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A DIGITAL COMMUNITY BANK: MAPPING NEGOTIATION MECHANISMS IN ITS CONSOLIDATION AS AN ALTERNATIVE TO COMMERCIAL BANKS

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ABSTRACT

This paper aims to map the negotiation mechanisms used by Banco Palmas in order to make Palmas Digital possible as a community digital bank in the Conjunto Palmeiras' neighbourhood, state of Ceará, Brazil. Palmas Digital represents an alternative way to offer financial services in a network of community banks that was enabled by a digital payment platform called e-Dinheiro. Using a multilevel framework model proposed in Pozzebon & Diniz (2012), we seek to understand the interplay between different actors and technological artefacts in order to understand the "technology-in-practice", concept defined by Orlikowski (2000). The multilevel framework model was built to understand social consequences of information and communication technologies (ICT) interactions at a community level.

KEYWORDS

Community Bank; Social Currency; Digital Platform; Mobile Payment; Digital Payment; Fintech

1. INTRODUCTION

This paper aims to map the negotiation mechanisms used by Banco Palmas in order to make Palmas Digital viable as an alternative model to the traditional financial system in Conjunto Palmeiras' neighbourhood, state of Ceará, Brazil. Palmas Digital is maintained by a network of community banks and provides a digital payment platform called e-Dinheiro. Using the multilevel framework model proposed by Pozzebon and Diniz (2012), we seek to understand the interactions between the different actors and technological artefacts as well as the consequences, both intended and unintended, that emerge from these interactions. The research question that guides our work is: What is a digital community bank and what mechanisms can develop it?

During three weeks of field work, in July 2016, we conducted 50 interviews and more than 100 hours of non-participant observation. We also followed daily initiatives in the field, where we had the opportunity to observe and use the digital technology in question. Then, using the concepts proposed in the multilevel framework model aforementioned, we were able to identify the key stakeholders involved – namely: Banco Palmas, local merchants, the community association of neighbours, and actual and potential users – and their interpretive frames.

The social currency called Palmas was created in 2004, and for seven years its use helped promote some degree of local development within Conjunto Palmeiras' neighbourhood. However, in 2011, its circulation decreased in the city of Palmas, thus creating the need for the re-signification of the social currency by the community bank. The high costs of printing and managing a currency in paper format have made the paper version of the currency to be extinguished, nourishing the idea of creating an electronic one. So, in 2012, a digital social currency became real project using mobile phones as a digital platform. However, this first initiative was unsuccessful. One of the possible reasons for this failure was the lack of coordination among the partners within the project – a credit card company, a telecom and a public bank operator – with quite different and conflicting interests involved (Diniz, Cernev & de Albuquerque, 2013).

In 2013, Central Bank issued a new national regulation allowing new payment arrangements to be conducted by non-financial entities, which lead to the emergence of a number of payment “fintechs”. Our concept of fintech is an adaptation, which added the term “traditional” to the original definition of Kim, Choi, Park and Yeon (2016): “non-‘traditional’ financial business that delivery financial services using new technologies, such as mobile, social media, and IOT”. Therefore, Banco Palmas created e-Dinheiro in partnership with a local fintech, a digital currency supported by a digital payment platform. Initially, the idea was to just update the social currency into a digital format in order to increase its circulation and its multiplier effect. It remained backed by official currency – Brazilian real (BRL) - in a digital prepaid format.

In 2014, the e-Dinheiro platform was tested in Conjunto Palmeiras' neighbourhood and underwent a number of deep transformations, thus consolidating the concept of digital community bank. Besides payment services, e-Dinheiro users can pay bills, contract insurances, recharge pre-paid mobile phones, make deposits and withdrawal, and transfer money. New services such as microcredit and savings accounts are also foreseen in a near future. Despite those improvements, several members of the community still questioned the legitimacy of the bank and of the project.

Our analysis allowed us to identify three negotiation mechanisms used by Banco Palmas in an attempt to consolidate Palmas Digital as a real alternative to commercial banks: “evolution”, “local actions” and “lock in” as a negotiation mechanism. Besides contributing for understanding the particular phenomenon of a community bank entrance in the current movement of fintech, this study also provides a theoretical approach based on a processual model that could be useful for those studying community banks as well as those who seek of viable models for technology adoption in other contexts.

2. COMMUNITY BANKS

The current Brazilian context, despite some important advances in overcoming extreme poverty – for which social programs of socio-productive inclusion and income transfer had a relevant role–, is still characterized by marked inequality in economic and social aspects, where the differences in terms of access and opportunities are remarkable. To overcome these inequalities, the country needs to enable citizens to “expand their capacities to lead the kind of life they value” (Sen 1999, p. 33), and to accomplish with the huge financial inclusion task. It is worth men-

tioning that this issue goes beyond income, encompassing themes such as financial education and access to various financial services, such as savings and credit.

The scope of the traditional financial system is limited and unable to include the poor. First, the low-income population tends to live in regions that are more distant and the value of their transactions tends to be lower, which does not justify banks to keep an expensive infrastructure to create of branches to serve them. In addition, it is noteworthy that traditional financial products are inadequate to the reality of poor clients and neither of them meet the needs or fit into the reality of the most vulnerable populations. "Solidarity finance" is an alternative that seeks to build a more sustainable development model to alleviate poverty, guaranteeing access to financial products and services and fostering local development and the empowerment of community organizations (Freire, 2013). Community banks are among solidarity finance's "tools", being characterized as a non-traditional financial organization that offers financial services to the poor.

A community bank is managed by the people who lives in the same locality where it is inserted. In this sense, it differs from conventional banks - which has the ultimate goal of maximizing its profit - and aims to serve better its users, to economically develop the community and, to guarantee an effective community participation (Freire, 2013; Singer, 2013). The logic of solidarity finance is characterized by the principle of "proximity, because they derive from systems of reciprocity and mutual aid that re-establish and strengthen community bonds" (Faustino, 2010, p. 1). In parallel to the provision of adequate financial products, there is also a process of raising awareness of the principles of solidarity economy, in addition to offering training courses, which enhances the process of social inclusion. Apart from these, many community banks are looking for innovative instruments that can contribute to the financial inclusion process. In this context, the use of social currencies, which constitute a complementary currency with limited circulation, aims to generate development and stimulate local economy.

3. DIGITAL PAYMENT PLATFORMS FOR FINANCIAL INCLUSION

In parallel to the efforts of community banks, which use various "inclusive" instruments -, we observe that technological advances have greatly contributed for the emergence of more agile and efficient alternatives to the conventional financial system, well-known for its rigidity and resistance to change. Some of those technological advances have already being explored by fintech, nascent companies that combine technology and finance to develop more convenient, secure, and fair pricing solutions for a variety of areas, from investments to loans. Innovations in the technological field also provided financial inclusion with new instruments, including mobile payment methods, which is known as part of the fifth wave of innovation in the banking sector, characterized by the diversification of banking channels, including mobile phones, which use mobility as a means to reach the low-income public (Cernev, Diniz & Jayo, 2009).

Although there is still a discussion on why it has not gain scale yet, there is a great potential for mobile payments in Brazil (Diniz et al., 2013). Data from TELECO (2014) show that the density of mobile lines in Latin America is of 125.42 per 100 inhabitants, and, even in poorer communities, smartphones with Internet access are increasingly widespread. This points to the potential of mobile payment within the local sphere, to "increase the speed of circulation of money and the local monetary multiplier, allowing a greater local economic development" (Ramada-Sarasola, 2012).

Besides mobile technology's potential due to its penetration, it is important to mention that, since 2013 there is, in Brazil, a legal framework (Law 12.865/2013) that deals with new payment arrangements, such as mobile payments, whose main purpose is to allow financial operations, increasing the permeability of financial services and products.

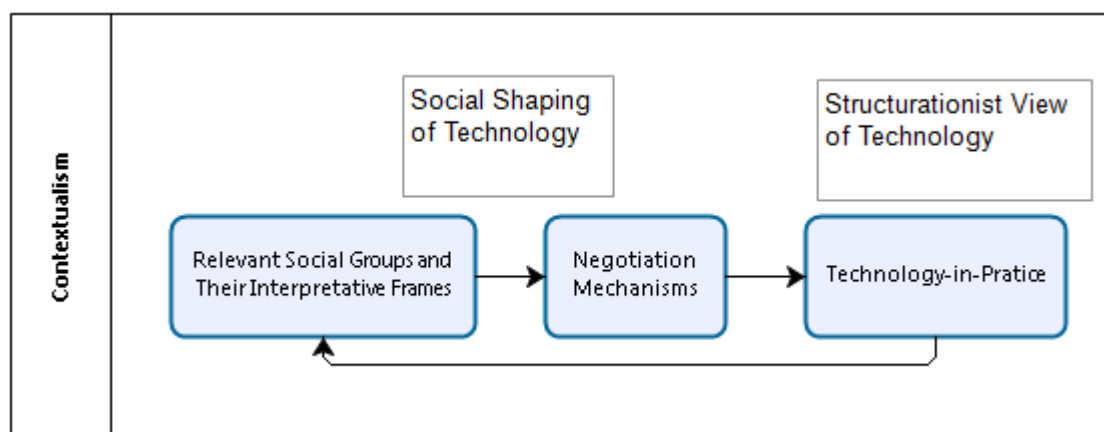
4. THEORETICAL APPROACH

In order to understand what a digital community bank is and how it could be developed, we thoroughly investigated Banco Palmas as a foundational entity and, more particularly, Palmas Digital, the emergent digital community bank. After revising the literature dealing with the relationship between ICT and communities, we selected the multilevel framework model proposed by Pozzebon and Diniz (2012) as our theoretical frame. This choice was based on the fact that this framework copes with the implications of technology at the community level and because it has been applied by a number of studies related to financial inclusion (Pozzebon & Diniz, 2012).

The framework is multilevel because it incorporates three inseparable levels of analysis: individual, groups and community. It was built based on three theoretical perspectives: contextualism, social shaping of technology and structuration theory. The framework is composed of a set of concepts borrowed from the abovementioned theoretical streams, being all of them integrated. Contextualism offers three basic dimensions of the framework: context, process and content. Social shaping of technology - a social constructivist approach - provides the concepts of relevant social groups, interpretive frames and negotiation mechanisms also used in the framework. Finally, inspired by the structuration theory, the structurationist view of technology, as developed by Orlikowski (2000), provides another concept used in the framework, technology-in-practice.

The context refers to the social, cultural, and political universe in which a given technology has been implemented and used. Within a context, relevant social groups get in contact and interact with each other, and use their interpretive frames to guide their perceptions and actions. Members of a relevant social group tend to share a number of expectations and interests regarding a given technology. Analysing a context implies to identify relevant social groups and to recognize similar and conflicting interpretive frames among them. The process consists in understanding the way the various social groups negotiate to achieve a resultant solution. In this paper, we seek to comprehend the application of negotiation mechanisms in the implementation and use of a given technology. Finally, the content refers to the technology-in-practice as a result of the negotiation process, i.e., to the expected and unexpected consequences of the implementation and use of a given technology by some relevant social groups. Figure 1 illustrates the multilevel framework dimensions.

Figure 1 – Multilevel Framework, adapted from Pozzebon & Diniz (2012)



4.1 Methodology

The field work was based on interviews and observations, followed by daily reports written by one of the authors. It was carried out on July 3 to 20, 2016 in Conjunto Palmeiras, a neighborhood of Ceará. During those three weeks, we observed Banco Palmas' activities, attending a series of meetings around the articulation of the neighbourhood's councilmen and the process of land regularization, with the participation of municipal managers. The focus of the work was interviewing the various actors present to find out how they relate to e-Dinheiro, the digital payment platform that supports Palmas Digital- the digital community bank- our object of study.

During the first week, the emphasis was on mapping all relevant social groups – bank employees, community leaders, local associations, merchants, and individual users – to better understand the internal organization of Banco Palmas and its various projects. The second week, in turn, was aimed at better assessing each actor's view of the e-Dinheiro platform, by conducting a series of interviews with individual users and merchants in the neighbourhood. Finally, in the last week, we used shorter interviews with residents to understand the local population's perspective on Banco Palmas and assess whether they were participating in, or at least aware of, the change in Palmas, from a paper social currency to its digital version.

In order to determine the degree of adoption of Palmas Digital – not only in its practical perspective (the insertion of the digital platform into the social and economic reality) but also in the symbolic one (the meaning attached by

people to the technology) –, we conducted interviews guided by the exploration of issues that emerged and were formulated by the interviewees themselves. The numerous conversations sought to cover the topics of personal and familial relationships with the neighbourhood and with Banco Palmas as well as their impressions about their neighbourhood's achievements, the use of the social currency and its transition to the digital format, and, finally, the use they did and expectations they had for Palmas Digital.

The interviews with merchants were shorter and were based on a predefined questionnaire that covered issues about the advantages of and difficulties with the social currency, the use of the mobile application, and the number of sales per application per month since they joined the system. At the end of three weeks, we obtained a total of 51 qualitative interviews, all of which were manually recorded in paper notes. Sixteen of them were also recorded in audio and transcribed.

In terms of data analysis, we followed the method proposed by Miles and Huberman (1994), using basic open and selective coding processes with the support of AtlasTI software. With the broad categories – context, process, and content – pre-established by the model, we coded sentences or paragraphs and started to inductively create sub-categories for each of them. We then could identify the convergences or divergences in terms of interpretive frames, mechanisms of negotiation, and consequences of the technology-in-practice.

5. PRESENTATION OF RESULTS AND DISCUSSION

In this section, we present and discuss our results in three parts: (i) the context, (ii) the content, and (iii) the process analysis.

In the context analysis, we identified the relevant social groups and present their interpretive frames related to the adoption of the e-Dinheiro platform. In the content analysis, we present Palmas Digital as technology in practice, since e-Dinheiro platform was developed to support mainly B2C transactions, even though it is used to support a digital community banking. Finally, we map the negotiation mechanism among social groups that resulted in Palmas Digital.

5.1 Context analysis: social groups and their interpretive frames

Conjunto Palmeiras is a neighbourhood located in the outskirts of Fortaleza and has approximately 40 thousand inhabitants. Its creation dates back to the 1970s, when poor inhabitants of Fortaleza were removed from the coastal area and moved to region 20 kilometres away. Allocated in an area without any infrastructure, the new residents – with little money and no effective support from the City Hall – had to live in a very precarious situation, without water, electricity, sewage system, or even public transportation. In the 1980s, in order to fight for the improvement of their living conditions, they decided to create an association. The ASMOCONP (Association of Residents of Conjunto Palmeiras) arose out of necessity. In the words of one of the neighbourhood's community leaders, it was created to “put pressure on the government: we started to conquer several things”. Through great collective effort and mobilization, the neighbourhood's population was able to force the City Hall to supply water and implant electric and sewage systems, as well as provide public transportation to the residents.

The creation of a community bank, with its inherent principles of solidarity economy, changed the perception that the community had of itself. A population previously marginalized eventually overcame its stigma and ended up being proud of living in a neighbourhood with its own financial institution. The social currency Palmas, which emerged as an instrument for local transactions, acted in this process as a way to materialize this pride into action and contribute for the transformation of the neighbourhood by the hands of the community.

Currently, however, the neighbourhood's association and Banco Palmas no longer share the same space. The community bank, seeking greater autonomy and the development of private projects, founded a seat of its own; a decision that weakened the association, since Banco Palmas was the one that organized and developed most training courses and other activities. As pointed out by one of the founders of the association, “we got to have meetings with 600 people; today we cannot get even 40”. This still marks a process that Conjunto Palmeiras faces: the partial loss of the community articulation.

5.1.1 Banco Palmas

Banco Palmas, through the Banco Palmas Institute, collaborated and participated in the creation of more than 100 community banks in Brazil. It is undoubtedly the most important community bank, given its performance and history. Microcredit, one of the bank's main activities, was restructured in order to guarantee its continuity and reduce of the default. The bank also offers courses and workshops, many of which also offer participants a scholarship. The bank also promotes meetings for the residents of the neighbourhood to discuss local issues, such as land regulations, elections, cleaning, etc. In partnership with a major insurance company, it also runs a project that provides free internet to the neighbourhood, and offers microinsurance through the e-Dinheiro platform.

The possibility of reducing costs with the issuance and control of the paper form of the Palmas currency, as well as the possibility of connecting several community banks in the same platform, were of great interest to Banco Palmas in the creation of Palmas Digital, the digital community bank that runs in the e-Dinheiro platform. On turn, e-Dinheiro relies on local development, since purchases are restricted to the neighbourhood's shops, and offers an opportunity for extra income to its representatives. Finally, a per-transaction fee model can generate revenues that help the bank's sustainability.

5.1.2 ASMOCONP

As previously mentioned, the association of residents was formally disengaged from Banco Palmas. However, most part of the neighbourhood's community leaders still maintain bonds with the institution, which shapes it as a still relevant actor in Conjunto Palmeiras. Although ASMOCONP's role was weakened due to lack of personnel and money, it remains important in the recovery of the political engagement of the community. It is a space to better capacitate the community leaders and all people engaged in the struggle to develop the neighbourhood. As put by one of the community leaders, who is still active, "the space of the association is a Palmeiras' patrimony and the population should own it". Initiatives have already been taken in order to revive resident's participation in the struggles and demands of the neighbourhood- fact that indirectly benefits the Palmas Digital project.

The association shares the ideas of solidarity economy and encourages initiatives that contribute to the development and improvement of the neighbourhood. Nevertheless, during the interviews, we listened to sentences such "Banco Palmas is not so communitarian [anymore]", which points out to a certain mistrust coming from some actors and raises the questions: is Banco Palmas still able to reach these social goals and do its actions in fact prioritize the development of the neighbourhood? Those criticisms might undermine the growth of Palmas Digital, whose success depends on the support and cooperation from the community.

5.1.3 Merchants

Unlike ASMOCONP, whose conduct interferes only indirectly in the development of Palmas Digital, merchants' opinions and the meanings attributed by them to the platform directly contribute to the way technology is actually used. For this reason, it is necessary to understand what are the advantages and disadvantages that this group identifies while using the platform, thus extracting the reasons why some chose to join it and others not.

From a series of interviews with merchants that use the application, we observed that one of the main factors that lead them to adopt the platform is the possibility of accepting a form of payment which even practicing a fee rate of 2%, it is lower than the 5% charged by cards. It is also worth mentioning that, for smaller commercial establishments, access to the information registered by the platform was also pointed as a benefit, since it helps issuing the cash statement. In the discourse of some merchants was also present the concern to contribute to the dissemination of a means of payment that ultimately benefits the community.

Despite the advantages observed, a number of problems were identified by the merchants. First, the monthly cash flow via the platform is very small, and it is usually restricted to a limited group of people with ties with the neighbourhood. In addition, the user does not receive interest on the money deposited in the platform and has to pay a fee to withdraw or transfer it to another bank. It is also noteworthy that the merchants – at least those from small commercial establishments – do not see the payment of bills through platform as one alternative, since a R\$2.50 fee is charged for every bank slip paid.

Other barriers to the adoption of the service concern some merchants' problems with technology, ranging from lack of knowledge of the system to the need of a good Internet connection and a smartphone with enough memory to bear the updates of the heavy application. In addition, establishments that opt to accept off-line payments (via QR code) face an additional barrier, which is the need of a mobile phone with a good camera, sharp enough to focus the code in order to make the transaction. As the owner of a local establishment pointed up, it is interesting to the merchants that the initiative works and the number of users increases, so they can sell more utility the platform. Therefore, a process of intense divulgation is necessary, to increase a network of Palmas Digital's buyers.

5.1.4 Users and potential users

The group of users and potential users is too heterogeneous. Differences in age, socioeconomic status, and technological knowledge contributes for the fact that the level of acceptance and use of Palmas Digital greatly varies among them. Nonetheless, it is possible to extract from this diversity some common positions, which, although not unanimous, are recurrent in the speech of many interviewees.

First, there is a lack of knowledge about the application among the community. Those who have little or no contact with Banco Palmas are unaware or do not understand the operation of Palmas Digital. On this topic, we could often identify distrust and resistance. As pointed out by one resident, many people in the neighbourhood, especially the older ones, do not fill confident with technology and find it "very weird" to think about money in a mobile phone and are even less comfortable using it to shop in the "neighbourhood supermarket". Comments such as "housewives are not familiar with mobile phones, with this kind of application business" were recurrent.

Despite e-Dinheiro's additional functionalities, many of those who used the Palmas social currency in its paper version have not adopted the digital application yet. Also, the paper version of the currency used to offer some benefits, such as discounts at the time of the purchase and the anticipation of a part of the salary when received in Palmas, that aren't offered.

The resistance to the mobile application also concerns the necessity to go to Banco Palmas in order to load credit in e-Dinheiro, what – besides not being practical – is seen as a limiting factor to the circulation of money. There are few establishments that accept payments with e-Dinheiro and, if the user needs to make a withdrawal, a fee is charged. Those who receive scholarships from Banco Palmas also complain: "I don't see much advantage; if I withdraw the money, I only get R\$198.00 instead of the R\$200.00 from the scholarship".

Problems such as lack of memory on the mobile phone, difficulties with the Internet connection – since the Wi-Fi network provided by Banco Palmas is still limited and does not cover the entire neighbourhood –, and lack of information regarding all the benefits provided by the application end up reducing the adhesion and use of the platform. Additionally, there were a lot of comments about the need of a fast payment method due to everyday rush; whereas Palmas Digital, although fast, sometimes hangs, thus making users and potential users conclude that "if e-Dinheiro is practical, the paper bills are even more practical." Another relevant issue concerns the profile of the target user: many receive a very low income and cannot afford to deposit money on the platform, since it will be missed later in the month. For many people, the initiative would only succeed if the bank offered loans via platform. Even with a low credit limit and considering the payment of interest, people believe that it would still attract people to join the platform.

However, some advantages are recognized, such as not having to have cash on you when walking on the street and being able to place an order, have it delivered and pay for it at a distance. In addition, it brings interesting features, such as being a safe way to save money – a kind of savings account, but without receiving interest – and being able to pay even without having one's mobile phone or money in hand, using the mobile phone of the establishment itself.

As regards the feeling of integration with Banco Palmas, it is evident that many do not see it as a part of the community. Phrases like "Banco Palmas is in Palmeiras just by chance" show that there is a growing distance between the bank and the local community. Such distance tends to undermine the residents' adherence to the project, since they do not understand the beneficial impacts that the initiative may bring to the neighbourhood itself. Table 1

presents the relevant social groups (Users, Potential Users, Merchants, Bank, Association) and their interpretive frames.

Table 1 – Context Analysis

Social groups' interpretive frames	U	P.U	M	B	A
Money gets stuck (dinheiro fica preso)	X	X			
Bank does not pay interest	X	X			
Withdrawal Rate is not feasible	X	X	X		
Low Trust in Technology	X	X	X		X
Low literacy in Technology		X	X		X
Lack of mobile access to the Internet		X	X		
Smartphone with low memory	X	X	X		
Need to go to the Bank	X	X	X		
Lack of support for Local Association (ASMOCONP)					X
Few people have access to training		X			
Little knowledge about the existence and functioning of e-Money	X	X	X		X
The needness to cheapen the management of the paper currency				X	
The needness to connect community banks				X	
The needness to generate revenue that guarantees bank sustainability				X	
Bringing technology to the periphery (levar tecnologia para periferia)				X	
Developing local commerce			X	X	
Offering a fairer system than traditional commercial banks				X	
Few people look for this mean of payment			X		
Significant fees for small businesses that do not currently accept debit or credit card			X		

5.2 Content analysis: the technology-in-practice

In this section, we analyse the use of Palmas Digital in practice. In this dimension of technology use, the most significant point is that, despite efforts, the scope is quite limited. There are still few people who choose to use the application as a payment method, and the vast majority of those who choose it have some kind of connection with Banco Palmas. This is connected with users and merchants perspectives of the platform's disadvantages, such as the lack of practicality to deposit money into e-Dinheiro (users have to go to the bank, authorized office, to make the deposit in official currency and obtain the corresponding amount in the balance in the platform), standard limitations (the system doesn't work on Windows phones, for example), and lack of memory on the mobile phone, in addition to difficulties concerning the access to the Internet. Also, problems such as the feeling of insecurity – since the system does not confirm the name of the registered person – also create barriers to the effective dissemination of Palmas Digital.

However, even though these problems are not solved, the bank has directed its efforts to gradually attracting people to the platform, seeking to strengthen Palmas Digital. Features such as the possibility of recharging pre-paid mobile phones via e-Dinheiro or receiving through Palmas Digital the payment for the recyclable waste are good examples. In addition to it, initiatives such as the "Bodegão da Solidariedade" (in which various products and food items from small rural farmers are sold), where the payment will be made exclusively using e-Dinheiro try to stimulate the use of Palmas Digital

The latest data provided by the bank, from September 2016, places a total of 2,235 users, 164 accredited businesses, and 42 promoters in the 20 municipalities where Palmas Digital already operates. In total, R\$4,763,531.00 have already been traded via the platform, R\$2,319,053.00 of which only in the previous month, a fact that demonstrates that the initiatives of Banco Palmas to increase membership have succeeded. However, there is still plenty of scope for growth.

From the interviews and data provided by the bank, it is noticeable that Palmas Digital has not reached, within Conjunto Palmeiras, the same diffusion Palmas paper social currency had. For example, the social currency Palmas was accepted at gas stations and as payment for topiques (a kind of vehicle widely used as means of transportation in the neighbourhood) whereas, at the moment, the use of Palmas Digital is restricted to purchases in the shops that accept it and pre-paid mobile phone recharges.

We also identified two unexpected uses for the digital application. First, it was reported that, even though the app doesn't pay interest, some people use it as a means to save money, making small deposits and leaving the money idle in their Palmas account until they have enough to spend on something that demands a higher amount, such as appliances or gifts, or even as a reserve for an emergency. Moreover, despite the existence of a withdrawal fee, almost all of the interviewed users prefer to withdraw the money, even if it is to spend in the neighbourhood's establishments.

With regard to the bank's organization to address the project, there are still problems of infrastructure. The amounts deposited in e-Dinheiro are still stored at the bank's headquarters. This doesn't pose a problem yet because the amounts are still small. However, the goal is to take all transactions that involve money to the correspondent banking's space, creating a specific box for Palmas Digital.

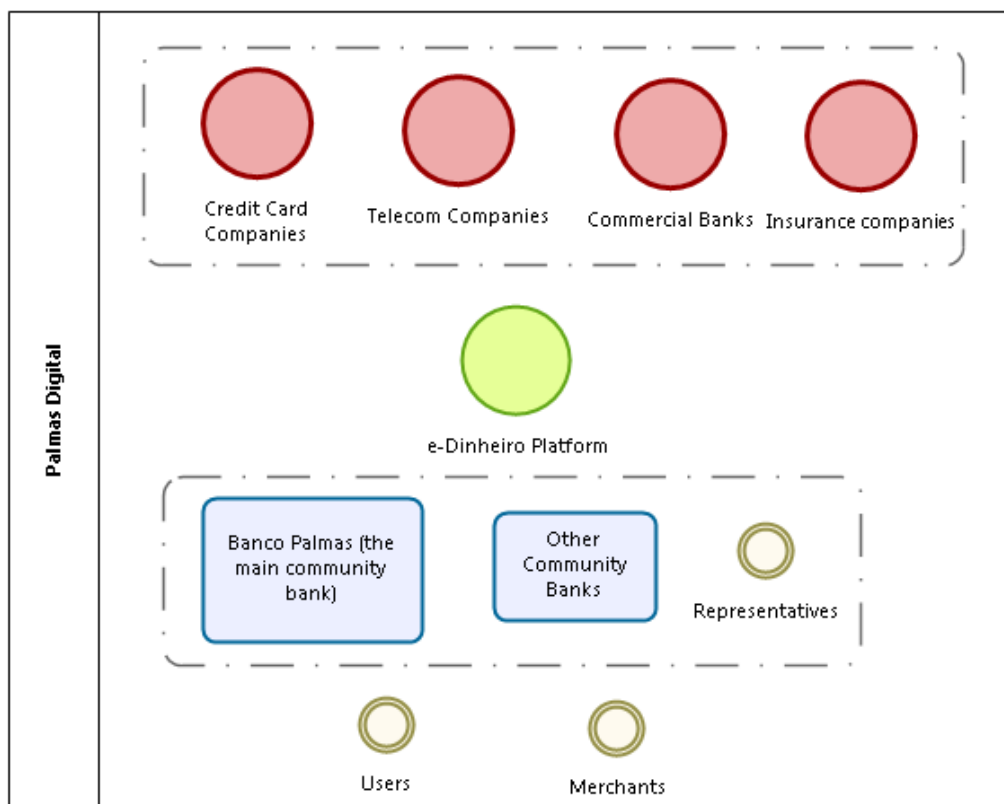
As one attempt of solving the problems concerning the perceived disadvantages of the mobile application, the bank has come up with the idea of introducing Palmas Digital in the card format. Initially, the idea is for it to operate as a pre-paid card, for those who doesn't have access to the currency's mobile version. Therefore, based on the principle that "to be an alternative, you cannot create unnecessary barriers", Palmas Digital – to reach its goal of being an "innovative and disruptive" alternative for the traditional financial system– included the card version of the social currency. Table 2 resumes our technology-in-practice analysis.

Table 2 – Content analysis

Original Funcionalities (original design)
P2P Transfers
B2C Local Payments
Cash In in the branches of Community Banks
Withdrawals in the branches of Community Banks
Technology-In-Pratice
Collection of Multiple Payments (TotLec Resellers, ASMOCNP association fee)
Distribution of Multiple Payments (CordaPes Dancers, Gogozeiras)
Pre-paid mobile phone recharges is the most used functionality
Entries as Savings (what you get in e-Money saves as savings)
Expansion of the Network of connected Community Banks connected forming the system Palmas Digital's system

Figure 2 shows Palmas Digital's system, in which community banks are connected through the e-Dinheiro digital payment platform. Users and merchants are also connected and can run B2C and P2P transactions. Third parties, such as commercial banks and credit card and telecom companies are also connected.

Figure 2 – Palmas Digital



5.3 Process analysis: negotiation mechanisms

According to our data analysis, each social group has a clear vision of the advantages and disadvantages of using Palmas Digital and has its own demands and claims. The use of technology takes off from its initial concept and adapts itself to these new uses and meanings. However, this adaptation results are a result of an intense and constant process of negotiation of the platform, according to the different interests and influences that emerge in the context. In such a negotiation process, a new figure emerges: the promoters. The company that develops the application must also be taken into consideration, because, despite not being a local actor, is a key part in the process of adapting the app to the new demands.

Banco Palmas’ objective is to spread the ideas of solidary finance and to increasingly expand its network. In this process, it is a central actor who articulates with other groups, listening to their interests and making concessions in order to obtain support and find ways to reach its goal. The bank’s objective requires a constant process of convincing other actors and publicizing the application’s functionalities, adapted to the demands and needs they voiced. As regards new users, several initiatives have already been developed in order to attract them. A few examples are the concession of discounts and of free Internet in some areas of the neighbourhood.

The system also supports payments via SMS or QR code, meeting the demands of those whose mobile phone cannot run the application or that do not have access to mobile Internet, respectively. In addition, events such as “Campus Partiu Periferia”, which brings young people together to think of solutions to the periphery’s demands, and the courses offered by Banco Palmas give Palmas Digital visibility, as well as guarantee an increase in the number of users, since the scholarships given to the participants of those projects are deposited in the e-Dinheiro platform.

However, in this process, we observed that many of these participants prefer to pay the fee to withdraw the money to have a greater freedom to spend it, not being restricted to the few establishments that currently accept Palmas Digital. This situation also occurs with those who receive their salary via Palmas Digital, a reality evidenced in

the situation of the members of Cordapés, a local dance group. As one of them stated, receiving via the application is more practical and secure, but they chose to withdraw the money to be able to spend wherever they needed.

In view of new agreements signed to pay the salaries of the company SKY TV Services' employees and of negotiations so that the gogozeiras – the women who make the straw decoration of the cachaça Ipióca- also receive their wages via application, incentive mechanisms must be created. A possible solution is expanding the network of establishments, so that people can spend using the application itself instead of withdrawing the money. In this sense, we note the importance of developing two parallel efforts: popularizing the platform, thus increasing the network of users and merchants, and encouraging those who already use it to prioritize payments via e-Dinheiro.

In order to facilitate this process, Banco Palmas has created the figure of the promoters, people who already have some other professional activity- community bank employees, merchants, taxi drivers – but end up working as disseminators of Palmas Digital, registering establishments and selling credit and microinsurance products in exchange for a commission that varies from 0.5% of the income per registered establishment up to 15% of the profit from the sale of a microinsurance. With the creation of this new figure emerges a new pole of negotiations around the amounts received by their services and these actors' effective contribute for the dissemination of Palmas Digital.

Finally, there is the conciliation process between Banco Palmas and the merchants. First, because of the reported problems with mobile phones and sometimes with the Internet, the bank opted to provide merchants with a smartphone and a mobile Internet package for one year. This concession was necessary due to the end of the availability of credit for consumption, which prevented the bank from releasing credit to merchants and customers who wanted to acquire a new mobile device.

Another concession made to merchants was the possibility of paying bank slips through the Internet or a special cash machine, within a limit of R\$10,000.00. This limit is higher than that established by the correspondent banks (R\$ 2,000.00 for Caixa Econômica Federal and R\$500.00 for other banks). This benefit is especially interesting to the merchants who take out a group loan through "Crediamigo", a very common microcredit program offered by a public bank in the Northeast region of Brazil, in which a single monthly payment slip is issued for the entire group, which can easily exceed the maximum limit for payments in the correspondent banks. The only registered drawback with this alternative is the R\$2.50 fee charged for the payment of each bank slip.

It should be noted, however, that all these negotiation processes face common challenges regarding communication, not only in the sense that they open up more spaces for the dialogue between actors but also in the new ways these actors establish contact, which may create new demands.

6. BUILDING A MODEL FOR THE NEGOTIATION MECHANISMS

On the previous section, using a multilevel framework model, we shed some light on the negotiation mechanisms that result in technology-in-practice. In this section, these mechanisms are categorized, using Miles and Huberman (1994) method. We first attributed an open code (label) to phrases and expressions extracted from interviews. After that, we refined and grouped these labels in an iterative way in order to obtain a list of first-order themes, namely: additional services, additional charge methods, overcoming economic barriers, overcoming technological barriers, overcoming relationship and trust barriers, scholarship payment, events, and growth. Once we create this list, we searched for links and interlinks between the labels. This process, named coaxial coding, intended to obtain the second order of categorization, which is a higher level of abstraction: evolution, local actions, and lock in process.

Table 3 sums up the categorization of mechanisms used to consolidate e-Dinheiro as a platform to a new digital community bank.

Table 3 – Categorization of the negotiation mechanisms

1st Order (negotiation mechanisms)		2nd Order (Clustering of mechanisms)
Exclusive cashier in corresponding bank	Additional Services	Evolution
Payment of bank slips with higher limit		
Sale of microinsurance in partnership with a large insurer		
Pre-paid mobile recharges		
Cash in with a credit card	Additional Charge Methods	
Cash in in a Lotérica		
Cash in via Bank transfer		
Offer of small loans	Overcoming Economic Barrier	Local Actions
New Line credit for consumption (in project)		
More affordable rates compared to card / pos (Merchants)		
Extra income to Commissioned representatives		
Smartphone via commodate	Overcoming Technology Barrier	
NFC (or RFID) Card in project		
WiFi Internet project in the neighbourhood		
Visiting of community advisors	Overcoming Relationship and Trust Barriers	
Recovery of Conjunto Palmeiras, Association and Banco Palmas history (solidarity prize)		
Protagonism in the process of land regulations		
Protagonism in the search for local legislative representation		
More transparency of bank revenue and its application in the community.		
Payment Method for 'Coletivo das mulheres Hacker'	Scholarship payment	Lock in Process
Payment Method for 'Cozinha Delas' project		
Payment Method Community Consultants		
Payment Method for "Bodegão da Solidariedade"	Events	
Payment Method of the Solidarity Prize		
Payment Method for "Campus Partiu Periferia"		
Expansion of its diffusion via Representatives (capillarity)	Growth	
Negotiation with companies for payment of salaries		
Registration of neighborhood's supermarkets		

6.1 Evolution

This category encompasses “additional services” and “additional charge methods”. Since the pilot started, the idea that e-Dinheiro would be a digital social currency has been transformed with the addition of new services by those who opted to use the mobile application. An exclusive cash machine in the correspondent banks and the possibility to pay for bank slips with a higher limit amount than the one offered by traditional banks are examples of these additional services. Another example is the possibility to recharge pre-paid mobile phones via e-Dinheiro, which quickly became the most used service, introduced by the promoters.

In addition to the new services, the bank created new methods to add funds into the platform, such as credit card transfers, deposit in Lotéricas (reseller of a public bank lottery that also works as a bank correspondent) and via commercial bank transfers. Nonetheless, these new methods were not sufficient to overcome the barriers listed by Palma Digital's users concerning the need to go to a community bank in order to deposit the money.

6.2 Local actions

This category covers local actions taken by Banco Palmas to overcome economic, technological, and trust barriers. Some users complained about what they called "impeditive fees", however, the bank's rates are already lower than those charged by traditional banks, besides they generate revenue for local representatives, who are people that live in the community. In addition, the adoption of the platform would protect and stimulate local market. Furthermore, Banco Palmas is studying a possible way to offer users a line of credit for small amounts and direct consumption via mobile application.

To overcome the technological barriers, Banco Palmas offers training. In addition, the bank runs a project that provides free Internet to the neighbourhood. This project already covers the neighbourhood's main street and the square, where events are held.

Knowing that the purchase of a smartphone can also be a barrier, Banco Palmas provided some merchants with a mobile device via commodate.

Furthermore, the bank has taken several actions, including seeking a political representative for the neighbourhood and providing more transparency in its revenues and their applications, which fosters a relationship of trust with the residents in the organization, since the residents' feeling of lack of support from the bank ended up creating mishaps for the success of the initiative of Palmas Digital.

6.3 Lock In Process

This last category refers to the actions taken in order to lock in users in the platform and to expand the network of them, which basically includes three types of action: the payment of scholarships via application; the organization of events where the application is used as a payment method; and the expansion of the network via representatives, agreements with organizations to pay its employees' salaries using the platform and the registration of larger shops and markets. Together, these actions aim to attract new users.

7. CONCLUSION

Palmas Digital is an initiative in constant evolution, adapting itself to the needs and desires of the different social groups involved. Although Palmas Digital still has an uncertain future, the authors recognize the promising potential of the project. Banco Palmas' ultimate goal is to give life to a digital community bank of national proportions that is capable of generating enough income to sustain its own activities and also capable of financing initiatives in the community. Thus, it has the objective of consolidating Palmas Digital as a Social Fintech that acts not only as an alternative to the traditional banking system, but also disseminates the principles of solidarity economy and local development, without compromising its competitiveness in terms of the rates charged and the monetary amounts it can handle.

Social Fintech model can be an interesting strategy, not without many challenges, because it combines the potential of the digital platforms to increase inclusion and increase de monetary circulation volume, with its capacity of solidary and participatory management of this platform. As we have seen, Banco Palmas, as a Social Fintech, is constantly evolving and adapting the e-Dinheiro platform to batter meets local needs.

Finally, this research applied the multilevel framework model to highlight the importance of understanding the interpretive frames of the social groups involved in this digital community bank, which are a result of the negotiations among them. We hope that the three groups of negotiation mechanisms mapped here can be a theoretical and a practical contribution to the field. From a theoretical perspective, this paper proposed categories, derived from an inductive analysis, framed by the multilevel framework. These categories could be useful to better under-

stand other processes of adoption of new technology. From a practical perspective, it can shed light into the process of adopting technology in local communities, strengthening the relationship with local organizations, as mainly illustrated in the “Local actions” category.

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