

Theoretical-empirical Article

# Digital Social Currencies, Institutional Pressures and the Social Modeling of Technology

Moedas Sociais Digitais, Pressões Institucionais e a Modelagem Social da Tecnologia



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## ABSTRACT

**Objective:** to analyze the institutionalization of community banks as promoters of financial inclusion considering their strategies undertaken by institutional pressures. **Theoretical framework:** theoretical framework delimited from organizational strategies in response to institutional pressures in the process of implementing changes by information and communication technologies (ICTs), in the tactics and strategies used in inclusive markets and in social modeling of technology. **Methods:** a case study was carried out with Banco Mumbuca, where the digital social currency is widely used, through content analysis on documents and semi-structured and structured interviews. **Results:** results point to theoretical contributions regarding the constituent multiplicity, two new typologies in the tactics used in inclusive markets, as well as the change of status of the content element becoming an element of context in the gradual development of technology. **Conclusion:** community banks face institutional pressures for various strategies identified in the theory, as well as expand the tactics used in inclusive markets and that the implementation of changes by ICTs has taken place gradually, with processes of change anchored in technology-in-practice.

**Keywords:** community banks; institutional pressures; digital social currency; financial inclusion; local development.

## RESUMO

**Objetivo:** analisar a institucionalização dos bancos comunitários como promotores de inclusão financeira considerando suas estratégias empreendidas frente a pressões institucionais. **Marco teórico:** referencial teórico delimitado a partir das estratégias organizacionais em resposta às pressões institucionais no processo de implementação de mudanças por tecnologias de informação e comunicação (TICs), nas táticas e estratégias utilizadas em mercados inclusivos e na modelagem social da tecnologia. **Métodos:** realizou-se estudo de caso com o Banco Mumbuca, onde a moeda social digital é amplamente utilizada, por meio de documentos e entrevistas semiestruturadas e estruturadas, todos alvos de análise de conteúdo. **Resultados:** resultados apontam contribuições teóricas no que diz respeito à multiplicidade constituinte, duas novas tipologias nas táticas utilizadas em mercados inclusivos, assim como a mudança de status do elemento conteúdo se tornando um elemento de contexto no desenvolvimento gradual da tecnologia. **Conclusão:** os bancos comunitários fazem frente às pressões institucionais por várias estratégias identificadas na teoria, bem como ampliam as táticas utilizadas em mercados inclusivos e que a implementação de mudanças por TICs tem se dado de forma gradual, com processos de mudança ancorados na tecnologia-em-prática.

**Palavras-chave:** bancos comunitários; pressões institucionais; moeda social digital; inclusão financeira; desenvolvimento local.

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## INTRODUCTION

In developing countries, financial inclusion has been given priority due to the recognition of its importance as a critical element in poverty reduction and economic growth policies (Bisht & Mishra, 2016; Diniz et al., 2012; Omar & Inaba, 2020). On the one hand, there is an understanding of the direct relationship between financial inclusion and social well-being (Demirgüç-Kunt et al., 2022). On the other hand, being excluded from the financial system may imply restrictions on the development of individuals' capabilities as conceptualized by Sen (2010) and, at the community level, may result in little development of the local economy (Martins et al., 2010; Menezes, 2007).

According to Global Findex data, the number of adults with relationships with financial institutions has been growing in the world, rising from 51% of the population in 2011 to 76% in 2021, and 84% in Brazil (Demirgüç-Kunt et al., 2022). This number contrasts with 96% of adults with a financial relationship in Brazil according to data from the Central Bank of Brazil (Banco Central do Brasil [BCB], 2021). This divergence can be explained, in part, by the fact that the BCB's administrative data consider all people who have active accounts in the National Financial System (*Sistema Financeiro Nacional* [SFN]), while the Global Findex survey is based on interviews.

In the academic field, much effort is made to assess how solidarity finance initiatives can be a way to improve the quality of life of the poorest (França et al., 2012; Guimarães, 2000; Mendoza & Thelen, 2008; Rigo et al., 2015; Singer, 2002), as the mere use of financial services by this population may not mean that it is being adequate to their needs. For this evaluation, it is important to observe how the flow of money in more impoverished regions happens, since the resource can be directed to other nearby more developed municipalities, contributing to the generation of wealth in these municipalities, when it could be applied in the territory itself, contributing to the local development (França et al., 2012; Jayo et al., 2009).

In public policies, there is also a concern with social inclusion through innovation in financial services. The United Nations (UN), through the publication "Transforming Our World: The 2030 Agenda for Sustainable Development" (United Nations [UN], 2015), defined 17 goals as an action plan for sustainable development in all countries. The eighth objective of this plan, relating to decent work for all and economic growth, is the goal of promoting policies with the aim of supporting "productive activities, decent employment

generation, entrepreneurship, creativity and innovation, and encouraging formalization and the growth of micro, small and medium-sized enterprises, including through access to financial services" (UN, 2015, pp. 26-27).

In this context, an initiative that stands out in Brazil are the community banks, solidarity finance organizations that operate social currencies in peripheral communities. In Brazil, they originated in 1998 with *Banco Palmas*, which appeared in *Conjunto Palmeiras*, a neighborhood of extreme poverty in the city of Fortaleza, Ceará (Menezes, 2007; Rigo & França, 2017). On that occasion, a Brazilian social currency was created to encourage trade in the region and enable the loan of small amounts for consumption in the community itself with the intention of valuing exchanges in the neighborhood itself. It is also noteworthy that, since its origin, *Banco Palmas* has been dedicated to the financial education of the population, as it believes that the sustainability of the model also depends on the conscious use of available resources (Banco Palmas, 2018).

In 2014, *Instituto Banco da Periferia* implemented what is here referred to as digital social currency, which implies a currency with restricted circulation transacted exclusively through information and communication technologies (ICTs) and with its use aimed at local development. This digitalization of financial transactions was only possible after Law n. 12.865 (2013) of October 9, 2013, which allowed other organizations to offer some types of financial services in addition to those performed by banking correspondents, contributing to the breaking of the oligopoly of the banking system in this area. More recently, the Resolution 4,656 (2018), of April 26, 2018, regulated part of the actions carried out by so-called fintechs and further expanded the scope of organizations that make up the SFN. This legal framework made it possible for community banks to introduce a platform to operate their digital social currencies, the e-dinheiro platform.

In view of the technological advancement of community banks and the literature exploring various analyses under the lens of solidarity economy (Cernev & Diniz, 2020; França et al., 2012; Nascimento, 2015; Rigo et al., 2015), the aim is to contribute to the discussion on the role of community banks in financial inclusion according to precepts of solidarity. However, this article starts with an investigation of the institutionalization process of these organizations and to what extent the adoption of ICTs can interfere in this process. The analysis of the results was carried out based on the theoretical framework of three guiding works in order to: (a) obtain an overview of the strategic responses to the institutional pressures of community banks in general and

*Banco Mumbuca* in particular, based on [Oliver \(1991\)](#); (b) identify which strategies have been aimed at inclusive markets considering the typology identified by [Mendoza and Thelen \(2008\)](#); and (c) recognize how the process of implementing changes through ICTs has taken place through the conceptual model of [Pozzebon and Diniz \(2012\)](#).

## THEORETICAL REFERENCE

According to [Jayo \(2010\)](#), research that uses the multilevel model developed by [Pozzebon and Diniz \(2012\)](#) follows a basic script, which consists of: (a) identification

of relevant social groups of interest and characterization of the dominant technological frames in each of these groups; (b) analysis of a negotiation process involving all groups; and (c) conclusions or considerations about a technology-in-practice resulting, or potentially resulting, from the analyzed negotiation process. These steps correspond to the analysis of the context first, followed by the process, and finally the content. Therefore, it is necessary to understand, concomitantly, the theoretical bases that explain the strategies taken by these organizations in response to institutional pressures and how the recent implementation of ICTs has taken place in this process. Table 1 summarizes these categories.

**Table 1.** Technology social modeling categories.

Reference	Dimension	Categories
Conceptual model of implementation of changes by ICTs ( <a href="#">Pozzebon &amp; Diniz, 2012</a> )	Context	Technological frameworks
	Process	Negotiation
	Content	Technology-in-practice

Note. Source: adapted from [Pozzebon and Diniz \(2012\)](#).

The study of institutionalism considers the dynamics of organizational strategies derived from institutional pressures. The constitution of a certain institutional environment involves the action of several actors that relate to each other, impact and are impacted by the constructed structures — the institutions. The multiplicity of actors interested in a certain public policy result in competition for the distribution of resources that are most convenient for their interests to be contemplated ([Vieira & Gomes, 2014](#)). For these authors, “institutions are the rules of the game, formal or informal, that guide the actions of individuals and organizations” ([Vieira & Gomes, 2014, p. 681](#)).

The look at institutional theory is then turned to the predictability of the behavior of organizations in response to different types of structural or procedural conformity related to the inserted environment, reflecting a more passive behavior of organizations, and tending to focus more on conformity than on their resistance ([Oliver, 1991](#)). Institutional theorists are more concerned with understanding how survival takes place according to compliance with the institutional environment and adherence to external norms and rules ([DiMaggio & Powell, 1983](#); [Meyer & Rowan, 1977](#)).

[Oliver \(1991\)](#) lists five types of strategic responses that organizations take, ranging from more passive behavior to more active resistance: acquiescence, compromise, avoid, defy, and manipulate. This typology helps in understanding how organizations are influenced by the institutional environment and what are the possible strategies they adopt when seeking their survival within the various contexts. Given the strategic responses identified by [Oliver \(1991\)](#), the aim is to find which ones have been most used by community banks. For this, the work developed by [Mendoza and Thelen \(2008\)](#) will also be considered, due to the fact that the authors delimit in their study organizational strategies aimed at making markets more inclusive.

[Mendoza and Thelen \(2008\)](#) define a typology based on three types of possible strategies, listing 11 different tactics that are used to make markets more inclusive for the poor. This categorization, associated with the strategies identified by [Oliver \(1991\)](#), contribute to an understanding of how these organizations have acted in the communities, with emphasis on the financial inclusion of the neediest population. Table 2 summarizes these strategies and tactics developed by the referenced authors.

**Table 2.** Categories and subcategories of organizational strategies.

Reference	Categories	Subcategories
	Strategies	Tactics
Organizational strategies in response to institutional pressures (Oliver, 1991)	Acquiescence	Habit / Imitate / Comply
	Compromise	Balance / Pacify / Bargain
	Avoid	Conceal / Buffer / Escape
	Defy	Dismiss / Challenge / Attack
	Manipulate	Co-opt / Influence / Control
Inclusive initiative strategies (Mendoza & Thelen, 2008)	Production, distribution, and marketing strategies	Standardize / Leverage flexible networks / Supply chain financing
	Retail and pricing strategies	Joint consumption / Flexible payments / Tiered pricing
	Cross-cutting business strategies	Contracting innovations / Dynamic incentives / Partnering / Real options strategies / Total product solutions

Note. Source: adapted from Oliver (1991) and Mendoza and Thelen (2008).

In this way, there will be an effort to understand how the process of institutionalization of community banks has taken place, in a scenario where they acquire a transforming role in the communities in which they are established (Rigo & França, 2017). A possible approach is the one that considers relevant the influence of information and communication technology that has been adopted in a multilevel structure, that is, in society, organizations, and individuals. Thus, the model by Pozzebon and Diniz (2012) is additionally adopted, which brings a multilevel approach to the implementation of ICTs and their influence on social life. By not bringing hypotheses or propositions, the model directs the research toward an analytical induction, functioning as a structure that will guide the empirical work (Pozzebon et al., 2009). Therefore, the analysis will contribute to the validity of the conceptual approach developed over time (Jayo, 2010; Pozzebon et al., 2009; Pozzebon & Diniz, 2012).

The conceptual model developed by Pozzebon and Diniz (2012) proposes to investigate the problem of the influence of ICTs beyond the organizational level, using as a basis the structurationist view of technology, combined with the concepts of social modeling of technology and contextualism. As for the use of the structurationist view in the flow of technology, Pozzebon and Diniz (2012) call attention to the concepts developed by Orlikowski (2000) about the emergence and improvisation of technology, technology-in-practice, a central aspect in the multilevel structure to investigate the influence of ICTs at the community/society level (Pozzebon & Diniz, 2012). The look at the social modeling of technology, in turn, focuses on the centrality of social, economic, political, cultural, technological, and other aspects as modelers of

new technologies (MacKenzie & Wajcman, 1999; Pinch & Bijker, 1984) and deepens based on three social modeling concepts: implementation and use of ICTs as a negotiation process, relevant social groups, and technological frameworks. Finally, the contextualist approach appears with Pettigrew (1985; 1987; 1990) and emphasizes three elements in organizational change: context, content, and process. For him, when applying a contextualism lens, one seeks “continuity and change, patterns and idiosyncrasies, the actions of individuals and groups, the role of contexts and structures and structuring processes” over time (Pettigrew, 1990, p. 269).

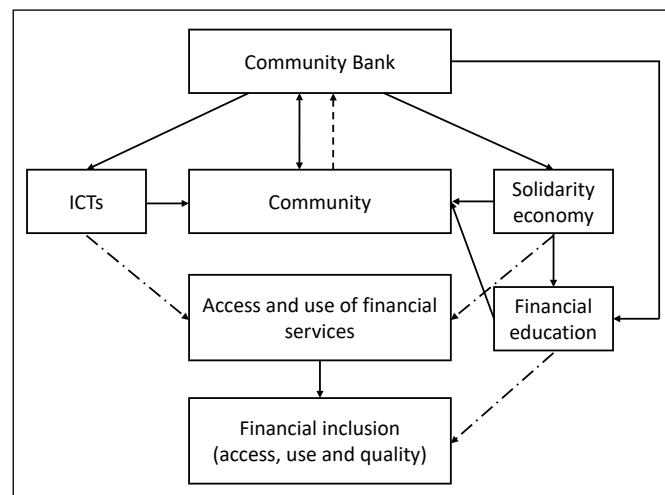
Given the existence and operation of community banks based on solidarity economy, financial education, and more recently on the use of ICTs in services provided within communities, the outline of the research (Figure 1) was developed to guide how these relationships occur. Then, the analysis was developed from three guiding works, namely: institutionalism (Oliver, 1991), strategies aimed at inclusive markets (Mendoza & Thelen, 2008) and the ICT implementation process (Pozzebon & Diniz, 2012).

Briefly, the community bank arises from the need and action of the community itself, traditionally through the solidarity economy and more recently using ICTs, to promote access and use of financial services (dashed and dotted lines). Solidarity economy, in turn, impacts financial education, since understanding the latter also considers the financial behavior of citizens in collective terms. Complementarily, the community bank carries out specific financial education initiatives in the community to, along with the access and use of financial services, promote the financial inclusion of the local population (dashed and dotted lines). In this process, the community

responds directly to the organization about what works and what does not work locally (dashed line). The solid lines indicate a direct relationship of action or consequence between the concepts considered, that is, the community bank, originated in the community or by it, uses ICTs, solidarity economy, and financial education to promote access and use with quality of financial services.

Understanding that the process of financial inclusion goes beyond the access and use of financial services by citizens, the community bank prioritizes services that are relevant to the community based on an understanding

that quality is intrinsically related to a model of closer relationships with people, either by the relationship built with precepts in the solidary economy, or by initiatives to welcome the citizen, as by financial education. It is also noteworthy that the origin of these organizations is generally an initiative of the community itself, but with the ICTs, this bottom-up emergence also seems to be becoming more flexible in view of the scale potential gained from the use of technology, making it more applicable in communities that are less committed to setting up their community banks themselves.



**Figure 1.** Research layout.

Source: Developed by the authors.

## METHODOLOGICAL PROCEDURES

Considering the recent use of digital social currencies (Cernev & Diniz, 2020; Cernv & Proença, 2016; Diniz et al., 2016; Nascimento, 2015), it was understood that the case of *Banco Mumbuca*, in Maricá-RJ, mainly supported by digital social currency technology adoption in 2018, was appropriate to examine the institutionalization process of community banks as promoters of financial inclusion in communities where they are established, and to what extent the adoption of information and communication technologies can interfere in this process.

The paradigm that guided this study was interpretivist, as it understands that social reality is a product of subjective and intersubjective experiences of individuals (Silva & Roman, 2006). Still on the methodological approach, Hartley (2004) understands that historical forces, contextual pressures, and the dynamics of the various groups of

stakeholders in accepting or facing innovative processes is fertile ground for adopting the case study. Thus, this research is more in line with what Stake (2000) calls an instrumental case study, as it is understood that the case studied here can provide insights from a more in-depth view of a specific case, and because of that it can offer theoretical contributions.

This work adopted two types of triangulation, the theoretical and the methodological, seeking in the first a combination of theories that could improve the analysis of the studied phenomenon, and in the second the combination of methods. Semi-structured interviews were conducted with bank employees and with the project coordinator of *Instituto Banco da Periferia*, and structured interviews with users, who were divided into beneficiaries (from the *Renda Mínima Mumbuca* Program) and local merchants. In addition, direct observation and documentary research were also carried out, which consisted of official documents, texts, and videos from the media in general. This made it possible

to describe and explain how the institutionalization process of community banks has taken place and how citizens were using new technologies in the community.

Regarding the collection instruments, the construction of the interview scripts was carried out with the aim of understanding the views of different actors on the role of the community bank in the municipality, as well as the role of the digital social currency, based mainly on the strategies identified by Oliver (1991) and by Mendoza and Thelen (2008). Regarding the implementation of changes through ICTs (Pozzebon & Diniz, 2012), questions were created aimed at understanding how people’s relationship with *e-dinheiro* and the fact that the social currency is digital has occurred. Thus, the research subjects were beneficiaries of social programs, merchants, bank employees, and the project coordinator of *Instituto Banco da Periferia*, that is, actors related to the community bank and the digital social currency at different levels of interaction.

The research took place in two moments: the first was carried out between November 6 and 14, 2018, when three employees of *Banco Mumbuca* were interviewed, one from each physical unit of the bank at the time (two managers and the president of the bank), ten merchants from various establishments, and seven beneficiaries of

social programs. The *Instituto Banco da Periferia* project coordinator was interviewed by telephone, prior to the *in loco* survey. From the identification of the beneficiaries’ difficulty in understanding the questions initially prepared, it was decided to make a second visit to the municipality between January 8 and 10, 2019, resulting, in this second moment, in new 13 interviews with these beneficiaries. In addition to the interviews, emails were exchanged with the president of *Banco Mumbuca* and with the project coordinator of *Instituto Banco da Periferia* in order to clarify some outstanding points, as well as to collect new data that were used in the analysis.

The basic content analysis described in Bauer (2002, p. 191) proved adequate to “trace a path between the veridical singular reading and the ‘anything goes,’ and is, in the last analysis, a category of explicit textual analysis procedures for social research purposes.” As pointed out in the previous section, the categories were defined *a priori* and are shown in Tables 1 and 2.

In short, the research execution steps were established based on the literature used to make possible the interpretative analysis of the selected instrumental case study, using diverse data sources through the basic content analysis proposed by Bauer (2002). The procedures adopted are shown in Table 3.

**Table 3.** Summary of procedures adopted in the construction of the research.

Research execution steps	Data sources	Type of data analysis	Related theoretical concepts and/or models
Historical survey of community banks	Official documents Media texts and videos In-depth interviews with semi-structured script	Basic content analysis (Bauer, 2002)	Institutionalism (Oliver, 1991)
Identification of the legal framework	Official documents	Basic content analysis (Bauer, 2002)	Institutionalism (Oliver, 1991)
Understanding how financial inclusion is promoted by community banks	Official documents Media texts and videos In-depth interviews with semi-structured script Structured interviews Observation	Basic content analysis (Bauer, 2002)	Institutionalism (Oliver, 1991) Organizational strategies of inclusive initiatives (Mendoza & Thelen, 2008)
Specification of facilitating and inhibiting factors related to the adoption of community banks by communities	Official documents Media texts and videos In-depth interviews with semi-structured script Structured interviews Observation	Basic content analysis (Bauer, 2002)	Institutionalism (Oliver, 1991) Organizational strategies of inclusive initiatives (Mendoza & Thelen, 2008)
Identification of the implementation process of ICTs associated with community banks	Official documents Media texts and videos In-depth interviews with semi-structured script Structured interviews Observation	Basic content analysis (Bauer, 2002)	Structure of implementation of changes by ICTs (Pozzebon & Diniz, 2012)
Discussion of prospective scenarios for community banks in the future horizon	Official documents Media texts and videos In-depth interviews with semi-structured script Structured interviews Observation	Basic content analysis (Bauer, 2002)	Institutionalism (Oliver, 1991) Organizational strategies of inclusive initiatives (Mendoza & Thelen, 2008) Structure of implementation of changes by ICTs (Pozzebon & Diniz, 2012)

Note. Developed by the authors.

With basic content analysis established, data analysis still needs some technique to build its own analytical repertoire over time. According to the typology defined by Yin (2015), pattern matching proved to be an appropriate analytical technique, as the logic of this technique is the comparison of a pattern based on the findings of the case study with a pattern predicted in the literature. The results can thus strengthen the internal validity or question it, if the data brought by the study are not in line with what was expected.

## BACKGROUND AND CONTEXT OF THE BANCO MUMBUCA CASE

The emergence of *Banco Mumbuca* is the result of an initiative by the Municipality of Maricá that started in 2013, with the bank even operating for a short period within the municipality itself between the end of 2013 and the beginning of 2014. The emergence of this community bank in the city probably plays an important role in the perception of the general population, captured in the interviews, that *Banco Mumbuca* belongs to the City Hall. In addition, *Banco Mumbuca*, as it is responsible for paying the municipal social benefit, has the role of ensuring that such resources from the City Hall reach the population and that they can be used in registered businesses, linking its image to the payment of the benefit. Faced with these facts, it was noticed, in interviews both with beneficiaries and traders, that there was a lack of understanding that the social currency was one thing and that the social benefit was another.

In 2016, *Instituto Banco da Periferia* and MoneyCloud team developed together a new platform, called *e-dinheiro*, so that it could be used by the various community banks to replace the POS (Point of Sale) machines, known as ‘little machines.’ In December 2017, the *e-dinheiro* platform was launched in Maricá and in early 2018 it started operating in the city. From the adoption of the platform, the possibility of opening a digital account at *Banco Mumbuca* was extended to any individual, not just to the beneficiaries. The feasibility of using the bank by the general population through a digital social currency arose due to the adoption of the *e-dinheiro* platform precisely because it works similarly to a bank application. Thus, with these changes, the number of registered merchants went from less than 120 at the beginning of 2018 to more than 1,100 in November 2018, when the first visit to the municipality was carried out.

Another innovation that emerged in the period was two lines of credit at zero interest. In mid-2018, *MumbuCred* was launched, a productive loan aimed at small traders or people who wanted to start a business with

a maximum value of BRL 2,000.00 per person. At the end of 2018, *Casa Melhor* was launched, a consumer credit line aimed at people who lived in their own or rented homes and wanted to do a small renovation on the property, limited to the amount of BRL 600.00 per person. The funds allocated to these two microcredit programs came from the 2% fee charged to merchants for each transaction using the *Mumbuca* social currency. Before the platform change, the fee charged to merchants for each transaction was 3%, with the resource being transferred in full to the company that provided the ‘little machines’ and carried out the maintenance of the equipment.

Both the opening of the bank to the general population and interested businesses and the start of the microcredit program in 2018 can be considered important milestones in the evolution of *Banco Mumbuca* by promoting greater financial inclusion based on the three dimensions of financial inclusion: expansion of (a) access and (b) use, and better (c) quality of use as a result of financial guidance to borrowers. In addition, the possibility brought by *e-dinheiro* of forming an autonomous credit fund, without the need for resources from other places, whether commercial banks or partner organizations, contributed to the financial viability of the project and for the bank to be able to provide the zero-interest lines of credit.

## USER PERCEPTIONS AND OTHER ACTIONS BY BANCO MUMBUCA

The interviews showed that perceptions of *Banco Mumbuca* and the *Mumbuca* currency varied somewhat depending on who was being interviewed. The community as a whole perceives, for example, that *Banco Mumbuca* contributes to economic prosperity and has quality in its services, but many see that the continuity of the currency, and consequently of the bank, is linked to political will. Merchant 8 brings that the bank “is very important for the city, it values the city a lot and the local currency circulates in the city, so it supports tourism, it supports the economy,” while Merchant 10, when asked if he believes that the social currency will continue to exist, said, “I believe and hope so, huh? I hope so. It depends a lot on the rulers there, I think.”

The *Mumbuca* currency, in turn, is understood by merchants as good for promoting the local circulation of money in the municipality, as in the excerpt “I think that at first the bank’s vision was to create a currency only here, because it is not accepted in other municipalities, it’s only here, so it brings the money into the city so that no one goes to Niterói, São Gonçalo, because here it’s accepted in several establishments” taken from the interview

with Merchant 9. However, there was a general lack of knowledge about the difference between the digital social currency and the social benefit, because when asked about the social currency, all merchants and beneficiaries, without exception, spoke about the social benefit. In this sense, there is an opportunity for community banks to establish themselves as potential intermediaries in the payment of social benefits, given the fact that these organizations are conceived and seen for their social utility.

Regarding the *e-dinheiro* platform, merchants and beneficiaries positively perceive its security and usability, with some criticism from merchants about the accessibility of *e-dinheiro* to receive payments, given the need for the smartphone to have near-field communication (NFC) technology, which is already present in many devices, but not yet in the simplest ones.

As a result of the cash generated from the progressive use of the *e-dinheiro* platform, it was possible to implement two *Banco Mumbuca* credit programs, *MumbuCred Produtivo* (Productive *Mumbucred*), directed to people who have or wish to start a small business, and *MumbuCred Casa Melhor* (*Mumbucred* Better House), designed for people who want to do a small home renovation. The programs work based on the solidarity guarantee methodology developed by [Yunus and Jolis \(2000\)](#), based on the formation of groups co-responsible for paying the credit granted by the bank.

Lastly, it is worth mentioning the City Hall's bet on *Banco Mumbuca* to implement other social programs, such as the *Renda Mínima Gestante* Program (program to pregnant women) and the *Renda Mínima Jovem Solidário* Program (to young people), both conditional income transfer programs. In addition to these, there was also the Citizenship Basic Income Program, a small monthly income distributed to the entire population, and the Indigenous *Mumbuca*, directed to indigenous residents of the municipality.

## INSTITUTIONAL PRESSURES, STRATEGIC RESPONSES, AND IMPLEMENTATION OF CHANGES BY ICTS ADOPTED BY BANCO MUMBUCA

The study relates organizational responses to institutional pressures considering “why these pressures are being exerted, who is exerting them, what are these pressures, how or by what means they are exerted and where they occur” ([Oliver, 1991, p. 159](#)). The author defines that there are five institutional antecedents related respectively to these five basic questions: cause, constituents, content, control, and context. She also brings two hypotheses

related to each antecedent, almost all of which were relevant to the case of the *Banco Mumbuca*. Only with regard to the constituents is further reflection necessary, as the author states that “the greater the degree of constituent multiplicity, the greater the probability of organizational resistance to institutional pressures” and that “the lower the degree of dependence of the constituents that exert pressure, the greater the likelihood of organizational resistance to institutional pressures.”

In the case of *Banco Mumbuca*, the entry of yet another constituent, the public power, despite imposing norms for the bank's operation, was what also enabled the formation of the organization. It is possible that the unique nature of *Banco Mumbuca* with the City Hall is the explanation for the exception. Therefore, there is a need to assess whether constituents are supporters or not of organizations. On the other hand, community banks in general rely more on the community's internal articulation to operate but show more resistance precisely because of the lack of support from constituents that could boost the operation of these organizations. As for the second hypothesis, there seems to be no doubt about the author's assertion, since dependence on resources from those who exercise institutional pressure, in this case the City Hall, makes *Banco Mumbuca* present more compliance strategies than usual for community banks, since the latter are independent of an external sponsor.

In addition to the interviews and emails exchanged, the literature already produced on the various subjects that relate to the history of community banks was relevant to identify strategies of these organizations in general, as well as official documents, such as laws and regulations. Specifically in the case of *Banco Mumbuca*, in addition to official documents and literature on the subject, unofficial documents from the City Hall website and direct observation were also considered. The result of this process of triangulation of the various sources resulted in the construction of the content brought in Table 4 based on [Oliver \(1991\)](#), which summarizes the strategic responses with the respective tactics found in the research carried out in the case study of *Banco Mumbuca* between 2013 and 2018.

As a complement to the discussion based on the work of [Oliver \(1991\)](#), an attempt was made to understand which initiatives are being taken by *Banco Mumbuca* based on the typology identified in the work of [Mendoza e Thelen \(2008\)](#). From this study, several strategies were identified, shown in Table 5, in all three fields delimited by the authors, that is, in the production, distribution and marketing strategies, in the retail and pricing strategies, and, finally, in the cross-cutting business strategies.



**Table 4.** Identified *Banco Mumbuca's* strategies and tactics.

Strategy	Tactic	Identification	Before and/or after <i>e-dinheiro</i>
Compromise	Balance	<i>Banco Mumbuca</i> came to work within the City Hall in late 2013 and early 2014.	before
		<i>Banco Mumbuca</i> worked for a long time almost exclusively for the City Hall, from 2013 to 2017, as an intermediary for the payment of social benefits.	before
	Pacify	There were restrictions on the types of commerce that could receive social currency.	before
		Adaptation to the norms for operating with microcredit (the <i>Instituto Banco da Periferia</i> is a civil society organization of public interest [ <i>Organização da Sociedade Civil de Interesse Público</i> — OSCIP] of credit).	after
		Adaptation to the rules for operating with electronic currencies, in accordance with Law 12,865.	before and after
Bargain	Adequacy between the interests of the public power in sponsoring a community bank with a social currency and the interests of community banks in establishing themselves with the support of the public power.	before and after	
Defy	Dismiss	Technology accessible to the needy population.	after
		Dissemination of solidarity economy values.	after
		Humanized treatment with the neediest population.	before and after
		Credit for those who cannot get credit in the banking system.	after
		Less bureaucratic requirements.	after
	Challenge	Encouragement of local consumption.	before and after
		Belief in endogenous and solidary development.	before and after
	Attack	Promotion of greater circulation of the social currency in the territory.	after
		Dispute for space in the banking market.	after
		Opening of registration for all types of establishments and independent customers.	after
		Reinvesting all the money it earns in its own community in the form of microcredit or social actions.	after

Note. Developed by the authors.

**Table 5.** *Banco Mumbuca* strategies aimed at inclusive markets.

Production, distribution, and marketing strategies	Standardize	De-bureaucracy in opening accounts for independent customers and merchants interested in operating with the digital social currency.
	Leverage flexible networks	ICT networks: use of digital social currency through the <i>e-dinheiro</i> platform. Community networks: social actions to involve the community more with the solidary economy and use of social networks to get closer to the community.
	Supply chain financing	Microcredit programs and local circulation of digital social currency.
	Simplify	Usability of the application considering the technological frameworks of the customers.
	Empower customers	Basic technological guidance focused on the use of the application or financial education guidance.
Retail and pricing strategies	Joint consumption	Microcredit groups with solidarity endorsement.
	Flexible payments	Considers the particularities of low-income borrowers.
	Tiered pricing	Zero interest lines of credit.
Cross-cutting business strategies	Contracting innovations	Digital social currency and use of cards based on NFC technology to replace magnetic cards used in POS machines. Solidarity endorsement as a way to reduce credit risk.
	Dynamic incentives	Assessment of credit progressivity according to the need and payment capacity of borrowers, as well as their history with the community bank.
	Partnering	Several partnerships: with the city of Maricá, with <i>Instituto Banco da Periferia</i> (and indirectly with the company MoneyCloud), with Caixa Econômica Federal.
	Real options strategies	Application of microcredit pilot projects.
	Total product solutions	<i>e-dinheiro</i> application was designed to serve the low-income population, offering the services that this population usually uses, such as bill payment, transfer of funds between users, payment in stores, and cell phone recharge.

Note. Developed by the authors.

There are two possible contributions to the typology identified by [Mendoza and Thelen \(2008\)](#) in production, distribution, and marketing strategies: simplifying and empowering customers. The first derives from the perception that the use of goods and services needs to be simplified in order to reduce the existing barrier between potential users of these services and the implemented solutions. The second considers the users' profile and needs, who often need help to start using a certain type of service. Therefore, the attention given to training, whether technological or otherwise, can make the difference between the success or otherwise of an inclusive initiative.

The last analysis was the one that considered the multilevel model of the structure of implementation of changes by ICTs by [Pozzebon and Diniz \(2012\)](#) that considers the complexity of innovations by ICTs in research related to "dealing with important issues such as social well-being, social equity and sustainability" ([Pozzebon & Diniz, 2012](#)). Although community banks have their actions restricted to certain territories, resulting in negotiation processes between groups in these regions, the recent federal regulatory framework, especially Law 12,865, of 2013, has significantly influenced the way these organizations operate, mainly because the adoption of the digital social currency was only possible after the publication of this law. Thus,

a possible addendum to the model would be to consider whether the regulatory framework beyond the community level is serving more as a driver or an inhibitor of ICT implementation in this specific case.

Another contribution that can be observed is the one that considers technology-in-practice as part of the context for a next round of technological development, since in the second moment of the digital social currency the context changed precisely because technological solutions were already being used derived from the previous cycle. In the case of Banco Mumbuca, the first round can be understood as the digital social currency from the 'little machines,' and from the technological and social changes, it passed to the digital social currency on the e-dinheiro platform, which had a configuration of different technological frameworks due to the adoption of earlier technology. Therefore, as the authors had already identified in a previous work ([Pozzebon et al., 2009](#)), the content can become context in the gradual development of technology.

Table 6 was created to present the dynamics between the most relevant agents and the institutional context in the case studied, based on the multilevel model of the structure for implementing changes through ICTs by [Pozzebon and Diniz \(2012\)](#).

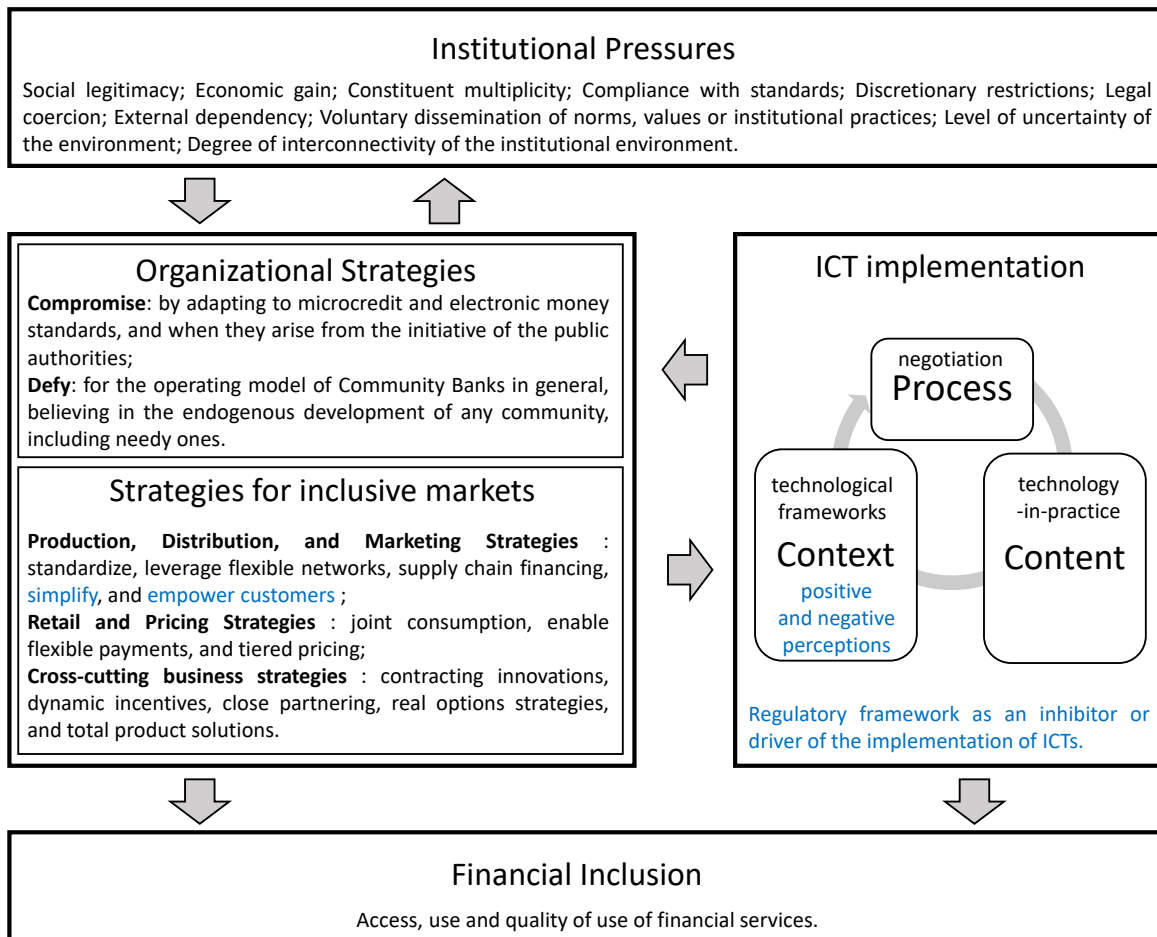
**Table 6.** Conceptual analysis applied to Banco Mumbuca and Mumbuca currency.

Relevant social groups	Technological frameworks	Negotiation	Technology-in-practice
Government	Makes the payment of benefits; Promotes local development; It is part of the Municipal Solidarity Economy Program.	Between the government and Banco Mumbuca: Municipal Law 2,448, of 2013 — regulates the payment of benefits through a community bank using a digital social currency; Municipal Law 2,652, of 2015 — amends some terms of the previous law to increase the likelihood of program sustainability; Annual collaboration agreement between the Municipality of Maricá and Instituto Banco da Periferia.	The implications of adopting a digital social currency from 2013: It brought more security than paper currency for Banco Mumbuca (eliminates counterfeiting) and for the user (reduces the possibility of robbery).  The implications of changing technology from old POS machines to the e-dinheiro platform from 2018:
Banco Mumbuca	Works on financial inclusion in its three dimensions; Promotes local development; Encourages solidarity economy.	Between Banco Mumbuca and merchants and beneficiaries: Social actions to approach the community; Use of WhatsApp as a way to approach the community; Microcredit programs with solidarity guarantee as a way to apply financial education in practice.	Promoted more stability in the operation of technology; Provided financial return for Instituto Banco da Periferia (which promotes microcredit and social actions based on this); Increased accessibility to technology (smartphones replacing old POS machines);
Merchants	Improves local trade; Help the poorest; They mostly see <i>Banco Mumbuca</i> as belonging to the government.	Between merchants and Banco Mumbuca: Less bureaucratic relationship than with banks in general; Quality in service.	It brought greater liquidity to merchants (possibility of transferring money at any time); Promoted greater user autonomy by expanding the services available (transfers, bill payment, cell phone recharge);
Beneficiaries	Is responsible for paying the benefits; It helps to reduce poverty itself; They see <i>Banco Mumbuca</i> as belonging to the government.	Among the beneficiaries and Banco Mumbuca: Quality in service.	Promoted greater autonomy by allowing payment in direct commerce through the application, without the need for an NFC smartphone.

Note. Developed by the authors.

With the purpose of grouping the different theoretical bases and highlighting the contributions of this work, Figure 2 was drawn up, therefore, bringing the

most relevant relationships that were identified from the categories defined in the literature and those identified in this research.



**Figure 2.** Main relationships identified between institutional pressures, organizational strategies, ICT implementation, and social purpose.

The most relevant relationships that were identified from the categories defined in the literature are in black and those identified in this research are in blue. Source: developed by the authors.

## CONCLUSION

This work analyzed the institutionalization of community banks as promoters of financial inclusion, considering the strategies undertaken by these organizations in the face of the institutional pressures that are exerted on them, with special attention to the process of implementing changes through information and communication technologies (ICTs). For the analysis of institutional pressures, it was necessary to see before and after the implementation of the *e-dinheiro* application, because even though the social currency has already been digital since its use by the community, technology transfer

impacted the way organizations reacted to pressures. A possible theoretical contribution was found regarding the constituent multiplicity referenced in [Oliver \(1991\)](#), since the unique nature of *Banco Mumbuca* with the City Hall can be perceived as a greater degree of constituent multiplicity, however resulting in less organizational resistance to institutional pressures.

Regarding innovations that make markets more inclusive ([Mendoza & Thelen, 2008](#)), the research identified two possible new typologies that could be added to those already listed in production, distribution, and marketing strategies: simplifying and empowering

customers. Simplifying the use of goods and services that are seen as complex can soften the barrier that exists between the poorest population and these goods and services. Customer training, whether in basic guidance on the use of a given service or product, is also something that contributes to the inclusion of markets. In the analyzed case, these tactics were found, for example, in the usability of the *e-dinheiro* application and in the guidelines based on financial education.

The adequacy of the multilevel model of the structure of implementation of changes by ICTs by Pozzebon and Diniz (2012) for the case studied was also identified, probably because the model takes into account social well-being, social equity, and sustainability in its conception, intrinsic elements to community banks. In the study, specifically in relation to *e-dinheiro*, the importance of the regulatory framework and technology-in-practice as part of the context for a next round of technological development were highlighted, that is, the content can become a context in the gradual development of technology. Starting from a schematic view of how community banks operate and using the three theoretical frameworks concomitantly, it

was possible to better understand how financial inclusion has taken place.

Due to the interlocution of several theoretical perspectives more linked to the market to analyze a phenomenon that has roots in the solidarity economy, an important limitation of this research was not having developed an analysis that emphasized the different rationales that guide market organizations and community banks.

There are also research opportunities on community banks as potential intermediaries in the payment of social benefits, given this first experience with *Banco Mumbuca*. Furthermore, research that pays attention to other theoretical approaches can be enriching in the construction of new theories considering the use of online financial services from different perspectives. Finally, in relation to innovations in ICTs, the increasing emergence of fintechs with solutions that reduce costs in the use of financial services and at the same time attract citizens previously excluded totally or partially from the SFN provides opportunities for studies that explore how these services are being used, comparing them with solidary technological solutions such as *e-dinheiro*.

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## Conflict of Interests

The authors have stated that there is no conflict of interest.

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## Authors' Contributions

**1<sup>st</sup> author:** conceptualization (lead); data curation (lead); formal analysis (equal), investigation (lead); methodology (lead); project administration (lead); resources (lead); supervision (supporting); validation (equal); visualization (equal), writing – original draft (supporting); writing – review & editing (supporting).

**2<sup>nd</sup> author:** conceptualization (supporting); formal analysis (supporting); investigation (supporting); methodology (supporting); project administration (supporting); supervision (lead); validation (equal); visualization (equal); writing – review & editing (supporting).

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## Data Availability

The authors claim that all data used in the research have been made publicly available through the Harvard Dataverse platform and can be accessed at:



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