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ESCOLA BRASILEIRA DE ADMINISTRAÇÃO PÚBLICA E DE EMPRESAS
MESTRADO EM ADMINISTRAÇÃO**

FINTECH AND FINANCIAL INCLUSION:

THE CASE OF *BANCO MARÉ*

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**Dissertação apresentada à Escola
Brasileira de Administração Pública e
de Empresas para obtenção do título de
Mestre**

Orientador: Prof. Dr. Luiz Antonio Joia

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This thesis is dedicated to my parents, who gave me this life and to Abram J. Eksterman, who enlightened it.

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To my colleagues that shared the suffering of nights writing research projects.

Abstract

The city of Rio de Janeiro has the highest proportion of people living in slums in all Brazil, with more than 22% of its inhabitants living in those places¹. These people suffer from the lack of or limitation in the provision of basic services such as sanitation, health, education and safety. The case for financial services is no different. Although living in urban centers, inhabitants of slums have very restricted access to financial services, often needing to commute to other neighborhoods to make a simple payment, adding more costs, risks and loss of time to their lives. This research uses an exploratory case study method to examine a fintech called *Banco Maré*, created to improve financial inclusion in the largest complex of slums of Rio de Janeiro, the *Complexo da Maré*. The study draws on Sen's capability approach - which considers development as much more than income growth in a holistic understanding of human development - and information and communication technology for development (ICT4D) literatures to address the problem of development in these communities. A model for financial inclusion, adapted from Joia & Dos Santos (2017) and based on the aforementioned literatures is used to evaluate the initiative. Two units of analysis are used in the research design to compare different locations and generate further insights into the process of generating financial inclusion in the region. Content and lexical analyses are used to examine data gathered from interviews. The analyses are corroborated by other sources of evidence such as documentation research, visual records and direct observation. The results suggest that *Banco Maré* has generated limited financial inclusion in the region, though it shows a significant potential to broadening access and use of financial services. Furthermore, it indicates that slight improvements in the institutional order of the locations, may greatly impact the results of financial inclusion initiatives.

Keywords: Information and communication technology for development (ICT4D), capability approach, financial inclusion, fintech.

¹ Retrievable at <https://oglobo.globo.com/brasil/rio-a-cidade-com-maior-populacao-em-favelas-do-brasil-3489272>

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1 INTRODUCTION

Out of the 17 Sustainable Development Goals (SDGs) set by the United Nations to be pursued by all 193 Member States by the year 2030, the first goal states: “End poverty in all its forms everywhere” (UN, 2016). More specifically, the fourth target of this goal states:

*“[...] By 2030, ensure that all men and women, in particular the poor and the vulnerable, have **equal rights** to economic resources, as well as **access to basic services, ownership and control** over land and other forms of property, inheritance, natural resources, **appropriate new technology and financial services, including microfinance.**” (UN, 2016, bold added by the author).*

Financial inclusion has been recognized as an important instrument in the endeavor of eliminating poverty (CHIBBA, 2009; DEMIRGÜÇ-KUNT *et al.*, 2018; PEACHY; ROE, 2006; SARMA; PAIS, 2011). Not that financial inclusion per se will generate the high levels of income observed in developed economies, but among the complex capabilities that people need to enjoy a decent life in the modernized world, financial inclusion must be taken into account. Financial services are everywhere. Purchasing, investing, saving, borrowing or trying to minimize risks, people are using financial instruments all the time. This is even more so when information and communication technologies (ICTs) are used to catalyze the quantity and quality of financial services (DUNCOMBE; BOATENG, 2009). However, a large part of the world’s population is kept out of this development (DEMIRGÜÇ-KUNT *et al.*, 2018; DEMIRGÜÇ-KUNT; HONOHAN; BECK, 2008; SARMA; PAIS, 2011). As technology flourishes, more knowledge and more resources are needed to achieve the same levels of financial inclusion, since technology is embedded in many of the day-to-day financial activities (BISHT; MISHRA, 2016).

This poses a double challenge to development (financial exclusion and digital exclusion). One must have the instruments and the knowledge to use both in a significant way to keep in touch with the demands of the targeted population. However, the double challenge may also be viewed as a double opportunity. Technology can also be used to increase financial inclusion by facilitating access to and use of financial services. In fact, many initiatives have been

implemented with the aim of increasing financial inclusion among the poor, through the use of ICTs. In a famous, successful and often cited case, mobile telephony was used to help users to transfer and store money with the use of their phones (see the M-pesa case: HUGHES; LONIE, 2007). In another study in Kenya, researchers found that access to mobile money services delivered large benefits, especially for women. It enabled women-headed households to increase their savings by more than a fifth; allowed 185,000 women to leave farming and develop business or retail activities; and helped reduce extreme poverty among women-headed households by 22 percent (DEMIRGÜÇ-KUNT *et al.*, 2018). In spite of these success cases, research so far has generated equivocal answers to whether financial inclusion generates development (DEMIRGÜÇ-KUNT; KLAPPER; SINGER, 2017).

Above and beyond the consequences of financial inclusion to the development of economies, there is the need of conceptualizing development in a broader and humanistic way. If financial inclusion is studied merely in terms of its causal effects to the economy, many aspects of human development may be lost on the way. As this study will show, development cannot be measured only in terms of economic variables such as income or production, *inter alia*. Several other factors need to be taken into account when evaluating development (HAMEL, 2010; JOLLY; EMMERIJ; WEISS, 2009; KLEINE; UNWIN, 2009; SEN, 2001).

In this case study, the capability approach (hereafter CA), developed by Amartya Sen (SEN, 1980, 1985c, 1993b, 2001), is used to examine an initiative to promote financial inclusion in a slum of Rio de Janeiro. According to the capability approach, the achievement of equal rights to financial resources is not accomplished merely by declaring it in the law. People must have **access** to resources and be able to **own and control** them so that they benefit **from the appropriate use of new technologies and financial services**. The bold letters used here emphasize the approach to development that is given throughout this study: Development is seen as expansion of capabilities (SEN, 1993b). The more people have capabilities, the more they have options about how to live in the world. Thus, the CA presents a holistic view of poverty and development, which, not neglecting income, takes into account the richness of human life, with its necessities and values, to evaluate a given initiative (CLARK, 2005; ROBEYNS, 2006; SEN, 1993a, 2001).

The case study presented here is of exploratory nature, being part of a broader field of knowledge known as ICT4D (information and communication technology for development). It describes a fintech company that tries to operate in the bottom of the pyramid (PRAHALAD,

2009) market to achieve acceptable levels of profitability whilst promoting the development of poor communities.

1.1 RELEVANCE OF THE THEME

The world is becoming urban². At the same time, big cities in Latin America have amassed large concentrations of people living under subhuman conditions, most of the time lacking the basics of health, sanitation, education, safety and other primary goods. In Brazil, more than 12 million people live in slums (SEBRAE, 2015). According to Prahalad (2009), rather than constituting an unsolved problem for modern societies, this population which he refers to as the bottom of the pyramid (BoP), represent an excellent opportunity for unexplored markets. One of those unexplored markets is represented by the financial industry. Due to several access and usage difficulties, most dwellers of slums are deprived of the benefits of using financial services such as quickly making payments, saving money, avoiding exploitative money lenders among others (SARMA; PAIS, 2011). From a macroeconomic perspective, the economy as a whole loses. Todaro & Smith (2012) point out six benefits of having a sound financial system: provision of payment services, matching savers and investors, generating and distributing information, allocating credit efficiently, providing mechanisms to lower risks (insurance, hedge etc.), and increasing assets liquidity.

Some authors sustain that having a flourishing financial system together with the gains of scale provided for by the concentration of population is an important factor that fostered the industrial revolution (PEACHY; ROE, 2006). In the case of some developing countries, where this concentration took place more than a hundred and fifty years later when compared to the advanced nations, this process is still ongoing. Thus, understanding how to include a large portion of people in developing countries, with the current level of technology, is of paramount importance to foster development and to help eliminating poverty.

² See information available in the UN's website:

<https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>

1.2 CONTEXT

It is of anecdotal evidence that Brazil is a country of huge disparities. The per capita income of USD 8.850 (47th in the world rank)³, gives Brazil a status of an upper middle-income country, according to the World Bank⁴. However, in terms of income distribution, Brazil is usually among the 10 worst economies of the world (measured by the gini coefficient index⁵).

In terms of financial inclusion, the situation is similar. Figure 1 below shows the evolution in Brazil of the usage of financial services for the period 2011-2017 according to the global finindex database of the World Bank (DEMIRGÜÇ-KUNT *et al.*, 2018). Brazil has experienced an improvement between 2011 and 2014 as the usage of financial services increased from 55,9% to 68,1%. Most importantly, the majority of the improvement (with more than 50% increase) was seen in the poorest 40% share of the population, significantly lowering the gap between rich and poor. However, from the period 2014 to 2017, the use of financial services by the poorer 40% has stagnated and even decreased, whereas the use of the richest 60% has continued to grow.

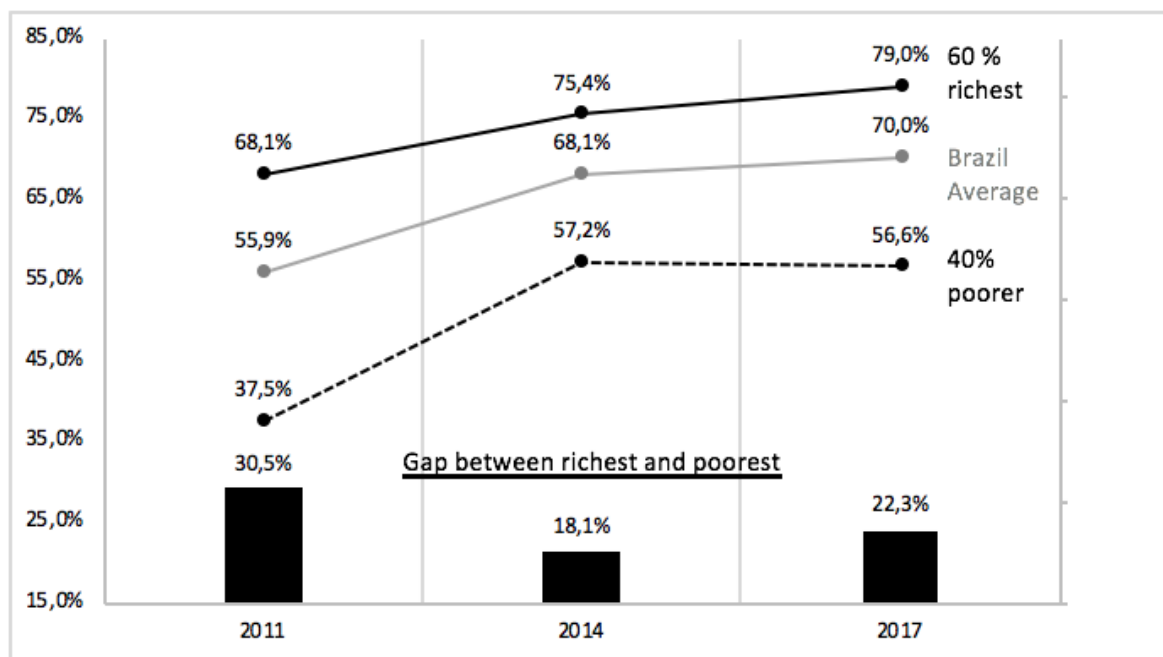


Figure 1: Percentage of people with an account or mobile money service in the past 12 months⁶

³ Data retrieved at September 19, 2018 at <https://www.worlddata.info/average-income.php>

⁴ <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

⁵ World Bank estimates, available at: <https://www.indexmundi.com/facts/indicators/SI.POV.GINI/rankings>

⁶ Global Finindex Database. Retrievable at: <https://globalfinindex.worldbank.org/>

This study examines an ICT-mediated initiative to financially include people in the second largest slum of Rio de Janeiro. According to a research made by Instituto Data Favela (SEBRAE, 2015), there are almost 4 million inhabitants in the slums of Brazil that have some kind of bank account (out of a total population of 12,3 million living in slums).

This means that the percentage of access in slums was roughly 33% in 2014. Since this figure does not take into account the actual use of financial services, being merely an access indicator (having a bank account) and considering the above-mentioned negative performance of financial inclusion among the poorer 40% in the period 2014-2017, it is highly probable that these figures have become stable since 2014 or even decreased.

On the other hand, the same research (SEBRAE, 2015) shows that there is an enormous potential for ICT-mediated financial inclusion initiatives in the slums of Brazil. It is estimated that more than 2 million inhabitants of slums in Brazil have the intention to buy a smartphone in the following 12 months. The number of smartphones in slums more than doubled in the period 2013-2014 and more than 2/3 of the young population of slums have smartphones. These figures are corroborated by the vertiginous increase in the number of financial transactions made with the use of ICT that took place in the past few years in Brazil.

Figure 2 below is based on the report for financial inclusion of Brazil's Central Bank (BCB, 2015). In 2014, the number of financial transactions made through ICTs surpassed the number of transactions made through traditional channels such as agencies, ATMs (automatic teller machines) or banking correspondents. Most significantly, the number of transactions made with the use of tablets or mobiles increased from almost 0 in 2010 to more than 5 billion in 2014 (dotted line in figure 2). World Bank figures also confirm this trend. Between 2014 and 2017, the share of payments made through digital devices went from 50% to 58% in Brazil, an increase of 15%. Among the 40% poorer the increase was 26%. Finally, it is estimated that most of the underbanked population of Brazil has access to mobile telephony (DINIZ; CERNEV; PORTO DE ALBUQUERQUE, 2013). This opens up an enormous opportunity for initiatives aiming to reach this market, with a specific focus on the so called fintechs (technology-oriented finance organizations – more on this in chapter three below).

This study will examine how one such fintech, called *Banco Maré*, is impacting financial inclusion in the *Complexo da Maré*, a complex of 16 slums in Rio de Janeiro. The *Complexo da Maré* (hereafter Complex or simply Maré) is one of the poorest areas of Rio de Janeiro, a city that represents well the already mentioned disparities of Brazil.

Rio de Janeiro is the only city of Brazil with more than 10% of its population living in slums (SEBRAE, 2015). Furthermore, a quick look at the HDI (human development index) of the different regions of the city shows that some of them have HDIs higher than Norway (1st place in the world rank)⁷, whereas other locations, like Maré, have very low HDIs (in the case of Maré, equivalent to the position 100 in the world rank).

As it will be seen in more detail in the section about the capability approach, such measures as income per capita, HDI or even financial inclusion indicators, do not reflect the actual level of development or poverty of those regions, since these indicators need to be put in perspective against the actual context of the regions being analyzed and take into account all the complexity that shapes the reality in which individuals are living.

In this sense, a holistic approach must be used to fully appreciate the levels of development. For example: one could argue that for a slum to be at the position 100 in the world HDI rank, is not such a bad result. According to the ranking, such HDI is higher than countries such as Paraguay or Bolivia. However, as it will be shown later, the situation of the inhabitants of this slum should be analyzed in a more sophisticated way.

One third of the HDI index is made of income levels. However, income levels by themselves do not guarantee access to the needed resources of its inhabitants. Price levels may decrease the ability to transform such income into primary goods. Low sanitation levels may increase the need of income to deal with its health consequences, thus lowering the available income for other goods and so the argument goes.

Once more the CA allows the research to focus on important issues related to the actual levels of poverty being observed, evaluating the results obtained in such a way to address the real challenges that stand between a situation of financial exclusion and financial inclusion.

⁷ Retrievable at <http://hdr.undp.org/en/countries/profiles/NOR>

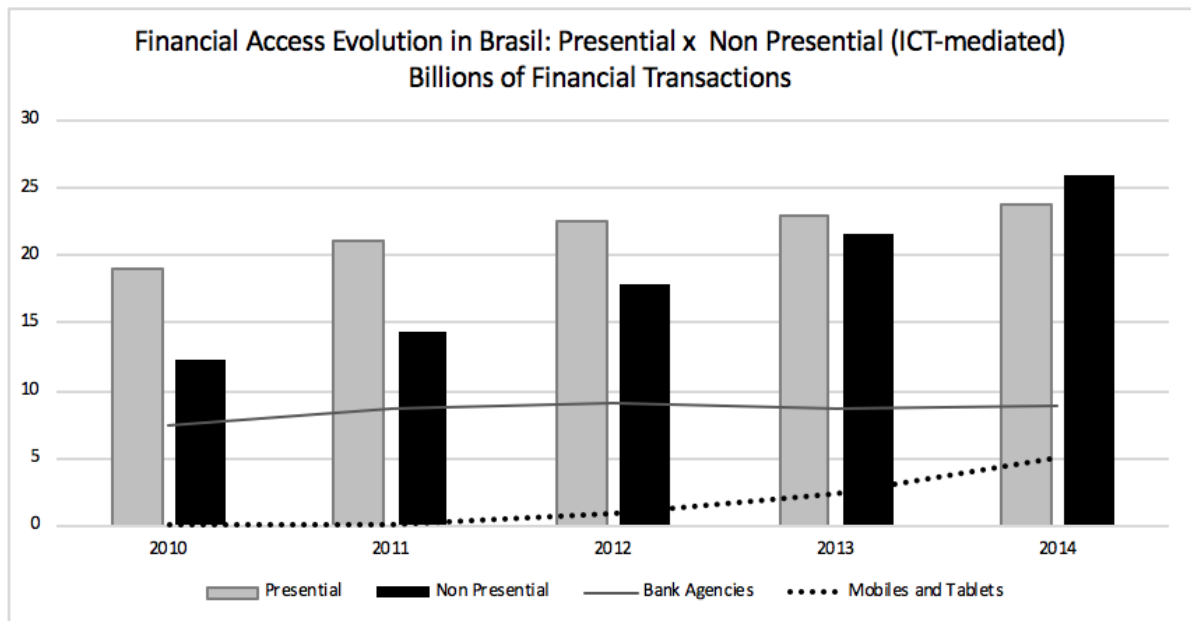


Figure 2: Number of financial transactions in Brazil

1.3 BACKGROUND AND JUSTIFICATION

This research is based on three different but complementary literatures: (i) information and communication technology for development (ICT4D), (ii) financial inclusion and (iii) capability approach (CA) as explained below.

ICT4D is mainly concerned with the application of tools and techniques from communication and information technologies to foster development. Although an important instrument, it is well recognized by researchers that ICT alone cannot generate development (HAMEL, 2010). Its application must be coordinated with the specific context in which it is applied (AVGEROU, 1998, 2008, 2010).

Furthermore, development is by no means a simple and undisputed concept. Depending on how it is defined, different approaches can be used to examine the relationship between ICT and Development.

Practical approaches of development (e.g. based on purely economic, utilitarian or libertarian views) (SEN, 2001) will most likely adhere to modernization theories linking ICT to development through a transfer of technology discourse, in which the advanced nations transfer to the developing ones the technologies and knowledge they (assumedly) have to make

developing countries' economies grow (AVGEROU, 1998, 2008, 2010; KLEINE; UNWIN, 2009).

These so-called practical views of development are, to a large extent, in contrast with a more holistic understanding of human development, which considers the development of substantive freedoms (such as political freedoms, economic facilities, social security guarantees among other) the ends of development. This understanding of development is embedded in the capability approach (SEN, 2001), which is an important theoretical background of this study.

The CA approach takes into consideration human capabilities and, most importantly, the freedom each person has to develop the capabilities they need to choose the way of life they have reason to value. When substantive freedoms are brought to the center of the development debate (instead of money or utility), the relationship between ICT and development will most probably need a different approach (than the one that considers technology as something to be transferred from developed to developing countries). It must take into account local realities and focus on the empowerment of beneficiaries and local stakeholders, to actively participate in the process of production of the content that will eventually benefit themselves (AVGEROU, 1998, 2008, 2010; KLEINE; UNWIN, 2009). The participation of local players as beneficiaries and producers of the needed technology can generate a positive cycle of participation and empowerment that is both the objective and the means of development (SEN, 2001).

The importance of financial inclusion as a *means* to development was already mentioned and will be further analyzed in the specific section, but it is worth stressing that according to the CA, financial inclusion must be treated as an *objective* of development as well a means for it. Of course, financial inclusion is no panacea for all the issues related to development. In a holistic approach, no single capability can be considered more or less important than the other. Each capability is important on its own.

The reason why this study has chosen financial inclusion as a way to address the development issue is threefold:

- 1) The Rise of fintechs: Since 2008 the world has seen an enormous increase in the number of financial services being provided with the use of technology (fintechs). This increase has started after the global financial crisis of 2007-2008 (ARNER; BARBERIS; BUCKLEY, 2015). Several factors like the distrust of the public in financial institutions, new regulations and a large unemployment in the financial sector provided a fertile environment for the development of fintechs (ARNER; BARBERIS; BUCKLEY, 2015). In Brazil this movement is more recent

but has already taken off. In 2017 the number of Fintechs in the country rose by 36% as compared to the previous year⁸. Fintechs have a lot of potential for financial inclusion and this case study examines one such opportunity (SIQUEIRA; DINIZ; ALBINO, 2018).

2) The scarcity of studies about impact in the financial inclusion literature: The majority of studies about ICT and financial inclusion focus on adoption and market analysis whereas there is a scarcity of studies related to the impact of the initiatives (DINIZ; PORTO DE ALBUQUERQUE; CERNEV, 2011; DUNCOMBE; BOATENG, 2009). This study uses a model linking the literatures of development, financial inclusion and ICT4D to assess the impact of an ICT mediated financial inclusion initiative, the 2iDf model (JOIA, 2004, 2007; JOIA; DOS SANTOS, 2017).

3) The specificity of the context: The study takes place in a complex of slums of Rio de Janeiro dominated by three rival crime factions. The presence of the state is barely noticed in the region and inhabitants of the Complex are not allowed to freely move between the slums that comprise the Complex (i.e., inhabitants of the Complex cannot go to regions of the Complex dominated by a rival faction). The CA approach is well suited for this context since it emphasizes freedom as the basic measure and means to development. The case under analysis shows that poverty in those places go well beyond the lack of financial resources. Intertwined with it is the lack of basic capabilities, such as the right to freely move.

Finally, the author of this thesis is personally involved with a non-government organization (NGO) that develops financial instruments for the improvement of social and environmental conditions. Thus, the author hopes that this thesis may help bridging the gap between academia and practice by providing useful material to both.

1.4 STRUCTURE OF THE THESIS

This thesis is organized as follows: First (chapter two) the research question is proposed together with ancillary questions to be pursued.

⁸ The number increased from 244 to 332 according to a Goldman Sachs report. Available at: <https://exame.abril.com.br/negocios/dino/setor-de-tecnologia-financeira-se-consolida-no-brasil/>

A literature review follows (chapter three) with the explanation of the main theoretical background used for this thesis. Sen's capability approach (2001) is used to tackle the concepts of development and poverty. Then financial inclusion is examined together with its importance to development.

The importance of technology for development is addressed with the lenses of the ICT4D (acronym for information and communication technology for development) field of study, which shows how the theme is being addressed currently. In addition, the concept of fintech is presented and examined. The chapter is finalized with the introduction of the model used to evaluate financial inclusion initiatives mediated by technology, which encompasses all the literatures just cited.

Chapter four presents the case study method, which is used to collect and analyze data and chapter five presents *Banco Maré* and the *Complexo da Maré*⁹, respectively the bank which is being studied in this thesis and the region it aims to affect.

Chapter six is where data collected is analyzed and results are presented. These are discussed, and its implications are shown in chapter seven. Chapter eight concludes this study and limitations and future research are shown in chapter nine.

⁹ The largest complex of slums of Rio de Janeiro, with more that 130 thousand inhabitants.

2 RESEARCH PROBLEM

Financial inclusion has been recognized as an important element to development (PEACHY; ROE, 2006; SARMA; PAIS, 2011). However evidence of its influence to development has been equivocal (DEMIRGUC-KUNT; KLAPPER; SINGER, 2017), with positive results as well as neutral or even negative to development.

Some of these contrasting results are methodological. Depending on the theoretical basis used to define development, results will change drastically (AVGEROU, 2010; WALSHAM, 2017).

This study has a holistic approach to development. It therefore considers not only increases of income, but also improvements of freedom to participate in society as important constitutive elements of development. According to this view, financial inclusion enhances the lives of people not only through the generation of income, but also through other non-financial elements such as, inter alia, access to information, participation in a broader market of goods and services, increased self-esteem and social participation. If these elements are taken into account, many studies that do not find causal relationships between financial inclusion and development may show different results.

By addressing development in this broader way, this study is intended to generate new insights into the relationship between financial inclusion and development.

2.1 RESEARCH QUESTION

This is an exploratory case study that investigates the process of financial inclusion that takes place through the implementation of a bank in the largest complex of slums of Rio the Janeiro. It is an opportunity to take a close view to the process of generating financial inclusion to people. A process that is not well known in the literature and that generates the main research question of this study:

How is *Banco Maré* impacting the financial inclusion of inhabitants of the *Complexo da Maré*?

2.2 RESEARCH OBJECTIVE

The objective of this study is to evaluate how the initiative *Banco Maré* is impacting the financial inclusion of inhabitants of the *Complexo da Maré*. In this process, the data and knowledge generated will also be used to pursue intermediary objectives that are related to the main objective.

2.2.1 INTERMEDIARY OBJECTIVES

During this research the following ancillary objectives will also be pursued:

- ⇒ To evaluate the appropriateness of the components of the 2iDF model in a different context from those in which it has been applied.
- ⇒ To examine the differences in financial inclusion being achieved in the two locations being studied, in order to draw propositions about how financial inclusion is achieved.
- ⇒ To compare the results of the study with previous results accrued from by the use of the same model in order to confirm or to further develop the model.

2.2.2 DELIMITATION OF RESEARCH

This research takes place in a location that is representative of the phenomenon that is the object of this study, namely financial exclusion: The *Complexo da Maré*.

There is no information available to calculate the level of financial exclusion in the region. However, it is possible to infer the level of access there with a simple comparison with the average data of the country.

Brazil has one bank agency for every 8.2 thousand Brazilians, one ATM for every 1.1 thousand and one banking correspondent for every 986 Brazilians¹⁰. If these numbers are extrapolated for the number of inhabitants of the *Complexo da Maré*, 16 bank agencies, 115 ATMs and 132 banking correspondents should exist in the region.

Yet, in the field work the following numbers were identified: no bank agencies (excluding *Banco Maré*, which is not, strictly speaking a bank agency¹¹), one ATM and one banking correspondent (not considering Banco Maré).

Furthermore, as already shown above, no more than 33% of the population of slums in Brazil use financial services, less than half of Brazilian average, which according to the central bank (BCB, 2015), is 70%.

This case study examines two units of analysis, which are representative of two distinct locations in the complex of slums, each one of them dominated by a different criminal organization that imposes certain codes of conduct to its inhabitants:

- One region dominated by the militia (represented by the location Roquete Pinto);
- One region dominated by drug traffickers (represented by the location Nova Holanda):

Factors related to access restrictions to the complex were also considered to choose the units of analysis as some of the areas are considered more violent and consequently less open to the visit of “foreigners”.

¹⁰ Data used for these ratios retrieved from The World Bank (Brazil's population) at: <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=BR> and from Brazilian Central Bank Report of Financial Inclusion (BCB, 2015).

¹¹ The Banco Maré is legally defined as a banking correspondent.

3 LITERATURE REVIEW

3.1 THE CAPABILITY APPROACH

One of the most striking features on the ICT4D literature is the difficulty in proving causal relationships between the implementation of ICT initiatives and the benefits for development or reduction of poverty (KLEINE, 2010). ICT-mediated financial inclusion initiatives are not different. It is possible to find successful examples of ICT-mediated financial inclusion projects, such as the case of the M-Pesa project, in Kenya, in which an innovative business model improved access and use of financial services for a large share of the country's population (HUGHES; LONIE, 2007).

However, the frequent citation of this case possibly indicates the lack of sufficient evidence to support the thesis that ICT-mediated financial inclusion projects generate development. Many explanations for this phenomenon are suggested, such as lack of motivation, political will or even knowledge on how the impacts of these projects are to be measured (HEEKS; MOLLA, 2009). On the other hand, there has been an increasing number of scholars using Sen's capability approach (ATKINSON *et al.*, 2007; BISHT; MISHRA, 2016; GIGLER, 2004, 2011; HAMEL, 2010; JOLLY; EMMERIJ; WEISS, 2009; SEN, 1985c, 1993b, 2001; SHERRADEN *et al.*, 2010) to address this subject, suggesting that a different approach to development is taking place.

In this chapter, the capability approach is explained and its contribution to the development debate is highlighted with a focus on ICT-mediated financial inclusion initiatives. Then, development will also be examined from the other side of the coin: poverty.

The choice of the CA as a tool to assess development will be further scrutinized in this chapter, but it is important to highlight a few characteristics that corroborate the choice for the purpose of this study:

1. The democratic background of the capability approach: In the CA, development is understood as the expansion of capabilities that are deemed important by the unit of analysis being assessed. The unit may be individuals, communities, cities or any other agglomeration, but the important point is that the capabilities are chosen by those who will be assessed (GIGLER, 2004; NUSSBAUM, 2003; ROBEYNS, 2006; SEN, 2001).

This democratic aspect of the CA avoids a common problem in the literature of ICT4D, namely the theories that understand development as a one-way path in which knowledge is simply transferred from a developed to a developing region, with scarce regards for the local context;

2. The CA is well suited for micro-case assessments (GIGLER, 2011). The need to understand which capabilities are to be developed by the agglomeration being studied makes the CA more difficult to be applied to large agglomerates (such as cities or countries).
3. The holistic nature of the CA. The focus of the capability approach is on human development. It therefore put usual measures of development (such as income, consumption or industrial growth) at the service of people, not the other way around, as development is understood in much of the modern societies.

3.1.1 DEVELOPMENT

This study is concerned with the impact of an ICT-mediated financial inclusion initiative in a slum of Rio de Janeiro. Financial inclusion is part of a broader issue, namely poverty reduction, which is an important theme of the Development Agenda (BORDIA DAS, 2013).

This study uses the capability approach as the theoretical lens to address the complex concept of development. The need for the identification of the perspective of development being used is a pre-requisite for the studies of ICT4D. In fact, one important reason why the extant literature has difficulty in understanding the causal links between ICT and development is the lack of a clear definition of same in the extant literature (AVGEROU, 2010; WALSHAM, 2017). Furthermore, the definition of development must be sufficiently encompassing to deal with most of the complexities involved in the subject.

Thus, simplistic definitions of development, such as the ones that equate it to income or industrial growth, leave aside important features of human development such as education, health, home affordance, and sanitation status to name just a few (KLEINE; UNWIN, 2009; SEN, 2001). In this sense, the CA has been recognized by scholars and institutions as an important theoretical approach to backing studies of development enabled by ICT. For example, Jolly et al. (2009) affirm that “the approach is commonly seen by its advocates as today's most relevant approach to development and the embodiment of the United Nations’ founding”.

Kleine & Unwin (2009) state that the capability approach is the most influential challenge to the mainstream approaches to development focused on economic growth, and Thapa & Sæbø (2014), in a literature review on ICT4D, argue that the CA is the most used theoretical lens to address the subject of development.

The CA has a specific vocabulary to deal with important subjects such as development, inclusion and social justice, among others. Some of the concepts that will be used throughout this study are: functionings, capabilities (or capability set), resources and agency. A brief explanation of same is given below:

- **Functionings** are achievements of a person. Things that he or she is, has or do. Some example of functionings are: be well nourished, be healthy, have access to medical services, be able to move to and from work, so on and so forth. The combinations of functionings of a person at a certain point in time constitutes this person's life-style (CLARK, 2005; SEN, 1985c).
- **Capabilities or Capability Set** are all possible functionings that a person has at his/her disposal. The centrality of freedom in Sen's approach is enveloped by this concept. The expansions of the capabilities of a person means that he or she can have access to a greater combination of resources and utilizations of same to decide which kind of life he or she wants to lead. Therefore, the expansion of capabilities enhances freedom people have to lead their lives, and freedom, according to the CA is what development should be all about (CLARK, 2005).
- **Resources** are material and non-material entitlements that people have or have access to. Resources are used as means for the achievement of goals that people value. In his critique to development seen as the growth of income or wealth, Sen affirms that these resources cannot be the things people are looking for, since they are not ends in themselves, but only means to do things that we value in life (SEN, 1985a, 2001).
- **Agency** is the freedom people have to set and pursue goals they value in life (ZHENG; STAHL, 2011). Agency has a crucial role in Sen's theory, for it goes beyond the mere pursue of well-being. In the sense here applied, agency is considered as responsible agency. It encompasses all values and goals of a person's life (well-being included) in the context in which he or she is living. Agency in life is not only determined by the well-being it generates, but by all responsibilities determined by the social and personal context of this person. Agency freedom is thus a necessary condition for development,

since it allows people to accomplish their responsibilities for themselves and for others in society (CLARK, 2005; SEN, 1985c, 2001).

Figure 3 below summarizes the main relationships of the capability approach. Resources are needed to realize the functionings valued by people. In order to use such resources, people must have personal and social conditions to utilize them in a meaningful way. These conditions can be personal or social ones (e.g. personal characteristics can be physical, psychological and cognitive attributes whereas social characteristics can be related to rights, infra-structure, cultural context, so on and so forth). By combining the bundle of resources, personal and social characteristics, it is possible to know the capability set of a person, i.e., all the possible combinations of functionings a person has to decide which kind of life he or she intends to lead. In a word: his / her freedom.

The expansion of the capability set is thus the expansion of people's agency freedom, for it allows them to develop the functionings more suited to the life-styles they value and have reason for it. Some of these functionings will be achieved and some will not, but the important point here is that the Capabilities to achieve them are enhanced. The achievement or not of some functionings will depend, *inter alia*, on the priority given to each of the functionings, which cannot be determined *ex-ante*. The determination of the functionings to be developed will be made according to the specific needs of the person or group being analyzed. This is a point stressed by Amartya Sen (2001) that has important consequences for this study. As will be shown later, one of the main reason for failures in ICT4D projects is the lack of involvement of local people in the choice and in implementation process of solutions designed for them (AVGEROU, 1998, 2010; GIGLER, 2004; HEEKS, 2002; KLEINE; UNWIN, 2009). By not determining the functionings to be developed *ex-ante*, Sen emphasizes the importance of empowerment and participation in the choosing of these functionings. To empirically evaluate the functionings that must be developed in each context is a better approach to development than any theoretical solution proposed by sociologists, economists or philosophers, distant of the actual situation.

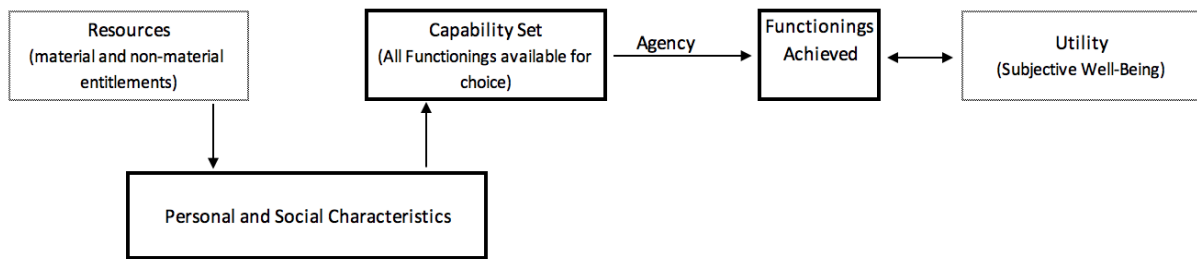


Figure 3: Main Relationships in the capability approach¹²

Figure 3 above is useful to compare the capability approach to other approaches to development. The boxes in dotted lines are representative of such approaches. For example, approaches based on growth (e.g. measured in terms of income, gross domestic product (GDP), or industrialization levels) consider development as something that in the CA is considered as resources. These cannot be considered goals of development since they are only means to it (as opposed to ends of it). These means are only conducive to development when used effectively to generate the achievements valuable to human life. As an example, a rich woman living in a society that seriously restrains women's freedom such as the right to move, dress or vote, has a smaller capability set than less rich women in other parts of the world that do not suffer these constraints. Thus, wealth alone is surely not an indication of development according to the capability approach.

A more sophisticated and widely used approach in economic theories is the utilitarian view of development. According to this view, development is measured by the utility (that may be understood as happiness or well-being) obtained by people from the things they get in life (SEN, 2001).

When obtained, longer life, financial resources, food, leisure and so on increase the total utility levels, whereas premature death, lack of income, hunger and lack of time to leisure decrease the total utility obtained by people. Such concept of development is highly dependent on mental states of individuals, since the measures for utility (e.g. happiness, well-being) are subjective experiences, and as such, are not reliable measures of development.

¹² Adapted from the internet encyclopedia of philosophy (retrived at <https://www.iep.utm.edu/sen-cap/>)

Mental states may be influenced by social context in significant ways. A striking example is given by Sen (1985a) in a post-famine survey made in India in 1944.

People were requested to express their health status to researchers and afterwards were evaluated by medical doctors. In the survey comparing widowers and widows, 48,5% of widowers declared feeling some kind of illness whereas only 2,5% of widows declared the same. Even worse than that: when the question was changed to exclude the word illness (leaving only the possibility of indifference, as an indication of illness), the result was striking: 45,6 % of widowers declared feeling indifferent whereas 0% widows declared the same!

A similar situation was found during this research: When analyzing data on the levels of well-being of Brazilians living in slums, 90% of inhabitants of this locations declared to feel happy or extremely happy (SEBRAE, 2015). For all such cases, an objective examination of functionings would better show which sort of deprivation suffered by these people would need to be addressed (e.g. medical exams could identify nutrition and health needs in the post-survey famine and social measurements could indicate the need for better schools, sanitation infrastructure or health services for slum dwellers).

The approaches to development discussed so far (other than the CA) may be said to have a common premise: efficiency. Either in terms of financial resources or utilities, both approaches to development accept the world order as it is and consider growth as a necessary and sufficient condition for development. Countries need to improve their efficiency in the allocation of resources to generate more growth in the competitive world market.

According to Todaro & Smith (2012), this conception of development is only one side of the coin. The other side of the coin is based on the premise that such logic is made to reinforce itself and the balance of power between rich and poor nations. This conception is corroborated by Escobar (2011), who considers that such an understanding of development is based on the imposition of cultural, social and technological systems (western / northern) in detriment of systems of poorer parts of the world such as Latin America, Africa and Southeast Asia.

Such conceptions, which Avgerou (2010) named as disruptive discourses in the ICT4D literature, have a theoretical background that goes back to Marx' concepts of emancipation (CLARK, 2005; ZHENG; STAHL, 2011). They focus on the need of transformation to rebalance political powers in the direction of weaker and dependent nations, thus emancipating them from the powerful advanced economies.

In this regard, the capability approach can have an important theoretical role to help bridging the gap between such contrasting literatures, since the focus on capabilities is a focus on human development that tries to embrace all human needs and values to build the life they consider worth living.

As indicated by Nussbaum (2001), the “Aristotelian/Marxian conception of the human being as in need of a rich plurality of life-activities” is an important influence on the understanding of development as expansion of capabilities. Therefore, the CA incorporates important, and sometimes contrasting, discourses into its framework thus enlarging the possibilities of development studies.

Because of its wideness and deep human-centered understating of development, the CA is holistic by nature (GIGLER, 2011; HAMEL, 2010; KLEINE, 2010; THAPA; SÆBØ, 2014). Two interrelated views of the expansion of capabilities are important to understand development, according to the CA: (1) The substantive and (2) the instrumental view of capabilities (or freedoms, which is almost a synonym in Sen’s works - see for example Sen, 2001).

The substantive view (also known as the constitutive role) of freedoms considers the expansion of capabilities as ends in themselves. Thanks to this view, human development is brought back to the center of the development debate. Sen points out that restricted approaches to development (such as development seen as GDP growth) usually understate the importance of freedoms such as safety nets for poor, political freedoms and social development, arguing that they are “luxuries” that should only be taken into account after economic development is accomplished (SEN, 2001).

In terms of the CA, this is a defective analysis. These freedoms (or capabilities) are what development is all about, by putting some other goal (such as GDP Growth) as the primary end, development is being put at the service of the goal, whereas the opposite is clearly what has to take place.

In this sense, it is useful to take a brief examination of how the CA interacts with human rights. Human rights are principles that most of the nations of the world adhere to (at least in theory). The perspective of the human rights, in its highly legal orientation, is very much concerned with the forces that may hinder individuals to exert their freedoms (for example, unjust governments, censorship laws and so on). The CA approach considers the human rights as

important freedoms and, in addition, provides a practical way to evaluate them as constitutive part (substantive freedom) of development.

According to Nussbaum (2003), the CA expands the concept of human rights since it takes a positive approach to freedoms. The human rights consider the things that can impede a person to make the choices he or she values to lead their lives, whereas the CA is also concerned with the elements that people need to develop (the capabilities they need), in order to achieve his or her goals in life. To take the subject of this study as an example, no one should be forbidden to enter a bank agency in Brazil, according to the law. However, for this right to take place, several elements must be present: people must have banks to access in the first place, then they should not be ashamed to enter a place where they don't feel confidence in themselves to behave adequately. In addition, they need to be minimally fluent in the language of financials to interact in a meaningful way with bank employees. All these are freedoms that are rightly taken into account by the CA.

The instrumental view of freedoms considers capabilities as means to achieve development. That is, not only capabilities expansion is an expansion of freedom in itself, but also the expansion of capabilities are important means to enhance other capabilities, thus creating a virtuous cycle of development. Crucial for the understanding of this view is to understand the interrelations between freedoms.

By studying these interrelations, it is possible to draw several empirical connections between them. A crucial factor here is that economic resources are not the only means to achieve other freedoms. It is possible to improve the quality of life through enhancement of the education levels and health (to name a few) without jeopardizing economic growth (SEN, 2001).

Actually, the improvement of these freedoms tends to improve economic growth, since levels of education are directly connected with (for example) productivity. The number of interrelations is too large for the scope of this study. However, it is important to know that capabilities are to be studied in a holistic way. Since there are several empirical connections between them, the careful study of these interconnections is of crucial importance for the attainment of development (SEN, 2001).

In this sense, the CA opposes a view purely based on economic performance. It is important to stress though that the opposition is against a view *purely based* on it. The economic growth is an important resource for the development of capabilities and most of times it is one of the most important aspects to get people out of poverty.

3.1.2 POVERTY AND SOCIAL EXCLUSION

Development is the broad theme with which the CA is concerned (CLARK, 2005; SEN, 1993b). Inside it, there are other sub-themes that are particularly well addressed. This section is concerned with two very closely related sub-themes: poverty and social exclusion.

According to the CA, poverty is understood in terms of deprivation of capabilities (CLARK, 2005; NUSSBAUM, 2003; SEN, 1993b, 2001). The capabilities being studied for the assessment of poverty are a sub-set of the total range of possible capabilities.

Although Sen never explicitly defined a definitive list, he did mention some example of basic capabilities that can be used to understand poverty (Sen, 1993a), such as “ the ability to be well nourished, well sheltered, the capability of escaping avoidable morbidity and premature mortality, and so forth”.

The list of capabilities will always be contingent to the context being studied. In this study, for example, the capability of being financially included is considered essential for people to take part in the benefits offered by modern societies. The point may always be made, however, that such capability is not universal. Radical disruptive discourses, for example, may criticize the entire financial system as being the cause of exclusion and poverty.

The capabilities used will always be contextual since any list of capabilities is contingent to its environment (ROBEYNS, 2006). However, even in his own work, some capabilities considered to be basic can be found (ROBEYNS, 2006). A few examples are: income, literacy, health, sanitation and so on.

The most relevant feature of this perspective is to shift the focus from income to real freedoms people experience. Sen (2001) acknowledges from the start the importance of income in the assessment of poverty, however, income is treated as an instrumental freedom, rather than a substantive one.

The reason is straightforward: income is an important instrument to enhance freedoms but not a freedom in itself. The focus on capabilities thus allows for a more accurate assessment on the characteristics that generate poverty and what needs to be addressed to overcome it. The decoupling of income from other capabilities allows for a deeper understanding of poverty. Two people with the same level of income will have different poverty levels depending on their characteristics. Women normally need to make more effort to convert the same level of income

into capabilities than man, because of the prejudices they suffer. The same happens with minority groups that do not enjoy the same treatment. This may be so for religious minorities, LGBTs, afro-descendants and so on, according to the level of freedom they enjoy in their communities.

Furthermore, these people are not only poorer (in terms of converting income into capabilities) but normally their income levels are lower, for they have more difficulty in generating income in the first place. Still, other groups may simply need higher level of income to achieve the same capabilities regardless of any prejudice against them. Older and sick people, for example, surely need higher level of income to achieve the same level of capabilities and so the examples may be expanded to a large extent.

Social exclusion, is part of the greater concept of poverty, here defined as deprivation of capabilities. The difference between both concepts lies in the relational aspect of social exclusion (SEN, 2000). As mentioned above, which capabilities will be considered to define poverty will be contingent on the specific context in which it takes place.

It is useful to analyze social inclusion in terms of substantive or instrumental freedoms. In the former, social exclusion may directly be related to the ability of individuals to take part in social life. This is an end in itself, since the need to partake in social life is inherent to human beings (SEN, 2000).

Furthermore, participating in social life has also its instrumental value. To be able to be part of the complex net of institutions that form a modern society (such as schools, universities, banks, armed forces, labor unions, companies, tax service institutions, so on and so forth) is a pre-requisite for the pursue of the goals each one has in life. Poverty, seen from this angle, means the exclusion from such participation and, consequently, the lowering of possibilities to develop one's capabilities (SEN, 2000).

As an already cited example, many poor people do not have the self-confidence to enter a bank agency. One of the main reasons is that the bank agency is made for people that normally have a better social condition and feel at ease to enter such a place. Although there is no stated rule forbidding poor to enter a bank agency, the custom normally disfavors them, since they usually cannot afford expensive clothes nor are fluent in the language spoken in such places¹³, not to

¹³ Language here is being used in the sense of knowing how to apply concepts of banking and financials in a dialogue.

mention the direct prejudice some of the poor are victim of when entering a bank agency. Whilst this is a lack of freedom in itself, since the ability to go to a bank is also a social event, it is evident that the access to financial resources is even more restricted to the poor because of such social barriers that limit their living opportunities.

3.2 THE ROLE OF FINANCIAL INCLUSION MEDIATED BY ICT

3.2.1 DEFINING FINANCIAL INCLUSION IN TERMS OF THE CAPABILITY APPROACH

The last section ended with a brief discussion about poverty and social exclusion. It was highlighted that according to the capability approach, poverty is better evaluated in terms of capabilities deprivation rather than lowness of income.

Social exclusion is considered a specific kind of poverty that is related to those relational processes that deprive certain groups or individuals of basic capabilities (SEN, 2000). Peachy & Roe (2006) consider that the debate about access to finance in developing countries is just part of a wider debate, to wit, access to basic needs “from water, health and education and through to roads, employment and communications”. It is a different approach (they argue) than access to finance in advanced economies, for there, the main debate is about how to help those that are excluded from the benefits that most of the population enjoy.

Still according to the authors, it makes more sense to speak about financial **in**clusion in developing countries, since the focus is on reaching a large population that have never had access to those benefits, whereas it makes more sense to talk about financial **ex**clusion in developed nations, since it is assumed that a benefit shared by the majority of the population is not reaching a small minority because of social exclusion processes.

This study follows the same path, since it is concerned with financial inclusion in a developing country (Brazil) in which poverty is widespread and its alleviation is of strategic importance for the development of the nation.

Yet, the extant literature has treated financial inclusion and financial exclusion rather interchangeably.

The first time the term appeared in the literature, it was named financial exclusion and was the main concern was with those groups prevented from **accessing** financial services (LEYSHON; THRIFT, 1995). Although several authors use either the terms of financial inclusion / exclusion related to problems of **access** (BHATIA; CHATTERJEE, 2010; CHAUVET; JACOLIN, 2015; DINIZ; BIROCHI; POZZEBON, 2012; ZUCARRO; BRIDWELL, 2016), financial inclusion / exclusion is more often related to processes that include access and usage of financial services (ANDERLONI; BRAGA; CARLUCCIO, 2007; DINIZ; CERNEV; PORTO DE ALBUQUERQUE, 2013; GUIMARÃES; DINIZ; GONZALEZ, 2014; SARMA, 2008; SARMA; PAIS, 2011). For example, the Brazilian Central Bank, works with the following definition in its report of financial inclusion: “Process of effective ACCESS and USE by the population of financial services ADEQUATE to their necessities, thus contributing to their life quality”¹⁴ (BCB, 2015).

Thus, this study uses a definition in line with the aforementioned one, which is used by the Organization for Economic Cooperation and Development / International Network on Financial Education (OECD / INFE), as quoted below:

“Financial inclusion refers to the process of promoting affordable, timely and adequate access to a wide range of regulated financial products and services and broadening their use by all segments of society through the implementation of tailored existing and innovative approaches including financial awareness and education with a view to promote financial well-being as well as economic and social inclusion.” (ATKINSON; MESSY, 2013)

The above paragraph is a definition of a process meant to include people financially. The CA, however, is usually defined at the individual level, for it is concerned with each individual's freedom. A simple way to understand capabilities is to treat the definition in the singular. A capability is nothing more than a functioning in potential. In this case, to be financially included is a functioning and the freedom to be financially included (or not) is a capability. Based on the

¹⁴ Free translation by the author.

definition of financial inclusion being used in this study, the respective capability is proposed as follows:

Capability - To be financially included: To have access to a wide range of regulated, affordable, timely and adequate financial products and services and to have the financial literacy needed to use such products and services in such a way to enhance financial well-being, economic and social inclusion.

Again, the term inclusion is, according to Sen (2000), a relational concept to be used when social arrangements are the cause of deprivation. However, deprivations may have many causes, for which the relational component is but a specific aspect of it. In other words, social exclusion is a particular form of poverty. Therefore, to be in line with Sen's terminology, it would be more correct to call the process being studied of financial poverty, rather than financial inclusion / financial exclusion, since the causes of it extend to other aspects such as market failures, living conditions, lack of income, so on and so forth. However, given the general acceptance of the term financial inclusion/exclusion in the literature and given that a discussion of this subject would go beyond the scope of this study, the term financial inclusion is being used to define a capability.

It is worth emphasizing that capability is a broad concept that encompasses all that is needed for a person to achieve a functioning that he or she values. For this reason, it is important to clarify that capability is **not** to be understood as abilities or skills as it is commonly found in the financial inclusion literature. For example, the global financial inclusion and consumer protection survey from the World Bank states that: "[...] many jurisdictions have established or are developing a national strategy for financial capability (or financial literacy or financial education)" (WORLD BANK, 2017) or Atkinson et al. (2007) that in their study about levels of financial inclusion in the U.K. conclude that: "financial capability could be conceived as encompassing four different areas, or 'domains'. These domains were '*managing money*', '*planning ahead*', '*making choices*' and '*getting help*'". As explained in the CA section, financial inclusion understood as a capability includes not only skills, but all the socio-economic conditions needed by people. In section 3.4, a model containing all elements for financial inclusion is explained in detail.

3.2.2 FINANCIAL INCLUSION, DEVELOPMENT, AND POVERTY ALLEVIATION

The literature on financial inclusion has been prodigal in stating the benefits of financial inclusion for development. Peachy & Roe (2006) highlights three main benefits of a sound financial system to society: it improves allocation of resources; it generates more resources to investment initiatives (by allocating savings to investments); and it reduces risks in the economy (by using instruments such as insurance, hedge and similar).

Furthermore, scholars have studied the possible causal relations between finance and growth and gathered significant evidence that finance does influence growth positively. Todaro & Smith (2012) point out six benefits of having a sound financial system: provision of payment services; matching savers and investors, generating and distributing information; allocating credit efficiently; providing mechanisms to lower risks; and increasing assets liquidity. Sarma & Pais (2011) emphasize the close relationship between financial exclusion and marginalized groups. They also found close relation between employment, lower inequality, prosperity and infrastructure and financial inclusion. Interestingly enough, they also related some characteristics of the banking sector with financial inclusion: presence of foreign banks and high capital to assets ratio was related to lower financial inclusion, possibly indicating that banks with this profile were more interested in the richer share of the population and presented high costs to enter the bottom of the pyramid market. Higher financial inclusion was related to lower default rates (contrary to expectation). Finally, the presence of government banks was not related to higher financial inclusion.

In Brazil, several studies discuss the importance of financial inclusion. Bader & Savoia (2013) highlight the opportunities opened by new technologies pushing traditional banks to innovate to compete with new business models being generated by the so called fintechs. Banking correspondent models have also been subject of several studies and being considered a successful way to improve **access** in Brazil, although improvements in **use** have also been highlighted (DINIZ, 2007; DINIZ; BIROCHI; POZZEBON, 2012; GUIMARÃES; DINIZ; GONZALEZ, 2014). Joia & dos Santos (2017) presented an innovative case of a bank boat, equipped with satellite communication to bring bank services to otherwise excluded riverine population. Many other studies addressing financial inclusion in Brazil can be found in the literature (see for example: CERNEV; DINIZ; JAYO, 2009; DINIZ; CERNEV; PORTO DE ALBUQUERQUE, 2013; GONZALEZ; CERNEV; DINIZ, 2016) and a few thesis regarding

financial inclusion mediated by technology in slums could be found (MILANEZ, 2018; OLIVEIRA, 2018), indicating that the theme of this thesis is gaining importance.

However, more recent studies have found a somewhat equivocal answer to whether finance really generates growth and well-fare. In an review of the empirical evidences of this subject, Demirguc-Kunt, Klapper, & Singer (2017) analyzed the impacts of the four main types of financial products: payments, savings, credit and insurance.

They concluded that payment transaction improves life-quality since it allows the disadvantaged to make a series of transactions that are essential to day-to-day lives (see also Gloukoviezoff, 2007), but for the other types of financial products (savings, credit and insurance) the results are not conclusive. A particular promising field is the use of mobile technologies to enhance access and use with new possibilities for innovation in technology and in business models. Digital payments along with savings were found to generate the greatest impacts on macro-level goals for development. Microcredit, on the other hand, has failed to generate convincing evidence on this sense (results are still doubtful about its possibilities, showing either positive or neutral results).

Finally, insurance usage encouraged entrepreneurs to invest in riskier initiatives, but data is not yet available to evaluate the effects on measures such as growth or well-fare (e.g. health and education). Similar results were found in a review made by Karlan et al. (2016) that also highlighted important market failures that have to be overcome to increase the reach of financial inclusion initiatives: (1) information asymmetries coming from moral hazard and adverse selection in the supply side and failures to understand products and services offered on the demand side; (2) development models based on rational behavior, which does not fit to reality; (3) transaction costs – which generate distortions, usually affecting the supply of adequate services to the poor; (4) property rights that usually disadvantage women and; (5) imperfect competition, which generates monopolies that keep prices too high. Both studies call for more innovative mechanisms to increase financial inclusion (DEMIRGUC-KUNT; KLAPPER; SINGER, 2017; KARLAN *et al.*, 2016).

Of particular importance is the need to create tailored-made solutions that are based on a deep understanding on the users' realities. Gonzalez, Cernev, & Diniz (2016) give some examples of specific needs of poor people in relation to bank services such as the mismatch between their cashflows and the monthly cycle of payments offered by traditional banking services. They also emphasized the excess of the formalities involved in bank dealings that hinders poor people to

take part in it. These are good opportunities for new business models such as fintechs (providers of financial services through technology), a point that will be resumed later in this study.

An important part of financial inclusion is financial literacy. Financial literacy is defined as “a combination of awareness, knowledge, skills, attitude and behaviors necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” (ATKINSON; MESSY, 2012, p. 18). In a nutshell, financial literacy is related to the ability to **use** financial services.

However, how to improve financial literacy is a disputed issue. Financial education, which is the natural recommended process through which financial literacy could be achieved, has not demonstrated success so far. A meta-analysis covering 188 financial education programs, showed scarce evidence on improvement in knowledge or behavior (MILLER *et al.*, 2014). Nonetheless, programs that combine education with simple tips to users are showing promising results, reinforcing the need to create ad hoc solutions to tackle financial exclusion.

Before ending this section, it is important to discern between two views of development given by the CA: (1) the substantial freedoms view of development considers the attainment of capabilities as a measure of development in itself. In a world where financial transactions are ubiquitous and increasingly made through the use of ICTs, the capability of being financially included turns out to be a basic need, without which, life in society can be severely restricted. (2) the instrumental view of development is relevant to the attainment of other development goals. In this sense, to be financially included increases the chances of a person to pursue higher income, better health status or increased education levels (as the numerous researches on the field try to understand).

Moreover, once more it is important to emphasize the interrelated connection between freedoms and the feedback cycles they generate.

Sherraden et al. (2010) proposed a different approach to improve financial literacy. According to her, financial literacy is not only achieved through traditional education processes, but also through economic socialization. Economic socialization is the intuitive learning process in which people are used to handling economic resources and naturally develop their knowledge in the field. Poor people living alienated from even the existence of financial services, obviously cannot learn anything living in communities that do not possess such knowledge, for they will not exchange knowledge nor practice it.

Citing Nussbaum (2001, p.3), Sherraden shows that: “ ‘developing an internal capability usually requires favorable external conditions; indeed, it very often requires practicing the actual function’. In other words, how will people learn to use financial services if they do not use it? More than this, how will illiterate people learn to use it by having theoretical classes about it? The provision of adequate, affordable, easy-to-use financial products and services to disadvantaged people, is a necessary condition to improve their capabilities in the financial realm in the first place. As clearly stated by Sen (2001), the interrelatedness of capabilities asks for a holistic understanding of the nature of development which in turn demands holistic evaluations to avoid the risk of simplistic cause and effect analyses.

3.3 ICT4D AND THE RISE OF FINTECHS

3.3.1 INFORMATION AND COMMUNICATION TECHNOLOGY FOR DEVELOPMENT (ICT4D)

ICT4D (Information & Communication Technology for Development) is a field of study concerned with the application of ICTs for international development (WALSHAM, 2017). More specifically, it deals with the issue of fostering the development of countries that have not accompanied the leading economies of the world at the same time that it tries to tackle the problems of a large and deprived share of the world’s population that have not enjoyed the benefits of modernity. This section will briefly describe the history of the field, the different discourses in ICT4D and the challenges for the field.

HISTORY

The history of ICT4D can be divided in three periods (HEEKS, 2008, 2009; WALSHAM, 2017). The first period started with the installation of the first digital computer in a developing country (Kolkata, India 1956). In this period, the use of computers was limited to administrative purposes in the public sector (HEEKS, 2008, 2009). It was only in the mid-80s that computers started to be used by multinationals as a tool to enhance efficiency in developing countries.

By the beginning of the 90s, discussions about how to use ICT for development were gaining sophistication. The so far leading technocentric vision began to give way to a more context-oriented approach, which emphasized the need to understand local arrangements and necessities with the objective to deliver better ad hoc solutions (KLEINE; UNWIN, 2009; WALSHAM, 2017).

This period was followed by the *1.0 version of ICT4D* (HEEKS, 2008, 2009) that started in the mid 90s with the advent of the internet and a new interest in the issue of development, which is epitomized by the MDGs (millennium development goals)¹⁵. New technologies such as the internet, the world wide web, and searching engines, boosted the ICT4D field due to the new possibilities they generated.

The field increased in scope and became more interdisciplinary (WALSHAM, 2017) with the opening to different views coming from disciplines like sociology and economics, inter alia.

It is also from this period that the meaning of the word development itself started to be questioned in ICT4D studies. For example, Brown & Grant (2010) accused the research in ITC4D of being an adhocracy, in which implementation of projects, not development, was its main concern.

In addition, Avgerou (2003) criticized the ubiquity of the market-oriented context in the discourse of development agencies. As a consequence, other approaches to development appeared in the ICT4D literature. Examples that are particularly interesting for this study are those that use the capability approach to development to assess the levels of financial capability in the UK (ATKINSON *et al.*, 2007) or to understand how to improve access to information and knowledge through ICT in Peru (GIGLER, 2004).

The next period (and also the present one), is ICT4D 2.0 (HEEKS, 2008, 2009). It begins in the mid-2000s with the huge expansion in the use of ICTs in the developing countries fueled by mobile telephony technology. The debates about development gained momentum with the constant inflow of professionals from other fields, to study ICT-mediated forms of development. As pointed out by Walsham (2017), the field developed interdisciplinarity (in addition to multidisciplinary) since the level of collaboration between professionals from

¹⁵ The MDGs are a list made by the UN containing 7 goals to be pursued by all member states by the year 2015. The MDGs were replaced by the SDGs (Sustainable Development Goals), a new agenda with 17 goals settled in 2016.

different backgrounds increased (although the author sustains that interdisciplinarity still needs to grow).

It is also important to mention that the capability approach to development (SEN, 1985c, c, 1993b, 2001) gained momentum, as can be seen in some examples of attempts to enhance the theoretical perspectives of development in ICT4D (ZHENG; STAHL, 2011) and to allow operationalization of the CA (KLEINE, 2010).

INNOVATION AND DEVELOPMENT DISCOURSES IN ICT4D

According to Avgerou (2010), the main discourses about development in the ICT4D field can be classified in a cartesian plan according to (1) the nature of the innovation process and (2) the way in which ICT is deemed to contribute to development perspectives.

Figure 4 below shows two perspectives for innovation (horizontal axis) and two perspectives of development (vertical axis). Innovation (horizontal axis) can take place through a process of transfer or diffusion of technology (left side of horizontal axis) from advanced to developing nations or through a socially embedded process (right side of the horizontal axis), which means that innovation occurs in an interactive process where technology and local actors “debate” to form an innovation that is harmonic with the needs of the society.

In terms of development perspectives, (vertical axis), discourses may be seen as progressive or disruptive. Progressive discourses (top of Figure 4) are the ones that accept the world order as it is and try to use ICTs to bridge the gaps between developed and developing nations in a global perspective or between rich and poor, men and women, inter alia, in a more localized perspective. Disruptive discourses (bottom), on the other hand, question the world order and focus on conflicts of interest with a special focus on the exploitation of the more powerful against minorities of fragile segments of the population (AVGEROU, 2008, 2010). It is usually skeptical about the possibility to generate development through ICT.

The classification of ICT4D discourses in terms of progressive or disruptive development is in accordance with the view that ICT, when used for development, is eminently a political act, either to change or transform the socio-economic reality (THOMPSON; WALSHAM, 2010). Therefore, ICT can be viewed as an important instrument to moderate the extant differences of power in the world and may be used either to intensify or lessen it.

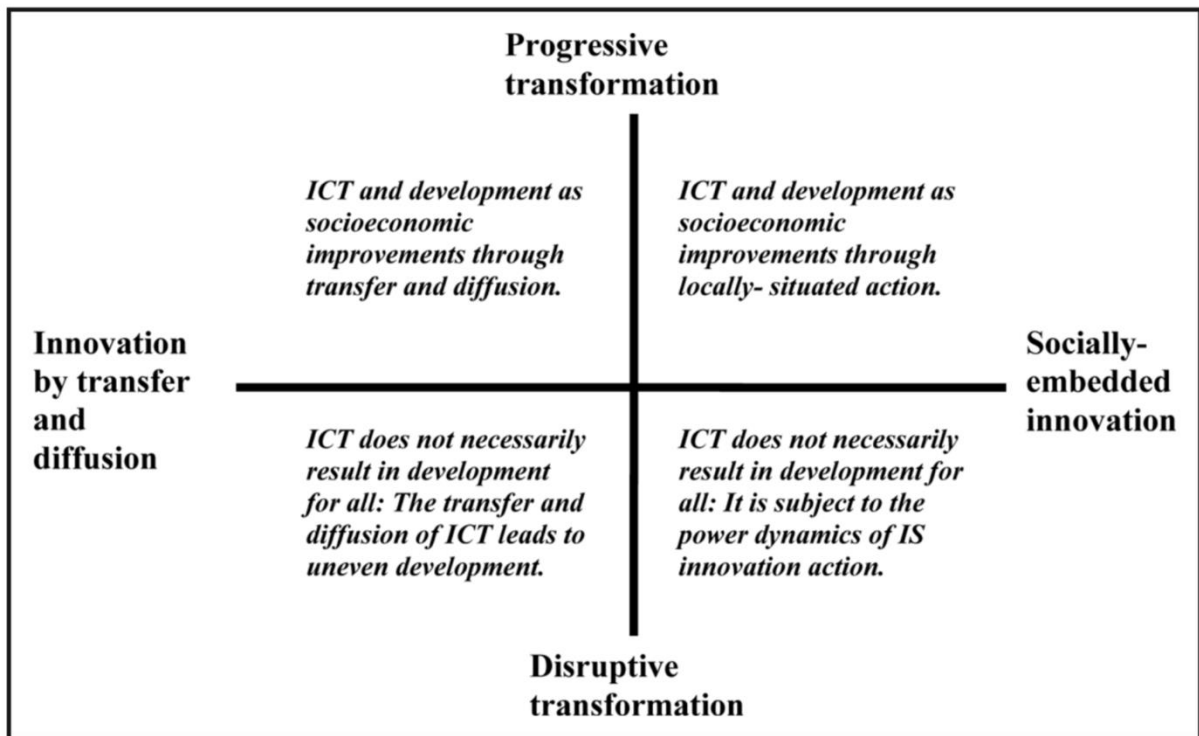


Figure 4: Four discourses in the ICT4D field¹⁶.

CHALLENGES

A movement towards context-oriented approaches to ICT initiatives for innovation has already been mentioned (AVGEROU, 1998, 2008, 2010; KLEINE; UNWIN, 2009; WALSHAM, 2017). This movement was not without reason. As the results of development projects failed to deliver what they promised (BEST; KUMAR, 2008; HEEKS, 2002) new approaches demanding higher understanding of the context were developed. Diffusion and transfer of technology discourses, for example, started to consider the importance of context. However, this approach did not consider the full contextual situation. The differences in context were evaluated simplistically through *context fits* or *conflicts*, thus maintaining the technocentric view of development (WESTRUP *et al.*, 2018).

Other authors insisted on the need for a deeper understanding of local realities and a collaborative process of innovation in creating sustainable solutions for development through ICT (AVGEROU, 1998, 2010; GIGLER, 2004; HEEKS, 2002; KLEINE; UNWIN, 2009).

¹⁶ Adapted from Avgerou (2010)

They advocated the need of a socially embedded process of development, in which technology was not simply transferred to developing countries or development initiatives, but rather constructed according to the understanding of local problems. Also, the direction of the initiative would be determined by the way local actors understood the process and realized it in their lives (AVGEROU, 2002).

The situation is less clear when the issue is the meaning and purpose of development itself. If from one side, the Innovation literature of ICT4D tends to agree on the necessity of a socially embedded process, from the development perspective things are not that clear. The first problem in the debate between the progressive and the disruptive discourses of development is the lack of theoretical basis and empirical evidence about the effects of ICT4D projects on development (AVGEROU, 2010). Disruptive discourses of development usually contest the results of ICT-mediated development and even question the desirability of such development.

As an example, Kleine & Unwin (2009) point out some important critics to ICT4D:

- Funds directed to ICT4D projects could/should be directed to more acute problems such as hunger, health and sanitation, among others;
- ICT technologies implemented may create new dependencies;
- Development may increase social polarizations, which in a milder form is known as the digital divide problem.

A good example is the implementation of mobile phones in rural Bangladesh (AMINUZZAMAN; BALDERSHEIM; JAMIL, 2003). Although ‘mobility’ was a positive outcome of the initiative, since it facilitated communication between distant people, some patriarchal behaviors were reinforced, thus worsening the situation of women in the society. Also, the new technology widened the gap between business and non-business men, by improving the situation of the already better off business men in comparison to the latter.

Apart from the disagreements about development, the ICT4D field also faces important challenges for research and practice. The field is normally a multidisciplinary one, with conferences receiving professionals from different areas. A movement in the direction of interdisciplinarity is desirable to allow a deeper understanding of the issues presented (HEEKS, 2008; THAPA; SÆBØ, 2014; WALSHAM, 2017). Furthermore, as pointed out by Heeks (2008), ICT4D has understood well how to make information arrive to the poor, but has not yet generated sufficient knowledge to understand how to include the poor in the production of content, which is seen as an important way to improve their situation (KOLK; RIVERA-

SANTOS; RUFÍN, 2014). Heeks (2008) expresses this challenge as composed of three sub-challenges:

- To create tools that allow the poor to produce and innovate;
- To understand how to incentivize the poor to produce and innovate;
- To convince established economic and political forces of the importance of this agenda.

3.3.2 THE RISE OF FINTECHS

FINTECHS

Simply put, fintech is a name for the provision of financial services and products through technology. The marriage between the financial industry and technology is an old one. In fact, the first major period of financial globalization in the 19th century was closely related to the introduction of the telegraph for commercial use in 1838 and the laying of the first transatlantic cable in 1866 (ARNER; BARBERIS; BUCKLEY, 2015).

Furthermore, the financial sector is the single largest purchaser of IT since the mid-90s. As an example, total expenditures with IT by the financial sector in 2014 was over US\$ 197 billion in 2014 (ARNER; BARBERIS; BUCKLEY, 2015). Why then there is so much noise about fintechs nowadays?

The story of fintechs actually starts with the global financial crisis of 2007/2008. Arner et al. (2015) provide two main reasons for the surge of fintechs.

First, there was a general distrust with the financial sector, since it created so many losses around the world. This opened the opportunity for new actors to provide financial services to a demanding population in need for credit but not interested in the traditional financial sector.

Second, a large number of employees from the financial sector suddenly lost their jobs. As a consequence, there was an enormous supply of highly qualified professionals in search for a job opportunity to offer their services somehow.

These two movements were catalyzed by new regulations that affected the industry in the United States. The JOBS Act was issued to encourage the creation of new start-ups by allowing

companies to fund themselves through peer to peer (P2P) lending platforms. This regulation, that aimed at the creation of new start-ups in several sectors, actually provided an environment for the surge of fintechs. Peer to peer lending platforms are a simpler way to allow loans to take place without the need for the financial sector to be directly involved. This mechanism allowed the creation of several new companies that could benefit from both: the high demand from people who could not (or would not) access the traditional financial sector, and the high supply of new sources of credit provided by this innovative business models, the fintechs.

However, the question still remains: why is there so much noise about the fintechs? Or, put in another way: If technology has always been an important driver of the financial industry, what is new about the fintechs?

An important factor that makes the fintechs different from other technological innovations in the financial sector is the fact that the financial services are not rendered by regulated financial institutions only (ARNER; BARBERIS; BUCKLEY, 2015). In fact, financial institutions are heavily regulated, which makes difficult for them to innovate in this field. Moreover, several businesses with access to a large number of customers (e.g. telecom companies, internet searching engines and social media) saw an opportunity to offer financial services to their customers, by-passing the necessity to use the financial sector. Finally, several start-ups were formed with the purpose of exploring this new opportunity.

FINTECHS AND ICT4D

There is no consensus about how to define fintechs. This study adopted the definition of the Brazilian Central Bank that, on its report of the banking economy in Brazil (BCB, 2017), uses the same definition given by the Financial Stability Board: *Technology-enabled innovation in financial services that could result in **new business models, applications, processes or products** with an associated material effect on the provision of financial services.* (FSB, 2017) - bold added by the author.

The importance of *new business models and processes* in that definition is worth emphasizing. According to Heeks (2008), there are three modes of innovation in the ICT4D field: pro-poor, para-poor and per-poor. The first being the deployment of technical solutions to a passive consumer (the poor), the second a process that is made together with the poor, and the last one, a process that is made directly by the poor.

In this study we are more concerned with the second mode, that is, innovation made with the participation of the poor. As already mentioned, socially embedded courses of action (AVGEROU, 2010) include the poor in the process of innovation. This cooperative approach allows for a deeper understanding of local realities to address local needs more efficiently. Projects that have no impact, normally don't address the necessities of local people (KLEINE; UNWIN, 2009). Therefore, it is expected that the participation of local people opens the door for new forms of innovation other than the implementation and usage of an existent (but perhaps innocuous) technology. In this sense, the catalyzation of existent knowledge may take place through innovation in processes of existent solutions or in terms of new business models, that allow for innovative governance arrangements, more suitable for innovative financing alternatives (e.g. social enterprises selling shares to stockholders as opposed to non-government organizations – NGOs, dependent on grants from development organizations or foundations) and the participation of different actors.

Fintechs are a good example of a new business model. It is a growing market in Brazil (see

Figure 5 below with the increase in the number of fintechs operating in the country). Furthermore, new market regulations that allow for new credit products to be delivered such as, providing loans backed only by equity (SCD – *Sociedade de Crédito Direto*) or P2P platforms (SEP – *Sociedade de Empréstimo entre Pessoas*), are expanding the possibilities for new actors (BCB, 2017), in a market previously dominated by the financial sector. Finally, with the spread of technology to all segments of society through the use of mobile telephony, new products to attend personalized demands of clients are made available (GONZALEZ; CERNEV; DINIZ, 2016). This personalization can be of particular importance to the poor that were usually excluded from this market for reasons as simple as not having a bank branch nearby, not having the full documentation needed for the opening of a bank account, or not feeling comfortable to enter a bank agency for fear of prejudice and mistreatment.

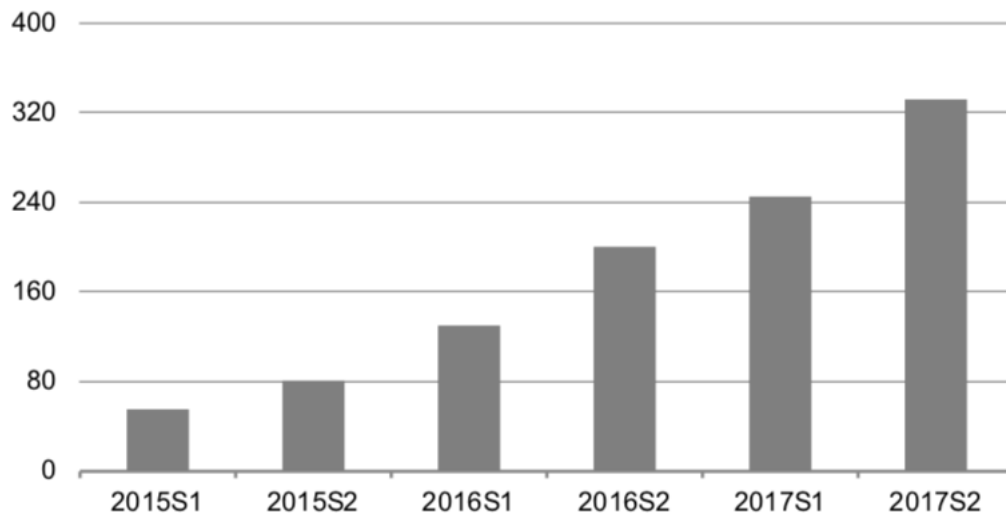


Figure 5: Number of fintechs in Brazil by semester¹⁷

Another possible innovation is to consider the purpose of the endeavor as part of the business model, in what has been called lately by the name of impact investment, a theme that will be detailed in the case-study description and that may increase the available sources of fund to the initiative.

Although fintechs have enormous potential to access the bottom of the pyramid, it is unlikely that they will generate financial inclusion if they do not consider it as an important goal to be followed.

In fact, as shown in Table 1 below, some categorization efforts made to classify fintechs barely mention financial inclusion, or any other social purpose. Only in two of the categorizations, is the issue considered (ARNER; BARBERIS; BUCKLEY, 2015; GONZALEZ; CERNEV; DINIZ, 2016), even so, the treatment given is a generic one.

In this sense, some authors propose the use of the term “socialtech” (SIQUEIRA; DINIZ; ALBINO, 2018), a short name for social fintechs, which are fintechs that specifically include their social purpose into their mission.

¹⁷ Retrieved from Brazilian Central Bank’s report on banking economy (BCB, 2017, p.97)

Author	Criteria	Details
(LANGLEY; LEYSHON, 2017)	Field	Fintechs may operate in three different fields: (i) new forms of payment; (ii) new risk calculation methods; and (iii) new lending mechanisms (including crowdfunding).
(ARNER; BARBERIS; BUCKLEY, 2015)	Historical Period	Fintechs start with the use of technology in the financial industry (Fintech 1.0) and eventually use it to benefit of the BoP (Fintech 3.5)
(KURSH; GOLD, 2016)	Type of Service	5 types of services: (i) Loans; (ii) Consumer Credit; (iii) payments; (iv) insurance; and (v) investments.
(CORTET; RIJKS; NIJLAND, 2016)	Solution	Complementary (to the traditional finance sector) or Disruptive (new business models or services)
(GONZALEZ; CERNEV; DINIZ, 2016)	Goal	Inclusion of: (i) young people; (ii) low income people; and (iii) people that already have access and use financial services.

Table 1: Categorization of fintechs¹⁸

3.4 THE 2IDF MODEL FOR ICT-MEDIATED FINANCIAL INCLUSION

This section will describe the model that combines the three main literatures involved in the review above, to wit, capability approach, financial inclusion and ICT4D, and uses the latest theoretical and empirical evidence for the evaluation of an ICT-mediated financial inclusion initiative.

The 2iDf¹⁹ is a conceptual model developed by Joia & dos Santos (2017). It contains static and dynamic elements, whereby the static elements are represented inside a triangle and are the basis that allow the operation of the initiative at any point in time (Figure 6 below). The dynamic elements represent the cycle of participation and empowerment, which is an important

¹⁸ Addapted from Siqueira, Diniz & Albino, 2018

¹⁹ 2iDf stands for Dynamic Info-Inclusion for Finance, or in Portuguese: “Info-Inclusão Dinâmica para Finanças”.

contribution of the capability approach to the model (represented by arrows around the triangle in Figure 6). The following concepts are a constitutive part of the model:

STATIC ELEMENTS

- **Economic, Political, Legal, and Ethical Sustainability:** these items refer to the viability of the business model being implemented²⁰. The initiative must create economic value to run its operations. Additionally, political support and well-grounded ethical and legal standards must be enforced to guarantee the continuation of the initiative.
- **Infrastructure and Access:** ICT resources necessary for the creation of individual and collective conditions for the population of the locations to access financial services and products.
- **Financial Literacy:** combination of awareness, knowledge, skills, attitude and behaviors necessary to make sound financial decisions and ultimately achieve individual financial wellbeing²¹.
- **Ad Hoc Services and Products:** provision of a portfolio of financial products and services that take into consideration the reality of each location served.

DYNAMIC ELEMENTS

- **Implementation:** deployment of the initiative by an interested party
- **Increase in Awareness:** recognition of the importance of having financial products and services available for use.
- **Increase in Demand:** purchasing of financial services either by a repressed demand or by newly generated demand
- **Feedback and Growth:** feedback given by the users that generates new opportunities for products and services development

²⁰ The model was originally designed for government projects. The market orientation of Banco Maré demands a stronger business model to guarantee its operation.

²¹ Financial literacy was preferred to Financial Education on the original model since the former accurately describes the internal capabilities needed to use financial services, whereas the latter is related to the process of generating financial literacy (ATKINSON; MESSY, 2012).

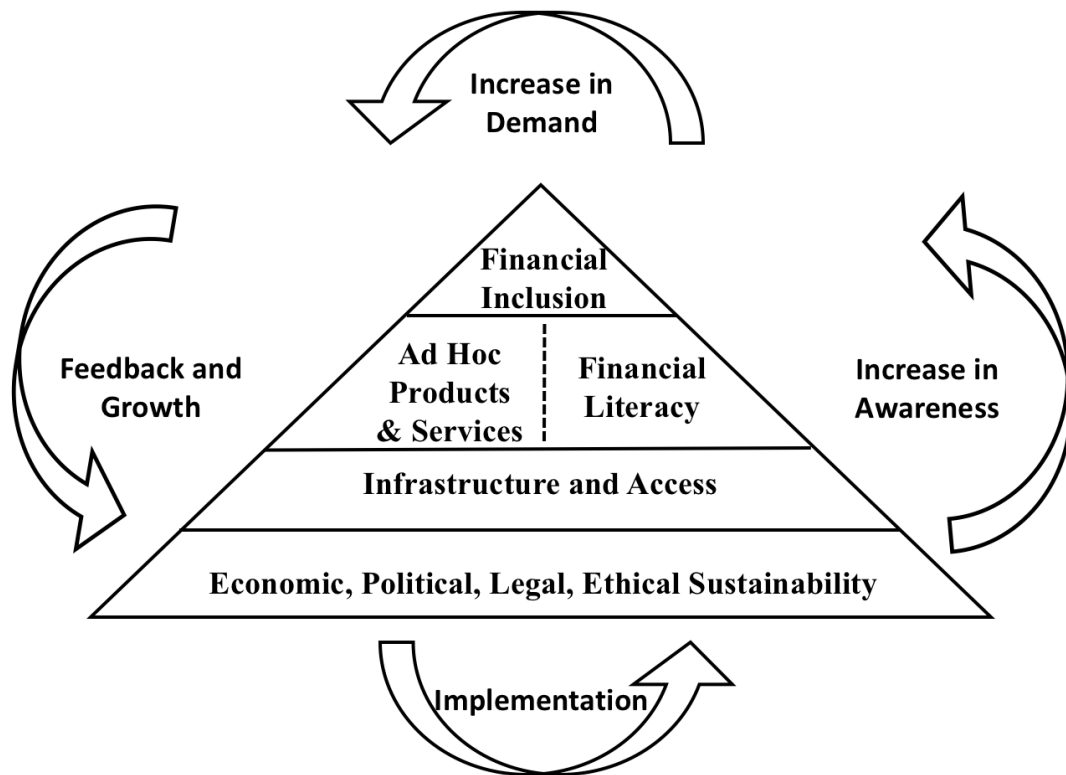


Figure 6: The 2iDf model

The 2iDf model is based on a previous version (2iD – see Joia, 2004, 2007) built to evaluate digital inclusion projects. As such, it is represented by a triangle, in which the basis for the technological solution to be implemented is represented by the basis of the triangle (Figure 6).

Any such project can only exist where economic, political, ethical and legal grounds are present to allow for the deployment of the project. These are made of formal and informal business relations, customs, political influence, laws and ethics that constitute an environment for the development of the initiative.

Where such an environment exists, the infra-structure can be present (or built) for technology to operate and allow access for the users (see Kleine, 2010, for an example of structural elements presented in a framework to operationalize the capability approach for ICT4D). As shown throughout the literature review, services and products tailored to the specific needs of users must be developed so that the chances of success are enhanced (AVGEROU, 2010; DEMIRGUC-KUNT; KLAPPER; SINGER, 2017; HEEKS, 2008; HEEKS; MOLLA, 2009; KARLAN *et al.*, 2016; KLEINE; UNWIN, 2009).

Moreover, people must also know how to use it, meaning that financial literacy (SHERRADEN, 2010) is also an important element of the model.

It is relevant to notice that there is a dotted line between “ad hoc products and services” and “financial literacy”. This dotted line represents the importance given to the exchange of knowledge between developers, users and other stakeholders affected by the initiative.

Local content can only be built upon close contact with users. Their needs, values and abilities must be harmonized with the solutions being offered. If this connection is obtained, some of the most important implications of the CA will start to show up.

The CA emphasizes the importance of agency as an element of development. Agency can be considered both: an end or an instrument for development. When people affected by the ICT solution promote it (in whatever way, such as divulging, demanding or simply using it), the act of promoting itself is a measure of development (action of promotion as an end), whereas the effects of the promotion generate further consequences that may in turn generate new initiatives that enhance the existent ones (action of promotion as an instrument).

According to the 2iDf model, this aspect of agency is captured by the arrows round the triangle in Figure 6. When a project is implemented, and its solutions start to be used, depending on the fit of the solution to local necessities, it will increase the demand for products and services. At the same time, increased awareness of the importance of the solution may generate more demand for the services and the promotion of conditions for the initiative to grow. The more the solutions offered are recognized as important by local people, the higher this increase will be. Moreover, new demands may be a good opportunity for further innovation, polishing the solution to fit the needs of local people and to generate new services and products in a feedback and growth process.

4 RESEARCH METHOD AND METHODOLOGY

Case study is the selected method to guide this research. A threefold condition proposed by Yin (2017) was used to corroborate the choice. According to the mentioned author, in order to select an appropriate method, the researcher should consider (a) the type of the research question, (b) the control he or she has over behavioral events and (c) the contemporaneity of the event. Following these three conditions, the case study method is better fitted to a situation in which: (a) the research question is in the form “how” or “why”, i.e., when the objective of the research is directed to the understanding of reasons behind complex processes, (b) there is no control over the situation by the researcher, and (c) the situation being studied is a present one (YIN, 2017).

All three conditions are met by this study, since its purpose is to understand how an ICT-mediated initiative is impacting the financial inclusion of inhabitants of a large complex of slums in Rio de Janeiro. This initiative takes place regardless of the participation of the researcher, who cannot interfere in any way in the results being observed. Finally, the initiative is taking place at the same moment in which this thesis is being written.

In the same vein, Benbasat, Goldstein, & Mead (1987) argue that the case study method is well suited for Information System studies since it allows researchers to: (a) closely observe events in which the state of the art technology is being used/developed, and can be grasped by the researcher to generate theory; (b) answer questions in the forms “why” and “how”; and (c) study areas of knowledge where few studies have been accomplished, a case that is particularly suited to a field in which technologies are constantly changing.

Paré (2004), drawing from several authors, adds to the above that case studies are useful “when a holistic in-depth investigation is needed and when a phenomenon cannot be studied outside the context in which it occurs” (BENBASAT; GOLDSTEIN; MEAD, 1987; BONOMA, 1985; FEAGIN; ORUM; SJOBERG, 1991; YIN, 2017).

There are many other situations in which case studies may be a good research method option, but in trying to summarize the main element, Yin (2017) states that “[...] in all of these situations, the distinctive need for case studies arises out of the desire to understand complex social phenomena”.

In fact, the literature review made on the previous chapter emphasized the complex notion of development and the theoretical background used to address it (i.e., the capability approach) is highly holistic, meaning that it addresses development (or its counterpart, poverty) not only in a multi-factor approach, but rather an inter-factor approach, as the interrelation between freedoms are important elements in the study of development (SEN, 2001).

The case study method being applied here draws on several authors such as Eisenhardt (1989) and Stake (1995) and follows a positivistic epistemology (PARÉ, 2004; YIN, 2017), in which the researcher is able to observe an objective reality, independent of him or herself, and draw propositions that are value-free, i.e., that do not depend on pre-established ideas of the researcher, but instead on the logical connections observed through the methods utilized to analyze the data. In this vein, the analyses that are made in this study are heavily based on the reliability and validity criteria, championed by natural science research methods, that will be explained in more detail below.

4.1 CHARACTERISTICS OF THIS CASE STUDY

Authors typify case studies in different ways. Yin (2017), proposes three types of case studies: Descriptive, exploratory, and explanatory. Case studies are almost always descriptive by nature, even more so when single cases are being presented, as is the case of this study. As per the exploratory / explanatory nature of this study, it tends to be exploratory, since it deals with a very specific and under-studied situation, in which the description of a complex reality with the use of a conceptual model, may help to draw some important propositions to be eventually hypothesized and tested in future studies.

Another possible way of typifying case studies was proposed by Stake (2006): intrinsic, instrumental and collective. The case under study can be considered of intrinsic importance since it deals with an ubiquitous problem in developing countries (financial exclusion, or more broadly: poverty) that is being addressed in a very innovative way, thus contributing for the ordinariness of the case (STAKE, 1995). Moreover, if from one side the innovation aspect of this case makes it unique, the wideness of the problem being explored appeals to its instrumentality. Financial inclusion and poverty are widespread in developing countries and propositive solutions for shortcomings developed in this case can be useful for application elsewhere, provided that context-specific characteristics are taken into account.

Before proceeding, an important remark must be made in terms of the philosophical assumptions of this study: Other important perspectives such as the interpretive or critical ones (PARÉ, 2004), are based on different paradigms that will not be dealt with in this study. A strong effort was made to guarantee the objectivity required by the tenets of positivism. However, the author highlights that complete objectivity is hard to obtain, if not impossible at all. This is even more so in the context of a case study, where field research causes the researcher to interact with the reality being examined. With this warning in mind, the research proceeds to state how the main guarantors of objectivity were applied in this research.

4.1.1 CONSTRUCT VALIDITY

The most important recommendation to improve construct validity in a case study is to gather multiple sources of evidence (YIN, 2017). Thereby, several sources were used in this study.

As it will be shown in the data collection section below, information was retrieved from semi-structured interviews with key stakeholders, informal conversation with relevant participants of the initiative and open interviews with *Banco Maré's* executives. Furthermore, the full repository of administrative and strategic information of the bank was made available to the researcher. Finally, other sources of documentation, such as statistical data related to the context was gathered to complement the study.

The constructs used on this study are drawn from a conceptual model (2iDf model, Joia & dos Santos, 2017) made for the evaluation of ICT-mediated financial inclusion initiatives and were already tested in two previous case studies (ARAUJO, 2017; JOIA; DOS SANTOS, 2017).

4.1.2 MAINTAINING A CHAIN OF EVIDENCE

According to (YIN, 2017), this is an important instrument to improve reliability and the validity of the research. First and foremost, this study is preceded by a detailed protocol with all the main information needed to inform other possible researchers or reviewers of the procedures to be taken in this analysis. Guided by this protocol, this study generates a strong data base available for future researchers trying to understand or replicate the steps followed to make the

analysis of this case study. Effort was also made to link every assertion with the due academic reference and empirical evidence, so that the chain of evidence can be reconstructed at any time.

4.1.3 EXTERNAL VALIDITY

According to Yin (2017), external validity is mainly concerned with the domains to which the findings of a study can be generalized. This study is concerned with an ubiquitous problem in developing countries, namely the financial exclusion of slum dwellers.

The above-mentioned author differentiates two types of generalization: the statistical and the analytical. Surveys, for example, rely on the findings of the survey to make statistical generalizations which is not the case here. However, it is possible to make analytical generalizations. The theoretical background being used here to address financial exclusion may be applicable to other slum settings, since the exploratory nature of the present case study, may generate propositions that can also be generated elsewhere with the replication of the method presented.

4.1.4 RELIABILITY

Reliability is a measure of how much the results found in a specific research could be replicated if the research was to be repeated all over again with the same setting. This is accomplished with a good bookkeeping procedure, in which the tracking of what was done is well documented for a future researcher to investigate.

Two main tactics are proposed by Yin (2017) to accomplish this task: the use of a case study protocol and the development of a case study database. The case study protocol contains the main procedures to be followed during the field study and can be seen in Attachment A, at the end of this research.

The case study data base contains all the sources of information used to make the analysis of this case study, including all the transcribed interviews with its lexical and content analysis (which are maintained in a .nvp file, the extension to be read by Nvivo software), photos shoot during the field study, audios of the interviews, documentation and archival record used to

support and triangulate data, notes taken during field visits and internal files and documents of *Banco Maré* made available to the researcher. More detail on the database is given in the data collection section below.

4.2 SINGLE-CASE STUDY DESIGN WITH TWO UNITS OF ANALYSIS

According to the classification of Yin (2017), this is a type 2 case study, that is, it consists of a single-case with two units of analysis. There are five good reasons for single-case studies: (1) it represents a critical case to test a well formulated theory, or in other words, it has all the elements proposed by a specific theory and a study of the case shall “confirm, challenge or extend the theory”; (2) the case may represent a unique case, something so exceptional that is worth documenting for its own sake; (3) the case may be representative of a common situation, that is, it is representative of an average situation. For example, it may be representative of an average-size company to be studied. The results will then be applicable to average-sized companies; (4) the case may be a revelatory one, a case that gives access to previous non accessible information; finally (5) the case may be important because of longitudinal view, i.e., it allows the observation of a phenomenon at two or more points in time (YIN, 2017).

The case under research presents a few of these reasons to be studied. It will be used to further explore the 2iDf conceptual model in a completely different environment²², it has something of uniqueness since it presents an innovative business model being applied in the context of slums in Brazil and it also allows the research to be made in a region controlled by parallel forces such as militia and traffic lords, where the access is limited by these agents.

The fact that the region being studied is dominated by these forces, also explains the two units of analysis used in this research. Though very similar and near to each other, each region of the Complex is dominated by different forces. Two factions of traffickers (Commando Vermelho and Terceiro Comando Puro) fight for dominance in the region. In addition to it, a third force operates there: the militia. Interviews with inhabitants, executives and employees of the *Banco Maré* emphasized the different cultures observed in regions dominated by one or another of these forces (drug traffickers or militia). Thereby, two units of analysis were used to represent

²² The 2iDf model was used twice to evaluate Financial Inclusion of riverine population in the Amazon, through a bank agency working in a boat (see the researches in Araujo, 2017; Joia & dos Santos, 2017).

these differences: a location dominated by the militia forces, namely the Roquete Pinto slum and a location dominated by one of the drug trafficking factions (Comando Vermelho), namely the Nova Holanda slum.

4.3 DATA COLLECTION STRATEGY

The data to be used in this case study was initially settled in the case study protocol (see attachment A). The idea of the protocol, as already explained is to provide reliability for the research, in the sense that a repetition of this study should bring the same results, *ceteris paribus*. Additionally, future research can use the same protocol to guarantee comparison between studies and extrapolate propositions to generate a theory. The main sources of data collected were:

4.3.1 INTERVIEWS

Semi-structured Interviews with the bank employees working in site;

Semi-structured interviews with the bank customers;

Open interviews and conversations with *Banco Maré* personnel

The semi structured interviews were based on questionnaires to be applied in site. In total, 26 interviews were collected. Twenty interviews with costumers of the bank (ten for each unit of analysis) and six interviews with the bank's employees. The detail of the interviews by unit of analysis is shown in below in Table 2 (column location).

The semi-structured interviews were guided by the concepts of the 2iDf model (JOIA; DOS SANTOS, 2017) and a questionnaire aiming to address all the concepts, including its categories and subcategories, was used to collect information. The questionnaires were validated by the Bank's CFO (chief financial officer) prior to its utilization at site and can be seen in detail in the case study protocol (Attachment A) at the end of this study. All semi-structured interviews were transcribed in verbatim for further analysis.

The main components of the questionnaire are shown below:

- Sustainability
- Infrastructure and Access Component of the 2iDf Model
- Ad Hoc Services and Products Component of the 2iDf Model
- Financial Literacy Component of the 2iDf Model
- Cycle of Participation and Empowerment

Each of these components is composed of two further levels of categories that will be presented according to the evolution and analysis of this research.

In addition to the semi-structured interviews, several open interviews and conversations were held with the personnel of *Banco Maré*.

ID	Interview	Employee/ Client	Date	Location
1	1	Employee	September 21, 2018	Roquete Pinto
2	2	Employee	September 21, 2018	Roquete Pinto
3	2	Employee	September 21, 2018	Roquete Pinto
4	3	Client	September 21, 2018	Roquete Pinto
5	4	Client	September 21, 2018	Roquete Pinto
6	5	Client	September 21, 2018	Roquete Pinto
7	6	Employee	September 21, 2018	Roquete Pinto
8	7	Client	September 21, 2018	Roquete Pinto
9	8	Client	September 21, 2018	Roquete Pinto
10	9	Client	September 21, 2018	Roquete Pinto
11	10	Employee	September 26, 2018	Roquete Pinto
12	11	Client	September 26, 2018	Roquete Pinto
13	12	Client	September 26, 2018	Roquete Pinto
14	13	Client	September 26, 2018	Roquete Pinto
15	13	Client	September 26, 2018	Roquete Pinto
16	14	Employee	September 27, 2018	Nova Holanda
17	15	Client	September 27, 2018	Nova Holanda
18	16	Client	September 27, 2018	Nova Holanda
19	17	Client	September 27, 2018	Nova Holanda
20	18	Client	September 27, 2018	Nova Holanda
21	19	Client	October 5, 2018	Nova Holanda
22	20	Client	October 5, 2018	Nova Holanda
23	21	Client	October 5, 2018	Nova Holanda
24	22	Client	October 5, 2018	Nova Holanda
25	23	Client	October 5, 2018	Nova Holanda
26	24	Client	October 5, 2018	Nova Holanda

Table 2: Semi-structured interviews

Open interviews were also conducted with executives of the *Banco Maré*. Although open, these interviews also followed a guideline containing the five categories mentioned above. This guideline can be seen in the Attachment A Case Study Protocol), and the intention of

the guideline is to make sure that all the main constructs of the 2iDf model are addressed in the interview at the same time that it leaves more space for the interview to flow, in comparison with the semi-structured interviews, thus allowing for more qualitative data to be gathered by the researcher.

Name	Function	Date	Duration (fraction of hour)	Type
Benjamin Druin	CFO	March 13, 2018	2,0	Meeting
Benjamin & Miguel	CFO & Employee	March 22, 2018	2,0	Meeting
Benjamin Druin	CFO	May 17, 2018	0,2	Interview
Benjamin & Luana	CFO & Employee	May 17, 2018	0,3	Interview
Benjamin Druin	CFO	August 29, 2018	2,0	Meeting
Benjamin Druin	CFO	September 2, 2018	0,1	Call
Kayla	Volunteer (PHD Researcher)	September 7, 2018	2,0	Meeting
Alex	CEO	September 21, 2018	0,3	Call
Benjamin Druin	CFO	September 21, 2018	1,0	Call
Alexander Albuquerque	CEO	September 24, 2018	3,0	Meeting + Interview
Rafael	CMO	October 26, 2018	1,5	Call

Table 3: Open interviews, calls and conversations

4.3.2 DIRECT OBSERVATION

Direct observation allowed for additional information to support other sources of information as for example observed behaviors or environment (YIN, 2017). The information was gathered in the form of photos and paper notes whenever the researcher deemed it to be relevant or when suggested by locals. Observation was a-systematic and non-participant (MARCONI; LAKATOS, 2003). The former aimed at gathering more qualitative information from the interview, by letting the interviewee speak freely and in so doing, generating more information, and the latter, aimed at maintaining the positivistic focus of this research²³.

²³ Participant Observation is not contradictory to a positivistic approach, but important concerns must be raised with the use of it. For more details see YIN (2017).

Date	Location	Purpose	Visit Duration
May 17, 2018	Roquete Pinto	Reconnaissance visit	2 hours
September 21, 2018	Roquete Pinto	Interviews and direct observation	10 hours
September 26, 2018	Roquete Pinto	Interviews and direct observation	4 hours
September 27, 2018	Nova Holanda	Interviews and direct observation	8 hours
October 5, 2018	Nova Holanda	Interviews and direct observation	4 hours

Table 4: Visits to *Complexo da Maré*

It is important to notice that direct observation was frequently restrained because of the conditions in which the research took place. Militia commanders, and even more so, traffic lords do not like photos to be taken in “their” region, thus, photos taken in the place may not be well focused or even not taken at all.

4.3.3 DOCUMENT RESEARCH

Documents are important to corroborate evidence obtained by the researcher through other sources of information. They are useful to obtain accurate information about the spelling of names, titles and institutions. In addition, they can corroborate or contradict the evidence shown by other sources. In the former case it improves internal validity, in the latter it calls for a further investigation either to corroborate the evidence or to dismiss it. Finally, documentation can be a new source of inferences, since the organization of the information, its order and hierarchy are also important since they may generate new insights into the dynamics of the initiative (YIN, 2017). The documentation gathered for this study is shown here below²⁴.

- *Banco Maré* Articles of Incorporation and subsequent modifications of its by-laws;

²⁴ Documentation shown here is similar but not exactly the same as in the case study protocol, since the former is related to the actual documentation gathered whereas the latter relates to the planned documentation to be gathered during the field work.

- Several *Banco Maré* Presentations to Investors
- *Banco Maré* Impact Plan (gathered through opened interviews)
- Data bank from *Banco Maré* – Containing Operational and Socio-economic data from customers
- Documentation related to *Banco Maré* in several institutions related to Favela such as REDES, Favela Holding, CUFA and associations.
- Archival records to be gathered from the following institutions:
 - IBGE
 - Geomarketing GeoFusion – OnMaps: System that gathers IBGE information from Censo, PNAD and PEA Dia
 - Data Favela: Pesquisa Nova Favela Brasileira (2015)
 - Instituto Pereira Passos
 - Global Findex Database (DEMIRGÜÇ-KUNT *et al.*, 2018)

4.3.4 CHALLENGES TO DATA COLLECTION

The context in which this study is developed presents some peculiar challenges for the collection of information. The region is dominated by criminal organizations that impose their own rules in the area. In order to visit the Complex, it is extremely important to be accompanied by a local resident since “foreigners” are seen as threats by criminals that may confound them with disguised police officers, members of rival criminal organizations or newspaper reporters in search for a scoop. However, when accompanied by residents, this risk diminishes significantly. In this study, the researcher was almost always in the company of one or more residents of the Complex.

A further challenge to collect the data is the registration of the information. Since the case study demands several sources of information, the researcher is exhorted to register as many information as possible to build the case study data base and triangulate with it. Voice recording of the interviews were only made possible inside the facilities of Banco Maré, which limited the range of possible interviews. Photo shooting was also a problem. Journalists in search for scoops have taken photos in the communities disguised as researchers. When these photos were disclosed in the media, the police forces, that are usually absent from the region, were pushed by the public opinion to show its presence there. They did so by making some excursion to the

region, which is usually only a “*mis en scène*”, that nevertheless disturbs the day-to-day activities of criminals.

Finally, a big challenge to collect information is given by the fact that the criminals themselves are important stakeholders for the community. Interviews with them depend on contextual moments. This research took place in a moment when Rio de Janeiro is facing military intervention because of the escalated violence in the city caused by years of corruption of the main political leaders (a striking example is given by the fact that the last four governors of the state are either convicted or in jail for their crimes) and the economic recession that has hit the whole country. Therefore, the context couldn't be worst for a researcher to reach a criminal leader for an interview.

4.4 DATA ANALYSIS STRATEGY

Yin (2017) proposes 4 different strategies to guide the analysis of the data in the research: (1) relying on theoretical propositions, (2) developing a case description, (3) using both, qualitative and quantitative data, and (4) examining rival explanations. In this study the first proposition is the core strategy. As the literature review has shown, this exploratory case-study addresses an issue that still has equivocal evidence regarding how to achieve financial inclusion. Furthermore, to address this complex issue, the research follows a conceptual model built to deal with all the complexity involved in the research theme. Thus, the conceptual model (2iDf) and its constructs will provide the conceptual basis to analyze the results. In fact, the collection of data was already based on the model's constructs and premises in the first place.

As a case study, the data analysis is mainly qualitative. However quantitative data was also used in the study, whenever possible, to corroborate evidence collected by other sources through triangulation techniques (JOIA; DOS SANTOS, 2017; YIN, 2017).

The information gathered through the semi-structured interviews was transcribed in verbatim and analyzed with the use of the NVivo software. This software improves the process of codifying and classifying the information according to the constructs of the 2iDf model (JOIA; DOS SANTOS, 2017). Words and sentences were classified according to its positive and negative effect on the constructs of the model. After classification, lexical analysis and content analysis (FREITAS; JANISSEK, 2000; JOIA; DOS SANTOS, 2017) were used to interpret the results. The lexical analysis takes into consideration the frequency of occurrence of each remark

on the constructs of the model and the content analysis makes it possible to appreciate the quality of the remarks so that an interpretation of the results is made possible in an objective way.

The lexical and content analysis was then triangulated with the other sources of evidence (such as documentation and direct observation) to form a complete understanding of the research question being examined, i.e.: How is *Banco Maré* impacting financial inclusion in the *Complexo da Maré*?

5 CASE DESCRIPTION

The case being presented in this thesis is a fintech called *Banco Maré*. It is an initiative created by Alexander Albuquerque, today its chief executive officer (CEO). Alexander is an IS (information systems) analyst with an entrepreneurial mindset, who wanted to use technology to make a positive impact on society. His initial idea was to use technology in a poor community to improve the quality of life and enhance opportunities for its inhabitants. In his search, he came across with a very common problem for the inhabitants of the Complex. In his own words:

“The initiative started from a demand of the population itself. One of the residents asked me if I could solve their problem there, that they had nowhere to pay bills. They paid bills going to Bonsucesso [a neighborhood]. [They have] to take a bus, a process that takes almost 4 hours. So, from the beginning, to create the solution, we listened to people. And every solution [was based] in the user experience, in this direct contact with the user. To hear their real complaints. Because what we actually found out, was that what we thought the solution to be, was not the solution they needed. [...] ‘let’s create an app they can use to pay the bills! That is all’! But that was not the main problem. There were other problems that needed to be solved. For example: we did not know that there was no post office to deliver the mail in the region. Sometimes people do not pay the bills on time, not because they do not want to, but because the bill is not delivered by the post service to them in the first place.” (interview with the CEO)

That was the beginning of the endeavor. This chapter has two sections. In the first one, the context where *Banco Maré* operates is described with the difficulties to operate in the region. Afterwards, the initiative is described, with details of its entrance strategy in the region, its business model and technology and a few other issues related to security and logistics of money. This chapter prepares the reader for a deeper understanding of the case study and a more meaningful look into the analyses that will follow in the next chapters.

5.1 THE LOCATION – *COMPLEXO DA MARÉ*

The *Complexo da Maré* comprises 16 slums in a region that was previously a swamp. It is located at the margin of an important bay (the Guanabara Bay) of Rio de Janeiro. According to the official website of the city's town hall, the Complex has 130 thousand inhabitants²⁵. The information was last updated in 2010 but several figures depart from this number. Figures as high as 200 thousand people (see for example an official presentation of *Banco Maré* on Figure 7) are often mentioned by locals.



Figure 7: Official presentation of *Banco Maré*

Figure 8 below shows all the sixteen slums mentioned above. Two of these slums are of particular importance for the present study and can be identified by the numbers 11 and 14 in the map, respectively the slums of Nova Holanda and Roquete Pinto. These locations are representative of the two units of analysis used throughout this study.

The presence of the State is barely felt in the region. Although a few public schools and medical centers can be found, the rule of law is not imposed by the government, but rather by parallel forces operating there. There are three important criminal factions that literally divide the Complex between themselves: Two drug trafficking factions and one militia.

²⁵ Retrievable at

<http://pcrj.maps.arcgis.com/apps/MapJournal/index.html?appid=7fe1b0d463e34b3b9ca2fafd50c3df76#>

Drug trafficking factions are organized criminal organizations working in the forbidden drug market in Brazil, whereas the militias are usually criminal organizations composed of corrupt police officers that impose a fee in exchange for basic services such as illegal security, internet access and lighting among other²⁶. The two main drug trafficking factions are known as the *Comando Vermelho* (CV) and the *Terceiro Comando Puro* (TCP).

During the preparation phase of this thesis, two units of analysis were identified due to the distinct characteristic of each one of them: the militia and the drug trafficking factions. The conversations with the bank executives and a field visit to recognize the area before the field research, showed that the regions dominated by these two different criminal organizations (the militia and the drug trafficking factions) presented some distinct characteristics from one another.

The location dominated by the militia (only one of the slums in the Complex is dominated by the militia), presents a much more conservative profile than the locations dominated by drug traffickers. In the words of the *Banco Maré's* chief financial officer (CFO), the region's culture is one of "work, family and homeland", an analogy to the conservative French regime that took place during the World War II in France (the CFO's homeland). In this region, drug trafficking is strictly forbidden, there is great importance given to family, religion and work. In addition, all the security is provided by the militia, which has expelled the drug traffickers from the region. A visit to a restaurant in this region highlighted the culture of zero tolerance for robbery or drug trafficking: The TVs of the restaurants are always tuned on channels that show criminals being arrested, so as to indicate the consequences of leading a criminal life.

The regions dominated by drug traffickers, on the other hand are much more "liberal", if the word can be used in this sense. There is no such ideology coming from drug lords. Drug trade and usage can be freely observed in the streets and drug traffickers are seen carrying machine guns in every corner.

Based on the above information, two locations were selected to allow for a comparison between them. The idea was to gain further insights into the process of financial inclusion that was taking place in the region. By comparing two locations with different attitudes and behavior, but similar characteristics (which approximates the method being used to a quasi-experiment) the

²⁶ A more academic definition of militia can be found in the report of the commission of Rio de Janeiro's State Assembly for the investigation of militias (ALERJ, 2008 p.36).

researcher expected to improve the exploratory study in its potential to generate propositions regarding the components of the model.

The selection took into account three criteria as shown below:

- Presence of *Banco Maré* in the location;
- Representativeness of each of the environments just cited;
- Accessibility for the research.

The two locations chosen were Roquete Pinto (dominated by the militia) and Nova Holanda (dominated by the drug trafficking faction CV). There was no field work on the region dominated by the other drug trafficking faction (TCP), since, according to the information gathered with locals and Banco Maré executives, no significant differences of environment would be found among the regions dominated by the drug trafficking factions. The greater difference would be found between the militia and any other drug trafficking faction.

The different environments just described can be easily grasped by the observation of photographs of the two locations. Photos are only allowed to be shot in the region dominated by the militia. No such photos are allowed in the regions dominated by drug traffickers, where the risks of shooting non-authorized photos are very high for the integrity of the photographer.

Nonetheless, some photos comparing the two locations could be shot. Figure 9 shows a street in Roquete Pinto, a region dominated by militia. No drugs or guns are visible in the place, and the researcher can walk freely with an executive of *Banco Maré*. This contrasts with the environment in Nova Holanda where photo shoots are forbidden. The location dominated by drug traffickers is full of men with machine guns and drug usage is widespread. The only possible photo was in a remote location of the slum where drug traffickers usually fight with one another. Figure 10 shows the place in which an incredible number of holes made by firearms can be seen in a residential and commercial building. Although the image is not representative of the totality of the slum (it only shows an extreme part of it), no such an image can be found in Roquete Pinto.

Educational levels in both locations are very low. Out of the 26 interviewees of this study, only four managed to get an undergraduate diploma. All these four people were either employees of *Banco Maré* or employees of Rede, an important local NGO. None of these institutions provide good samples of average inhabitants of the slum, which means that the already observed low level of education from this sample would have been much worse should a representative sample be collected in the region.



Figure 8: The sixteen slums of the *Complexo da Maré*



Figure 9: The researcher walking freely in the streets of Roquete Pinto



Figure 10: Streets in Nova Holanda - building full of bullet holes

5.2 THE FINTECH – *BANCO MARÉ*

As already noted, the bank started its operations to solve a common problem in the community: the lack of bank agencies to make basic financial transactions. The initial idea was to create an app (mobile application) that would help its users to make payments and transfers of money without the need of going to bank agencies. However, the solution proved to be far more difficult than this. This section describes how the Banco Maré entered in the community to create solutions needed by its inhabitants and how it operates.

5.2.1 ENTRANCE IN THE COMMUNITY

To start its operations in the region, the bank searched for important stakeholders that would franchise the entrance of the bank in the region. The most important institutions for this were the neighborhood associations, present in every slum. In fact, the initial operations were established inside one of the neighborhood associations: the one from Roquete Pinto.

Many important social activities take place in the neighborhood associations. For example: when there are disputes between neighbors, these disputes are brought to the association that uses its influence to resolve the matter. The neighborhood associations are also the place where the mailing of the slum is usually delivered. Since there is no postal service in the region, the letters, bills and other documents are delivered there. A lot of people come to the associations every day to collect their mail. In addition, the neighborhood associations have close connection to most of the stakeholders of the region, including legal and non-legal entities operating there. In sum, the neighborhood associations are an important place where important social activities of the community take place.

Though important, the neighborhood associations have few resources to run its operations or even to maintain its assets. This presented a good opportunity for Banco Maré to start its operations. It established itself in one of those entities and helped to improve the structure of the place (Banco Maré re-built the roof of the building and helped to improve its facilities). At the same time, the bank benefited from the network of contacts and trust held by the association. Since many people go there every day to collect their bills, the bank can offer its services to visitors and start to build a relationship of trust with many of the inhabitants of the place.

Another important aspect of entering the slums is how to deal with the criminal forces in the region. The interview with the Bank's CEO and other executives of the bank revealed that they were not willing to compromise with such forces. On the other hand, their existence could not be denied, and it was well known that these organizations charged a fee to inhabitants and merchants to live and operate there.

The executives related that they had very little contact with such organizations, but a few meetings with the leader of one of the organizations did take place. In order to avoid any illegal relationship with them whilst maintaining the operations of the bank, they relied on a strategy which was based on two important factors:

1. The importance of the services being delivered to the community: Banco Maré was offering a useful tool that allowed people to make financial transactions. Organizations that promote education, health and bring other benefits to the community are usually well seen even by the criminal forces in the region. If the bank succeeded in showing their importance to the community, they could earn the same status of these organizations and gain a "license" to operate there.
2. The rivalry between the criminal organizations: the bank had agencies in more than one location of the Complex. Since each of these locations were dominated by different criminal organizations and considering that the bank was a good thing for the community (that is, factor one was recognized by the leaders of the criminal organizations), none of these criminal forces would want the bank to leave their location because:
 - a. The rivalry between these forces would make them "compete" to have better services in their region of control and;
 - b. If the bank was not present in their community, it would enforce a commuting of people from one location to the other in the complex, which was not well seen by either of the criminal organizations.

Other important stakeholders in the community are NGOs operating there. The bank has also made partnerships with at least one important NGO in the region. The NGOs represent a point where many social activities are developed and the proximity of the bank with it has benefits for both sides, just like in the case of neighborhood associations. On top of that, the NGOs have their own agenda that can benefit from the financial inclusion provided by the bank. As shown in capability approach, the capabilities are usually interrelated and the development of one capability (as financial inclusion) can enhance the capabilities being developed by these NGOs.

The entrance in the community is an important challenge for the successful implementation of the Banco Maré. Equally important is the solution offered to its inhabitants. The bank has to deliver products and services that are in accordance with the demand of the people living in the region. The next section shows these products and services and the business model of Banco Maré.

5.2.2 BUSINESS MODEL AND TECHNOLOGY

The *Banco Maré* is a fintech (a company that combines financial services with technology – see ARNER; BARBERIS; BUCKLEY, 2015) formally registered as a banking correspondent (DINIZ, 2007; GUIMARÃES; DINIZ; GONZALEZ, 2014). Given its juridical status, it is not formally a bank. To operate its transactions, the *Banco Maré* relies on a correspondent agreement with Sicoob, a cooperative of financial services provider formally registered at the Brazilian Central Bank and authorized to make transaction settlements. This agreement with Sicoob allows the Banco Maré to settle the payment of bills and make transferences for the inhabitants of the Complex. This is the most important service being rendered presently by the bank to the community.

The initial idea was to simply create an app to operate transactions through mobile telephony. However, the bank soon discovered that the app itself would have no success if a pedagogical and trusting relationship was not built with the potential users. To build such relationship the bank established agencies (which were named kioscos) in different regions of the complex. These kioscos are the places where people learn how to use the app and where money is collected to allow financial transactions to take place.

The infra-structure of the kioscos is very simple, usually composed of a desktop computer with internet connection and wi-fi offered freely to everyone entering the place. A bank employee, always an inhabitant of the complex, explains how to make financial transactions through the app. The employee helps the potential client to install the app on his/her mobile and open an account for him/her. If the new client wants to make a payment, he/she makes a deposit in cash to the employee who registers it in the system and it immediately appears on his/her newly created bank account. Afterwards, the client is able to use the bar code system of the app to make the payment. The process is accompanied by the employee who follows the procedure until the payment is finished. Eventually the employee exhorts the client to use the app without

support in the next time. The idea being that the kioscos are merely an instrument to foster the usage of the app, thus allowing its users to make financial transactions without going to the kioscos in the future.

Another difficulty faced by the bank is the fact that many of the transactions in the complex are made through cash. The kioscos help to collect the cash from inhabitants, a necessary condition to accomplish the payment of bills through the app. The collection of money in turn generated a flow of cash that created a big risk for the bank, since the money had to be transported out of the complex to be deposited in a bank to settle the payments of the day. The logistics of this transportation of money is described in detail in the next section.

The business model is such that no fees are charged to its customers. The revenues come from the agreement with Sicoob that pays *Banco Maré* a fee of 0,40 Brazilian reais (0,10 dollars) for each bill paid.

As of the day in which this thesis is being written, the bank does not generate sufficient revenues to cover its operational costs. The bank has received investment from partners that allows it to maintain its operations. In addition, due to its innovativeness, the bank was awarded a grant of 100.000 dollars from Catalyst Fund, an accelerator program funded by the Bill & Melinda Gates Foundations and JP Morgan Chase & Co.²⁷

This last source of funds posits the bank as company participating in the impact investment market. Impact investing are investments made into companies that generate positive social or environmental impact²⁸. Therefore, besides being innovative in terms of technology and business processes, the business model also allows the bank to benefit from grants coming from institutions willing to foster its social impact, a source of funds not usually available to for-profit companies.

In the words of the bank's CMO (chief marketing officer), the bank is in a stage in which a business plan has not yet any meaning, since any forecast would be based on very contingent scenarios as the bank is pursuing its optimal mode of operation and insertion into the market. Most important at this moment is to have a good business model, that is, a good opportunity to scale up sales to a large and underserved market. Apparently, the bank is exactly in this situation. The underbanked or unbanked represent a huge market to be explored. As already

²⁷ Information retrievable at <https://www.sbs.ox.ac.uk/news/banco-mare-awarded-100k-grant-global-fintech-accelerator-catalyst-fund-0>

²⁸ Definition retrieved from https://en.wikipedia.org/wiki/Impact_investing

mentioned, the number of people living in slums in Brazil is above 12 million (SEBRAE, 2015) and *Banco Maré* is not focusing only on slums. The *Banco Maré* uses the slum as a source of innovation. It gathers the potentials of a large community of citizens who are underserved by the financial system (as well as by many other service providers) and who are eager to enter the job market. In fact, many of the employees of *Banco Maré* are slum dwellers that see the opportunity of working there as an opportunity to develop their potentials and increase their levels of income.

During its short history (the bank has barely two years), *Banco Maré* has developed products that attend the real necessities of inhabitants of the Complex. These people enjoy a small range of services provided by *Banco Maré*, which are listed below, followed by a short description:

- Payment of bills, transfers and purchases through a mobile application (app);
- POS (point of sale) machines;
- Pre-paid cards;
- Community currency.

The payment of bills and transfer of money are the main services provided by the bank. An important aspect of it is the possibility to make transfers to distant locations. Many dwellers of the Complex have come from distant regions of the country to earn some money and help the parents, relatives and friends that remained. However, in order to transfer money to a distant region, either the sender and the receiver must have basic knowledge and access to financial services and usually that was not the case. The *Banco Maré* helped to bridge this gap by helping people to make such transfers.

POS and Pre-paid cards are products recently released that aim to improve the financial inclusion of the inhabitants of the Complex.

Community currencies increase the exchange of money inside the Complex, which helps to maintain money inside the community and fostering its development. Together with other payment mechanisms as the ones shown above, the bank aims to increase commerce in the area and generate new business opportunities for all.

The bank's business model changes rapidly to adapt to the new demands and realities it faces. Since the bank has managed to enter a community believed to have no potential for the financial industry, it has been contacted lately by companies trying to enter the BoP (bottom of the pyramid). As such, the bank is moving in the direction of becoming an API (application programming interface), which is a platform for businesses willing to access the BoP, which

expands the bank's operations to services far beyond the banking industry. For instance, companies willing to enter the BoP, could use Banco Maré's platform to sell its products in a market previously inaccessible to them. One such example is a recent partnership with SmartSindicó, an app created to improve the management of condominiums for the poor. The partnership can franchise the entrance of SmartSindicó in this underserved market.

The bank is also expanding to other regions, having recently started to operate in Heliópolis, a large slum located in São Paulo.

To end this section, it must be highlighted that the bank is still in its initial phase and much has to be done to achieve the objectives of becoming profitable and generating financial inclusion. So far, the bank does not generate sufficient revenues to support its investment and operation costs. Furthermore, the bank still needs to improve its managerial abilities. So far it has been much worried in developing products and gathering support for its operations. However, as highlighted by the Catalyst Fund (responsible for the 100.000 dollars grant), the bank must improve its operation skills and the fund must be used exactly for this purpose. One important fact observed by the researcher is the difficulty in finding clear information regarding profitability, revenues, marketing indicators and other usual information that allow for a better control of the operations of a bank.

5.2.3 SECURITY AND LOGISTICS OF MONEY

The transportation of money in cash is an important part of the operations of a bank operating in a place where the use of digital transfer is not yet disseminated. This section partially describes the process created by the bank to transport money between locations. The full presentation of this process cannot be shown here as it could jeopardize the operations of the bank. Therefore, only a few hints about the strategy used to transport money safely are presented.

The strategy used by the bank has three distinct characteristics that together minimize the risks inherent to the transportation of cash in the community: rivalry, disguise and scattering.

- 1) Rivalry: as already mentioned, the Complex is dominated by different criminal organizations. Members of one criminal organization never enter the location dominated by the rival organization. Therefore, the money being transferred always go

from one location to another which impedes robbers to follow the money being transported when it crosses the boundary between locations.

- 2) Disguise: Technics are used to disguise potential robbers from knowing who, where or when transportation of cash takes place;
- 3) Scattering: Transportation takes place in small amounts scattered in different places at different times.

Up to the moment the bank has not had any incidents regarding the transportation of money, which is an indication that its strategy for the transportation of money is working well.

This chapter ends with a few pictures of the bank to give to the reader a vivid image of what is being described.



Figure 11: The Roquete Pinto neighborhood's association, where the main office of the bank is located



Figure 12: The agency of *Banco Maré* in Roquete Pinto



Figure 13: On top, the main office of *Banco Maré*; below the researcher with Bank's employees

6 DATA ANALYSIS AND RESULTS

The main source of data for this study comes from 26 interviews conducted by the researcher in 2018, between the days September 21st and October 5th. in the *Complexo da Maré*. The researcher interviewed customers and employees from *Banco Maré* in two distinct regions, that represent two different units of analysis of this study: Roquete Pinto and Nova Holanda. These two regions are segregated by the parallel forces that dominate each one of them, the former being dominated by a militia and the latter by drug lords.

The profiles of the interviewees are shown in Figure 14. It can be clearly seen that demographic data between regions are very well balanced. Furthermore, the level of access to mobile technology is very high, a point that will be further analyzed in this chapter and the next, specifically when comparing the use of this model in previous researches (ARAÚJO, 2017; JOIA; DOS SANTOS, 2017).

Lexical and content analysis was conducted to evaluate the interviews (FREITAS; JANISSEK, 2000). This analysis was made with the use of the 2iDf model (JOIA; DOS SANTOS, 2017) and the pre-established concepts therein presented.

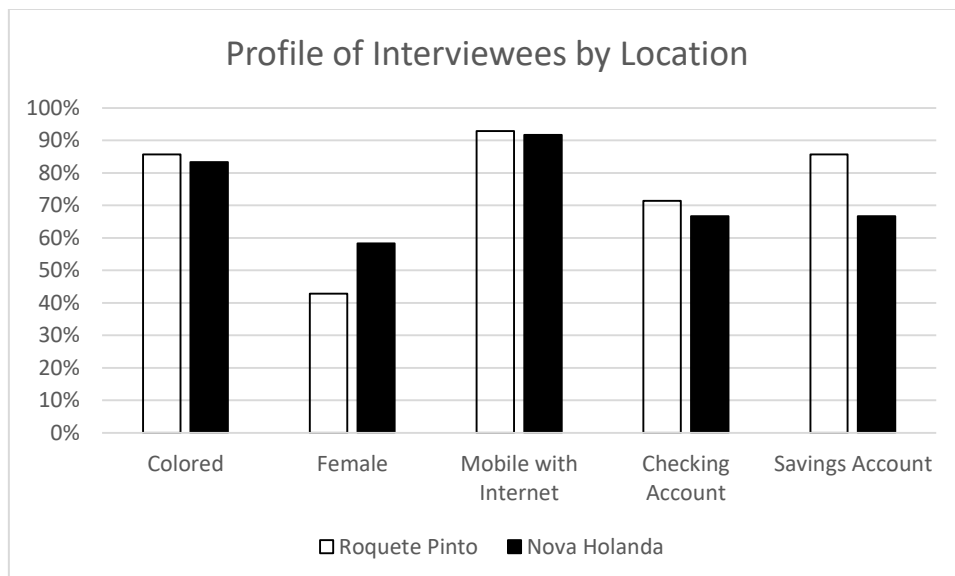


Figure 14: Profile of interviewees segregated by location (unit of analysis)

The lexical analysis led to the identification of 1.782 words or phrases categorized into 74 categories and sub-categories. Content analysis and subsequent lexical analysis refinement led to a significant reduction of the number of words and phrases to a total of 997, whereas the categories and subcategories were reduced to 64. A summary of these results can be seen in

Table 5.

The following subsections will detail the results obtained through the lexical and content analysis for each component of the 2iDf model. Each component will be divided into categories and subcategories, so that the respective remarks are counted and classified according to their influence (positive or negative) on the objective of achieving financial inclusion. The following symbols are used for this:

- “+” refers to the positive influence of the sub-category (more than 50% positive remarks);
- “-” refers to the negative influence of the sub-category (more than 50% negative remarks);
- “0” indicates that no remarks were made for the sub-category;
- “=” indicates that the number of positive remarks is equal to the number of negative remarks.

Qualitative information retrieved from documental research and open interviews will be added to corroborate or relativize the results obtained in the lexical and content analysis. Finally, data will be analyzed across units of analysis and compared with previous uses of the 2iDf model.

	Components of the 2iDf Model	Categories	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2iDf Model)
Static Components	Sustainability	Economic	2	93
		Ethical	46	
		Legal	32	
		Political	13	
	Infrastructure & Access	Costs	114	286
		Dissemination	31	
		ICT	129	
		Physical Structure	12	
	Financial Literacy	Ease of Use	41	354
		Guidance	50	
		Innovation	31	
		Interest & Knowledge	232	
Dynamic Components	Ad Hoc Products and Services	Supply	34	97
		Team and Service Rendered	63	
	Increase in Awareness	Community	38	102
		Insertion	64	
	Increase in Demand	New Services	40	40
	Feedback and Growth	Initiative	25	25

Table 5: Categories of analysis and frequency of remarks

6.1 STATIC COMPONENTS OF THE 2IDF MODEL

6.1.1 SUSTAINABILITY

The 2iDf model takes into account the environment in which the initiative is being implemented. The economic aspect measures how much the initiative is financially viable. This aspect is particularly important for this case since it describes a private venture (a start-up) that has a double bottom-line objective, that is, it pursues not only to achieve financial

inclusion, but also to be profitable. In this sense it differs from other uses of the 2iDf model in which government projects were being implemented.

As a start-up, the risk of the business is very high. Anecdotal evidence states that 75% of every start up in Brazil fail²⁹. The lexical and content analysis showed very few comments regarding the economic category, either by costumers or by employees of the bank. This may be an indication that the economic viability of the initiative is simply not evident but may also be related to the fact that the bank doesn't have a proved profitable business model. The only sub-category that received relevant remarks was "business model", one positive and one negative. Given the scarcity of remarks on this category the research had to rely on triangulation of data to infer the economic sustainability of Banco Maré. The profit and loss of the company shows operational costs far higher than its revenues. The main explanation for this relies on the fact that the initiative is still in its start-up phase. A crucial element to generate profitability is thus given by the bank's expectation to scale up its activities. Since the margin of each single operation is very (each payment transaction only generates 0,10 dollars) a large expansion on the number of transactions is needed for the initiative to become profitable.

This too presents a challenge to the bank. Visits to the field and conversation with employees showed that the bank needs improvement in its managerial skills. Profitability indicators, retention (of clients, of personnel) targets and many other measures are not been followed. Thus, the bank faces a double challenge: it must scale up its activities to become profitable whilst improving its managerial capabilities. An interview with one of the bank's employees exemplifies the risks of scaling up the activities by recognizing that the bank doesn't have the structure to absorb a boost in demand in the case it becomes well known in the whole Complex:

"If I start to disclose the presence of the bank to everyone today, a boost in demand will take place and the bank will need investment, more investment to cope with it." (employee - interview 001)

There were no comments related to "repressed demand" or the "size of the market". However, as shown above in this study, the size of the market is significant. *Banco Maré* today is

²⁹ See for example: <https://oglobo.globo.com/economia/taxa-de-mortalidade-de-start-ups-chega-75-22695381>

expanding to other slums in São Paulo, and it has the vision to achieve all the slums in Brazil. If this market is reached, there are no limits for its expansion.

Components of the 2iDf Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2iDf Model)
Sustainability	Economic	Business Model	=	2	2	93
		Repressed Demand	0	0		
		Size of Market	0	0		
	Ethical		+		46	
	Legal		+		32	
	Political	Government Presence	-	4	13	
		Other Stakeholders	0	0		
		Parallel Forces	+	9		

Table 6: Categories of the sustainability component

Previous uses of the 2iDf model found little evidence of the presence of ethical and legal elements in the initiatives they evaluated. The interview questionnaire used for this study made specific questions to avoid this shortcoming (see Attachment A – CASE STUDY PROTOCOL for details). The results were highly positive. However, it must be stressed that comments were very superficial. A few remarks were more elaborated and described the importance of trust and safety, as can be seen in the following remarks:

“It gives us safety, doesn’t it?” (employee – interview 001)

“I come to pay the bill, I deposit my money in the bank. Therefore, the money has to get out of the account [to pay the bill]. Everything has to be all right! (customer – interview 003)

A few remarks were also made in terms of the continuity of the initiative. In order to have continuity, the bank must operate in accordance with the law, otherwise, it will not be able to maintain its operations. The following comment from a customer exemplifies this concern:

“Cause if it’s not [legal], it will shut down, won’t it?” (customer – interview 004)

Finally, the political component is a very important one. The presence of the government in slums is scarce, if not completely absent. The only 4 references to the government presence are negative (see Table 6). The State substituted by parallel forces, as already stated. However, it is extremely difficult for a researcher to get formal information of this subject. Most of the information was obtained in informal conversations, rather than registered ones, for obvious reasons. The lexical and content analysis show a positive or neutral view of these forces. They seem to bring safety and stability to the region. For the inhabitants of the slum, danger is outside. There are no risks of assault in the slums since the militia and the drug lords protect inhabitants from it. See below some of the few excerpts from the interviews:

“For example, I’ve lived here since I was a child and they [the militia] have been here for about eight years. And I haven’t seen anyone armed here since then.” (employee – interview 002).

“Here is a [poor] community where, if a shot is heard, we run away. Here is the south zone of the north zone”. (employee – interview 002).

“I do not feel [interference by the criminal forces], because they respect the people who live here, the people who [...] do not harm them, right? Again, I do not see any interference, on the contrary [...]”. (employee – interview 014)

No mentions were found in relation to other political stakeholders. However, the bank maintains close contact with local NGOs and associations. One such example is given by the fact that the bank’s “headquarters” in Maré is located in a space owned by the residents’ association. Therefore, although there were no mentions related to the relationship of the bank with local intermediaries, direct observation and conversations with the bank’s executives showed the existence of a network of organizations that improves the sustainability component of the initiative, a point that several authors considered relevant to the success of initiatives as they

work as catalyzers in the process of attaining financial inclusion (see for example (ATKINSON; MESSY, 2012; CERNEV; DINIZ; JAYO, 2009)).

6.1.2 INFRA-STRUCTURE AND ACCESS

The presence of *Banco Maré* in the Complex has some clear benefits for the community, mainly by providing easier access to financial services. As highlighted elsewhere in this study, the Complex is scarcely supplied of financial services and products. Moreover, the capability approach (SEN, 1985c, 2001) has shown us that different publics may need different sets of capabilities in order to achieve the same level of inclusion. Therefore, the mere provision of traditional bank services to the inhabitants of Mare, will probably not achieve satisfactory results in terms of financial inclusion.

In terms of the “cost” category, the BM performs quite well. It was possible to observe that the solutions offered went well beyond traditional banking (see case description and also financial literacy lexical and content analysis of this study). All the cost components present a higher frequency of positive remarks, since they facilitate payment by avoiding the need to move out of the complex to make payments, it charges no fees for the services, it allows for safe and time-saving transactions. Results can be seen in Table 7 below on the “cost” category. Excerpts from the interviews abundantly show these benefits:

It's practical [being close to the place you live], you know? (customer – interview 005)

For example: you're going to make a transfer, you know? You do not have to commute. If you can do it here, do it here! It's more practical. (customer – interview 007)

“So, I asked: how did it come about [the idea of the Banco Maré]? It came from the idea of someone who saw the need of people, because, guys, it gets much more expensive when you have to go out to pay [the bills], the cost of the ticket, the time you lose commuting [...]. If you have a small child or a

sick mother back in home, you may not be able to leave [...]. (customer – interview 009)

Safety! [Banco Maré] is in the backyard of your house. So, you [want to go out to the street] for what? (employee – interview 010, showing the benefit of staying in the community to make the payments)

You need to take [the money] from here to Bonsucesso [the nearest location outside the Complex where there is a bank agency]. There is always the danger of being robbed and losing your money on the way. On the other hand, here it is closer, it is inside the community, we know everyone! (customer – interview 013)

Very quick – I think less than 5 minutes. (customer – interview 004, relating the time he needs to make a payment with Banco Maré's app)

Because you lose a lot of time there, in the line, in the lottery. It's terrible! (customer – interview 016, relating the time needed to make a payment without Banco Maré)

Components of the 2iDf Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2iDf Model)
Infrastructure & Access	Costs	Avoid Commuting to Neighborhood	+	26	114	286
		No Charges	+	29		
		Safety	+	15		
		Time	+	44		
	Dissemination	Awareness of Bank Services in General	=	6	31	
		Awareness of Services Provided by BM	-	9		
		Divulcation of Initiative	-	15		
		Partnerships (e.g. NGOs, Associations)	-	1		
	ICT	Infrastructure other (Light, Service Provision...)	-	1	129	
		Internet Connection	+	30		
		Mobile technology availability and use	+	98		
	Physical Structure	Installations	-	4	12	
		Lines	+	8		

Table 7: Categories of the infrastructure & access component

ICT has also had positive remarks. This is no surprising given the ubiquity of mobile telephony. More than 90% of interviewees had mobile phones with internet. Although previous uses of the 2iDf model has shown a high percentage of mobile phones usage, internet availability was a concern. The previous studies considered remote locations, whereas this study is located in an urban area. Therefore, the presence of mobile telephony and internet is very strong in the region analyzed.

The structure needed to operate the solution presented by *Banco Maré*, should not be heavy. It should only be made of hardware and software with low investments and high operational costs, since it needs constant system development and maintenance to absorb the demands for its products. However, the team of *Banco Maré* soon learned that ad hoc solutions must be made to really affect the inhabitants of Maré. Local presence is very important to make partnerships, gain the trust of locals and catalyze their abilities to use the services to their own advantage. Queues are a problem solved by *Banco Maré*, since it actually reduces the lines for customers when using the Bank and its quick solutions. However, the bank's installations are very simple and sometimes lack chairs, as has been observed by the researcher in Roquete Pinto. The bank resorts to partnerships to use spaces in the Complex, but an improvement on the level of the installations will need more investments to take place. The below remarks exemplifies what was mentioned above:

I think the service [of Banco Maré] is very good, I think we in the community, needed a service like this. Such a large a community with only one lottery to make payments and huge queues! (customer – interview 018)

The bank could be modernized. The bank could at least give us place to sit down, right? To sit, while in the queue, the same as in the other banks where we sit, waiting to pay our bill, you know? (customer – interview 013)

The final remarks of this section are related to the dissemination of products and services. No financial inclusion can take place if people are not aware of the existence of a solution. In fact, it is a consensus between employees, customers and executives that there is little divulgation of the initiative. This may also be related to the need of money to invest in publicity as well as

in robustness of systems and processes to scale-up the initiative and generate profitability. The following comments emphasize the lack disclosure of the initiative:

I did not know [that I could make my payments with Banco Maré]. [I did not know] how to make a deposit. I learned about this a few weeks ago. I did not know it. For me it was just payments, you know? (customer – interview 005)

Today we do not disclose so much [information about the bank to the community], because there are some services that are still to be developed, you know? They are still being developed, tested. They are yet to be disclosed to people. That's why people do not have yet much information about the bank, you know? (employee – interview 006)

A related aspect of dissemination is the knowledge people have of bank services in general. Of course this will be dealt with in a deeper detail on the financial literacy section, however, as shown in Table 7, not only the divulgation on the part of the bank is weak, but the knowledge people have of bank services in general is low (more negative remarks “awareness of bank services in general”). This is a challenge that the *Banco Maré* will have to deal with to address the financial exclusion in the Complex.

6.1.3 FINANCIAL LITERACY

The term financial literacy was preferred to the term financial education used in previous versions of the 2iDf model (ARAUJO, 2017; JOIA; DOS SANTOS, 2017). Financial literacy is defined as “a combination of awareness, knowledge, skills, attitude and behaviors necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” (ATKINSON; MESSY, 2012). As such, financial literacy is an important component of the Capability “being financially included”, as it relates to the abilities needed to adequately use financial products and services. Financial education relates to the process to obtain financial literacy and in this model is part of the broader concept of financial literacy.

The analysis conducted in this study shows that this component absorbs more than one third of the total of remarks. Sixty five percent of these remarks are related to the *interest & knowledge*

(last category in Table 8). However, one should be conservative in concluding that financial literacy is high because of this indicator. In a lexical analysis of interviews about financial inclusion, it is only natural that several terms related to the banking industry are cited very frequently, thus generating a high remarks frequency. That said, the interest shown in being “financially literate” was very high. Out of the 26 interviewees, 92% were interested in taking part in some financial education program, which indicates that people are very much aware of the necessity of knowing how to deal with their financial resources. A customer of the bank, by being asked about the opportunity answers:

“Yes, yes! Recently, I took a course in finance to learn how to better control my expenses and it did help me a lot. (customer – interview 23)”

Components of the 2iDf Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2iDf Model)
Financial Literacy	Ease of Use	Preference for Cash	+	13	41	354
		Users Acceptance	+	28		
	Guidance	Financial Education Initiatives	+	8	50	
		Technical Assistance to Customers	+	16		
		Trust	+	26		
	Innovation	Complexity	0	0	31	
		Convenience	+	28		
		Fraud	-	3		
	Interest & Knowledge	Has Financial Products	+	93	232	
		Knows Financial Products or is interested in	+	139		

Table 8: Categories of the financial and literacy component

The fact that *Banco Maré* provides a far more accessible way for people to use bank services, is positive in the sense that financial literacy is not only obtained through programs for financial education but also through practice. Sherraden (2010), highlights the need for practical learning to achieve financial literacy. Many of the interviewees have shown preference for keeping money in the bank, instead of using cash, a result that is contrary to the observed preference for cash in the two previous instances of the use of the 2iDf model (ARAÚJO, 2017; JOIA; DOS SANTOS, 2017). These statements are an exemplification of the assertion:

Actually, I leave it [the money] in the bank, because I have a checking account and when you do not use it, it becomes a saving, right? So, I leave it there. (customer – interview 009)

Saving money at home does not work, you know? (customer – interview 012)

Furthermore, the absolute majority of customers have a good acceptance of the solution provided by *Banco Maré*. Out of the 28 remarks in the “user acceptance” sub-category, 26 are positive.

As it will be seen in the next section, the initiative also gives priority to the attendance of the customer’s needs. All orientation is given to customers about how to use their accounts and how to use the app provided to them. This ensures the bank obtains the trust of the customers. In this regard, Table 8 shows 26 remarks relative to trust. There is much distrust in the banking industry in general, but a high level of trust in the *Banco Maré* operations as the following remarks show:

“Because I'm giving my vote of confidence to the bank, ok? (customer – interview 17)

“When someone discovers [the bank], she starts to feel the quality, the security. She likes it very much and goes on to say: ‘Ah, thank God Banco Maré is here, I cannot believe it! It was the best thing that happened to the community’. I hear that a lot”. (employee – interview 14)

“An example: I have an account with Bradesco (a commercial bank), I did not download the Bradesco app to my phone, because I do not trust it. People ask me why I do not trust Bradesco, but I don’t know. I don’t feel safe, it's a crazy feeling because, well, I have Banco Maré’s app on my phone, but I do not have Bradesco on my phone because I do not feel comfortable”. (customer – interview 009)

In line with the above, on the category innovation, convenience was found to have a high importance. The solution provided by *Banco Maré* through the application of technology to solve people's access problems, improve their life-qualities and guarantees they use bank services and become more acquainted with the services provided.

6.1.4 AD HOC PRODUCT AND SERVICES

This study has emphasized the importance of financial inclusion processes that take into consideration local realities. The implementation of solutions built elsewhere with mere adaptations to local necessities are a formula for a failure. This component examines how much the initiative has generated products and services that took into consideration the characteristics of local people.

In the category “supply”, two sub-categories are analyzed: “diversity of products” and “solutions tailored to local needs”. As shown in the category economic (sustainability), one of the main challenges of *Banco Maré* is to have the necessary financial resources to expand its supply capacity. Out of the 5 traditional services provided by the banking industry (payments, deposits, investments, debt and insurance) it has only provided the first. In fact, one of the main complaints of users is related to the lack of other products as can be seen from the comments below:

So, I always talk to the people here at the bank that it would be great to have a credit card, a debit card, in order to have better access. (customer – interview 023)

I'd like to include the other banks! (customer – interview 019, complaining that he cannot transfer money to every bank. Only a few are available up to now)

Loan, right? Borrowing. (customer – interview 019, demanding a service not yet delivered by Banco Maré: credit)

With respect to the solutions provided, customers are quick to state that the products are made according to their needs. One example is the opening of an account. Traditional banks have long and difficult processes with a lot of demands to open a bank account. It is not uncommon that these demands work as barriers to the access of poor people to their services. The *Banco Maré* has a very simple process that allows an easy opening of the account. The following remark is a good description of the above:

So here at Banco Maré, we can open the account, with simple data that like: CPF (registration number every citizen in Brazil has with the tax department), telephone number and an email. If the person does not have an email, we can also make the email for that person. (employee – interview 014)

Components of the 2Idf Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2Idf Model)
Ad Hoc Products and Services	Supply	Diversity of products offered	-	14	34	97
		Taylorred Solutions	+	20		
	Team and Service Rendered	Problem Solving	+	12	63	
		Team's Empathy	+	36		
		To Have Acquaintance	+	15		

Table 9: Categories of the ad hoc products and services component

The employees are very well evaluated by the customers. Out of the 63 remarks on the “team and service rendered”, 61 are positive. The sub-categories are self-explanatory. The employees work hard to really solve the problems of their clients, going far beyond a traditional bank service. Furthermore, they are inhabitants of the Complex, which helps the customers to overcome common inhibitions they would have in other banks. The employees’ empathy is also highlighted in most interviews. Comments below speak for themselves:

“Let me think ... for example, I had a past due account, which is a difficult one, and I was able to pay here, right?” (customer – interview 019, who was able to pay a bill thanks to the support given by an employee of Banco Maré)

“I believe very much in my team and we really treat the client as a human being, you know? We try to understand their problems and do what it takes to solve it. You know, people nowadays are like robots. They are very mechanical, you know? Anywhere you go, the attendant doesn’t want to have any extra work to solve the client’s problem. I’ll give you an example: some elderly goes to the lottery to pay their telephone carrier bill. However, the bar code in the bill is not readable by the machine. The attendant should only type the number of the bill to process the payment, but he doesn’t want to. Here in the bank, that never happens. (employee – interview 014)

“I have nothing to complain about, on the contrary, just compliment, they are great”. (customer – interview 018, praising the employees of Banco Maré)

“Guys, this is great here, it's great. If you ask anyone here, they will say the same thing”. (customer – interview 011, talking about the attendants of Banco Maré)

6.2 DYNAMIC COMPONENTS OF THE 2IDF MODEL

6.2.1 INCREASE IN AWARENESS

The capability approach emphasizes the importance of agency in promoting change in the society (SEN, 1985c, 2001). In order to act, people must be aware of what is important and what needs to be developed to achieve their desired objectives. This section examines the awareness component of the 2iDf model.

Community aspects are observable in the comments of interviewees. 37 out of the 38 comments on this category were positive. The simple presence of the bank is both a necessity and a center of gravity. Given the highly financialized profile of modern societies, banking services are part of day-to-day life. The absence of it, also means the absence of other products and services for

the community. This is measured by the sub-category Bank as a point for social interaction in Table 10, and can be exemplified by the following statement:

Commerce is very important here, you know? It helps to bring things to the community. So, [the bank] represents a good opportunity. Most of the commerce in the community is made through Banco Maré. Most people here in the community pay through it, and one thing generates another. The bank benefits, merchants benefit, right? (employee – interview 002).

Interviewees also perceived the importance of circulating money inside the community and the presence of *Banco Maré* improves the chances that the money generated in the community continues in the community, thus improving local economy:

I think it's good, because the money does not leave the community. It stays here. (customer – interview 008).

In addition, most of the comments regarding the category community were related to a perception of improvement, measured by the respective sub-category:

Yes, because if [Banco] Maré is well, the whole community is doing well. Why? As it develops, it grows in technology and knowledge. I think the residents grow together, because some are employees, and with that, my family and friends indirectly benefit from it. (employee - interview 010)

I believe it will bring more jobs, you know? Jobs for the people living in the community, right? It will improve a lot. (customer - interview 013)

So, I've always seen people in the lottery stressed out. On the other hand, I see the people [in Banco Maré] very calm, laughing, smiling, looking at the clock, planning what they will do with the time they earned by not having to

*wait in a queue, you know? So, it brought this well-being to people as well.
(customer - interview 019)*

Components of the 2iDf Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2iDf Model)
Increase in Awareness	Community	Bank as a point for social interaction	+	4	38	102
		Keeps money in the community	+	9		
		Perception of Improvement (present or future)	+	25		
	Insertion	Digital Insertion	=	2	64	
		Feels it is important or promotes	+	38		
		Social Recognition	+	24		

Table 10: Categories of the increase and awareness component

In terms of “insertion”, contrary to expectations, the *Banco Maré* does not seem to have impacted digital inclusion, as is shown by the very low number of remarks in digital insertion (Table 10). The opposite seems to be the case. As the use of mobile telephony expands, people feel empowered to use it for more complex procedures. Provided accessible products and services are made available, the expansion in the use of mobile technology allows other industries (like the financial industry) to expand their reach.

The sub-category “feels it is important or promotes” gives an idea of the importance of the bank to its clients. The great majority of positive comments (above 90%) and a very common comment was that they usually recommend the bank to their fellows. When asked questions such as: Do you want the bank to be successful? Or do you recommend it to family and friends? 100% of respondents said yes.

A final importance of the presence of the bank is measured by the sub-category ‘Social Recognition’. The fact that the community has a bank lowers the feeling of exclusion of the inhabitants of the slum. This measure is in line with the capability approach, that states that development cannot be measured simply in terms of increases in wealth (SEN, 2001). The following remarks corroborates it:

"I kind of believe that this (the fact that Banco Maré has been established in the region) can open the eyes of potential investors who want to do other things here. When an investor of a large company looks at the community, he does not think of doing anything here because it is dangerous, so on and so

forth, bla bla bla. With the arrival of the bank, which is an institution that deals with money, which is something that no one would ever think of creating in a community, the doors to many other initiatives open up. People will now say: "Hey, you've got a bank there, it's working! Why wouldn't other companies work as well?" (Employee - interview 002)

"And [Banco Maré] also gave the community something better. Something people are proud to be part of. People start to think that things are really working here, right? I was even flattered when I went to Riachuelo [a store] to buy something, wearing the shirt [of the bank]. A woman in the shop said to me: 'Hey, do you work at a Bank Maré?'" (Customer - interview 006)

"I say to people that I opened [an account] at Banco Maré, and when asked if it is true that the Complex has a bank, I say: 'Of course, my dear! What were you thinking? Do you think only criminals live here? We have many good things here!'" (customer – interview 009)

6.2.2 INCREASE IN DEMAND

Table 11 summarizes the results of the “demand” component. Demand may constitute a problem for the expansion of the bank and the objective of financially include people. Most of the interviews were made with individuals. Corporate clients are, to date, an exception. This is seen by the presence of only one (negative) remark in the ‘Few corporate clients’ sub-category. Although each interviewee knows others that are using the *Banco Maré* services (which is confirmed by the 15 positive remarks on the sub-category ‘know people who use more services’), in the sub-category “use more services”, the number of positive remarks equated the negative ones, meaning that although some interviewees were interested in having more services available, others were already satisfied with the payment services offered by the bank and needed (or wanted) no expansion of it as can be seen in the following remarks:

*I do not think so [that he needs more services]. It looks great to me as it is.
(customer – interview 005)*

No, I need nothing else. I only use my account to check how much there is. I never make any transaction. (employee – interview 014)

Components of the 2Df Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2Df Model)
Increase in Demand	New Services	Few corporate clients	-	1	40	40
		Know people who use more services	+	15		
		Use more services	=	24		

Table 11: Categories of the increase and demand component

6.2.3 FEEDBACK AND GROWTH

In the last analyzed component of the model, a general perception of the will to expand the bank in terms of location and services is observed by the positive influence of all the sub-categories examined. However, as stated previously, opportunities for improvement need investment and the bank is yet to prove its profitability potential. The low number of remarks in the sub-category “capture of opportunities” is an indication of it. An employee says that there are merchants interested in franchising, but no developments have taken place in this field so far. See this remark as an example:

“We already have several well-known traders wanting to open a Banco Maré franchise.” (employee – interview 006)

Components of the 2Df Model	Categories	Sub-Categories	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2Df Model)
Feedback and Growth	Initiative	Capture of opportunities	+	4	25	25
		Expansion of services	+	14		
		Expansion to other regions	+	7		

Table 12: Categories of the feedback and growth component

The “expansion of services” is inversely proportional to the lack of diversity of products identified in the “ad hoc products and services component”, meaning that this may be either

understood as a bottleneck or as an opportunity, and the future development will show which one is preponderant. Finally, a few employees and customers see the opportunity to grow to other regions. An opportunity that is corroborated by the ubiquity of slums dwellers in need of better financial services in the whole country.

6.3 COMPARISON BETWEEN LOCATIONS

In this section the differences between the results of the two units of analysis are examined. Two regions were chosen to represent two important units. Since the government rule of law is not imposed in those regions, the power is exercised by parallel forces, such as militias and drug traffic factions.

These parallel forces have clear geographical borders represented by each of the 16 slums that compose the *Complexo da Maré*. Two slums were selected to represent each of these forces: (1) Roquete Pinto, a slum dominated by the militia forces and (2) Nova Holanda, a slum dominated by a drug trafficking faction called Comando Vermelho³⁰ (or simply, CV).

Initial conversations with *Banco Maré*'s CFO and a reconnaissance visit to the place, indicated significant differences between the two regions. The visit took place in Roquete Pinto slum, a place considered safe for the first visit, compared to Nova Holanda or other slums of the Complex dominated by drug traffickers.

As it was shown in more detail in the case description chapter, the two units of analysis (or locations) have different characteristics that are, to a large extent, determined by the criminal force operating in each location. Roquete Pinto (one of the two units of analysis), is a slum dominated by the militia, an organization usually composed of corrupt police officers that impose a tax in exchange for basic services such as illegal security, internet access and light, among others³¹. Nova Holanda (the other unit of analysis), is a slum dominated by a faction of drug traffickers (Comando Vermelho) that trade in the forbidden drug market.

³⁰ In english, Red Command.

³¹ A more academic description of the concept of militia can be found in the report of the commission of Rio de Janeiro's State Assembly for the investigation of militias in the state (ALERJ, 2008 p.36).

According to *Banco Maré*'s CFO, Roquete Pinto (the region dominated by the militia) is a place where values such as work, family and religion are much appreciated. Drug trafficking is strictly forbidden, and the militia protects its citizens from drug traffickers. Nova Holanda, on the other hand, is a place where traffic dealers are seen in the streets wearing machine guns and drugs are used and sold freely in the streets. In a word, a place considered much more "liberal", according to an inhabitant of the region.

Table 13 shows the lexical and content analysis, comparing the two locations by splitting original data by unit of analysis. The same criteria used to classify interviews in the sections 6.1 and 6.2 above, were repeated in this exercise. Two employees' interviews were excluded from the analysis to provide a more balanced comparison³². The column "BOTH" repeats the signals of the influence of each subcategory on financial inclusion already shown in tables Table 6 to

Table 12.

Darker colors were used to identify differences between units of analysis (locations). The darker the color, the higher the number of significant remarks for each unit compared to the other. The results show that for all components of the model, except for "ad hoc products and services", there are indications of differences between the locations. This is not unexpected since this component depends less on the characteristics of the location than on the characteristics of *Banco Maré*, the offeror of products and services.

Furthermore, out of the six remaining components, five show more significant results in Roquete Pinto whereas only one (increase in demand) has more significant results in Nova Holanda. This result suggests that the location dominated by the militia performs better in terms of the perception of presence of components of the 2iDf model when compared to the other location. A graphical representation was used to contrast the results of the two locations. The darker the cells color, the better the perception of this component or category in relation to the other unit of analysis. This is shown in Table 13 below. The left side, represented by Roquete Pinto, a location dominated by the militia, shows better positive perceptions when compared to Nova Holanda.

³² Out of the 6 employee's interviews, 4 were from Roquete Pinto and 2 from Nova Holanda. Interview 002, which contains two employees' interviews from Roquete Pinto was excluded to allow a more balanced comparison between locations.

In the sustainability component, the differences between the locations were not so striking. Roquete Pinto showed the only comments on the “business model” sub-category, which is related to the way *Banco Maré* obtains revenue, whereas no such comments were found in Nova Holanda.

				ROQUETE PINTO				NOVA HOLANDA			
Components of the 2iDf Model	Categories	Sub-Categories	BOTH	Influence	Frequency of Remarks (Sub-Categories)	Frequency of Remarks (Categories)	Frequency of Remarks (Components of the 2iDf Model)	Frequency of Remarks (Components of the 2iDf Model)	Frequency of Remarks (Categories)	Frequency of Remarks (Sub-Categories)	Influence
Sustainability	Economic	Business Model	=	+	1		38	41	1	1	-
		Repressed Demand	0	0	0	1				0	0
		Size of Market	0	0	0					0	0
	Ethical		+	+	19	19			24	24	+
			+	+	17	17				12	+
	Political	Government Presence	-	-	1				4	2	-
		Other Stakeholders	0	0	0	1				0	0
Infrastructure & Access	Costs	Parallel Forces	+	0	0					2	+
		Avoid Commuting	+	+	17			126	47	9	+
		No Charges	+	+	15					14	+
		Safety	+	+	8	60				4	+
	Dissemination	Time	+	+	20					20	+
		Awareness Bank Services	=	=	6				6	0	0
		Awareness of Services BM	-	-	7					2	-
		Divulgence of Initiative	-	-	9	22				4	-
	ICT	Partnerships (e.g. NGOs)	-	0	0					0	0
		Infrastructure other	-	0	0				63	1	-
		Internet Connection	+	+	13	54				13	+
		Mobile tech. Avail. and use	+	+	41					49	+
	Physical Structure	Installations	-	-	1				10	2	-
		Lines	+	0	0	1				8	+
Financial Literacy	Ease of Use	Preference for Cash	+	+	7	24	169	151	9	4	+
		Users Acceptance	+	+	17					5	+
		Financial Education	+	+	3					5	+
	Guidance	Technical Assistance	+	+	6	16			34	10	+
		Trust	+	+	7					19	+
		Complexity	0	0	0					0	0
	Innovation	Convenience	+	+	12	14			17	16	+
		Fraud	-	=	2					1	-
	Interest & Knowledge	Has Financial Products	+	+	47	115			91	39	+
		Knows Fin Products/interest	+	+	68					52	+
Ad Hoc Products and Services	Supply	Diversity of products offered	-	-	3	11	38	48	19	11	-
		Taylorred Solutions	+	+	8					8	+
	Team and Service Rendered	Problem Solving	+	+	5				29	7	+
		Team's Empaty	+	+	14	27				16	+
Increase in Awareness	Community	To Have Acquaintance	+	+	8		51	35	14	6	+
		Bank, Point for soc interact	+	0	0					0	0
		Keeps money in community	+	+	5	17				3	+
	Insertion	Perception of Improvement	+	+	12				21	11	+
		Digital Insertion	=	+	1					1	-
Increase in Demand	New Services	Feel important/promotes	+	+	20	34			24	17	+
		Social Recognition	+	+	13					3	+
		Few corporate clients	-	-	1					0	0
Feedback and Growth	Initiative	Know people who use	+	+	8	16	16	9	9	7	+
		Use more services	=	-	7					17	+
		Capture of opportunities	+	+	4					0	0
		Expansion of services	+	+	7	14	14			5	+
		Expansion to other regions	+	+	3					4	+

Table 13: Comparison of the results between units of analysis

An interesting observation here is related to the political category of the sustainability component. As already mentioned, the presence of the government in the region is scarce, and the power is exercised by parallel forces. Very few remarks are made with this respect, because of the interviewees' fear of mentioning anything related to it. The remarks usually expressed

indifference or even unawareness regarding the subject³³, a point that will be addressed with depth in the discussion section.

The infra-structure & access component presented better results for Roquete Pinto in all categories. The “safety” sub-category received more comments in Roquete Pinto than in Nova Holanda, an information that indicates that the inhabitants of this location, which had a significant reduction in violence due to the imposition of the rules of the militia that expelled the drug traffickers, have a better perception of the importance of safety than the inhabitants of Nova Holanda, where traffic and violence is more tangible (SEN, 1980, 2001 discusses how regions affected by chronicle problems, lose the ability to perceive its consequences).

Additionally, the inhabitants of Roquete Pinto made more remarks relating to “avoid commuting to neighborhood”, probably due to the fact that they don’t have a lottery to make payments in the slum, which is not the case in Nova Holanda.

Still in the infra-structure & access component, the only negative remark in the “infra-structure other” sub-category was in Nova Holanda, and it was due to a black-out that took place during the visit of the researcher.

Finally, there were more remarks related to the dissemination of the initiative in Roquete Pinto, again an indication that its inhabitants have a clearer notion of the importance of the bank and the necessity to foster it. A point that is in line with the results of another component (increase in awareness), that will be commented soon.

Inhabitants of Roquete Pinto have shown better results in terms of financial literacy as well. Its inhabitants made more remarks related to the “ease of use” category. In the sub-category “trust” (category “guidance”), although there were less remarks than in Nova Holanda, all the remarks in Roquete Pinto were positive, whereas the difference of positive and negative remarks in Nova Holanda was only one. In the sub-category “fraud” (category “innovation”), there were more comments in Roquete Pinto with a neutral influence on financial inclusion, whereas the only comment made in Nova Holanda was negative.

³³ The comments made on the sub-category “parallel forces” were made upon the researcher’s active questioning on the subject. That could only take place in two occasions. One in Roquete Pinto and one in Nova Holanda. No remarks appear in Roquete Pinto on this section, because these remarks were made in the interviews that were excluded to allow a balanced comparison between locations. Should these interviews not be excluded, there would be no difference between the two locations on this sub-category.

Moreover, in the category “interest and knowledge”, both sub-categories presented more comments in Roquete Pinto than in Nova Holanda, a further indication of higher knowledge and use of financial services. Summing up the results of the component financial literacy, starker differences were found in such sub-categories as “fraud” and “trust”, a point that will be analyzed in the discussion of this thesis.

As already mentioned in the “dissemination” category, higher awareness in the location Roquete Pinto was observed. In fact, the component “increase in awareness” showed better results again for Roquete Pinto where the better remarks in the “insertion” category shows that “digital insertion”, that in the consolidate view showed a neutral result, was found to have a positive influence on financial inclusion in Roquete Pinto and a negative in Nova Holanda. Furthermore, “social recognition” remarks were much more frequent in Roquete Pinto when compared to Nova Holanda.

Finally, a few differences regarding the component “feedback and growth” were observed. In Roquete Pinto all three sub-categories were positive whereas only two registered positive remarks in Nova Holanda. Also, new sources of business were observed in the “capture of opportunities” sub-category.

The only component that showed a better result for Nova Holanda was “increase in demand”. More specifically, in the sub-category “use more services” there were many more remarks in Nova Holanda, and they were mostly positive, as opposed to the fewer and negative results found in Roquete Pinto. One probable reason for this result is the fact that more people live in Nova Holanda and they share the only lottery of the whole Complex. This may increase the perception of the need for more financial services in the region, but this assertion needs further scrutiny. The following statement corroborates the above:

“Here we only have one lottery agency, so we are very dependent on it, but after the [creation of] the bank, we were able to relax a bit, because of the possibility of going to Banco Maré to make transactions.” (employee – interview 023)

7 DISCUSSION

7.1 FINANCIAL INCLUSION ACCORDING TO THE 2iDf MODEL

7.1.1 CONSOLIDATED VIEW

The results of the analysis indicate a high frequency of positive remarks, specifically when compared to previous uses of the 2iDf model (ARAUJO, 2017; JOIA; DOS SANTOS, 2017)³⁴.

Table 14 shows the percentage of positive remarks for each component of the model. Here the total number of remarks are shown in the “total frequency” column and the following two columns show the frequency of positive remarks and the percentage frequency of positive remarks respectively. The last two columns show the percentage frequencies opened by unit of analysis (Roquete Pinto and Nova Holanda).

Components of the 2iDf Model	Total Frequency	Positive Frequency	Positive Frequency (%)	Positive Frequency % in Roquete Pinto	Positive Frequency % in Nova Holanda
<i>Static Components</i>					
Sustainability	85	93	91%	97%	90%
Infra-Structure	214	286	75%	79%	78%
Financial Literacy	250	354	71%	70%	67%
Ad Hoc Products	77	97	79%	79%	77%
<i>Dynamic Components</i>					
Demand	27	40	67%	63%	71%
Awareness	93	102	91%	90%	89%
Feddback/Growth	20	25	80%	79%	78%

Table 14: Positive remarks on the components of the 2iDf model

³⁴ Joia; Dos Santos, 2017 only calculated the frequency of positive remarks for the static components of the model.

As already mentioned, the analysis of Table 14 showed a high general frequency of positive remarks. The lowest score of positive remarks was on the Demand component that presented 67% of positive remarks. This fact indicated that the total number of remarks could be a biased indicator of the intensity of the perception of each component, that is, since each component is composed of several categories, whenever one category reached an extremely high number of remarks, it could attract the result of the whole component to the result of the category.

An example will clearly show the bias: Data from table 14 indicates that 91% of the remarks made for the sustainability component were positive, which indicates that this component should be, at the perception of interviewees, considered a very positive component in supporting financial inclusion in Maré. However, a more scrutinized look at the data in Table 6, shows that the majority of remarks were concentrated in the categories “legal” and “ethical” of the component sustainability. Moreover, out of the 6 remaining sub-categories of the component, only one presented more positive than negative remarks, and this sub-category was (surprisingly) political sustainability!

To avoid this concentration problem, a double criterion was created to evaluate the importance of a component to financial inclusion in Maré. First, an additional table was created to count the number of sub-categories by component, then the number of sub-categories with more positive than negative remarks was also counted. Finally, the percentage of positive sub-categories was calculated as shown in Table 15 below.

Components of the 2iDf Model	Positive Sub-categories	Sub-Categories	Positive Frequency (%)	Positive Frequency % in Roquete Pinto	Positive Frequency % in Nova Holanda
<i>Static Components</i>					
Sustainability	3	8	38%	38%	25%
Infra-Structure	7	13	54%	46%	46%
Financial Literacy	8	10	80%	80%	80%
Ad Hoc Products	4	5	80%	80%	80%
<i>Dynamic Components</i>					
Demand	1	3	33%	33%	67%
Awareness	5	6	83%	83%	67%
Feedback/Growth	3	3	100%	100%	67%

Table 15: Positive sub-categories for each component

Finally, a new criterion combining data from Table 14 and Table 15 was created to evaluate the results. These are shown in Table 16. According to the table, a scale of the intensity of the

perception of each component of the model was established with three levels according to their influence towards financial inclusion: low, average and high.

According to Table 16, the components with a frequency of total positive remarks higher than 75% **and** a frequency of sub-categories with more positive than negative remarks also higher than 75% are classified as having a high perception of positively influencing financial inclusion. At the opposite end, whenever both criteria fall below 25%, the perception is considered low. All other cases are classified as having an average perception of influence.

Intensity of the perception of presence of the component	Positive Remarks / Total Remarks for the Component	Logic Rule	Positive Sub-Categories / Total Sub-Categories of the Component	Caption
High	> 75%	and	> 75%	
Average	All other combinations			
Low	< 25%	and	< 25%	

Table 16: Intensity of perception of presence of the components of the 2iDf model

To facilitate visualization of the results of the consolidated data (that is, not segregated by unit of analysis) a graphical representation of the 2iDf model is shown below in Figure 15.

Sustainability, infra-structure and financial literacy presented average positive perception, but significantly different between one another.

A qualitative analysis of the sustainability component indicated that the bank has not yet proved its potential to be profitable. Furthermore, challenges to the administrative capacitive of the bank put in doubt the ability of the bank to maintain its operations. This difficulty is increased by the political environment in which the bank operates. Without the presence of an active state that guarantees the rule of law, there is an omnipresent risk that the criminal organizations will jeopardize the continuity of the bank. This is even more so if the bank succeeds in scaling up its activities and become profitable.

The sustainability component presented the worst frequency of positive remarks, either in terms of frequency of all remarks in the category or in terms of the frequency of sub-categories. Given the difficulties to scale up its operations and the negative profitability of the initiative so far, it is no surprise that the economic sustainability scores low in the analysis. Furthermore, the lack of presence of the state in the region adds up an element of doubt regarding the political sustainability of the initiative.

In terms of infra-structure, the initiative shows only regular results. The bank managed to improve the quality of life of its customers by reducing costs, saving time and money and providing a safe service. However, only a small share of the population has been impacted. Furthermore, the bank heavily relies on the internet provided in the region, that proved to be unstable in several occasions. Should the bank succeed in expanding its operations, it will also need a better internet connection not to let its costumers underserved.

Levels of financial literacy were also considered regular. The bank managed to spread the use of mobile telephony to make payments, but the financial could only be evaluated in terms of this kind of service. Knowledge and use of other services such as credit and insurance still need the bank's services to be more diversified to allow for further evaluations of financial literacy in the region.

The products and services offered by the bank received the best remarks of the static components of the model. In fact, the component "ad hoc products and services" was classified as scoring high positive perception. This is due to the fact that the bank managed to solve a big issue in the region, that is, the lack of available alternative to make payments. Furthermore, the bank developed a successful entrance strategy in the region which facilitated the launching of it in the Complex.

The positive evaluation of its products and services component may also be related to the relative independence of it in relation to the other components. The building of suitable solutions for its customers depends far more on the skills of the bank employees than on the characteristics of the place. The conceptual model being used in this study requires that all components of the model should be well evaluated to guarantee the success of it. This points to the necessity of articulating with existing organizations of social, government and private sector to guarantee that development, in the sense proposed by the capability approach, takes place.

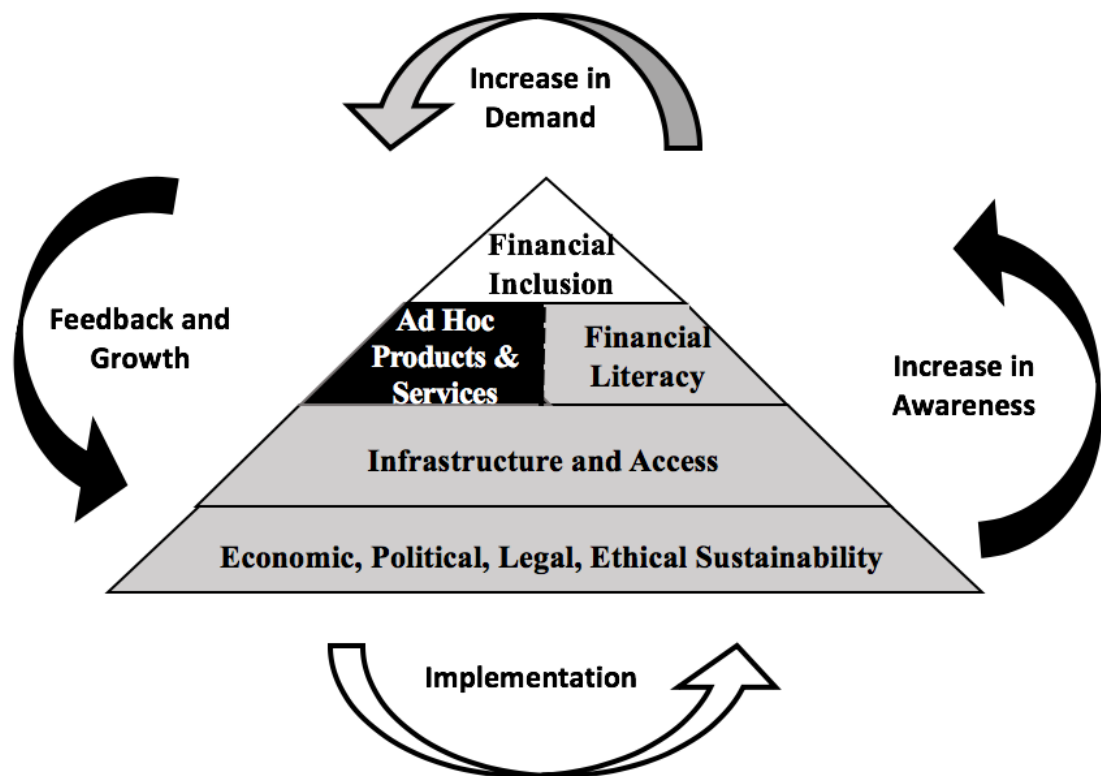


Figure 15: The 2iDf model for *Complexo da Maré* - consolidated view

The dynamic components of the model were better evaluated than the static ones. Two components (feedback and growth and increase in awareness), had a high frequency of positive remarks. The fact that the employees of the bank are mainly inhabitants of the region brings several interesting results. The employees emphasized the opportunities they had, not only to be working there, but, most importantly, to have a close connection to the founders of the bank and through them, and through the bank, to have access to people and experiences that they would never have, shouldn't the bank have provided this opportunity.

Employees are thus, very enthusiastic about the bank, and they transfer this enthusiasm to clients. An example of this is stated by the fact that 100% of the comments on “team’s empathy” were positive.

An interesting finding is shown by the “social recognition” sub-category: As discussed extensively by Sen (1993b, 2000, 2001), development cannot be understood only in terms of economic development. Thus, being financially included means not only that more financial services are available to its users, but also that there are intangible benefits such as improvement in self-esteem.

Financial inclusion improves people's status (of having an account or having a bank in the neighborhood) when compared to the financially excluded. An example of this is given by the decision of *Banco Maré* not to focus only on mobile transactions. As noted by the bank's CEO, the initial idea was not to use any cards, since technology was available to avoid that need. However, customers revealed the desire to have cards with the logos of brands such as Mastercard or Visa, as it provided an increased status when visiting shops in other regions of the city. Alexander (the bank's CEO) noted that by not providing these cards to them, they would actually be excluding people, the opposite of their intention with the initiative.

It must be stressed that the dynamic components of the model were responsible for only 17% of the total remarks made by interviewees. An effort was made, during the interviews to find out more elements of the dynamic components, since previous uses of the model have already had such low percentage of remarks. (Joia & dos Santos, 2017, for instance reported 7% remarks for the dynamic components). The fact that the number of remarks still represent a small portion of the total, despite the efforts to retrieve more information about it in the interviews is probably a confirmation that, although positive results are found, the initiative still needs to prove its ability to generate a cycle of participation and empowerment that will guarantee its successful continuation (JOIA; DOS SANTOS, 2017). However, the positive perceptions that resulted from the analysis is a good indication of the potential for financial inclusion of *Banco Maré*.

7.1.2 UNIT OF ANALYSIS VIEW

In this section, the results are discussed in a closer view to the reality of the region. As already highlighted, the government's absence in the region is substituted by the presence of militia and drug traffickers. Two locations were chosen to represent two areas dominated by each of these parallel forces: Roquete Pinto (militia) and Nova Holanda (drug traffickers).

In order to examine the differences between the two locations, the same criteria used in the previous section for the consolidated view was replicated for each of the units of analysis (see Table 16).

The perception of the components of the 2iDf model were then graphically represented to allow a visual comparison between the locations. Figure 16 summarizes the data from Table 14 and Table 15 above with data segregated by unit of analysis.

ROQUETE PINTO

NOVA HOLANDA

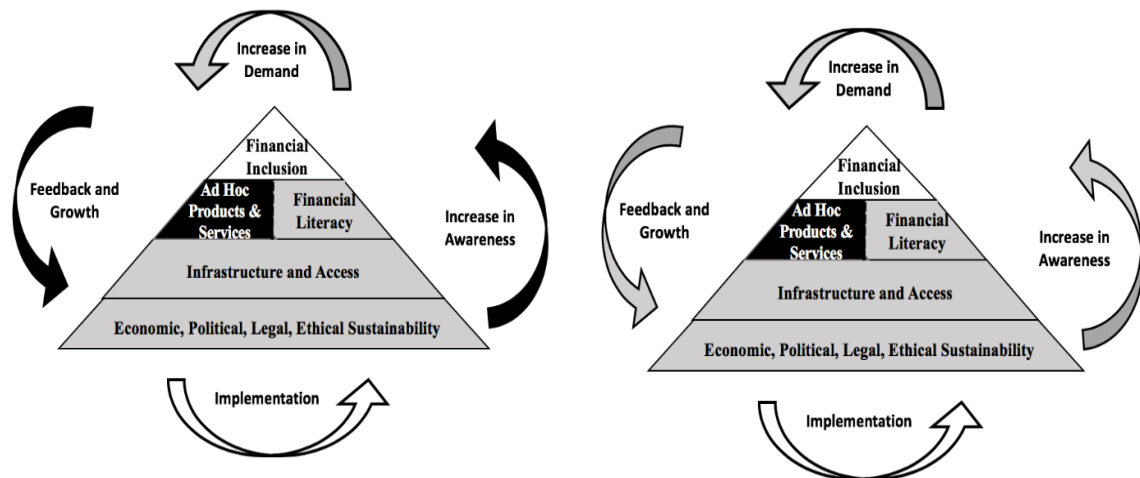


Figure 16: Comparison between the 2iDf for Roquete Pinto and Nova Holanda

The main differences between the two locations are found in the dynamic components of the model. As can be seen in the graphical representations, the arrows on both sides of the triangle indicate that the components “increase in awareness” and “feedback and growth” show better results in Roquete Pinto (remember that darker arrows mean that more positive remarks were found for these components), the region dominated by militia. The higher perception of awareness in this region is given by the higher value given to the “social recognition” that financial inclusion (through the use of *Banco Maré*) provides to its users, together with the opportunity of “digital insertion”, which are elements that empowers people in their social realities.

Furthermore, the “feedback and growth” component shows better “capture of opportunities” in Roquete Pinto, which could be an indication that the values of work in the location reflect a better perception of the opportunities from an initiative such as *Banco Maré*.

Figure 16 also shows that no major differences are found in the static components of the model. This is no surprise given that these elements are by definition, less subject to changes. The two locations are very similar in economic, social and infra-structural elements. They are very close from one another and are a part of the same complex of slums. Also, the difference in parallel forces acting in the locations are also marginal. Although they set different codes of conduct, they are still criminal organizations that impose rules according to their own views and interests.

Even so, minor differences in perception can be identified in the static elements. As shown in Table 13 a few differences between the two locations are worth noting. Since the assumed basis for these differences are the different codes of conduct set by the parallel force dominating each of the locations, the different results in each location is assumedly explained by the different attitudes and behaviors observed in the two locations.

People from Roquete Pinto give more importance to sub-categories such as “safety”, “trust” and “fraud”, probably due to the fact that there is less tolerance with wrongdoing on their side. In addition, better perception of new “business model” is also observed, which is in line with the already mentioned “capture of opportunities” observed in the analysis of the dynamic components. Finally, due to the fact that the militia provides some “services” to its location, infra structure elements are also perceived to be marginally better.

To conclude this section, it is important to note that the differences in the dynamic components point to a stronger element of empowerment and participation in the location Roquete Pinto. The 2iDf model, states that the dynamic components are the elements that guarantee the continuation of the initiative in the long run since the identified needs and the solutions found are not exogenous to the model. Quite the opposite, the objective is to empower individuals and the community to understand and build the solutions they need. The fact that different codes of conduct operate in each of the two locations, that are otherwise very similar, indicates that even small changes in the institutional order of the place, may have significant impacts on the results.

7.2 OTHER ELEMENTS FOR THE MODEL

In the process of collecting information, visiting the Complex, interviewing its inhabitants and making direct observation of people and processes, it was possible to gather some elements that could help improving the model.

7.2.1 LEADERSHIP

An important aspect of the deprivation of capabilities imposed by poverty is the fact that it maintains people alienated from the possibilities of life (SEN, 2000, 2001). People living in

poor communities with no access to education, cultural and social life other than the slum's, can only see the realities they live in, with no perspectives of change or development. With the arrival of the *Banco Maré* executives, a process of exchange of knowledge and experiences took place. More opportunities were presented to people that broadened their life perspectives.

According to Table 14, the component that received the highest percentage of positive components was "increase in awareness". Leadership may be a possible link connecting the implementation of the initiative and the increased awareness needed to ignite the cycle of participation and empowerment. Sub-categories such as "social recognition" and "bank as a point for social interaction" point to the importance of relationships in generating awareness. In fact, employees of *Banco Maré* interviewed were, with no exceptions, very grateful for the mind-opening possibilities of working for and with the bank and the opportunities of exchange it provided, as can be seen from the following statement:

"People who have the same vision and who are willing to face the same challenges, just like Alex, the bank's CEO who has embraced this cause, you know? He came here, out of his comfort zone and looked at Maré, looked at us [...]. Two years ago, we were excluded from the financial system, we were forgotten. The bank has generated a lot of positive impact, and I believe there is a lot more to be done. Today the bank is working well but it has been a long way so far. In two years, we will reach the whole Complex. Another important impact is in the education realm: people here do not care for it. I myself was not interested in it. I did not know what I wanted in life until I talked to Benjamim [Banco Maré's CFO], Alex and others who think outside box we are accustomed to. We think that the Maré [the Complex] is our world. We believe that everything happens here. I was born here, I'm going to live and I'm going to die here. I was content with my job and with the way I was living. This was my Everest! But with their arrival, man, I can say it changed the life of a lot of people. I can say the same about myself, because I started to see. [It] opened my mind. I started looking out of this community, man, it's possible! It is possible to get somewhere. And today, in my family, I am the first to attend university. So, that was a huge gain in the whole story of my family. No one has ever made it previously and the next generations will be impacted by it and will be able to see a different path and to have a different view of life" (employee – interview 010).

Therefore, it is proposed that the “leadership” component is added to the model, as an important one to evaluate the level of awareness generated in such an initiative. It’s importance has already been highlighted in the ICT4D literature as can be seen in Heeks (2008), who talks about the importance of ICT4D Champions and Kleine & Unwin (2009), who emphasize the importance of leaders and champions to bring together the many stakeholders involved in the project.

7.2.2 NEEDS ASSESSMENT

An important element of the capability approach is its democratic aspect (CLARK, 2005; SEN, 2001). Sen purposefully left the CA opened to new possibilities of capabilities, refusing to make a final list of capabilities to be used across studies. Although that makes the use of the CA far more difficult, it has an important philosophical element (ROBEYNS, 2006). It respects the opinions, values and needs of people.

When entering a community, no *a priori* capabilities should be proposed. The needed capabilities should be assessed according to the needs and values of local people (AVGEROU, 2010; HAMEL, 2010; SEN, 2001). By doing so, it ensures that not only the group’s *ethos* is respected but also that the power of agency is enhanced. The *Banco Maré* is an initiative that was born out of a clear necessity of the inhabitants of Maré, expressed by themselves. Out of this necessity, the proposed product and services was generated, and an iterative process started in which the product was presented to customers and their needs were brought back to the developers. New needs and products and processes emerged from this iterative process, generating a cycle of innovation in the products and services rendered that solved many problems of the inhabitants of Maré that were not even visible before the implementation. In this sense, this study proposes that the implementation of the initiative should be made together with a prior investigation of necessities (“needs assessment”) in an iterative process, in which the needs of the community are highlighted and the issues to be tackled are selected by its residents. The solutions proposed are iteratively modified so as to achieve the objectives set by the community itself.

7.2.3 THE MODIFIED 2IDF MODEL

Figure 17 below shows the 2iDf model with the inclusion of the two components mentioned above. “Leadership” was inserted right below the ad hoc products & services and financial literacy. “Needs Assessment” on the other hand, was not considered a new component, but rather a complement to the existing implementation (dynamic) component. Both components are deemed to strengthen the cycle of participation and empowerment.

As a private venture, the need to take decisions and adapt the business model to find the economic sustainability of the project is a challenge that this kind of initiative has had since the first day, as opposed to governmental implementation initiatives that normally have a budget for the project and lack the needed motivation to make the cycle of participation and empowerment spin.

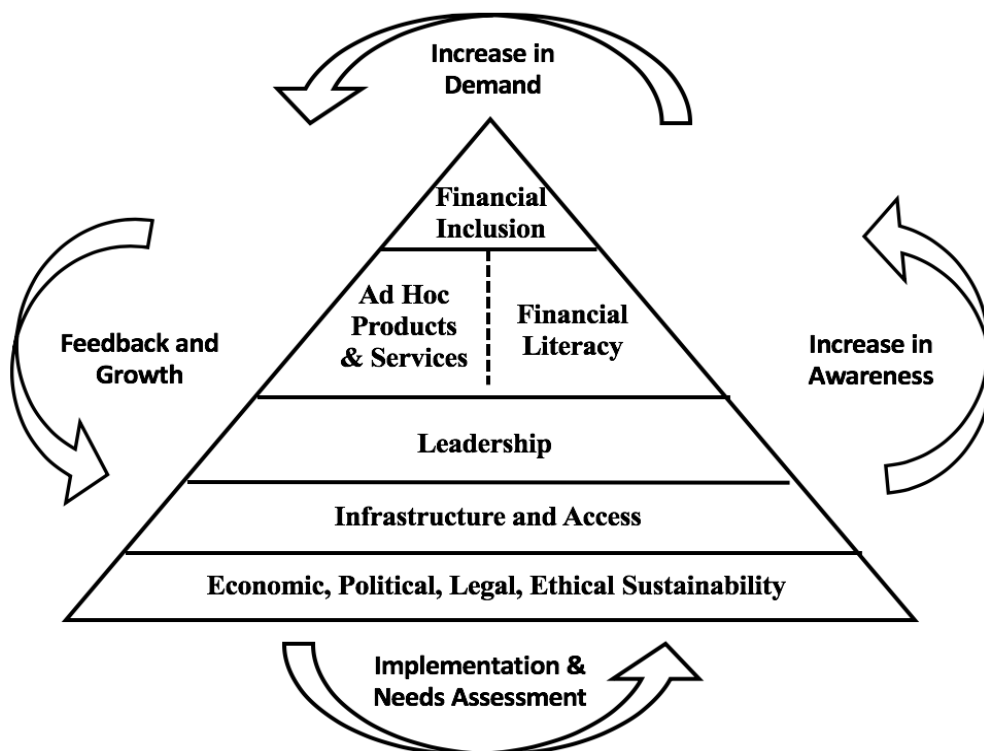


Figure 17: The 2iDf model modified to include leadership and needs assessment

Furthermore, as shown above, leadership motivates the employees to pursue higher life objectives. This increases the quality of the services rendered by the bank and improves the solutions for the problems faced by the community. Finally, the motivated employees are also inhabitants of the community. They are the best potential leaders for they know better the

dynamics of the community and its needs. Therefore, they can become important leaders to disseminate knowledge and values throughout the community, either through their social interactions or as employees of the bank.

Finally, the “needs assessment” dynamic component added to the implementation, guarantees the solutions being developed are in line with the necessities of the community. When real problems are met with intelligent solutions, the chance of influencing people to engage in a learning process or in supporting the initiative is also increased.

7.3 IMPLICATIONS

This section summarizes the main implications drawn from the results and discussion of this study. Academic as well as managerial implications are henceforth highlighted.

7.3.1 ACADEMIC IMPLICATIONS

This study has applied the 2iDf model (JOIA; DOS SANTOS, 2017) to a whole different context than it has been used so far. The first uses of the model were concerned with the analysis of financial inclusion in far-reaching communities (ARAUJO, 2017; JOIA; DOS SANTOS, 2017), whereas this study brings the analysis to an urban realm, more specifically to a well-known problem of big cities of Latin America, namely slums.

The method of investigation, namely case study, uses two units of analysis which allows for the comparison between two locations. The two units share most of their characteristics but differ in the type of criminal organization controlling them. This approaches the method to a quasi-experiment design in which all (or many) of the differences can be controlled for. Most importantly, the separation in two units of analysis allowed the study to make inferences about the reasons why one region presented better dynamic components than the other.

The study also focused on an innovative business model that has grown significantly in the past few years with new technologies being applied to it, namely the fintechs (ARNER; BARBERIS; BUCKLEY, 2015; BCB, 2017, p.97). Moreover, the implementation was highly participative in a sharp contrast to the top down initiative of the *Agência Barco*, the case on which the 2iDf model was applied (JOIA; DOS SANTOS, 2017).

This participative approach allowed for the building of products more connected to the necessities of the population. This point was an important recommendation of two literatures studied here, namely ITC4D (AVGEROU, 2010; KLEINE; UNWIN, 2009) and the Capability Approach (JOHNSTONE, 2007; SEN, 2001), and it ultimately suggested the need to include a “needs assessment” element to the “implementation” component of the 2iDf model.

Together with the above improvement to the 2iDf model, this study also identified the importance of including a component of “leadership”.

Financial literacy remains an important component of the model and here, just like in previous studies it was rated no better than “regular”. Financial literacy is not an easy thing to be achieved. In fact, financial literacy is an important element in achieving financial inclusion and a complex component in and by itself. It is closely linked, in a more general view to the levels of education that still need much improvement in the region. Furthermore, the achievement of financial literacy is linked to the necessity of developing other capabilities, such as being able to participate in social life, where the expansion of relationships also increases the general knowledge of financial instruments to be used or learned, in a process of learning that goes far beyond the mere participation in classes for financial education (SHERRADEN, 2010).

In this sense, the ad hoc products and services provided to residents of the Complex are of paramount importance in a process of growth and learning that may allow slum dwellers to become acquainted with the benefits of using the financial system, as well as many others in society.

7.3.2 IMPLICATIONS FOR MANAGEMENT AND PUBLIC POLICY

The study has shown that the infra-structure needs for the creation of financial solutions for the bottom of the pyramid (KOLK; RIVERA-SANTOS; RUFÍN, 2014; PRAHALAD, 2009) in the *Complexo da Maré* are not great since mobile telephony has hugely increased access opportunities. The recent surge of fintechs has not finished to explore its possibilities and the 12 million inhabitants of slums in Brazil is an avid market to be explored, not to mention the rest of the world’s population in similar conditions.

The dissemination of the services being provided is of great importance for the success of the initiative. The communities studied rely much on the information being passed by word of

mouth and much of the customers of *Banco Maré* discovered the services in this fashion. The scaling of the initiative is of great importance to generate sufficient revenues to make it profitable, and the need to use other dissemination strategies is patent in the comments of employees and customers of the bank.

However, executives of such an endeavor must balance the trade-offs of expansion. The demand for services is large, since the population is largely unassisted. A large boost in the demand for the bank's services will need sufficient investments to cope with it. Moreover, the model continues to rely on the observation of necessities and the creation of solutions to locals, which is a participative process that need some time to take place as people need to adapt to new solutions for their problems at the same time as the bank has to adapt to the surging demand.

The risk of growing too fast is losing the ability of solving people's problems and generating financial inclusion. The risk of growing too slow is not being able to generate sufficient revenues to cover the operational costs, thus making the initiative economically unsustainable.

Dissemination is of high importance to the scaling up of the initiative, but it has to be balanced with the bank's ability to grow whilst maintaining quality of its operation. The growth has to be organic, so as to not jeopardize operations, which could represent a large risk to the bank with negative consequences to its image.

The study has also generated important implications for public policy. The observed better results in one region as compared to the other, were, if the inferences made here are correct, related to the improved capacity of one of the parallel forces acting in the region to impose certain codes of conduct and more safety to the region. The fact that different codes of conduct operate in each of the two locations, that are otherwise very similar, indicates that even small changes in the institutional order of the place, may result in significant differences in attitudes and behaviors that promote the betterment of financial inclusion, as well as other improvements (Acemoglu and Robinson, 2013 have made an interesting study on the importance of institutions for development). This clearly shows the importance of creating an environment where the law is respected and enforced, and the government shows its presence to inhabitants, by enforcing the law and investing in education and health for the betterment of the situation of this people. Once again, if even criminal organizations are distinct from one another in generating benefits for the society, what huge benefits cannot be expected of substituting these organizations by good government?

8 CONCLUSION

This study has examined how is *Banco Maré* impacting the financial inclusion of the inhabitants of the *Complexo da Maré*. It has managed to create products and services based on the identified needs of the local population and improved their quality of life by expanding access to financial services that were almost inexistent before their arrival in the complex. Furthermore, the bank has managed to teach many customers to adhere to mobile technology so that they could access and use the financial services provided by the bank for their own benefit and free of charge.

However, it has also been observed that the diversity of products and services being provided is still restricted. This points to the necessity of generating sufficient revenues to increase its portfolio and guarantee its economic sustainability. The bank has received investments and grants that allow it to run its operations, but the financial sustainability of the bank is yet to be proven. It has to become profitable and for that, the bank will need to scale up its activities, which poses additional challenges for its managerial skills to run more complex operations whilst not neglecting financial inclusion.

Furthermore, it will have to deal with the lack of the government's presence in a region dominated by criminal organizations, which poses constraints and instabilities to the political sustainability of the initiative and makes it harder for any organization to operate in the region.

Financial literacy has reached regular results and needs improvement. This is due to the low level of education in the region but also to the lack of opportunities to meaningfully use financial services. Much of the learning process of using the financial system comes from the opportunity to have a meaningful social and economic life, which naturally increases the use (and knowledge that comes as a consequence) of the financial services since it becomes part of day to day routines and language. The bank has done a good job to include its customers, but financial literacy is still restricted to payments and transferences, which is due to the fact that there is not much diversity in the products offered by the bank. Time is needed for the initiative to develop other products and the evaluation of financial literacy coming from the expansion to be fully appreciated.

Infra-structure in the region is sufficient for the needs of the initiative. The fact that the region is located in an urban area and that mobile technology has spread to a large share of the population greatly facilitates financial inclusion. Access has improved, and benefits for the

population are visible in the reduction of costs, saving of time and reduction in commuting needs. However, dissemination needs improvement to reach a larger share of the population.

To conclude, the bank presents good potential to financially include people from marginalized sectors of urban areas concentrated in slums. The participative process it has implemented can generate empowerment in local population, thus guaranteeing the continuity of the initiative in the long run. So far, the financial inclusion achieved is limited due to the low dissemination and low diversity of products and services offered by the bank. If the results shown so far are expanded to a greater share of the population and the bank manages to create ad hoc products and services with increasing levels of sophistication, opening the opportunity for people to use services such as savings, investments and insurance, there is a good chance that financial inclusion will greatly take place in the *Complexo da Maré*, as well as in similar regions elsewhere.

9 RESEARCH LIMITATIONS AND FUTURE RESEARCH

9.1 LIMITATIONS

The results and implications of this study are based on an initiative that is still in its initial phase. Many products still need to be developed and the business model itself changes as executives perceive market movements and opportunities, which restricts generalizations that can be made with the observed results.

The interviews were limited to the bank's employees, customers and collaborators due to several safety restrictions for data collection. Important stakeholders such as criminal organization leaders, could have added important insights into the dynamics of the Complex. It would be valuable to triangulate information coming from these sources regarding differences in codes of conduct that generated the inferred differences in the components of the 2iDf model.

Limits of perception of respondents must also be taken into account. The answers are based on the respondent's limited view or reality (as are all views of reality) that is formed through their life's experiences. Furthermore, each respondent has a variety of forms to interpret realities, which limits the objectivity of the study (SCANDURA; WILLIAMS, 2000).

9.2 FUTURE RESEARCH

The results of this study indicate that the process of implementation was horizontal, i.e., it was not a top down approach that did not take into account the necessities of local people. This is in line with the recommendations of the literature used in this research (AVGEROU, 2010; KLEINE; UNWIN, 2009; SEN, 2001). However, *Banco Maré* still has a long way to go and prove the sustainability of its business model.

Further studies of this same initiative may generate important insights to the understanding of ICT-mediated financial inclusion processes. Furthermore, the analysis in different moments in time will also allow for a longitudinal perception of the initiative, thus increasing understanding on the process of implementation and the achievement of financial inclusion.

The growth of fintechs is also opening the possibilities for new initiatives such as *Banco Maré*, and the replication of this study in different contexts may generate additional knowledge as well as allow for more generalizability of the results presented here.

Other methods of investigation could also be used to corroborate or reject the results found in this study. As shown in the limitations above, more objective analysis could be made to test some propositions such as the inferred importance of different codes of conduct in generating financial inclusion. Demographical data can be crossed with police investigation data to test this hypothesis. Furthermore, surveys and experiments can be made to further corroborate or reject the results and inferred propositions.

These other methods, together with the case study method could also be used to improve the concepts of “leadership” and “needs assessment” proposed here, by suggesting new categories to analyze and test their validity empirically.

Possibilities are great for financial inclusion projects and, more broadly, for poverty reduction. Above and beyond the benefits of financial inclusion, the understanding of the dynamics of poverty and how to tackle it is the final aim of this research, as the development of human potential is, according to Aristotle (ROWE; BROADIE, 2002), the main purpose of human life.

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11 ATTACHMENTS

Introduction to the Case Study and Objective of the Protocol

This case study examines a private initiative aimed to improve financial inclusion in a poor community: The *Complexo da Maré*, the second larger complex of slums of Rio de Janeiro. The initiative is a fintech called *Banco Maré* that helps dwellers of the community to access financial services through an easy-to-use mobile application at no cost. The study will take place in two different locations of the Complex, one dominated by drug traffic and the other by the militia. These two locations have a clear border established by drug lords and militia commanders that do not allow inhabitants under their control to freely move between zones. They also influence attitudes and behaviors in their controlled zones, as can be seen by the fact that the inhabitants under the control of the militia are not allowed to use drugs, whereas the opposite takes place in the zones dominated by drug dealers.

The main objective of this Case Study is **to evaluate how the initiative *Banco Maré* is impacting the financial inclusion of inhabitants of the *Complexo da Maré*.**

This objective will be accomplished through the use of the 2iDF model for financial inclusion (JOIA, 2004), which is a conceptual framework developed to assess financial inclusion initiatives through a holistic view of development in which human beings, with their needs, values and potentials, are brought to the center of the analysis. The model (figure below) draws on diverse theoretical background such as ITC4D, financial inclusion and theories of development (more specifically, the capability approach (CA) developed by Amartya Sen (1980, 1985a, 1993, 2001)). The model is made of four components that are necessary conditions for the survival of the initiative at any point in time:

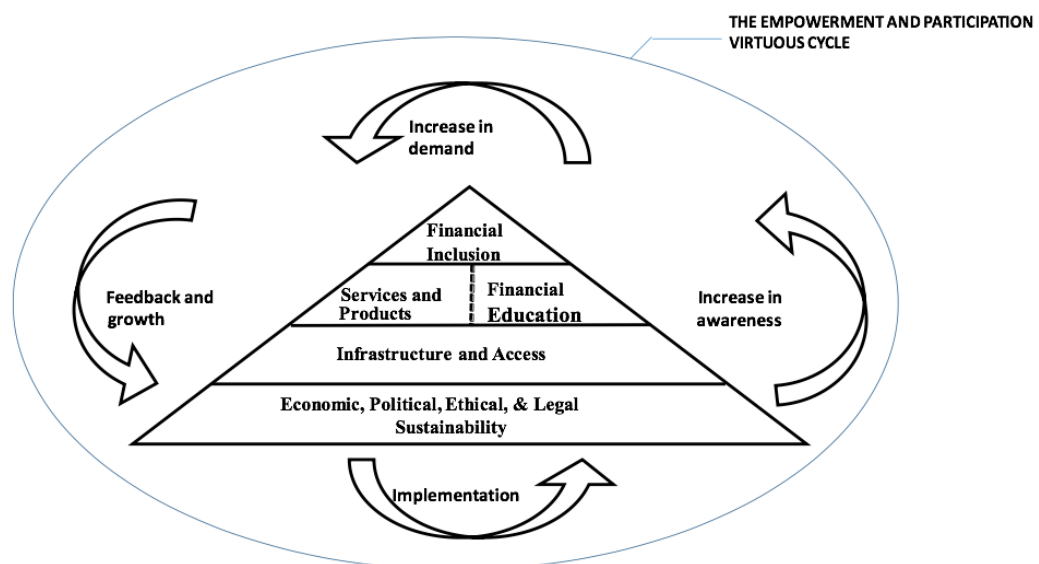
- Sustainability (political, economic, ethical and legal);
- Infra-Structure;
- Financial Education;
- Local Content (of services and products);

... and a fifth component called “cycle of empowerment and participation”, which is based on the concept of agency (as understood by the CA) in which people must have the capability (or freedom) to demand and actively participate in the community to develop the functionings (in this case to be financially included) they need to lead the lives they value.

In addition, the following peripheral objectives will also be pursued by this case study:

- ⇒ To evaluate the appropriateness of the components of the 2iDF model in a different context from those in which it has been applied (in this case, two regions of the same complex of slums in the city of Rio de Janeiro, one dominated by militia and the other by drug dealers);
- ⇒ To examine the differences in financial inclusion being achieved in the two locations being studied, and to draw propositions about how financial inclusion is achieved.
- ⇒ To compare the results of the study with previous results obtained by the use of the same model in order to confirm or to further develop the model.

The objective of this protocol is to improve reliance on the results to be found by the case study. Since the data collected relies on different sources of information, the more transparency is given to the data collection process, the more it can be replicated and consequently reliance is improved.



The four components of the 2iDf model (inside the triangle) and the cycle of empowerment and participation (round the triangle).

Data Collection Procedure

Data for this case study will be collected using 4 out of the 6 sources indicated by Yin: documentation, archival records, interviews and direct observation (YIN, 2017)³⁵. All relevant information must always be segregated according to the unit of analysis it refers to.

The following is a not exhaustive list of sources of data to be collected. It is expected, as the research goes on, that new sources or data are found and integrated in the study.

Documents from *Banco Maré* to be obtained:

- ⇒ *Banco Maré* articles of incorporation and subsequent modifications of its by-laws;
- ⇒ *Banco Maré* business plan
- ⇒ Several *Banco Maré* presentations to Investors
- ⇒ *Banco Maré* impact plan or impact aimed (to be gathered in interviews)
- ⇒ Data bank from *Banco Maré* – containing operational data from its clients with socio-economic information
- ⇒ Documentation related to *Banco Maré* in several institutions related to the slum such as REDES, Favela Holding, CUFA and other neighborhood associations

Archival Records to be gathered from the Following institutions:

- ⇒ REDES (NGO present on the *Complexo da Maré*)
- ⇒ IBGE
- ⇒ Geomarketing GeoFusion – OnMaps: System that gathers IBGE information

³⁵ The other two sources are ‘participant observation’ and ‘physical artifacts’. The former cannot be used in this study since it uses a positivistic approach and the latter does not seem to apply, since the study deals mainly with abstract constructs and pieces of evidence.

from Censo, PNAD and PEA Dia

⇒ Data Favela: Pesquisa nova favela brasileira (2015)

Interviews (questionnaires below)

Interviews (Open Interviews and Semi-structured interviews) will be made with important stakeholders of the *Banco Maré* initiative. These will include:

Open Interviews:

- ⇒ *Banco Maré* CEO
- ⇒ *Banco Maré* CFO
- ⇒ *Banco Maré* Director (Victor)
- ⇒ We Work Executive – Main Investor of *Banco Maré* until now
- ⇒ King's College Researcher working for *Banco Maré*
- ⇒ *Banco Maré* Institutional Relations: *Banco Maré* Consultant with unrival connections within the Favela including all informal sources of power

Semi-Structured Interviews:

- ⇒ *Banco Maré* Employee in Roquete Pinto³⁶ 1
- ⇒ *Banco Maré* Employee in Roquete Pinto 2
- ⇒ *Banco Maré* Employee in Roquete Pinto 3
- ⇒ *Banco Maré* Employee in Nova Holanda 1
- ⇒ *Banco Maré* Employee in Nova Holanda 2
- ⇒ *Banco Maré* Employee in Nova Holanda 3
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 1
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 2

³⁶ Roquete Pinto is the area of the Complex dominated by the militia forces, whereas Nova Holanda is the area dominated by one of the Drug Dealers faction.

- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 3
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 4
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 5
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 6
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 7
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 9
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 9
- ⇒ *Banco Maré* Client in Roquete Pinto e Ramos 10
- ⇒ *Banco Maré* Client in Nova Holanda 1
- ⇒ *Banco Maré* Client in Nova Holanda 2
- ⇒ *Banco Maré* Client in Nova Holanda 3
- ⇒ *Banco Maré* Client in Nova Holanda 4
- ⇒ *Banco Maré* Client in Nova Holanda 5
- ⇒ *Banco Maré* Client in Nova Holanda 6
- ⇒ *Banco Maré* Client in Nova Holanda 7
- ⇒ *Banco Maré* Client in Nova Holanda 8
- ⇒ *Banco Maré* Client in Nova Holanda 9
- ⇒ *Banco Maré* Client in Nova Holanda 10

Direct Observation

A minimum of 4 visits to the Complex is expected to take place. Most probably the number of visits will be around 6 if the initial plan is not sufficient for all the interviews and data collection to take place. During the visits, attitudes, behaviors, informal information, place characteristics will help the researcher to form the full picture of the initiative. Whenever possible photos and videos will be made to improve robustness of the observation. However, given that the Complex is dominated by parallel forces, those may not be allowed in many cases.

Outline of this Case Study

This thesis is organized as follows: First (chapter two) the research question is proposed together with ancillary questions to be pursued.

A literature review follows (chapter three) with the explanation of the main theoretical background used for this thesis. Sen's capability approach (2001) is used to tackle the concepts of development and poverty. Then financial inclusion is examined together with its importance to development.

The importance of technology for development is addressed with the lenses of the ICT4D (acronym for information and communication technology for development) field of study, which shows how the theme is being addressed currently. In addition, the concept of fintech is presented and examined. The chapter is finalized with the introduction of the model used to evaluate financial inclusion initiatives mediated by technology, which encompasses all the literatures just cited.

Chapter four presents the case study method, which is used to collect and analyze data and chapter five presents *Banco Maré* and the *Complexo da Maré*³⁷, respectively the bank which is being studied in this thesis and the region it aims to affect.

Chapter six is where data collected is analyzed and results are presented. These are discussed and its implications are shown in chapter seven. Chapter eight concludes this study and limitations and future research are shown in chapter nine.

Main Questions

The questions to be answered during this case study refer to the components of the 2iDf model. Most of the questions will be answered by the questionnaires to be applied to customers and employees of *Banco Maré* that will be shown at the end of this protocol. However important information will be gathered through other sources of information as described earlier. Some of this information will come from documents, archival records and

³⁷ The largest complex of slums of Rio de Janeiro, with more that 130 thousand inhabitants.

open interviews with important people developing this initiative. Thus, the following questions must always be in mind whenever new sources of evidence are presented:

Cycle of participation and empowerment

How participative (or democratic) was the decision to implement this initiative?

How participative was/is the implementation of the initiative?

In the same line: how much top-down do you believe the initiative to be?

How important it is the participation of users for the success of the initiative?

What are the most important stakeholders of this initiative?

Was there any organized movement from stakeholders to boost the project?

Was there any individual movement from stakeholders to boost the project?

Sustainability

What is the strategy to guarantee the sustainability of the initiative in terms of:

- Political
- Economic
- Legal
- Ethical

How was the location of the initiative selected?

Infra-Structure

What is the needed infra-structure of the initiative?

What is still lacking in the infra-structure of the initiative?

What is the level of access of dwellers of the Complex?

Financial Literacy

What is the importance of Financial Education?

What is the level of Financial Literacy before the arrival of BM?

What is the change you have noticed on the Financial Literacy level?

How Financial Literacy is achieved?

What is the strategy of BM to increase financial literacy?

Services and Products – Local Content

How do you build products that are adapted to local needs of users?

How do you guarantee that the needs of the community match with the products you are delivering / developing?

How inhabitants of the community participate in the building of the products and services they will use?

How important it is for the inhabitants of the *Complex* to develop skills to learn how to develop apps instead of merely learning how to use *Banco Maré's* app?

Why doesn't *Banco Maré* yet have products and services for companies?

Other

What are the main differences between the two units of analysis?

What is the importance of financial inclusion for development / reduction of poverty?

How important is financial inclusion in generating Social inclusion?

Semi – Structured Interviews (questionnaires to be used with *Banco Maré* Employees and Costumers)

IDENTIFICAÇÃO

Interview ID:

Type: Customer / Employee / Other (identify)

Date:

Place:

Begin Time:

End Time:

Name:

Gender:

Race (self-determined):

Age:

Marital Status:

Education:

Profession:

Main Source of Income:

Own House?

a) Sustainability

Is the service being provided affordable to you?

What do you think of it?

Do you want *Banco Maré* to be successful?

Who outside the community should be involved to make *Banco Maré* successful ?

And who inside the community?

Is *Banco Maré* fair to you?

Do you think people from *Banco Maré* are honest people?

Do you believe everything that *Banco Maré* does is according to the law?

How important is this?

b) Infrastructure and Access Component of the 2iDf Model

- Do you have a cellphone? Y () N ()

- If not, why not?

-Do you use the mobile phone to access the internet? Y () N ()

-How do you mainly access the internet from your mobile? (wi-fi, operator, other)

- Do you need a better (mobile phone) plan to access the internet from your mobile?

-Do you use mobile apps? Y () N ()

- How do you use your mobile phone (what are the most important uses you make of it)?

- Do you make any other financial transaction using your phone (other than *Banco Maré*? Examples: Purchase of products, Transfers of money, Receipt of money, payment of bills....

- Do you have Internet access at home? Y () N ()

If not, why not?

- Do you have an e-mail address? Y () N ()

- Do you access social media? Y () N ()

- How long do you take to pay your bills through *Banco Maré*?

- How difficult it is to you to pay bills through *Banco Maré*?

- Do you have any constraints to access and use your account in *Banco Maré*?

- How are you treated by *Banco Maré* employees?

- Is that different from other banks you visited before?

- If yes, how different it was?

c) Service and Product Component of the 2iDf Model

- Do you have a checking account? Y () N ()
- Do you have a savings account? Y () N ()
- Do you have debit / credit cards? Y () N ()
- If “N” to all of the above, have you ever had any of the above? Y () N ()
- If you did not have one, why not?
- Do you use financial services in the lottery unit?
- If not, why not?
- Do you make savings?
- If Yes, in the bank or in cash?
- If not, why not?
- If you do, what are you saving for?
- Do you have loans?
- If not, why not?
- If you do, why did you take out a loan?
- Do you buy on hire purchase?
- Have you taken loans outside banks?
- If you do, from whom did you take it?
- Do you have any insurance plan?
- Would you like to have one?

d) Financial Literacy Component of the 2iDf Model

- How did you pay your bills before using *Banco Maré*?
- Do you know the financial services and products offered by a bank?
- Do you know the financial services and products offered by *Banco Maré*?
- What other products / services would you like *Banco Maré* to offer?
- Would you take a loan from *Banco Maré*?
- Does *Banco Maré* charge you for using it? () Y () N () Don't know ()
- Would you use your cellphone as a debit card to pay bills and do shopping?

() Y () N (). Why?

- Do you think that *Banco Maré* personnel explains the financial services and products the bank provides? () Y () N () Why?
- Is the service provided by *Banco Maré* suitable for you?
- What are the advantages of using *Banco Maré* when compared to the other bank services providers (bank agencies, ATMs, Lottery, other)?
- What are the disadvantages?
- Have you already used the ATM? () Y () N (); Is it straightforward?
- Would you like to receive a training in financial planning to better understand issues related to money?
- Do you prefer to withdraw all your money from the bank immediately or merely when you need to?

e) Cycle of Participation and Empowerment

- What has improved with the arrival of *Banco Maré*?
- What has worsened?
- Is *Banco Maré* important for you?
- Do you feel part of the *Banco Maré* in some way?
- Have you ever done anything to promote BM?
- Is *Banco Maré* important for the Community?
- Does the community support BM?
- Do people you know also use the services of *Banco Maré*?
- Would you recommend *Banco Maré* for relatives or friends of yours?
- Do you think it is important for people to use bank services?
- Why?
- Is it important for the community to have more bank services?
- Why?
- What other bank services you would like to be provided to you?
- What other bank services would you like to be provided to your community?