

# Financial inclusion of riverine populations: impact assessment of Agência Barco

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This research aims to assess the impact of the Agência Barco (a branch of a bank that operates in a boat) on the financial inclusion of the riverine population of the Marajó island. Empirical research was carried out through direct observation and semi-structured interviews applied to users and employees of the Agência Barco. Lexical and content analyses were then applied in order to identify the elements for the financial inclusion of this population. The categories obtained through this technique were interpreted *vis-à-vis* a financial inclusion model developed from the existing literature. The research results show that the Agência Barco has managed to supply partial access to financial products and services. However, the lack of basic financial education of the riverine population of the Marajó island has hindered adequate use of the financial services provided, hampering sustainable financial inclusion.

**Keywords:** financial inclusion; development; information and communication technology; Agência Barco; Marajó island.

## Inclusão financeira de populações ribeirinhas: avaliação de impacto da Agência Barco

Esta pesquisa tem como objetivo avaliar o impacto da Agência Barco na inclusão financeira da população ribeirinha da ilha de Marajó. Para tal, foram coletados dados via observação direta e entrevistas com clientes e funcionários da Agência Barco na ilha de Marajó, os quais foram analisados por meio de análise léxica e de conteúdo. As categorias obtidas foram, então, interpretadas *vis-à-vis* um modelo de inclusão financeira desenvolvido a partir da literatura existente. Os resultados obtidos permitem concluir que a Agência Barco tem conseguido fornecer, parcialmente, acesso a produtos e serviços financeiros. Entretanto, a falta de educação financeira básica da população ribeirinha da ilha de Marajó tem sido um obstáculo para o adequado uso dos serviços financeiros disponíveis, impedindo uma inclusão financeira sustentável.

**Palavras-chave:** inclusão financeira; desenvolvimento; tecnologia da informação e comunicação; Agência Barco; ilha de Marajó.

## Inclusión financiera de poblaciones ribereñas: evaluación del impacto de la Agência Barco

Esa investigación tiene por objetivo evaluar el impacto de la Agência Barco en la inclusión financiera de la población de las riberas de la isla de Marajó. Así, han sido recolectados datos por medio de observación directa e de entrevistas semi-estructuradas con los clientes e empleados de la Agência Barco en la isla de Marajó, los cuales han sido analizados por medio de análisis léxica y de contenido. Las categorías obtenidas fueran interpretadas *vis-à-vis* un modelo de inclusión financeira desarrollado desde la literatura existente. Los resultados obtenidos permiten concluir que la Agência Barco há logrado éxito en suplir, parcialmente, acceso a los productos y servicios financieros. Sin embargo, la falta de educación financiera básica ha impedido que la población haga uso adecuado de los servicios financieros ofertados, lo que ha impedido una inclusión financiera sostenible.

**Palavras-clave:** inclusión financiera; desarrollo; tecnología de la información y comunicación; Agência Barco; isla de Marajó.

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## 1. INTRODUCTION

Studies by the Brazilian Institute of Geography and Statistics (IBGE, 2015) point to a continuous improvement of Brazil's social and economic development indicators in the last two decades, with the reduction of inequalities among income classes. However, when analyzing the Human Development Index in Brazilian municipalities (HDI-M), it is possible to clearly identify the inequalities and the gap in access to opportunities in Brazilian society (UNDP, Ipea and FJP, 2013).

These inequalities can also be observed in the access to financial services, which is evidenced through the indicators of the Financial Inclusion Report prepared by the Central Bank of Brazil, which show a great dispersion among the states and municipalities (BCB, 2015). The report showed that, in March 2015, 240 Brazilian municipalities did not have any type of bank agency. In addition, 1,922 Brazilian municipalities did not have formal bank branches in March 2015, or 34.5% of all Brazilian municipalities (BCB, 2015). Therefore, there is still strong asymmetry in Brazil when it comes to access banking services (Crocco et al., 2013).

In developing countries, access to financial services can be seen as an essential public good, allowing society to enjoy the benefits of a modern market economy (Peachy and Roe, 2006). It is recognized by the World Bank as a critical factor in reducing income inequalities and accelerating regional economic growth (World Bank, 2014). In addition, Chibba (2009) highlights the role of information and communication technology (ICT) in providing banking services to low-income populations located in remote areas.

Thus, authors such as Sarma and Pais (2011) and Crocco and collaborators (2013) have analyzed the positive impact of access to credit and banking services in the social development of nations.

Although Brazil has considerably expanded its population's access to the financial system, through correspondent banking (Feltrim et al., 2009; Leonardi et al., 2016), this model presents limitations because of its large emphasis on transactional services such as payments, withdrawals and deposits, and little emphasis on customer relationship services, especially microcredit, which is one of the drivers of financial inclusion of low-income populations (Diniz, 2007; Leonardi et al., 2016).

This article aims to investigate the itinerant banking service stations installed in boats — the project Agência Barco, developed by the bank Caixa Econômica Federal (Caixa) — which aims to provide access to banking services to populations in riverine regions, where there is no formal bank branch installed. The universe of this work includes the Agência Barco that serves the Marajó island, in the state of Pará, a region that presents a low human development index, including the city of Melgaço, which has the lowest HDI in Brazil (PNUD, Ipea and FJP, 2013). The research question is: how has the Agência Barco impacted the financial inclusion in the region of the Marajó island?

## 2. FINANCIAL INCLUSION AND DEVELOPMENT

Development studies have never reached a consensus regarding the meaning of “development”. This has been a focus of debates among various multilateral, government and non-government

organizations engaged in activities towards improving life conditions (Escobar, 1995; Pieterse, 2000). Thus, a holistic view of the concept of development was adopted in the 1990s by the United Nations Development Program (UNDP) (UNDP, IPEA and FJP, 2013), inspired by the thinking of Amartya Sen (2001).

Thus, under the influence of the multidimensional capability approach (Sen, 2001), other attributes besides income and consumption were included for a more precise identification of poverty and to represent the situation of vulnerability of the individuals. In this perspective, economic growth is necessary for development, but it is neither a single nor sufficient factor (Clark, 2005).

The capability approach is recognized for expanding the scope of human development assessment, understanding people as an end in themselves and not merely as a means to economic activity (Sen, 2001).

In this regard, being a participant in the financial system has become extremely necessary in daily life, which makes access to and use of financial services indispensable (Gloukoviezoff, 2006). However, not all individuals can be considered financially included, either due to lack of access to the financial system, lack of available financial services or lack of financial education to access and use of these services (Sarma et al., 2008; World Bank, 2014).

In Brazil, several studies have investigated financial inclusion in the country (Bader and Savoia, 2013; Gussi et al., 2014). For the central bank, financial inclusion is the process of effective access and use by the population of financial services appropriate for their needs, contributing to their quality of life (BCB, 2015). This definition is similar to that proposed by the World Bank, involving both access and use of financial services by the population (World Bank, 2014).

However, despite the progress in the relationship between citizens and the financial system, as well as the growing presence of financial institutions in almost all Brazilian municipalities (due to the widespread use of the correspondent banking model), the country still presents less than half of bank agencies per capita than developed countries (Bader and Savoia, 2013). In addition, only 35% of the Brazilian population has a credit card (World Bank, 2014), and approximately 25% of the population declares that they have a bank account only to receive salary, pension or other benefits (BCB, 2015). These facts reveal Brazil's challenge to build an inclusive financial system, involving public and private banks, regulatory agencies, cash transfer programs, and other players.

### **3. THE ROLE OF ICT IN FINANCIAL INCLUSION**

Studies have investigated innovative information and communication technology (ICT) solutions aimed at overcoming the challenges faced by the world's poorest communities, considering local economic, cultural and infrastructure context (Avgerou, 2010). The focus of these research has shifted from understanding ICT as simply the use of technology to respond to specific needs, to a holistic and contextual approach that treats ICT as promoter of development.

Examples of this can be found in the studies by Diniz and collaborators (2012) and Leonardi and collaborators (2016), which present the case of correspondent banks in underprivileged and remote

communities in Brazil. Thus, ICT is the latest example of inclusive innovation, since its mass diffusion represents the most significant technological change in low-income communities in recent years, with increasing opportunities to enable the emergence of new goods and services, especially related with mobile communication technologies (Heeks et al., 2013). Sarma and Pais (2011) also highlight the decisive role of physical infrastructure and communication for the construction of financially included companies.

#### 4. FROM DIGITAL INCLUSION TO FINANCIAL INCLUSION: A CONCEPTUAL MODEL

According to several authors (Avgerou, 2010; Heeks, 2010), ICT can bring development to local communities through financial inclusion (Diniz, 2007; Leonardi et al., 2016).

Heeks and Molla (2009), in a comprehensive and in-depth study, analyzed several existing models of ICT for development (ICT4D). Based on the study, two approaches underlying these models can be inferred. The first — quite prescriptive and direct — is based on indicators associated with development. In this approach, there is no involvement of the local community in the process of ICT4D, and it is only the passive recipient of the process' benefits (Kumar, 2004). The second approach, based on the assumptions of the capability approach (Sen, 2001), seeks the participatory engagement of the local community in the process of ICT4D. However, as supported by Kleine (2010, 2013), this approach is difficult to implement. Therefore, the first approach is easy to apply at the expense of local participation, whereas the second approach is participatory, with the population choosing what is best for them, at the cost of a complex operation.

Considering this background and also the fact that Heeks and Molla (2009:156) did not list any existing model of ICT-mediated financial inclusion, a new model was developed. Thus, a model of digital inclusion (Joia, 2004, 2007) already applied to the Brazilian reality was chosen, given its easy and feasible implementation, as well as its dynamics of participation and empowerment based on the capability approach. In short, this model aims to link the two approaches previously mentioned.

In the following section, this digital inclusion model is presented and then adapted, through a theoretical framework, in order to assess ICT-mediated financial inclusion.

#### 5. THE 2iD MODEL OF DIGITAL INCLUSION

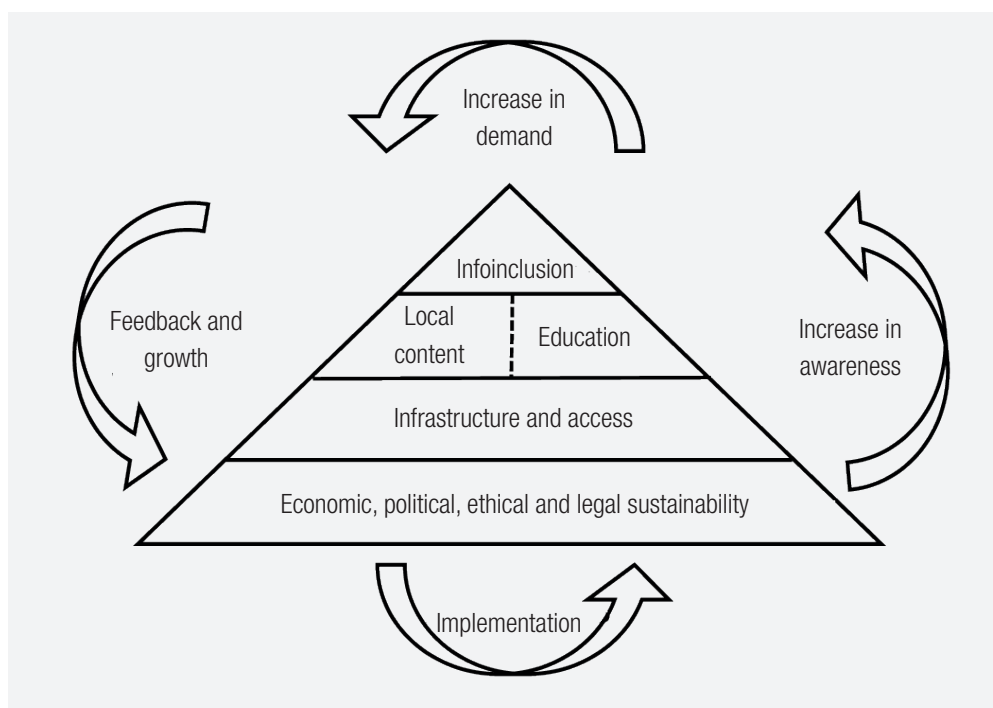
Joia (2004, 2007) proposed the conceptual model of dynamic infoinclusion 2iD, which assess the cycle of the impact of using ICT in the development of a local community, considering political, technological, educational and social aspects, as well as a dynamic of participation and empowerment of citizens through ICT, as shown in figure 1.

The author proposes that the sustainability of infoinclusion should encompass not only financial and economic factors, but also others that reflect the government's concern with the continuity of digital inclusion public policies. According to the author, the component 'education' in the model must go beyond training people to include raising awareness regarding the opportunities that technologies bring for socioeconomic changes. In addition, the author

reinforces the need to consider the environment and the context, in order to create specific content that meets the expectations and needs of local communities where the infoinclusion project is developed.

The process of the dynamic infoinclusion model 2iD, based on the capability approach (Sen, 2001), represents the awareness of individuals about the importance of using ICT. From there, these individuals begin to demand content, education, services and access to technology. Feedback, coupled with the expansion of the cycle of empowerment and participation resulting from this dynamic, promote the implementation of new infoinclusion initiatives, as shown in figure 1.

**FIGURE 1** DYNAMIC INFOINCLUSION MODEL (2iD)



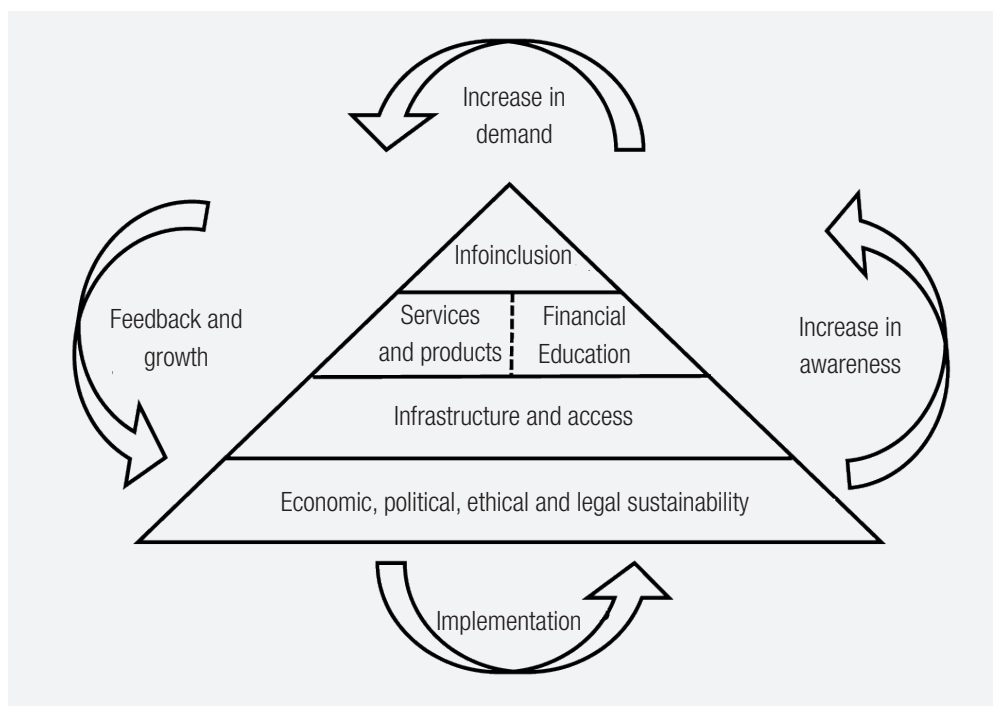
Source: Adapted from Joia (2004:308).

## 6. 2iD MODEL ADAPTED FOR FINANCIAL INCLUSION

The crucial role of ICT in the financial inclusion of low-income populations led to the adaptation of Joia's (2002) conceptual model of dynamic infoinclusion (2004) in order to assess ICT-mediated financial inclusion. Thus, the capability approach (Sen, 2001) was incorporated into the model offering a systemic — not necessarily utilitarian — view of the financial inclusion of poor populations. However, as stated by Clark (2005), the operationalization of the capability approach is not a simple task. Thus, the work of Kleine (2010, 2013) and Gigler (2011) was used to prospect development indicators associated with the implementation of ICT. These indicators

were then adapted to financial inclusion, based on the theoretical framework presented in Box 1, and the 2iD conceptual model adapted for financial inclusion — named 2iDf — was developed (figure 2).

**FIGURE 2** 2ID MODEL ADAPTED FOR FINANCIAL INCLUSION (2IDF)



Source: Elaborated by the authors.

In the 2iDf model, the following dimensions of financial inclusion are considered: infrastructure and access; financial education; services and products; and sustainability.

- Infrastructure and access — refers to the creation of conditions for the local population to access financial services, individually or collectively, including:
  - Banking facilities and technological resources;
  - Availability of financial services;
  - Affordable cost for accessing financial services.
- Financial education — refers to training people to use the financial services offered and to understand their benefits, including:
  - Presentation of characteristics of products and services that enhance the citizen's financial resources;
  - Presentation of characteristics of the products and services that enable entrepreneurial activities, aiming to increase the income of the local community;

- Promotion of use of electronic transactions, replacing the use of cash.
- Services and products — this includes offering financial products and services that take into account the reality of the local communities.
- Sustainability — involves the maintenance and updating of financial products and services offered in the communities, including economic, political, legal and ethical aspects.

Similar to the 2iD model (Joia, 2004, 2007), the dynamics of the 2iDf model consider the Brazilian government responsible for the financial inclusion initiatives, which can be implemented by the government alone or in partnership with private banks or correspondent banks (Diniz, 2007; Diniz et al., 2012). In this dynamic process, financial inclusion initiatives help to increase citizens’ awareness about the importance of the financial market, stimulating them to use financial services. Henceforth, citizens tend to demand more financial products and services, more education on the topic and consequently, more access to ICT in order to participate in the financial system. This increased demand tends to produce new financial inclusion initiatives, leading to a virtuous cycle of empowerment and participation. In other words, the dynamic components of the model support and increase financial inclusion over time (longitudinal view), while the static components of the model support financial inclusion in a specific moment (transversal view), but growth of financial inclusion over time.

Box 1 presents the theoretical framework that supports the components of the 2iDf model.

**BOX 1 THEORETICAL FRAMEWORK FOR 2iD MODEL ADAPTED FOR FINANCIAL INCLUSION (2iDf)**

Components of the 2iDf model	Sources
Infrastructure and access	Heeks and Molla (2009); Sarma and Pais (2011)
Financial education	Gloukoviezoff (2006); Heeks and collaborators (2013); Diniz and collaborators (2012); Leonardi and collaborators (2016)
Services and products	Heeks and Molla (2009); Heeks and collaborators (2013)
Sustainability	Gloukoviezoff (2006); Sarma and collaborators (2008); Gigler (2011)
Implementation	Joia (2004); Sarma and collaborators (2008); Gloukoviezoff (2006); Gigler (2011)
Increase in awareness	Sen (2001); Joia (2004, 2007); Heeks and Molla (2009); Bader and Savoia (2013); Gigler (2011)
Increase in demand	Joia (2004, 2007); Heeks and Molla (2009); Gigler (2011)
Feedback and growth	Sen (2001); Joia (2004, 2007); Heeks and Molla (2009); Gigler (2011)

Source: Elaborated by the authors.



## 7. METHODOLOGY

This article uses the case study method (Yin, 2010), with data collection through interviews and direct observation. For the data treatment and analysis, the study used lexical and content analysis applied to the dynamic infoinclusion model adapted for financial inclusion (2iDf).

A single case study is conducted, based on one unit of analysis (Yin, 2010): the Agência Barco (a branch of the Brazilian bank Caixa that operates in a boat) of the Marajó island.

## 8. DATA COLLECTION

The study initially carried out a literature review, followed by the collection of relevant documents, including: the Agência Barco project (Caixa, 2012, 2014, 2013); sociodemographic information (PNUD, Ipea and FJP, 2013; IBGE, 2015) and data on financial inclusion of the municipalities visited by Agência Barco (BCB, 2011, 2015).

Open interviews were conducted with five managers of Caixa who participated in the design and implementation of the project, seeking information not available in documentary sources. In addition, these managers were asked to validate the protocols of the semi-structured interviews that were conducted in the field.

These semi-structured interviews were carried out with users of the Agência Barco and with Caixa employees, to assess the impact of the project on the financial inclusion of the riverine population. The interview protocols were based on the components of the 2iDf model.

A total of 18 clients ( $C_i, i=1.18$ ) and five Caixa employees ( $E_i, i=1.5$ ) participated in these interviews, which were recorded and then transcribed verbatim for analysis.

Finally, direct and non-participant direct observation was carried out.

All previous data were obtained by one of the researchers during the course of a five-day trip to the Agência Barco in July 2015. The trip departed from Belém to the city of Soure, and from there to the city of Ponta de Pedras, returning then to Belém in the state of Pará.

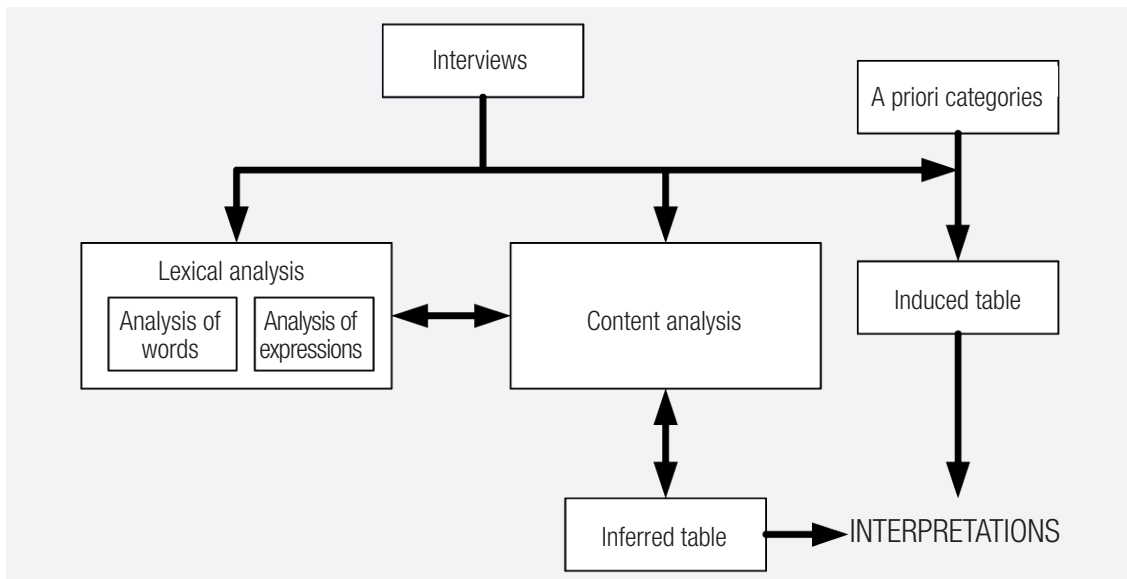
## 9. DATA ANALYSIS

The interviews conducted with the users of Agência Barco were treated with content analysis techniques; with *a priori* categorization, based on the components of the dynamic infoinclusion model 2iDf; with alphanumeric coding; and grouping by the frequency of occurrences, i.e., by the repetition of content common to most respondents (Bardin, 2011; Campos, 2004). The categorization followed the mixed model (Laville and Dionne, 1999), which means that new categories could be added as the recording units were regrouped. The interviews with bank's employees working in Agência Barco, were used only for triangulation of evidence, considering that the study focused on the financial inclusion of the local population.

In order to aid the content analysis, the study included the previous application of the lexical analysis — which uses statistical methods for vocabulary description (Freitas and Janissek, 2000) — so that the data analysis was fully carried out, encompassing several possibilities, as shown in the model presented in figure 3.



**FIGURE 3 DATA ANALYSIS**



Source: Freitas and Janissek (2000:85).

The recording units for text clipping were defined by words and expressions referring to the static and dynamic components of the 2iDf model. The lexical analysis led to the initial identification of 864 words and expressions that, in turn, were grouped into 235 initial categories. The recurrent process of lexical and content analysis led to a new stage of categorization, reaching 97 categories with 821 occurrences (table 1). From this phase of the analysis process, the intermediate categories were also coded according to their influence – positive or negative – in relation to the components of the 2iDf model. Data were interpreted through a comparison with the components of the 2iDf model, as well as with documents collected, in order to identify the impacts of the Agência Barco on the financial inclusion of served communities.

**TABLE 1 CATEGORIES OF ANALYSIS**

Components of the 2iD model adapted for financial inclusion	Categories	Frequency of remarks per category	Frequency of Remarks per component of the model
Infrastructure and access	ICT	45	430
	Costs	85	
	Physical Structure	14	
	Dissemination of services	129	
	Complementary Services (Lottery and BC)	121	
	Team	19	
	Availability	17	

Continue

Components of the 2iD model adapted for financial inclusion	Categories	Frequency of remarks per category	Frequency of Remarks per component of the model
Financial education	Guidance	85	179
	Ease to use	60	
	Innovation	34	
Services and products	Supply	112	112
Sustainability	Politics	46	51
	Economics	5	
	Legal	0	
	Ethics	0	
Awareness	Insertion	9	17
	Community	8	
Increase in demand	New services	18	18
Growth	Initiatives	15	15

Source: Elaborated by the authors.

### 10. CASE STUDY

The Agência Barco is a boat designed and built exclusively for the operation of a banking unit, where Caixa employees work as in any other banking branch.

The study for the implementation of Agências Barco took into account the characteristics of the states of the Northern Region of Brazil, analyzing the watersheds, the potential public to be served, the geographical dispersion of the population in the municipalities and the lack of banking service in the communities.

The Agência Barco of Marajó island was inaugurated in January 2014 to serve 10 municipalities: Soure, Salvaterra, Ponta de Pedras, Muaná, São Sebastião da Boa Vista, Curralinho, Bagre, Breves, Melgaço and Portel (figures 4 and 5).

FIGURE 4 MARAJÓ ISLAND — LOCALIZATION



Source: <[http://4.bp.blogspot.com/9vBjTRphbc/Ubus0r5hVLI/AAAAAAAAEDM/oEYpi5gsx2w/s1600/Par%C3%A1\\_Mapa+da+Cidade.gif](http://4.bp.blogspot.com/9vBjTRphbc/Ubus0r5hVLI/AAAAAAAAEDM/oEYpi5gsx2w/s1600/Par%C3%A1_Mapa+da+Cidade.gif)>. Accessed on: 25 July 2017.

**FIGURE 5** TRIP OF THE AGÊNCIA BARCO IN MARAJÓ ISLAND (CYCLE)

Source: Santos (2015:70).

The Agência Barco of Marajó island is a vessel that has three decks totaling an area of 1,077 square meters, with capacity for 76 people sitting in the service room of 140 square meters, plus another 20 passengers, who occupy the boat throughout the itinerary, including five employees of Caixa, five consular officers, four security guards and six crew members (figures 6 and 7).

The opening of the Agência Barco was conditioned by regulatory agencies that there was no custody of cash on the boat, due to security concerns. Thus, the business strategy has the support of lottery ticket shops in each city served by the boat, so that the cash values can be provided by this service channel, which is also operated by Caixa.

**FIGURE 6** AGÊNCIA BARCO

Source: Santos (2015:71).

**FIGURE 7** AGÊNCIA BARCO — INTERIOR

Source: Santos (2015:71).

The boat makes a monthly trip, called a ‘cycle,’ staying on average two days at each stop, working during banking hours and offering all the services of a normal branch of the bank, except for not carrying money in cash. The displacement between cities usually occurs at the end of the working day, entering the night period, influenced by navigability and weather conditions (wind, rain, etc.). The main services offered are: account opening; contracts of microcredit; construction materials financing; pension schemes; life insurance; consumer credit (CDC); registration and unblocking passwords for benefit cards issued by the federal government, which include the conditioned cash transfer program (Bolsa Família); delivery and unlocking benefit cards requested; registration and regularization of PIS (Program of Social Integration of the federal government); payments from the FGTS (severance pay fund controlled by the federal government); payment of unemployment benefits; registration and regularization of CPF (register in the Brazilian federal revenue service); and payment of Bolsa Família benefits.

The technological solution for the Agência Barco includes satellite communication for connection to Caixa’s datacenter located in Brasília, sized to support real-time data and voice applications, with autopointing and automatic satellite signal tracking (autotracking) — enabling the operation and transmission of back-office processes of the branch, even with the vessel on the move. In addition, the vessel is provided with direct access to the internet through cell phone networks.

## 11. ANALYSIS OF DATA AND RESULTS

Of the ten municipalities served by the Agência Barco on Marajó island, only two present a HDI considered medium, and eight are classified as low or very low, which is well below the average HDI for Brazil. In addition, only four of the ten municipalities served by Agência Barco have bank branches, and only the municipality of Breves has a branch of Caixa, the financial institution that is responsible for operationalizing the federal government’s public policies. Table 2 shows some characteristics of the ten municipalities visited by Agência Barco.



**TABLE 2** SOCIODEMOGRAPHIC DATA OF THE MUNICIPALITIES OF MARAJÓ ISLAND

City	Area (Km <sup>2</sup> )	Distance from Belém (Km) <sup>1</sup>	Population (2010)	Population (2014)	Population density (pop. per Km <sup>2</sup> )	HDI-M (2010)	Source
BAGRE	4,397.32	265	23,864	27,491	5.43	0.471	<a href="http://cod.ibge.gov.br/2B0">http://cod.ibge.gov.br/2B0</a>
BREVES	9,550.51	223	92,860	97,351	9.72	0.503	<a href="http://cod.ibge.gov.br/236QT">http://cod.ibge.gov.br/236QT</a>
CURRALINHO	3,617.25	151	28,549	31,591	7.89	0.502	<a href="http://cod.ibge.gov.br/8CC">http://cod.ibge.gov.br/8CC</a>
MELGAÇO	6,774.02	251	24,808	26,133	3.66	0.418	<a href="http://cod.ibge.gov.br/872">http://cod.ibge.gov.br/872</a>
MUANÁ	3,765.55	82	34,204	37,314	9.08	0.547	<a href="http://cod.ibge.gov.br/2334U">http://cod.ibge.gov.br/2334U</a>
PONTA DE PEDRAS	3,365.15	43	25,999	28,601	7.73	0.562	<a href="http://cod.ibge.gov.br/23372">http://cod.ibge.gov.br/23372</a>
PORTEL	25,384.96	265	52,172	57,205	2.06	0.483	<a href="http://cod.ibge.gov.br/89X">http://cod.ibge.gov.br/89X</a>
SALVATERRA	1,039.07	78	20,183	21,987	19.42	0.608	<a href="http://cod.ibge.gov.br/2BY">http://cod.ibge.gov.br/2BY</a>
SÃO SEBASTIÃO DA BOA VISTA	1,632.25	119	22,904	24,768	14.03	0.558	<a href="http://cod.ibge.gov.br/18GU">http://cod.ibge.gov.br/18GU</a>
SOURE	3,517.32	81	23,001	24,076	6.54	0.615	<a href="http://cod.ibge.gov.br/9QM">http://cod.ibge.gov.br/9QM</a>
<b>Total</b>	<b>63,043.41</b>		<b>348,544</b>	<b>376,517</b>			

1 – Distance in a straight line, based on Google maps.

Source: IBGE (2015).

A large part of the clients interviewed (47,8%) had a low educational level, and slightly more than half of them receive social benefits from the federal government.

Of the eighteen interviewees, half were informed about the presence of the Agência Barco through third parties (a neighbor or relative saw the boat in the port and passed on the news). Some of the interviewees arrived at the Agência Barco by boat, coming from river branches or “igarapés” of the surrounding cities.

In addition, it was possible to verify the great penetration of the cell phone system, with all the interviewees claiming to have a cell phone, although almost half of them do not have access to the internet.

Of the eighteen interviewees, 44.4% reported not having a formal relationship with financial institutions through checking or savings accounts, and three said they had never had a bank account. In addition, half of the interviewees reported a preference for the complete withdrawal of money deposited in a bank account, in direct correspondence with the percentage of respondents who do not have bank accounts.

Regarding financial education, it was possible to verify among the interviewees a low relationship with other financial products, such as loans and investments.

The results of the content analysis are presented in tables that synthesize the opinions of the interviewees regarding the presence of each of the components of the 2iDf model, identifying the intermediate categories and their frequency of occurrence, as well as the influence of each intermediate category in the final one, represented with the symbol (↑) — indicating a positive influence or presence of aspects related to a particular component of the model — or a down arrow (↓) — indicating a negative influence or absence of aspects related to a particular component of the model.

## 12. COMPONENT: INFRASTRUCTURE AND ACCESS

Table 3 summarizes the analysis of the categories related to the component ‘infrastructure and access’ of the 2iDf model.

In the ‘ICT’ category, the adopted solution presents some instability during the period of the operation, with episodes of slowness and unavailability (witnessed during the direct observation). An interviewee illustrates the influence of ICT in the services provided at the Agência Barco: “...we could have at least one more computer, even without the internet, [...] for reports and worksheets...”(E1).

**TABLE 3** CATEGORIES OF THE COMPONENT ‘INFRASTRUCTURE AND ACCESS’

2iD model's component, adapted for financial inclusion	Categories	Intermediary categories	Influence	Frequency of mentions per intermediary category	Frequency of mentions per category	Frequency of mentions per component of the model
Infrastructure and access	ICT	Lack of ICT for agreements	↓	18	45	430
		Intermittent and slowness	↓	14		
		Work continuously	↑	6		
		Technical support/documentation	↓	6		
		Spare equipment and supplies	↑	1		
	Costs	Avoid travelling to the capital	↑	65	85	
		Safety	↑	17		
		No fees	↑	2		
		Overcomes isolation	↑	1		
	Physical structure	Comfort	↑	12	14	
		Ports	↓	2		
	Promotion	Lack of knowledge about services and schedule	↓	58	129	
		Networking	↑	32		
		Radio	↑	16		
		Use of cell phones	↑	9		
		Marketing campaign	↑	8		
	Complementary services (lottery ticket shops and correspondent banks)	Use of nonprofits	↑	6	121	
		Queues	↓	35		
		Lack of cash	↓	30		
		Usage	↑	19		
		Do not provide guidance	↓	13		
Limited services		↓	11			
Necessity of the bank's branch		↓	10			
Semi-privacy	↓	3				
Personnel	Personal initiative	↑	13	19		
	Few candidates	↓	3			
	Influence in the branch in which they are related to	↓	3			
Availability	Reduced schedule	↓	12	17		
	Fulfill the needs	↑	5			

Source: Elaborated by the authors.

Regarding the ‘costs’ category, both clients and the employees working at the branch emphasize saving time and money. Another important element was safety, since the boat saves clients from travelling to the capital to solve problems related to the federal government services operated by Caixa (and there are reports of frequent robberies during trips to Belém): “...I came to fulfill the requirement of ‘proof of life’..., I would have to go to a branch or to go all the way to Belém to arrange for a social worker to visit my house...” (C4).

A positive aspect mentioned by several interviewees is the physical structure of the service room in Agência Barco: “...it is a good environment, [...] well organized, the service is good...” (C9).

Of the categories inferred throughout the process of analysis of the component ‘infrastructure and access’, the ‘promotion’ and ‘complementary services’ categories stand out. Bader and Savoia (2013) point to “appropriate marketing to the target audience” as a critical factor of the behavior related to financial inclusion.

The Agência Barco schedule is announced on local radio stations, but most of the clients interviewed say they learn about the arrival because they see the vessel or through someone that sees it in the port: “...here is the radio, because not everyone lives nearby, but not everyone has the radio, sometimes the radio has no battery, [...] not everyone has electricity, [...] many do not know that Caixa is here.” (C7).

A lack of knowledge about the services provided by Agência Barco was also noted, suggesting that there is a need for more marketing campaigns, using cell phones as a mean for promotion.

A category associated to the services provided by the lottery ticket shops, which complement the business model of the Agência Barco, emerged during the interviews. The quotes in the ‘complementary services’ category point to queues and lack of money in the lottery shops, especially in the periods of social benefit payment, as can be seen in the responses of some clients interviewed: “...you must see how the shop looks like in these days, people suffer a lot in the queue, [...] on the days of *Bolsa Escola* [a social benefit], people arrive at the shop at dawn to queue...” (C13).

On the other hand, the ‘availability’ category indicates, in the clients’ point of view, an expectation of more frequent visits of the Agência Barco, although some of the clients have expressed that the current periodicity is enough: “... the service is good like this. It would be better if it came more often” (C10).

In the interviews with the employees working in the Agência Barco, the ‘personnel’ category emerged from the mention of the motivation to work on board, as well as difficulties to form the team: “...our greatest difficulty is personnel to form the team [...] some colleagues did not adapt...” (E5).

### 13. COMPONENT: FINANCIAL EDUCATION

Table 4 summarizes the analysis of the categories related to the component ‘financial education’ of the 2iDf model.

Thus, customers point out that they receive guidance about the products and services they seek at the bank. However, it was possible to identify in interviews and direct observation that most clients come to the bank with difficulties to express what they want: “...I, particularly, if you tell me to go to a bank to withdraw money, I would not know, I know nothing about it, you have to open an account



for me, to manage the money, because I do not know” (C9). “The majority [of the population] that come here do not have basic education, they do not understand very well... we have to explain..., they think that Caixa will solve their lives. [...]” (E2).

Such behavior suggests, when it comes to financial education, that clients are mostly reactive. Such a symptom can be inferred based on the ‘preference for cash’ category, as highlighted by one of the clients interviewed: “...the only card I have is that of the *Caixa Fácil* account [bank account free of charge designed to manage small amounts of money in few transactions], [...] I prefer to withdraw all the money at once and pay the bills...” (C2).

**TABLE 4** CATEGORIES OF THE COMPONENT ‘FINANCIAL EDUCATION’

2iD model's component, adapted for financial inclusion	Categories	Intermediary categories	Influence	Frequency of mentions per intermediary category	Frequency of mentions per category	Frequency of mentions per component of the model
Financial education	Guidance	Explanation	↑	34	85	179
		Not knowing the characteristics of products	↓	25		
		Good service	↑	19		
		Trust	↑	7		
	Ease of use	Preference for cash	↓	22	60	
		Self-service	↑	13		
		Commerce does not accept cards	↓	12		
		Aid to use technology	↓	7		
		Uses debit	↑	6		
	Innovation	Fraud	↓	17	34	
		Complexity	↓	12		
		Convenience	↑	5		

Source: Elaborated by the authors.

Respondents were asked about the possibility of using a mobile payment solution, but most of them expressed mistrust regarding the adoption of the service: “[...] I do not have much confidence yet ... telephone is for communication ... the people here are a little suspicious...” (C4).

### 14. COMPONENT: PRODUCTS

For the component ‘products’ of the 2iDf model, five intermediate categories emerged (Table 5), with predominance of products and services linked to social benefits provided by the federal government.

A significant frequency of the intermediate category ‘looking for a loan’ is highlighted. At the same time, some interviewees reported the difficulty of access to microcredit, either because of the low amount of credit offered by Caixa or because of excessive bureaucracy, as seen in the following transcript: “[...] I have not yet needed [...] depending on the conditions, I could take a loan, but there are many requirements...” (C11).

Agência Barco offers the same products as offered in any other branch of Caixa, but people are looking for the most basic products – checking and saving accounts. According to one of the employees working in the branch: “[...] Our main goal is to open accounts for fishermen, [...] savings accounts [...] the main services are social benefits, savings, payments of the conditional cash transfer program *Bolsa Família*...” (E1).

**TABLE 5** CATEGORIES OF THE COMPONENT ‘PRODUCTS’

2iD model's component, adapted for financial inclusion	Categories	Intermediary categories	Influence	Frequency of mentions per intermediary category	Frequency of mentions per category	Frequency of mentions per component of the model
Products	Offer	Social	↑	51	112	112
		Accounts	↑	23		
		Looking for a loan	↑	23		
		Difficulty to access credit	↓	10		
		Use of credit	↓	5		

Source: Elaborated by the authors.

### 15. SUSTAINABILITY

In table 6 it is possible to observe that aspects related to the dimensions legal and ethical sustainability of the static component ‘sustainability’ were not mentioned by Caixa’s personnel.

**TABLE 6** CATEGORIES OF THE COMPONENT ‘SUSTAINABILITY’

2iD model's component, adapted for financial inclusion	Categories	Intermediary categories	Influence	Frequency of mentions per intermediary category	Frequency of mentions per category	Frequency of mentions per component of the model
Sustainability	Political	Expanding services and agreements	↑	23	46	51
		Employment record book	↑	11		
		Little coordination with City Halls and nonprofits	↓	6		
		Complementary services	↑	2		
		Few services	↓	2		
		Social projects	↑	1		
		Little influence from partners	↓	1		
	Economic	Costs of logistics in the Superintendency	↑	1	5	
		Administrative costs in the branch	↑	1		
		Not charged based on revenues	↑	1		
		Possibility of sharing costs with partners	↑	1		
		Boat of the INSS discontinued	↓	1		
	Legal			0	0	
	Ethics			0	0	

Source: Elaborated by the authors.

On the other hand, the political dimension indicates that a possible articulation with government’s agencies with which Caixa has operational agreements — especially the Social Security agency (INSS) — in order to offer more services, would be an important factor for sustainability: “...I would like the partnership to be created, [...] such as for issuing an ID card [...] there should be a representative of the INSS here to advise on citizen’s rights...” (E1).

In the economic dimension, this issue appeared in an interview with a Caixa employee: “[...] one of the options would be for the INSS to participate in this, [...] more agencies participating means sharing costs...” (E4).

## 16. DYNAMIC COMPONENTS OF THE 2IDF MODEL

The component ‘implementation’ of the 2iDf model was analyzed from the interviews conducted with Caixa employees who participated in the design and implementation of the project. The other dynamic components were analyzed in a similar way to the static components, that is, using content analysis techniques applied to semi-structured interviews. Quotations emerged predominantly in interviews with Caixa employees. For this reason, the relative frequency of occurrences in each category is low, as can be seen in table 7.

Overall, users were satisfied with what was offered to them, usually presenting short answers such as “it’s very good” or “what they have is enough for me”. When encouraged to provide more details on perceived improvements or on missing services or products, the answer of one of the clients interviewed gives an idea of the general perception: “[...] It has improved greatly, because it does not open here [a branch of Caixa], we had to go to Belém[...]” (C11).

Regarding the ‘inclusion’ category — component ‘increase in awareness’ — a client reported the desire to have a bank account in order to feel technologically updated and somehow to gain social recognition. On the other hand, the Agência Barco’s employees reported the perception that the lack of education *lato sensu* makes it difficult for the population to understand the characteristics of banking services and products, creating barriers to the process of raising awareness on the importance of participating in the financial system: “[...] I want to open a bank account... I want to feel part of this technological world [...] being updated [...]” (C9); “... we held meetings with fishermen’s associations and communities to encourage the opening of bank accounts for the fishermen [...] for them to deposit their *seguro defeso* [specific social benefit]...” (E5).

**TABLE 7** CATEGORIES OF DYNAMIC COMPONENTS

2iD model's component, adapted for financial inclusion	Categories	Intermediary categories	Influence	Frequency of mentions per intermediary category	Frequency of mentions per category	Frequency of mentions per component of the model
Increase in awareness	Insertion	Desire to have a bank account	↑	4	9	17
		Be part of the technological world	↑	2		
		Used services more often	↑	2		
		Social acknowledgement	↑	1		
	Community	Perception of improvement	↑	7	8	
		Keeps money in the municipality	↑	1		

*Continue*

2iD model's component, adapted for financial inclusion	Categories	Intermediary categories	Influence	Frequency of mentions per intermediary category	Frequency of mentions per category	Frequency of mentions per component of the model
Increase in Demand	New services	Issuing documents	↑	5	18	18
		Knowing who is the user	↑	4		
		Few jobs	↓	3		
		No companies as clients	↓	2		
		No relationship with the City Hall or Lottery	↓	2		
		Reducing movement	↓	2		
Feedback and Growth	Initiatives	Lack of Public Services	↑	6	15	15
		Aligned with other regions	↑	5		
		Characteristics of ministries	↑	2		
		Project “ <i>Embarca Marajó</i> ”	↑	2		

Source: Elaborated by the authors.

Regarding the dynamic component ‘increase in demand’, when asked about the services they would like to obtain at the Agência Barco, some customers mentioned issuing documents, but none mentioned a desire to seek new banking products: “[...] Can you can get your ID card here? [...] it would be good if you could get it here on the boat...” (C7).

This apparent lack of interest in more financial services may be related to the outcome of the component ‘increase in awareness’, as suggested by Joia (2004), considering that increase in demand for new initiatives — products and services — stems from increase in awareness.

On the other hand, the lack of public services on the Marajó island was mentioned by employees as an aspect that reinforces the need for the Agência Barco project, with the possibility of expansion to other regions. The ‘initiatives’ category of the component ‘feedback and growth’ of the model is an example of this situation: “...I think it can be expanded [...] in a while other municipalities may need it more than here, because here they will soon have met their greatest demand [...]” (E9).

## 17. DISCUSSION

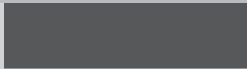


In order to evaluate the impact of presence of each static component of the 2iDf model, the study used a scale to determine, in three levels, the perception of presence of a specific component of the model and its positive aspects (table 8 and box 2).

**TABLE 8** SCALE OF PRESENCE OF THE MODEL'S STATIC COMPONENTS

Model's static components	Total frequency	Positive frequency	Positive frequency (%)
Infrastructure and access	430	212	49.30%
Education	179	179	46.93%
Services/products	112	97	86.61%
Sustainability	51	41	80.39%

Source: Elaborated by the authors.

**BOX 2** CLASSIFICATION OF THE MODEL'S COMPONENTS

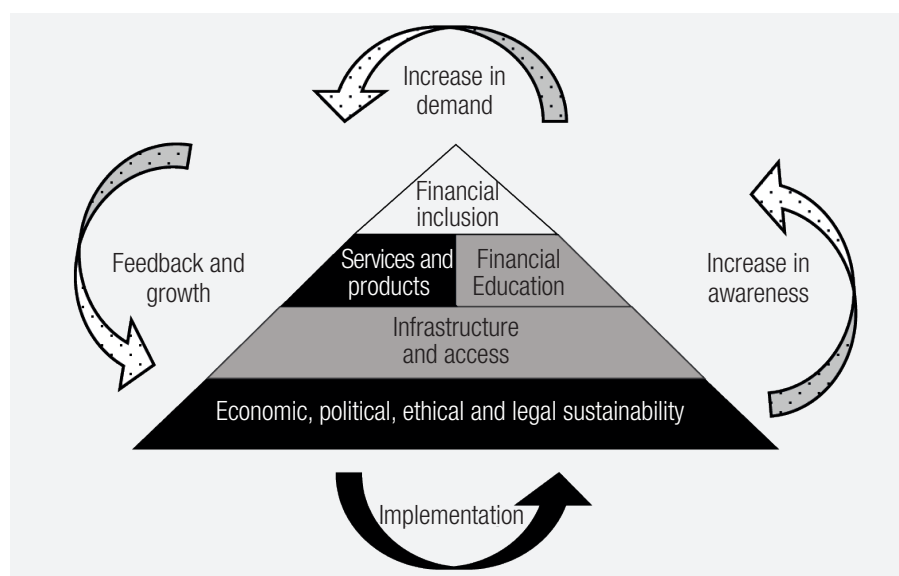
Perception of the component's presence	Key
High > 75%	
25% <= Average <= 75%	
Low < 25%	

Source: Elaborated by the authors.

From this scale, a graphical representation of the results is presented in figure 8, associated to the perceptions of the presence of positive aspects of the static components of the 2iDf model.

The absence of service channels in financial institutions is the easiest element to directly observe financial exclusion. The access to financial services provided by the Agência Barco contributes to increase the indicators of geographic and demographic availability of financial services, so the population of local communities do not have to travel to the state capital, saving them time and money.

On the other hand, the deficiency in ICT infrastructure in the communities served by the Agência Barco requires the use of higher cost and usually poorer performing technologies when compared to the ones available in the most developed urban centers of the country, which also reduces the possibility to provide more services. Despite this limited performance and episodes of occasional unavailability, the ICT infrastructure that supports the banking systems and applications necessary for the branch's operations is able to meet the demand.

**FIGURE 8** FINAL REPRESENTATION OF THE 2iDf MODEL

Source: Elaborated by the authors.

Despite a positive perception of medium intensity for the component ‘financial education’, the content analysis based on the interviews with clients and employees showed the little knowledge about products and services offered. This apparent contradiction can be explained by possible differences in the interpretation of the concept of financial education by the interviewees. Analyzing the activities of the branch’s employees when serving the population, it is clear — and acknowledged by the clients — that there are elements of a financial education process (as defined by the Brazilian central bank (BCB, 2015)) advising about the products most suited to the needs of the customer and explaining about the characteristics of the products. However, the few elements of positive influence in the ‘ease of use’ category of the component ‘financial education’ suggest that clients who seek services of the Agência Barco lack the skills and the needed financial resources that enable them to make the adequate choices in the financial education process (BCB, 2015). This lack of skills and financial resources is indicated by the intermediary categories ‘preference for cash’, ‘commerce does not accept payment cards’ and ‘aid to use technology’ in the ‘ease of use’ category, as well as by the ‘innovation’ category — also from the component ‘financial education’ of the 2iDf model.

In addition to the aspects related to continuous and massive promotion, the lack of knowledge about the schedule of the boat’s visits and the services and products available at the branch is also related to the component ‘sustainability’ described in the 2iDf model. Thus, the results indicate the need to reinforce the articulation with local governments and with nonprofits that work in the communities, to disseminate information about the products and services offered by Agência Barco, as well as to provide more information on the days and times the vessel will arrive and be at each stop.

Regarding the component ‘products’, the research identified the social nature of the Agência Barco and the predominant use of basic services of a bank. It was possible to verify that the difficulty of



access to microcredit — due to excessive requirements and bureaucracy — prevents a more intense relationship between the population and the financial system.

The preference for cash, instead of electronic means of payment, may be associated not only with aspects of financial education, but also with the difficulty of travelling around the region, the low availability of banking services channels and reduced number of commercial establishments that accept electronic means of payment.

In the component ‘sustainability’, the political dimension is translated by Caixa’s role as a federal government’s agent of public policy (Caixa, 2014). The interviews did not show reference to elements related to ethical and legal sustainability. However, through the analysis of the project documents, it is possible to identify the concern with legal issues to support the business model of the Agência Barco, including regulation of the central bank and adjustment of internal regulations of Caixa for compliance with labor laws.

Regarding the ethical dimension of the component ‘sustainability’, Caixa’s Annual Sustainability Report (Caixa, 2014) highlights the Socio-Environmental Fund, created to support social actions such as the Integrated and Sustainable Territorial Development project (Dist).

With regard to the dynamic cycle of the 2iDf model, the component ‘implementation’ presents many positive aspects, demonstrating a logistical, technical and business model that serves the purpose of financial inclusion in difficult-to-reach riverside areas with a low supply of transport infrastructure and technology.

On the other hand, perceptions related to the other components of the dynamic cycle of the model are incipient, reflecting the difficulty of changing the financial culture of the population, but pointing out opportunities for interventions that favor increase in awareness — especially through financial education, generating an increase in demand for financial services.

## CONCLUSIONS

This study brings contributions to the financial inclusion of low income populations.

Firstly, considering that financial inclusion is about access to financial services, the study identifies the need for a more robust and reliable technology infrastructure to facilitate the access for people living in distant and isolated regions, such as the municipalities on Marajó island.

Secondly, although the results obtained indicate an abundance of financial services offered by the Agência Barco, the served riverine population lacks a minimum financial education to take advantage of the products and services provided. Thus, training activities organized by Caixa or other organizations, are key to ensuring that the low income population is aware of the benefits of being financially included.

Thirdly, it was possible to observe the need to improve managerial aspects such as the process of disseminating the schedule of visits and of information about products and services offered by the bank in Agência Barco. An alternative is the elaboration — by the local or state government, or even by Caixa itself — of communication campaigns via radio, television, instant message, web page, as well as visual communication posted in lottery ticket shops and in places of great movement in the municipalities — squares, city halls, schools, unions.

Finally, it is possible to foresee improvements in the short term, in the technological infrastructure of the Agência Barco, through investments made by Caixa. It is also necessary to improve the financial

education provided for the population. However, for these two goals to occur at the same time will be complicated due to the populations' educational level as a whole. This fact is highly relevant, because financial education is a precursor to the awareness of the population on the importance of being financially included. This awareness is a component of the virtuous cycle of empowerment and participation proposed in the 2iDf model. In other words, the financial education component is the bridge between the model's static and dynamic processes. Without the operationalization of this virtuous cycle of empowerment and participation, this initiative of ICT-mediated financial inclusion will not bring real emancipation and power of choice (basic assumptions of Amartya Sen's (2001) capability approach) to the population.

It is clear that the results of this endeavor have not yet changed the financial culture of the riverine population of the Marajó island, and this is a challenge to be faced. Thus, as the financial inclusion is about not only the access, but also the use of financial products (Sarma et al., 2008; World Bank, 2014), the Agência Barco project cannot be considered a success so far.

Financial exclusion remains a reality in Brazil, and the inclusion of the riverine population who is out of the country's financial system depends on technological innovations, business models and public policies on financial education.

## REFERENCES

- AVGEROU, Chrisanti. Discourses on ICT and development. *Information Technologies & International Development*, v. 6, n. 3, p. 1-18, 2010.
- BADER, Marcos; SAVOIA, José R. F. Logística da distribuição bancária: tendências, oportunidades e fatores para inclusão financeira. *Revista de Administração de Empresas*, v. 53, n. 2, p. 208-215, 2013.
- BARDIN, Laurence. *Análise de conteúdo*. 70. ed. São Paulo: Almedina, 2011.
- BCB. *Relatório de inclusão financeira n. 2*. Brasília: s.n., 2011. Available at: <[www.bcb.gov.br/?INCFINANC](http://www.bcb.gov.br/?INCFINANC)>. Accessed on: 10 Dec. 2015.
- BCB. *Relatório de inclusão financeira n. 3*. Brasília, 2015. Available at: <[www.bcb.gov.br/Nor/reincfin/RIF2015.pdf](http://www.bcb.gov.br/Nor/reincfin/RIF2015.pdf)>. Accessed on: 10 Dec. 2015.
- CAIXA. *PGE-044/7050-2012 Agência-Barco*. Brasília, 2012. Available at: <[www5.caixa.gov.br/fornecedores/compra\\_internet/sistema/upload/arquivos/DOC267731.pdf](http://www5.caixa.gov.br/fornecedores/compra_internet/sistema/upload/arquivos/DOC267731.pdf)>. Accessed on: 10 Dec. 2014.
- CAIXA. *Rede de atendimento Caixa*. Brasília, 2015. Available at: <[www.caixa.gov.br/atendimento/Paginas/default.aspx](http://www.caixa.gov.br/atendimento/Paginas/default.aspx)>. Accessed on: 15 Aug. 2015.
- CAIXA. *Relatório de sustentabilidade Caixa 2014*. Brasília, 2014. Available at: <[www20.caixa.gov.br/Lists/PresentationGallery/Relatorio\\_de\\_Sustentabilidade\\_2014.pdf](http://www20.caixa.gov.br/Lists/PresentationGallery/Relatorio_de_Sustentabilidade_2014.pdf)> Accessed on: 15 Aug. 2015.
- CAMPOS, Claudinei. J. G. Método de análise de conteúdo: ferramenta para a análise de dados qualitativos no campo da saúde. *Revista Brasileira de Enfermagem*, v. 57, n. 5, p. 611-614, 2004.
- CHIBBA, Michael. Financial inclusion, poverty reduction and the millennium development goals. *European Journal of Development Research*, v. 21, n. 2, p. 213-230, 2009.
- CLARK, David A. The capability approach: its development, critiques and recent advances. *Economics Series Working Papers*, p. 18, 2005.
- CROCCO, Marco. A. et al. Exclusão financeira no Brasil : uma análise regional exploratória. *Revista de Economia Política*, v. 33, n. 132, p. 505-526, 2013.
- DINIZ, Eduardo H. *Correspondentes bancários e microcrédito no Brasil: tecnologia bancária e ampliação dos serviços financeiros para a população de baixa renda*. São Paulo: FGV/EAESP/GVPesquisa, 2007. p. 1-102.
- DINIZ, Eduardo H. et al. Triggers and barriers to financial inclusion: the use of ICT-based branchless banking in an Amazon county. *Electronic Commerce Research and Applications*, v. 11, n. 5, p. 484-494, 2012.
- ESCOBAR, Arturo. *Encountering development: the making and unmaking of the Third World*. Princeton: Princeton University Press, 1995.
- FELTRIM, Luiz E. et al. *Perspectivas e desafios para inclusão financeira no Brasil: visão de diferentes atores*. Brasília: Banco Central do Brasil, 2009.
- FREITAS, Henrique; JANISSEK, Raquel. *Análise léxica e análise de conteúdo: técnicas complementares, sequenciais e recorrentes para exploração de dados qualitativos*. Porto Alegre: Sphinx-Sagra, 2000.
- GIGLER, Bjorn-Soren. *Informational capabilities-the missing link for the impact of ICT on development*. 2011. Available at: <<https://ssrn.com/abstract=2191594>>. Accessed on: 2 Aug. 2017.
- GLOUKOVIEZOFF, Georges. *The link between financial exclusion and over-indebtedness*. 2006. Available at: <<https://gloukoviezoff.files.wordpress.com/2009/01/wp-link-fe-oi.pdf>>. Accessed on: 10 Jan. 2015.
- GUSSI, Alcides. F. et al. Metodologias e experiências etnográficas em avaliação políticas públicas: avaliação de programas de microcrédito do Banco do Nordeste no Ceará. *Revista de Pesquisa em Políticas Públicas*, n. 4, p. 85-96, 2014.
- HEEKS, Richard. Do information and communication technologies (ICTs) contribute to development?. *Journal of International Development*, v. 22, n. 5, p. 625-640, 2010.
- HEEKS, Richard et al. *Inclusive innovation: definition, conceptualisation and future research priorities*. Development informatics. Manchester: Manchester University, 2013.
- HEEKS, Richard.; MOLLA, Alemayehu. *Impact assessment of ICT-for-Development projects: a compendium of approaches*. Manchester: Development Informatics, 2009.

- IBGE. *Informações sociais, demográficas e econômicas*. Available at: <[www.ibge.gov.br/home/disseminacao/eventos/missao/informacoessociais.shtm](http://www.ibge.gov.br/home/disseminacao/eventos/missao/informacoessociais.shtm)>. Accessed on: 5 Mar. 2015.
- JOIA, Luiz. A. Bridging the digital divide: some initiatives in Brazil. *Electronic Government: An International Journal*, v. 1, n. 3, p. 300-315, 2004.
- JOIA, Luiz A. Inclusão digital no Brasil: um modelo heurístico de natureza dinâmica. In: MARTINS, Paulo Emilio M.; PIERANTI, Octavio P. (Org.). *Estado e gestão pública: visões do Brasil contemporâneo*. Rio de Janeiro: FGV, 2007. p. 257-275.
- KLEINE, Dorothea. ICT4WHAT? Using the choice framework to operationalise the capability approach to development. *Journal of International Development*, v. 22, n. 5, p. 674-692, 2010.
- KLEINE, Dorothea. *Technologies of choice?: ICTs, development, and the capabilities approach*. Cambridge: MIT Press, 2013.
- KUMAR, Richa. Choupals: A study on the financial sustainability of village internet centers in rural Madhya Pradesh. *Information Technologies & International Development*, v. 2, n. 1, p. 45-73, 2004.
- LAVILLE, Christian; DIONNE, Jean. *A construção do saber: manual de metodologia da pesquisa em ciências humanas*. Belo Horizonte: Artmed; UFMG, 1999.
- LEONARDI, Paul M. et al. Multiplex appropriation in complex systems implementation: the case of Brazil's correspondent banking system. *MIS Quarterly*, v. 40, n. 2, p. 461-473, 2016.
- PEACHY, Stephen; ROE, Alan. *Access to finance: what does it mean and how do savings banks foster access*. Brussels: WSBI, World Savings Banks Institute, 2006.
- PIETERSE, Jan Nederveen. After post-development. *Third World Quarterly*, v. 21, n. 2, p. 175-191, 2000.
- PNUD; IPEA; FJP. *Índice de desenvolvimento humano municipal brasileiro*. 2013. Available at: <[www.pnud.org.br/IDH/Default.aspx?indiceAccordion=1&li=li\\_AtlasMunicipios](http://www.pnud.org.br/IDH/Default.aspx?indiceAccordion=1&li=li_AtlasMunicipios)>. Accessed on: 1 Feb. 2015.
- SANTOS, Ricardo Paschoeto dos. *O papel da tecnologia da informação e comunicação na inclusão financeira da população ribeirinha da Ilha de Marajó: o caso Agência Barco*. 2015. Available at: <<http://bibliotecadigital.fgv.br/dspace/handle/10438/14978>>. Accessed on: 10 Dec. 2015.
- SARMA, Mandira et al. *Index of financial inclusion*. New Delhi: Indian Council for Research on International Economics Relations, 2008.
- SARMA, Mandira; PAIS, Jesim. Financial inclusion and development. *Journal of International Development*, v. 23, n. 5, p. 613-628, 2011.
- SEN, Amartya. *Development as freedom*. Oxford: Oxford Paperbacks, 2001.
- WORLD BANK. *Global financial development report*. 2014. Available at: <<https://openknowledge.worldbank.org/bitstream/handle/10986/16238/9780821399859.pdf>>. Accessed on: 26 May 2017.
- YIN, Robert K. *Estudo de caso: planejamento e métodos*. 4. ed. Porto Alegre: Bookman, 2010.

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