents through overlapping layers that integrate and build value for customers and consumers. In order to keep some control over the process of services offered and the targeted market in the very complex environment of the mobile industry, companies that provide operating systems, mobile network protocols, mobile services, applications, and so on, organize themselves together around platforms to explore business models and architectures that allow them to compete against other groups of firms also organized around concurrent platforms.

Companies that interact with each other group themselves around a number of specific platforms to create a complex ecosystem that provides a broad array of mobile products and services to end-customers. The complexity of the mobile ecosystem increases as new actors emerge and new relations are formed, shifting the established distribution of power (Basole 2009). Thus, it is possible to say that in the mobile ecosystem, competitiveness is created through platforms that group companies tied through technological infrastructure and agreed business models.

In studying the structure and strategies used in the mobile platform ecosystem over five years, Basole and Karla (2011) found four key market segments: mobile device manufacturers (MDM), mobile network operators (MNO), mobile application developers (MAD), and mobile platform providers (MPP). They also found that since 2007, multiple mobile platform development approaches have emerged while MNOs have lost their control over and influence in the mobile ecosystem while MPPs and MADs have significantly enhanced theirs. MPPs play a particularly critical brokering role in the converging mobile industry since they enable and drive the creation and delivery of new applications and content. As a mobile platform, it has the ability to lower the barriers of entry involved in bringing content and applications to the market, thus benefiting all players in the mobile ecosystem. They have become a core feature of many emerging business models and are particularly important in the mobile industry. This study, however, did not capture relevant intersections with other segments that could influence mobile platforms, such as, in the opinion of the authors, is the case of mobile payment providers.

Investigating the mobile ecosystem, De Reuver et al. (2011) refer to what they call the "platformization of the ICT industry" and point to the relevance of conducting a strategic analysis of the industry by taking into account the perspective of multiple stakeholders. This strategic planning should not only involve the

technological architecture being used, but also the flexibility and dependencies in the ecosystem, suggesting the inclusion of business and governance models. The platformization of the mobile ecosystems is also aligned with theories that investigate the economic forces in information technology industries (Shapiro and Varian 1998; Maicas, Polo and Sese 2009).

How to achieve platform leadership is also a matter of better investigation in the mobile ecosystem, the same way it has been already done in other segments of the ICT industry (Gawer and Cusumano 2002; Perrons 2009). Since we deal with a particular type of mobile platform focused on payments in this paper and since we do not have a mature case of competition around those specific platforms in Brazil, we will not further discuss competition among different platforms, but will instead investigate a particular platform organized by a group of partner companies to provide payment services.

Mobile Payment Platforms

Since platforms represent anchor-points for coordinating varied activities within an ecosystem, it makes sense to take the platform itself as a researchable unit of analysis, avoiding over-simplification of the phenomenon (Tilson et al. 2013). Thus, the study of mobile payment platforms as a particular case of a mobile platform, can be valuable as a way to understand a piece of the mobile ecosystem where a number of diversified platforms designed for many purposes interact and compete frenetically.

From a technological point of view, mobile payment platforms can be described as a particular case of general mobile platforms and are designed to integrate various system levels, from mobile devices' operating systems, network protocols, services, applications, etc. (Ballon et al., 2011). From a business point of view, a mobile platform can be described as a networked system that contains firms and ties are often buyer-supplier relationships, alliances, or partnerships (Basole and Karla, 2011).

Mobile platforms result from business and technological integration of companies aspiring to position themselves as central gatekeepers in the mobile ecosystem (Ballon et al., 2011). Given such complex ecosystem, the establishment of mobile payment platforms will be influenced by changes in the environment related to new technologies, regulatory changes, and changes in market developments coming from competitors and consumers (Reuver et al., 2011). To achieve success and positive feedback effects (Shapiro and Varian, 1998; Maicas et al, 2009), firms organize themselves around platforms that would provide a competitive advantage in environments that are highly regulated and very competitive.

The regulatory environment for mobile payment platforms emerged from two very different but strictly regulated sectors: communications and financial. Although dependent on regulatory forces, the mobile payment business is a very attractive market. Because it is big, it grows continuously, it opens opportunities for entrants able to exploit new technologies, and challenges the dominance of big players used to compete in concentrated markets, such as retail banks, credit card, and telecom operators while it attracts newcomers to the electronic services consumption market. Efficiency of the payment system is also a motivation for regulators to intervene in the emergent mobile payment markets, since financial and telecoms markets are organized in oligopolies and have no clear reason to change their behavior when embracing mobile payment services.

Mobile payment platforms are orchestrated by a set of interdependent firms that offer interrelated products and services. Gaur and Ondrus (2012) state that the complex structure of a mobile payment ecosystem can be explained by two main characteristics.

First, mobile payments are naturally designed as platform-based services. In order to create a positive indirect network effect required for platform growth, mobile payment platforms involve multiple firms with very distinct business perspectives and capabilities. Telecoms and banks, for example, would prefer to be part of payment systems widely accepted by merchants, consumers and other firms on the supply side. The more actors that are present, the higher the chance platforms can generate volume and therefore economies of scale. Since those firms operate in markets under supervision coming from different governmental areas, to align objectives in a diverse group of firms is very complex to coordinate.

As noted by Basole and Karla (2012:38) research is still to be done in order to examine designs and incentives for standardization across platforms in mobile ecosystems, “because there is no single definition of what ‘open’ and ‘closed’ actually means in a services context.” Internal cooperation between telecom and financial regulators might be necessary to achieve interoperability among closed platforms, fostering universal payment acceptance.

Second, mobile payment platforms, as other payment platforms such as credit cards, emerge in multi-sided markets. The driving force behind multi-sided markets is the need for coordination among two or more

groups of participants. This coordination among partners is precisely a fixed point in the architecture of transactions in which they collectively participate and is vital to achieve economies of scale and scope. In multi-sided markets, consumers in one side value mobile payment platforms more to the extent that a large number of merchants are also participating. Merchants in the other side would benefit from joining if there is a widespread diffusion of the mobile payment platform among consumers. For example, in credit card markets one dominant partner (Visa, Mastercard, etc) controls the payment-processing system, which issues cards to consumers and approves transactions on behalf of merchants (Baldwin and Woodard 2009).

To confirm the complexity of the coordination process for mobile payment platforms, it is enough to say that although there are more than one hundred mobile money projects in different stages of implementation in close to 70 emerging markets (Beshouri et al. 2010), they have become a standard and daily practice only in a handful of countries. The lack of global diffusion of a service with such potential indicates that the successful cases are not clearly understood and, as a consequence, are not easily replicated. Likewise, cases of failure are not very well understood. Thus, the coordination process and governance of a mobile payment platform is an indisputable subject for deeper investigation.

Mobile Payment and Financial Inclusion

Investigating mobile payment platforms can be done over many researchable topics, since there are many particular models under the same generic denomination. Besides variations in the name of the application offered, such as mobile money, mobile wallet, and mobile banking, a mobile payment platform can also vary in terms of who transacts with who, being considered models like P2P for transactions between two people, or B2C, for transactions between a person and a business, for example (Ramada-Sarasola 2012).

In this study, we will focus on the particular case of mobile payments as platforms to provide financial inclusion. The potential of mobile payment for financial inclusion is usually related to the study of mobile platforms in developing countries, which has grown in attention and relevance since the second half of the 2000s (Diniz et al. 2011; Duncombe and Boateng 2009). Despite the commonly reported successful cases of Kenya and Philippines, the question as to whether mobile payment systems can really work as a solution to extend banking services to the unbanked still remains, since those famous cases seems to be more exceptions than a general rule.

On the one hand, there is a very interesting argument that in countries where mobile devices are often more widespread than bank accounts, financial services are more easily distributed through this channel. Besides that, for the low-income population which usually struggles with difficult access to bank branches and to financial services, transactions through mobiles may become an attractive solution to the problem of banking access (Bader and Savoia, 2013). Considering that lack of regular income and the perception on the part of the unbanked that a bank account is unnecessary or too expensive, the mobile platform would be a solution since this model usually doesn't get closed for inactivity, it is built on a pay-per-transaction basis, and it avoids the risk of carrying cash (Tchouassi 2012).

On the other hand, research on financial services delivery through mobile devices in developing countries, where it makes more sense to think about financial inclusion, has been highly focused on practitioner involvement, being too narrowly defined (Duncombe and Boateng 2009). Based on an investigation of 46 studies, the authors report only six that actually address the impact of mobile payments at the local level and just one that looks at the impact at the macro level. Further, these studies do not draw conclusions that can help to conceptually explain how mobile payment impacts economic development. Another study that has significantly expanded the number of papers analyzed reached similar conclusions (Diniz et al. 2011).

Besides the uncertainty of the role that mobile payment will play in supporting financial inclusion and thus in fostering economic development, there are many regulatory issues raised by the settlement of the mobile environment for providing financial services. In Kenya, for example, banks complain that mobile operators are unfairly competing against them (Tchouassi 2012). Regulation for the mobile payment services is indeed a very complicated matter since it groups together many disparate areas of financial services, mobile, consumer protection, data privacy, and IT regulation (Kemp 2013).

Despite regulation complexity and uncertainty about the impact on financial inclusion, mobile payment is often considered by many companies in developing countries as a solution to be implemented in order to improve banking and financial services access to the poorest. As pointed out by Maurer (2012:600), "mobile money is changing mobiles, money, the people who use and transform both, the people and institutions that set out to foster financial inclusion and, possibly, the paradigm of financial inclusion itself" since "a vast array of agencies, technologies, individuals and organizations all concerned with money, another consumable

communications media, potentially remaking money in the process" (2012:590). To capture elements in the development of mobile money, this author noticed the emergence of divergent narratives told by different players involved in this complex environment. Divergent narratives among players that need to become partners in a platform project is illustrative of how hard it is to create a common understanding of the full potential for a mobile payment market.

The study of a mobile payment platform implementation in Brazil, in particular one that was designed to reach the poor and mostly unbanked, can bring interesting insights on the difficulties and opportunities to enlighten the discussion on how to make such experiences successful in other countries. As stated by Maurer (2012:601), "systems created in or for the developing world are serving as models for reimagining money, finance and payment in the developed world".

The Brazilian Context

In Brazil, the most well-known case of mobile payment, Paggo, was not designed specifically for low-income markets and has still not reached a sufficient critical mass or large scale despite more than 5 years in operation (Mariscal and Flores-Roux, 2010). On the other hand, a specially designed model of a mobile payment system for the poor could significantly change the mobile payment scenario in Brazil, which has captured only a few thousand users across the country with the current model.

Brazil also has a successful Conditional Cash Transfer (CCT) program, the Bolsa Familia Program (BFP), with more than 13 million families being attended by government social payments and attracting worldwide interest (Lindert et al., 2007). The success of Bolsa Familia is largely credited for the implementation of the correspondent banking network (Diniz et al 2012; Kumar et al. 2006), since 70% of all of the Bolsa Familia payments (Banco Central, 2011) are made through this channel. In practice, Caixa Econômica Federal (CEF), the public bank hired by the Ministry of Social Development (MDS), carries out BFP payments through its correspondent banking network, built in partnership with all types of organizations (post offices, lottery shops, pharmacies, small grocery stores, supermarkets, real estate offices, and microfinance institutions) and working in regions with low access to traditional banking channels. Since this program serves millions of families, one successful experience of delivering the BFP through a mobile payment platform would create one of the biggest users for this type of mobile application in the world. Given the average payment ticket and the total amount paid monthly, BFP makes almost 13 million transactions per month (Brandão, 2011).

Despite differences in their respective characteristics, the banking correspondent model and mobile payment platform both require a complex web of relations between an ample spectrum of actors in order to offer financial services to a segment of the population that lacks access to financial services. Thus, since the employment of the mobile payment platform for the delivery of benefits such as CCT has recently been proven in other countries (Mas e Radcliffe, 2010) with a focus on constructing a mobile payment platform for the low-income population as in Brazil, could benefit from both the well-executed experience of BFP (de Albuquerque et al. de 2011) and the establishment of the wide spread network of correspondent banking in the country.

The Banco Palmas Case

Banco Palmas, a NGO devoted to delivering financial services to the poor, was founded in January 1998 to help expand financial access in Conjunto Palmeira, which is located 22 kilometers away from the most developed areas in the city of Fortaleza with more than 40 thousands inhabitants – mostly low-income families that struggle to survive with dignity.

In more than 10 years of activity, Banco Palmas has offered a number of financial services, including microcredit, social currency, special financial support for women, and has operated as a bank agent (i.e. correspondent banking) for commercial banks in the community. It has also helped to create and manage a network of more than 100 other community development banks in poor regions located in twenty different states in Brazil. It is important to notice that all Banco Palmas actions are accompanied by complementary capacity-building actions and are based on integrating local producers and consumers within a so called "solidarity network."

One of the most remarkable initiatives of Banco Palmas was the creation and management of a local, alternative social currency called "Palma," which circulates side-by-side with the official Brazilian currency (the Real), and is accepted by the local merchants (Jayo et al, 2009). As the alternative currency is good only within the boundaries of the neighborhood, borrowers tend to spend these resources on local purchases.

Conversion into official currency is possible at any time at Banco Palmas, although it is discouraged, thanks to a two-percent administration fee.

An important point of this project is the digitalization and replacement of the printed social currency that is already in circulation at Conjunto Palmeira. As local merchants largely accept this currency it is expected that people living in that community would easily adopt its mobile version.

Conceptual Approach

To develop a theoretical analysis of the mobile payment case presented in this study we will combine two conceptual frameworks: the multilevel framework created by Pozzebon et al. (2009) and the framework for understanding platform-based ecosystems created by Tiwana et al. (2010). Next, we present the two conceptual frameworks.

The multilevel framework was conceived in 2007 to orient a team of researchers working with two research programs: (1) the use of the Information and Communication Technologies (ICT) for financial inclusion and (2) the use of ICT for local and sustainable development. This conceptual approach was first published as a chapter in a book in 2009 (Pozzebon et al, 2009), and since then has been refined and transformed by different researchers in Brazil and Canada (Pozzebon and Diniz, 2012).

The multilevel framework is influenced by three theoretical perspectives: contextualism, social shaping of technology, and the structurationist view of technology. Contextualism and its three dimensions – context, process, and content – that the frame in which four main concepts, selected from social shaping of technology and the structurationist view of technology, are integrated: relevant social groups, interpretive frames, mechanisms of negotiation and change, and technology-in-practice.

The framework for understanding platform-based ecosystems was first presented by Tiwana et al. (2010) to contribute with research and theories that intend to explain the evolutionary dynamics of such ecosystems. Based on the premise that the emergence of software-based platforms is shifting competition towards platform-centric ecosystems, the authors proposed a framework for analyzing those ecosystems through the understanding of three related dimensions: architecture, governance, and environment. The dimensions of architecture and governance are considered endogenous because they are under control of the platform owners. The environmental dimension is considered exogenous because it is not under the direct control of the platform owners.

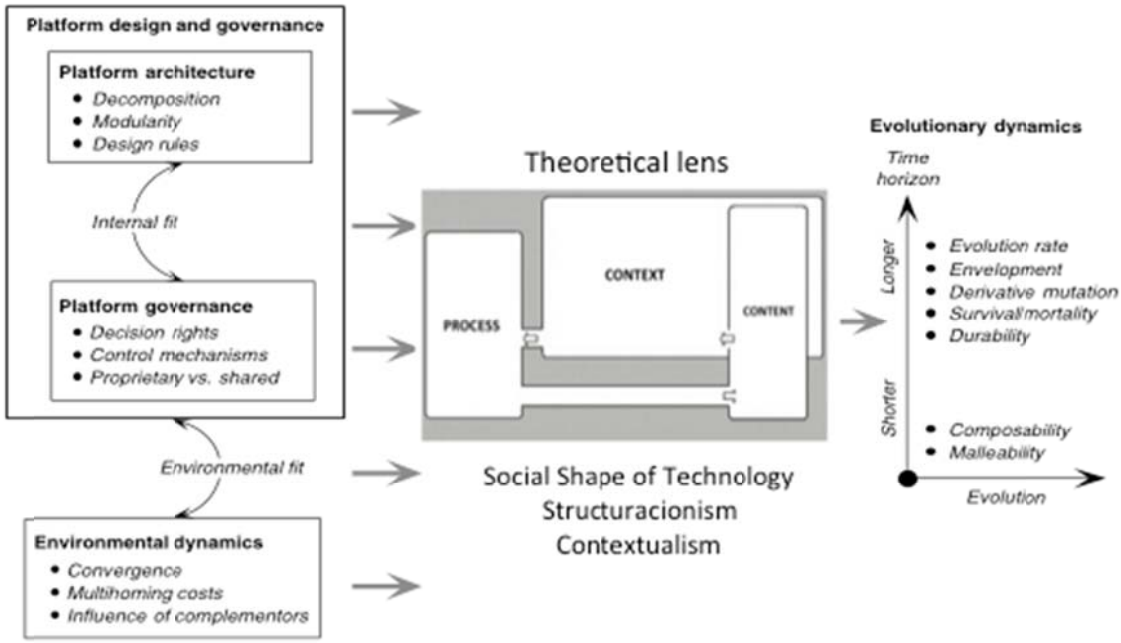

Figure 1: Conceptual approach employed in this study

The combination of the two frameworks (Figure 1) will provide a better understanding of the case, and make a good explanation on how it was created, how it operates and how it will evolve in the future. The multilevel framework will be helpful to understand how the mobile payment arrangement was established and how it operates. In the same way, the platform ecosystem will help us to anticipate the potential of this particular model in the near future, based on its possibilities for evolution. If on the one hand the multilevel framework helps to understand the interpretive frames among organizations involved in the process of creation of the platform, on the other hand, the platform design and governance framework raises the points to be understood about the governance and the environmental dynamics of the mobile payment platform. Both frameworks together offer an adequate conceptual approach for this study in order to answer the research question: "What are the challenges to create and maintain a very diversified network of organizations needed to develop a mobile payment platform focused on financial inclusion?"

Research Strategy

Research Objectives

The general objective of this paper is to investigate a pilot project implementation of a mobile payment platform to serve a poor community in Brazil. The specific objectives we have derived from this general purpose are: a) identification and evaluation of the expectations and perspectives of all the actors involved in the project; b) evaluation of the effectiveness of the operation in terms of the adoption by the users and local merchants; c) identification of the main challenges to establish and maintain a mobile payment ecosystem in a poor community. Expectations and perspectives of the actors compound their interpretive frame, as posed to the multilevel framework. Effectiveness of the operation is the content analysis derived also from the multilevel framework. Identification of the main challenges is based on the questions raised in the platform design and governance model.

This study intends to develop a deep understanding of the investigated pilot project and also to contribute identifying possible challenges and solutions for establishing mobile payment systems in Brazil and other emerging countries, particularly in Latin America.

Data Collection

To apply this conceptual framework in practice, the following steps were undertaken: a) Identifying the social groups involved; b) Identifying competing or convergent interpretive frames from diverse social groups; c) Identifying mechanisms open to negotiation and change among the groups; and d) Identifying intended and unintended consequences of technologies-in-practice.

The data collection activities were carried out along the second semester of 2012 based on: interviews with executives of the organizations directly involved with the project – at the mobile operator (2 interviewees), the credit card company (1) and the bank (4). The acquirer company declined to give an interview for this study saying that it had no one available to attend us about the particular pilot project being investigated. We also interviewed officers from government organizations indirectly involved in the project – the Ministry of Social Development (3), responsible for the BFP, and the Central Bank (3).

Two field visits were also conducted at Conjunto Palmeira neighborhood in the city of Fortaleza, Northeast of Brazil, to interview the staff of a local microfinance institution (3), local merchants (3) and members of the community (12). Visits were documented with photos, video, and voice recordings. Data from Projeto Elas (project with women who receives the benefits of BFP in the neighborhood), and documents available about the pilot project were also collected for analysis.

Data Analysis

We begin our analysis with readings of our interview data and field notes searching for emergent themes discussed in our research team to initially assess their resonance across different actors (social relevant groups) and the discourse employed for each group to describe the project (interpretive frame). We then organize all the groups involved in the project in three segments: supply side (MNO, bank, credit card operator, local NGO), demand side (local merchants and users) and other actors that influence the environment (Central Bank and Ministry of Social Development).

With the groups of the supply side, we searched for similarities of their discourse with the narratives described by Maurer (2012) and how they manage their relations with each other in terms of the project governance. With the groups of the demand side, we investigated their discourse to find barriers might exist as well as the motivation for accepting of the pilot. We analyzed the discourse of other actors without direct involvement, but who had certain interests in the projects in order to understand their reactions to the project, since they have power to influence the environment related to the project.

To confirm the sense we had about the potential of the project from the supply side, we checked the platform governance with the questions raised by Tiwana et al. (2010) to analyze aspects related to this topic. From the demand side, we tried to identify the technology-in-practice. With the groups that have the power to influence the environmental dynamics, we checked their expectations for the project. This approach enabled us to separate the role of each segment (supply, demand and environment actors) in shaping the conception and reality of the pilot project.

The Mobile Payment Case

The Launching Process

In 2010 the Ministry of Social Development (MDS), responsible for the Bolsa Familia program, announced there would be a pilot program about mobile payment financed by the UNDP (United Nations Development Program). Although this announcement was confirmed by MDS officials in public meetings and interviews, this project was never implemented. In November of the same year, Caixa Economica Federal (CEF), the responsible party for the logistics of payments of Bolsa Familia, also announced in one of the principal newspapers of the country that a project was under evaluation to be implemented (Wiziack and Sciarretta 2010). Despite the detailed information offered up in the published article and during an important conference on financial inclusion organized by the Central Bank of Brazil in the following week, CEF executives have reneged on the project.

In interviews for this study, MDS and Central Bank officials confirmed that the project was aborted by the Central Bank which was afraid it would create closed platforms that would avoid the dissemination of a wide mobile payment ecosystem by allowing payments to flow only among the participants of this particular project. MDS was not happy with this decision, since there were expectations that mobile payments would significantly cut costs for delivering Bolsa Familia. Further, it would strengthen the connections with beneficiaries through mobile phones. They were promised by the Central Bank that a general regulation about mobile payments in Brazil, P2P and B2C models included, would be released soon, making the project more feasible while attending to the general interests of the society.

Despite the initial denial, CEF reunited its partners Mastercard (credit card), Redecard (acquirer) and Vivo (mobile operator), to create a mobile payment pilot in a poor community. As the pilot was designed in the B2C and the main concerns of the Central bank related to the regulation of mobile payments were more focused on the P2P model, the pilot would not suffer any interference from the regulatory authority.

Banco Palmas, a microfinance institution operating in a local community in the Northeast region of Brazil, which already operated as a correspondent bank for CEF, also joined the project to guarantee a local dissemination campaign. After six months of negotiation, on the 7th of December 2011, the mobile payment project at Conjunto Palmeira was announced to the public (Agência Brasil, 2011). The project would become operational in the beginning of 2012.

Description of Registration Process for Users and Merchants

To register and receive the Vivo chip (SIM card) it requires approximately 20 minutes. The Vivo saleswomen were located in a kiosk found in the main lobby of Banco Palmas where they approached clients with the chip offer. Usually the saleswomen also conducted home visits, because they had a goal to register at least 20 people per week. As a consequence, because it was not easy to get clients, the saleswomen had to use their powers of persuasion to convince their audience. There were 6 employees that perform a variety of functions; they were present in the lobby of Banco Palmas or in the neighboring areas. When the supermarket Nobre started an incentive program to make the purchases using the Vivo chip, 2 employees were placed at the entrance of the supermarket to help orient clients on how to use it. However, all the chips were handed out without more being provided so the employees returned to their spot in Banco Palmas.

After clients demonstrated interest in registering and obtaining the chip, there were several steps left to be performed. In the first place the client needs to have an account with Caixa Econômica Federal (CEF) and have a card that goes with the account with the Mastercard brand. The majority of the people had an account with CEF; however, there were difficulties with the brand of the card, because many times clients had a card with a Visa brand. In this case, the interested client needed to request CEF to change the card. In this situation, where the client did not have a card with a Mastercard brand or did not have a card at all, the client had to wait an average of 15 days to receive the new card.

Next, with the correct card in place, the saleswomen of Vivo started to realize the registration of the client, asking to fill out a form including account information, address, and telephone number. In the process of calling the central operator for personal data, the client was asked to confirm the ultimate account movements and numbers on the documents. At the end, with all the information verified, the client received a free chip from Vivo and was directed on how to use it, for example, to refill credit.

Several gaps and challenges during this process were perceived: it took too long to receive the debit card after registering; the administration of the debit card could be a problem, because even if the client requested a card from CEF with the Mastercard brand, there were cases in which the clients received wrong cards; and it took a long time to complete the registration (including the filling out of the form, obtaining the client data, and calling the central operator to confirm the data).

Supply Side Analysis

In observing the results of the implemented project, it became clear that there are some serious problems in the coordination of the project since many failures in the operational process are due to a lack of communication among partners. After talking with all partners involved, it become clear that the expectations each one of them have about the project are quite different from one another.

CEF emphasizes that the project was intended to be just a mobile channel for the poor who are already clients of the bank; Banco Palmas wants the project to attract people who do not have access to banks, improving the social inclusion in the region; Vivo sees the project as an opportunity to gain market share for its mobile service in a region where they lag behind the competitors; and Mastercard says that this project is just an experience for something (mobile payment) that is going to be mature only 10 to 15 years from now. The acquirer did not have active participation in the field operations, which probably explains why they decided not to give any interview thus revealing its level of interest in the project.

Interestingly, what we see here is the reproduction of the four narratives described by Maurer (2012:595) that are being created around mobile payment projects to “frame the discussion” on what is going on when analyzing projects in this field. The first narrative is called the “Empowerment Story”, told by the Banco Palmas team, sees mobile payment as a way to empowering the poor through mobile technologies. The second narrative is the “Market Share Story,” told by the mobile operator Vivo, where a company wants to get market share from existing services and the creation of new markets for itself. The third narrative is the “Commoditized Payment Space Story,” told by CEF, considering the exploitation of fee income from small transactions that can be generated by regular use of the service by new clients recently acquired by the bank through the launching of a new and more accessible platform. The forth narrative is the “Tulip Story,” told by Mastercard, which considers that there is much hype around mobile payment now and that it probably will settle down some time in the future. As those narratives do not go along with each other, those partners have serious difficulties in building a common platform from which each of them can benefit.

Demand Side Analysis

The demand side comprises two social groups: local merchants, where products would be bought by local residents using the mobile device, and individual users of the mobile payment system, most of whom are local inhabitants of the neighborhood and beneficiaries of BFP.

Of the four local merchants enrolled to be part of the pilot project, two are supermarkets, one is a material construction company, and the other is a small shop that sells clothes. In addition, there are several informal merchants that could benefit from participating in the network, but at the time of our visits to the field we could not find anyone able to talk about the pilot project.

One interviewed manager from the local supermarket stated that in more than six months, only 2 purchases had been made with the mobile payment system at his store. He said that there had already been staff from the MNO who had stayed at the supermarket in order to help people make purchases through the mobile

system, however, the staff had not been particularly helpful, since they had to call Banco Palmas staff for help and it took a total of 15 minutes for the transaction to go through. The manager said that the Paggo system, which was not the focus of this study, is easier to use and so more people would use it instead. Other local merchants reported similar stories.

Conjunto Palmeira is located in a dangerous area with a high level of reported crime, much of which is related to drug dealing. All interviews with users of the system were made with BFP beneficiary women in their own homes and facilitated by the presence of two Banco Palmas agents that accompanied the research team. The interviewed women were chosen randomly through the registry of those who posses the chip for the purpose of making mobile purchases. In two days, 12 interviews were conducted and, on the second day, we perceived the repetition of answers, indicating the moment of saturation of the interviews.

There is a clear attraction on the part of the users in registering in the system in order to obtain a free chip and have access to the phone service. Since in that region another MNO has a dominant market share, Vivo took a very aggressive position in order to potentially attract users to get the free chip for making purchases. Instead, these chips are being used mostly for making phone calls and not for what they were originally intended.

Since most users also have the chip of another MNO, they mostly rely on the use of mobile devices with space for two (or three) chips. Users without a two-chip device ended up losing the Vivo chip. Some said that they would not use the Vivo chip because they think it is cheaper for them to use chips from the same MNO that friends and family also use. The only case in which the Vivo chip is used is when other family members also have one from the same MNO. Many times, this is the case because Vivo's campaign stressed the low price for long distance calls between two Vivo users.

Despite having been registered to use the mobile payment feature, only 5 had used it once, indicating a lack of regular use. In this context, it was observed that the process of utilization of the system was still not successful. Some of the interviewed women said they would use the mobile for purchasing purposes because they either think that would be easier for them to go shopping carrying "just one thing" instead of the mobile and the wallet or because it is easier to remember just one password instead of two. Some others said they would use the system if it was from the same MNO they already use or if there was a bonus (free credit for calling) involved.

Actors That Influence The Environmental Dynamics

Tiwana et al. (2010:681) mentioned one environmental dynamic which is related to "the power or influence exerted by complementors that directly or indirectly provide services to one or more platforms, but are not part of the module developer community," but having the power of influencing "evolutionary dynamics in ecosystems." Service suppliers and regulatory agencies are included in this group of complimentary actors. For our research MDS and the Central Bank are considered the main complementary actors that could influence the pilot project as service supplier (BFP payer) and regulator, respectively.

MDS's interviewees explained that they did not directly or indirectly encourage the pilot project conducted by CEF and did not participate in any discussion related to it, although they did recognize the responsibility to present an idea for a different project in 2010, which was barred by the Central Bank. They also confirmed that they would be interested in the pilot project because they see the natural evolution of the logistics for government benefits delivery would be using mobile payment platforms. Participants were asked about what issues would be solved with the payment through a mobile platform, the logistical costs for delivering the benefits, and the possibility of strengthening the relationship with beneficiaries, not only through the benefit payment itself, but also by sending vaccination warnings, for example. Since they would like to see the benefit being delivered without the restrictions of a closed platform, they thought that the pilot project analyzed in this case study did not adhere to the needs of the MDS.

Interviewees at the Central Bank were interested in knowing the details of the pilot project mostly because they are deeply involved with a new regulation on digital payments, which will be launched in 2013. The main concern from the point of view of the regulator is to foster conditions for an interoperable payment ecosystem model that can thrive. They definitively do not believe that closed platforms, such as the case of the pilot project, would survive.

In short, the Central Bank and MDS are watching the pilot project without much expectation, since they see it has low scale and, the way it was designed, it cannot be replicated or gain the desired scale.

Discussion

By approaching the analysis from the perspective of Tiwana et al. (2010) this study could unveil serious platform governance problems. The first problem is related to the control over the platform, referring to the formal and informal mechanisms implemented to encourage desirable behaviors of partners involved. Since the platform is operated by the payment platform of Mastercard implemented on the Vivo MNO, it is not clear what the role of the acquirer (Redecard) in the process should be. Since the Redecard did not require any local merchant to be part of the network, all of which were acquired by Banco Palmas team, the role of an acquirer in a mobile platform payment system is confusing. It is more confusing when considering that the acquirer possibly did not want to incentivize competition between the mobile platform and the POS platform already in use by some of the merchants, since the POS network charges more than the mobile network, the acquirer would make less money. The option of including informal merchants in the region (who do not have access to the POS system), could be a solution, but the acquirers have no expertise to deal with them as clients.

Still, in the platform control, despite the regular meetings among all the participants (MNO, bank, local NGO, credit card and acquirer) along the process, very few changes were made along the process, even when it was clear that the pilot project was not going as well as expected. Banco Palmas has complained that their demands for services to be implemented in the system such as microinsurance, for example, were never even considered. Most of the time, Banco Palmas felt that it was not part of the decision board, even if it was always taking part in the meetings. The platform was always presented to them as inflexible to changes that they demanded.

Most of the problems reported by the interviewees are related to the operational process, but never to the technology itself. As described previously, problems such as the card issuing, for example, are mostly related to internal inadequacy of participant firms regarding the new process related to the mobile payment platform. All the problems characterized as operational can be also described under the control of the platform governance as Tiwana et al. (2010) point out. In order to be more effective and to raise its potential effectiveness, the project should be redesigned considering the governance dimension that articulates the diverse business objectives of the partners, since the technical platform seems to be not difficult to operate.

The environmental dynamics dimension of Tiwana et al. (2010) could also be a problem for the investigated payment platform when the Central Bank issues the new regulation for mobile payment systems in the country in the second semester of 2013. The Central Bank has pointed out the need to create conditions for platform interoperability. The platform investigated in this study did not consider any condition for interoperability and some of the participants, such as the credit card company, see the platform as the ecosystem itself.

The opportunity for implementing new services, such as could be the case of BFP benefits, is also a challenge. MDS would be interested in developing a mobile solution for benefit payments, but poses serious restrictions in considering a platform that is not interoperable. Since the scale of the BFP is very large and countrywide, and considering the market share dominance of MNOs is regionalized, to be incorporated in this investigated platform, participants should consider the interoperability as one of the main points for its future survival and evolution.

From the perspective of Pozzebon et al. (2009 and 2012), the failures of the project are related to the process of negotiation among the relevant social groups involved. Since partners never clearly present their expectations (interpretive frames) to each other, they are playing a game without previously establishing the rules. This became clear when discussing the business models involved in the project and when none of the partners had a clear vision of how revenue model for the project would be designed, leaving this critical aspect to be defined in the future when the project finally takes off, which is something that would never happen without a previously defining the share each one is expected to take.

Users and local merchants should also be listened to in the implementation process of the pilot project. Despite the existence of relevant social groups, they are not monolithic and have a diversified expectation of what should be important considerations in the design process of the system. As they are dispersed and have no organized power, their opinions are not easily captured. On the other hand, if they do not adopt the platform, or if they do it in a way that is different from the way the designers expect, the project would be clearly unsuccessful.

Despite the fact that the project can be considered a failure in operational terms, it brings important questions to light regarding the establishment and maintenance of a platform for mobile payments in Brazil with a focus on the poor clients. Many observations and some of the conclusions about the problems pointed

out here would not be possible without this first experience. Hopefully all the partners involved as well as relevant actors such as the Central Bank and MDS can look to it and see that a lot of work must still be done to build an effective mobile payment ecosystem in Brazil.

In conclusion, our research question, "what are the challenges to create and maintain a very diversified network of organizations needed to develop a mobile payment platform focused on financial inclusion?" could be answered with the analysis done through the lenses of the adopted conceptual model. In summary, the main challenges identified are: the control mechanisms in the governance dimension, the influence of complementary actors, the environmental dynamics dimension, and the understanding of users' and local merchants' needs in the adoption dimension, which is related to the technology-in-practice.

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