

### **Panel T13-P06**

## Session 2 - ICT, public policies and Public Administration

ICT and Public Policies: Managing Technological Change in the
Public Sector

## Title of the paper

INFORMATION TECHNOLOGY AND DATABASE INTEGRATION

AGENDA IN THE CONTEXT OF "CADASTRO UNICO" FOR

SOCIAL PROGRAMS IN BRAZIL

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### **Abstract**

The Single Registry for Social Programs, *Cadastro Unico*, is the brazilian instrument for identification and characterization of the families in poverty situation. It was established in 2001 and has more than 27 million registered families, being used by more than 20 Federal Government social policies (the main is the *Bolsa Família* Program). Among the advantages of having a single registry, like cost reduction from a single source of target public for social policies and transparency of the selection and maintenance processes, there are still integration challenges with other federal government data sources: such as the social security benefit (contributory policies) and the formal labor market. The online integration of these databases is under discussion at the moment, seeking out to hone make control, improve citizen services and enforcement mechanisms more efficient and transparent. In this way, the main objective of this study is to analyze how the information technology and database integration agenda of the Brazilian Federal Government affect the implementation and changes in *Cadastro Unico* and, consequently, in the social policies for low-income families, based on the Advocacy Coalition Framework (ACF) and the Multiple Stream Framework (MS).

Keywords: Single Registry, Cadastro Único, integration, interoperability, social policies

### Introduction

The *Cadastro Unico*, Single Registry for Social Programs, is the instrument used in Brazil to identify and characterize families in poverty. It was established in 2001 and has more than 27 million registered families, being used by more than 20 Federal Government social policies (the main is the *Bolsa Família* Program, which serves 14 million families). Brazil is a Federative Republic consisting of the Union, 26 states, 5,570 municipalities and the Federal District. The *Cadastro Unico* main goal is identifying families in poverty, by decentralized way: municipalities are responsible by interview and data records in the online system and Federal Government is responsible by defining rules and procedures. Based on information from the *Cadastro Unico* national database, social policies and programs select their beneficiaries. Currently, the income data recorded in the *Cadastro Unico* is self-declared by the family at the time of the interview and, afterwards, cross-checks with other administrative records (such as formal job market) are carried out to verify the veracity of the information provided. This model is **Unverified Means Testing**.



Among the advantages of having a single registry, like cost reduction from a single source of target public for social policies and transparency of the selection and maintenance processes, there are still integration challenges with other federal government data sources: such as the social security benefit (contributory policies) and the formal labor market. The online integration of these databases is under discussion at the moment, seeking out to hone control, improve citizen services and enforce mechanisms more efficient and transparent.

Although this debate is strategic for the Federal Government, especially in the context of **big data** platforms, there are several difficulties (such as coordination between government agencies, broadband internet access in all brazilian municipalities, information security and privacy, paradigm change of bureaucracies and citizen service).

In this way, the main objective of this study is to analyze how the information technology and database integration agenda of the Brazilian Federal Government affect the implementation and changes in *Cadastro Unico* and, consequently, in the social policies for low-income families. The following research questions guide this work:

- 1) What are the Federal Government database integration initiatives and how do they affect the social policies for low-income families agenda?
- 2) How these technological innovations advanced regardless of the limitations of precarious internet infrastructure?
- 3) How is the coordination among the various government organizations considering the debates on internet capacity, privacy, transparency and citizenship?

The analysis will take support from the Advocacy Coalition Framework (ACF) (1988, 2018) regarding the use of expert-based information, which can change beliefs from policy-oriented learning and be an important resource of coalitions to mobilize allies and argue with opponents, and the Multiple Stream Framework (MS) of John Kingdon (2011), especially the window of opportunity used by entrepreneurs, from the convergence of the flow of problems, political and policies.

The article is divided into five sessions: the first presents the object of study, the *Cadastro Único*; the second presents the theoretical support of the research: the Advocacy Coalition Framework (ACF) and the use of technical information and the Multiple Stream Framework (MSF), the third presents the methodology of the study, the fourth brings the



results and discussion, and the fifth shows the main conclusions and limitations of information technology and database integration agenda in the context of *Cadastro Único* to Brazilian reality.

# 1 – "Cadastro Único": Single Registry for low-income families in Brazil

Identifying the target public for social policies to combat poverty in a country with continental dimensions such as Brazil is not a trivial task. The path of construction and consolidation of the *Cadastro Único* to be this instrument is the result of a long process of institutional and normative strengthening. The *Cadastro Único* is composed of the following elements: nationally standardized registration form; national online system developed by *Caixa Econômica Federal* (federal public bank and operator agent); a municipal implementation network, which involves trained interviewers, typists, coordinators and managers; and the states that act on the training strategies; a database of the low-income population extracted monthly from the online system; and a network of user programs that use the data from the *Cadastro Único* to manager their social policies.

The *Cadastro Único* was created in 2001<sup>1</sup>, but was defined only by a registration form, and was used partially by some federal social policies in this period. In 2003, the *Bolsa Família* Program was created and unified the existing income transfer programs up to that moment and defined the *Cadastro Único* as the target identification tool. At this period, several actions were important for the *Cadastro Único* institutionalization, its recognition as a qualified tool and the expansion of its use by various programs and social policies beyond *Bolsa Família*, like (Bartholo, Vieira, Sambiase, Pereira & Ibarra, 2010; Chaves, 2013; Cortizo & Chaves, 2016):

<sup>&</sup>lt;sup>1</sup> According to Decree n° 6,135 / 2007 available in "Collection of the Basic Legislation of the Single Registry and the *Bolsa Família* Program".



- The creation of a national management (the Ministry of Social Development and Fight Against Hunger<sup>2</sup>), in 2004, to coordinate the *Cadastro Único* and the *Bolsa Família* Program;
- Implementation of a national strategy for decentralized registration (inclusion of new families and updating of data already registered), through the adhesion of all Brazilian municipalities (since 2005);
- Processes of annual data analysis and qualification, named Averiguação Cadastral,
   performed by data crossings with other administrative records of the Federal Government;

The data recorded in the *Cadastro Único* are self-declared by the person in charge of the family unit, at the moment of inclusion or updating the registry, including the income information. Subsequently, a cross-checks between declared income data and information registered in other administrative records is performed to identify cases of information omission or underreporting (routines inspection). The Brazilian model uses a poverty line based on **Unverified Means Testing**. The selection of the target audience uses the self-declared data by the family at the time of the interview and, afterwards, routines are performed to check the information and call the families for a new update, in case of divergence of data.

- Implementation of a new registration form and online system (since 2010), with an intense work of providing satellite internet to the municipalities of the Legal Amazon (the universalization of access to internet it is still a challenge in Brazil);
- Launching of the Brazil Without Misery Plan (BSM) in 2011, with a focus on serving families in extreme poverty through access to services, guaranteed income and productive inclusion, which defined the *Cadastro Único* as the gateway to their actions, resulting in a significant increase in user programs<sup>3</sup>;

<sup>&</sup>lt;sup>2</sup> Currently the name is Ministry of Citizenship.

<sup>&</sup>lt;sup>3</sup> Until 2010, the Cadastro Único had 7 user programs. After 2011, the year of the launch of BSM, to nowadays, *Cadastro Único* has already reached more than 30 user programs (Chaves, 2013; Cortizo e Chaves, 2016; Direito, Koga, Licio & Chaves, 2016).



 Presidential change in 2016, with the impeachment of President Dilma Rousseff, in which assumes Vice President Michel Temer and increase demand for rationalization of public spending and control of social policies and programs.

In 2016, several agencies invested in **big data** strategies to monitor public policies, especially the control agencies, such as the Federal Public Prosecutor's Office (MPF<sup>4</sup>), the Superior Electoral Court (TSE<sup>5</sup>), the Federal Court of Accounts (TCU<sup>6</sup>) and Office of the Comptroller General of the Union (CGU<sup>7</sup>). As an initiative of the Federal Executive, Decree 8.789/2016 was published, which promote "the sharing of databases in federal public administration" (Brasil, 2016) and the GovData strategy (Federal Government Data Analysis Platform), with the objective of organizing and simplify the sharing of databases within the government.

Specifically on the control and inspection actions of the *Cadastro Único* and the *Bolsa Família* Program, in addition to the qualification actions already carried out by the Ministry of Citizenship, entitled *Averiguação Cadastral*, data crossing actions were disclosed in the media by the Federal Public Prosecutor's Office, about the identification of undue receipt of benefits, in response, the Ministry established an Interagency Working Group (*GTI*) in order to establish a baseline of data cross-checks and administrative records of the Federal Government and identify families that had no profile to receive *Bolsa Família* ("*pente-fino*" action, fine-toothed comb operation). This action mobilized several database management organizations and control bodies, with the objective of sharing experiences and knowledge and carrying out a massive process of access and data crossing databases to identify the families that received benefits from the *Bolsa Família*, but had no profile of eligibility.

In 2017, two regulations were published on the process of using the *Cadastro Único* by federal agencies and entities to select beneficiaries of policies and social programs aimed at providing services to low-income families (Term of Use) and the institution of a Control Policy of data access to *Cadastro Único* (determination of the external control through Judgment 906/2009). The "*Consulta cidadão*" (Citizen Consultation) was also implemented,

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<sup>&</sup>lt;sup>4</sup> In portuguese, the name is *Ministério Público Federal* (MPF)

<sup>&</sup>lt;sup>5</sup> In portuguese, the name is *Tribunal Superior Eleitoral* (TSE)

<sup>&</sup>lt;sup>6</sup> In portuguese, the name is *Tribunal de Contas da União* (TCU)

<sup>&</sup>lt;sup>7</sup> In portuguese, the name is *Controladoria-Geral da União* (CGU)



where people registered in the  $Cadastro\ Unico$  can consult their main information, print a registration certificate to access policies and services, directly by the application "My CadUnico" in their cell phone.

More recently, in January 2019, several ministries were restructured from the beginning of President Jair Bolsonaro's mandate. The *Cadastro Único* Department, which has always been in the National Secretariat of Citizen Income (Senarc), responsible for the *Bolsa Família* Program, went to the Information Evaluation and Management Secretariat (SAGI), in order to gain a more strategic role for the actions of the Ministry of Citizenship, which unified Social Development, Culture and Sport themes.

Today, the *Cadastro Único* has more than 73 million people registered in 27 million families (almost 40% of the Brazilian population) and the registration process happens in all 5,570 municipalities. The management of *Cadastro Único* is national, but implementation is decentralized. The process of collecting data (identification of the population, interviewing and updating) is carried out by the municipalities through spontaneous demand (when the citizen himself go the social assistance registration posts), by registration efforts or home interviews. The process is constant (every month people are included, updated or excluded) and the municipality has autonomy to organize the registration actions.

When data crossings are performed, the municipalities are advised to carry out a new interview to check the situation of the family. If it is proven that false information about income or family composition has been intentionally given by the family, they can respond to the process and return the benefits of the *Bolsa Família* that they received improperly.

Among the difficulties of having a control process with crossing routines and not of information integration, the following stand out:

- a) Each database and administrative record has different methods and time of updating their data, so the divergence between information recorded in the *Cadastro Único* and other databases, does not necessarily mean that the family omitted information, may be only a question of outdated or error in these administrative records, especially because the data is crossed after the interview with the family and there are a dynamics of changes in the socioeconomic situation;
- b) Rework in municipalities that need to conduct a new interview with families. If the identification data, formal labor income, social security and welfare benefits and



poverty characterization data were all integrated, would allow a more effective service for families and also a greater rationalization in the processes of selection and maintenance of the benefits and services offered by the Federal Government. For this, it is also necessary to overcome the debate of privacy versus transparency to municipal entities, in the case of federal public policies implemented in a decentralized way;

c) Coordination between data cross-checking actions: as an example, in 2016 and 2017, the Federal Court of Accounts (TCU) carried out continuous monitoring and supervision of the *Cadastro Único* and *Bolsa Família* Program, coordinated with the Ministry of Citizenship. Therefore, the cross-checks with other databases of the Federal Government (such as death, formal work income and social security benefits) and debugging of inconsistencies in the *Cadastro Único* database, titled *Averiguação Cadastral*, contemplated these findings in the annual processes of call for updating. However, the Federal Public Prosecutor's Office (MPF) also carried out data cross-checks to identify undue receipt and forwarded the findings to the municipalities, recommending an update with a 60-day by home visit, and the municipal manager may respond administratively, civilly and criminally for non-compliance. Given the limitations and different capacities of the municipalities, the actions submitted by MPF were often prioritized in relation to the other actions of the Ministry within the municipality, and there was often an intersection of the target public of the two actions.

The Federal Government has already developed studies on the importance of the integration of databases and administrative records of the Federal Government, as mapped by this research and driven by the data sharing decree. However, how these solutions will meet the demands of managing and implementing the *Cadastro Único* and the programs that use it is still an open question. Moreover, data and information is power, and therefore, even with this normative, sharing is hampered by bureaucratic procedures and even secrecy and privacy allegations among government agencies in public policy, as will be observed in section three.



# 2 – The rule of ideas and the policy-oriented learning of coalitions and the policy window convergence

The advocacy coalition framework (ACF) was developed in the 1980s by Sabatier and Jenkins-Smith and consists of a framework for public policy analysis through subsystem and coalitions over a period of at least 10 years. The focus of analysis are the values and beliefs shared by the social actors that unite them in coalitions with the objective of interfering in a determined public policy, according to Sabatier (1988, p. 133):

Within the subsystem, it is assumed that actors can be aggregated into a number of advocacy coalitions composed of people from various organizations who share a set of normative and causal beliefs and who often act in concert. At any particular point in time, each coalition adopts a strategy(s) envisaging one or more institutional innovations which it feels will further its policy objectives.

For ACF, the subsystems have a thematic area, with one, two or more coalitions (with a unitary, collaborative or adversary) that compete for space and influence, depending on the level of conflict and consensus between them and access to resources and opportunities (intermediated by policy brokers), addicted by external events (socio-economic and technological conditions, changes in public opinion, changes in government coalitions, political decisions and impacts on other subsystems) and relatively stable parameters (basic attributes of the problem area, the basic distribution of natural resources, fundamental socio-cultural values and social structure, and the basic constitutional structure).

The beliefs of each coalition of actors are classified into three categories: deep (normative) core, referring to fundamental beliefs, the basis of people's worldview; near (policy) core, referring to the fundamental political positions and basic strategies of action; and secondary aspects, referring to the instrumental decisions and search of information, that vary how much the susceptibility to the change (Sabatier, 1988).

Social actors and coalitions use various strategies to influence the course of a given public policy, one of the important resources being the use of technical and scientific information and the underlying interpretation and narrative to mobilize allies, argue for or



against subject and change beliefs through policy-oriented learning. According to Weible definition (2008, p. 615 e 616):

Expert-based information is defined as content generated by professional, scientific, and technical methods of inquiry (Adams, 2004; van Kerkhoff & Lebel, 2006). [...] The sources of expert-based information include the social and natural sciences, policy analyses, government reports, and research coming from universities, think tanks, and consulting firms. Likewise, the term "expert" includes policy analysts, scientists, and researchers in government and nongovernment organizations.

The use of this information can be for a) **learning**: that can reinforce or change actors' vision in an indirect and cumulative way; b) **politics**: to legitimize political decisions or to argue with opponents, being a more selective use; c) **instrumental**: when it directly affects the decision-making process. These uses can occur simultaneously and the information can be constructed by different experts (who share or not theories and methods) in the different coalitions (depending on the type of subsystem: unitary, collaborative and adversary). (Weible, 2008).

These different uses of information resulting from the cross-checks of administrative records data with the *Cadastro Único*, depending on the interpretation and the way in which the number and result is presented, can either be positive or negative for the perception of the quality of the *Cadastro Único*, as will be observed in section below.

Specialist research and opinions, especially on the role of database integration and its role in public policy control, can be used by various actors and coalitions to maintain or transform certain public policy premises. In the context of the manipulation and analysis platforms of large databases, of significant volume and different sources, the use of information involves technical compatibility and learning, but also the role of researchers and experts in the arena of influence and decision. Thus, there is the important role of public policy entrepreneurs, as discussed in the multiple streams framework which analyzes how some ideas, changes and themes "appear" in the governmental agenda.

The Multiple Stream Framework (MSF) by John Kingdon (2011) is a form of public policy analysis and consists in pointing out that the governmental agenda refers to the set of issues on which the government and its people focus their attention at a given moment, depending on the combination of the flows of problems, solutions or alternatives (policies)



and politics, allied to the ambiguity of the interpretations, time (and information processing by the actors, due to the limited rationality, cited by Simon, 1957), preference of the actors, organization and participation in the decision arena (role dynamics performance) and the dynamics of independence of each (Herweg, Zahariadis, Zohlnhofer, 2018).

The flow of problems analyzes how an issue becomes a public policy problem and occupies the governmental agenda, awakening the need for action. Attention can be explored by various mechanisms, such as indicators; events, crises and symbols; and feedback from government actions. The solution flow (policy) points to the set of solutions that are in search of a problem. The flow of politics (political) analyzes the construction of consensus, bargaining and negotiation between the various actors and coalitions. In the decision-making arena, these three flows can be exploited by public policy entrepreneurs in different ways, depending on national mood and changes in government. The junction of the three flows generates opportunities for change in the agenda (windows of opportunity) (Kingdon, 2011).

The use of information technologies and the agenda of integration of databases in the context of the Cadastro Único, according to the period of analysis of this paper, from 2005 to 2018 (14 years); affects the path of implementation of public policies aimed at the low income population in Brazil as a whole and consequently of the Cadastro Único itself as an option and state strategy in the fight against poverty and in the design of the Brazilian social protection system. The Cadastro Único has been recognized internationally as a form of integration within the scope of social protection actions, as observed in studies by Barca (2017) and Leite, George, Sun & Lindert (2017), since the Cadastro Único centralizes the identification and characterization of the target public of the federal public policies focused on the low-income population. However, there are still others possibilities for improvements and integration designs that can be implemented. As the authors point out, it is always necessary to consider what type of integration is necessary for each reality and for which purpose. Therefore, an improvement in the *Cadastro Único* for interoperability and integration with other government databases should focus on the design required to depend on the demand of the federal government and the citizen in this current context of Brazilian society and its social, economic and political reality.

For Barca (2017, p. 5), "the ultimate aim of integration data and information management systems for social protection: collecting and sharing information to take action



so as to improve the standards of life of the poorest and most vulnerable citizens". She presents the concepts: (i) **integrated beneficiary registries**: integration of the records of beneficiary individuals and families of various social programs and policies; ii) **social registries**: integration for the selection of eligible individuals and families, potential beneficiaries, with the Brazilian *Cadastro Único* being an example; and iii) **virtual social registries**: where there is the interoperability of governmental databases and a proposal of egovernment of citizen service, being the "*Registro Social de Hogares*" of Chile and "Integrated Social Assistance Information System" of Turkey examples (Barca, 2017).

In the definition of Leite et. al. (2017, p.5) "social registries are information systems that support outreach, intake, registration, and determination of potential eleigibility for one or more social programs", where the data can be self-declared information or data exchange with other administrative systems via interoperability.

The *Cadastro Único*, despite being an example of integration in the form of identification of low income families that are eligible for more than 20 social programs and policies, has been searching for an even greater integration with other databases and administrative records of the Federal Government, so as not only to increase the rationalization of public spending in a context of budget constraint, but also to improve citizen access to the services and benefits offered by public policies, along the lines of the "virtual social registries" model.

As we will presente in section 4 of this paper, the changes promoted by the advocacy coalitions in the subsystem of public policies to fight poverty, depend on the resources and strategies used by the various social actors, especially the entrepreneurs, to seize a possible window of opportunity for leveraging interoperability actions to improve the efficiency, effectiveness and cost of public policies.

## 3 – Methodology

The following sources of information were used:

a) To identify the initiatives of the Federal Government to integrate databases:



- Review of legislation that addresses directly and indirectly the integration of databases;
- The database integration solutions currently available by the Federal Executive: GovData and DataLab IPEA.
- b) To identify the internet infrastructure in Brazil:
- Data from the Brazilian Institute of Geography and Statistics (IBGE).

These sources were collected and analyzed from January to April 2019, based on exploratory and descriptive analysis. The following section will present the main results.

# 4 – Results and discussion: Information technology and database integration agenda and *Cadastro Único*

In Brazil there are more than 209 million habitants, distributed in 5,570 municipalities, with different infrastructures, capacities and access to services of technology and communication. Initially, for the integration and interoperability debate, two factors are relevant: analysis of the Brazilian reality regarding access to the internet and access to documentation and unambiguous identification of the citizen in the territory.

According to the information provided by the Brazilian Institute of Geography and Statistics (IBGE) of the National Survey by Continuous Household Sample (PNAD) of 2017, of the 70 million Brazilian households, 52 million have access to internet (being predominant broadband). As for the operation of the mobile service and cell internet, in 62 million households have access. However, this reality is differentiated in relation to the locations of difficult access and population in situation of vulnerability, especially the North region of Brazil.

As for the documentation of the Brazilian citizen, there is not yet a single national document. Depending on the service the citizen is looking for, different documents numbers are used (Brazil, 2016, pp. 15-30): civil registry of natural persons (birth registration, marriage and death, name and sex changes); Civil Identity Number (ID) issued by the



Secretariats of Public Security of the federative units that issue the documents of their respective territory; register of individuals (CPF) used for declarations of assets and income to the Federal Revenue Service; registration of voters by the Superior Electoral Court (TSE); Work and Social Security Number (CTPS); PIS / PASEP / NIS / NIT: number to access some social policies such as unemployment insurance, *Bolsa Familia* program, among others; Passport: international identification document; National registry of foreigners; National Health Card (CNS). By information integrating systems, there is the National Register of Social Information (CNIS) operated by *Dataprev* (public technology company) that link the information about remunerations of workers and employers, individual taxpayers and social security benefits and assistance; the *Cadastro Único* (object of this paper); the National System of Information of Civil Registry - SIRC; Digital Bookkeeping System for Tax, Social Security and Labor Obligations - E-Social; System of Social Security Own Regimes - SRPPS. Thus, to perform cross-data between theses bases, information keys are used based on the person's name, mother's name, date of birth and some document, which may affect the quality of the results and pairings, since this does not is necessarily a unique key.

In the figure below, we can observe the history, followed by the analysis, of the database integration theme and the *Cadastro Único* trajectory. The history of the upper row refers to the main facts of the *Cadastro Único* trajectory and the bottom line to the main federal norms for the database integration agenda. Starting the analysis with the historical trajectory is relevant to understand the context of development of the solutions and their impact. Pierson (2004) points out how mechanisms of self-reinforcing and increasing returns can reflect in sequence of events and institutional legacies of the trajectory of the public policy. This initial scenario is relevant for the analysis of the advances and challenges of the Brazilian government in relation to the integration of databases, from the social, political and economic context, space on the agenda and actions of the actors and coalitions.

Among the advantages pointed out in the international literature for the integration of information for the management of the social protection system, like characteristic of poverty and its multidimensionality that demands transversal and coordinated public policies, according to the literature, we highlight (Barca, 2017): a more equitable distribution of resources; coverage and targeting; transparency and accountability; simplified and better understood citizen service; facilitate public policy and budget planning; avoid duplication of



efforts; promoting risk management and combating fraud; and efficiency and effectiveness in the delivery of public services. However, some aspects need to be observed in the analysis of the reality of integration in each country regarding administrative and institutional aspects, implementation and operational, technological requirements, costs and financing and political support.

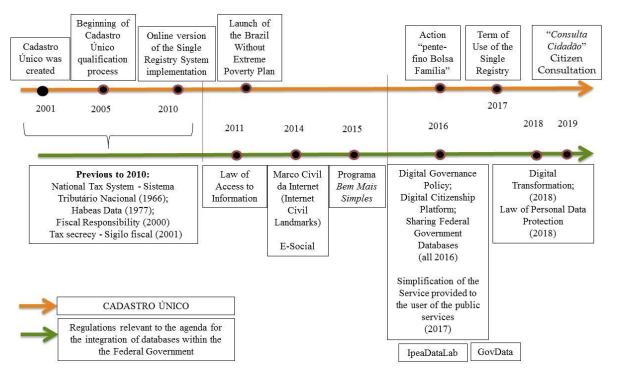
In the figure below, the history is divided into three periods for analysis. The first refers to the initial norms of fiscal privacy (named *sigilo fiscal*) and citizen's right to access their own information, both provided by the Federal Constitution, and the processes of consolidation of the *Cadastro Único* as a tool for selecting qualified targeting public for policies and programs to the population living in poverty. The second period, from 2011 to 2015, marks the significant growth in the use of the *Cadastro Único* by social policies and programs, driven by the Brazil Without Misery Plan and the advances in legislation on access to information and Internet use. The third period from 2015 to 2018 refers to the growing period of use of big data solutions and the demand for greater control of public policies, with the publication of several regulations regarding digital governance, service simplification, data sharing, digital transformation and the Law of personal data protection.



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Figure 1 - Cadastro Único history and normative on database integration in Brazil



Source: Own elaboration based on legislation

The first analysis period, before 2010, it's when the implementation of a totally online version of the system for inclusion and updating of the *Cadastro Único* was started, and the general federal regulations regarding the issue of confidentiality of tax data and access to information by citizen, we highlight:

- (I) Federal Law n° 5,172/1966: this establishing the National Tax System and the general rules of tax law;
- (II) Federal Law n° 9,507/1997: this regulates the right of access to information and discipline the procedural rite of Habeas Data;
- (III) Complementary Federal Law n° 101/2000: this establishes rules of public finances focused on responsibility in fiscal management;
- (IV) Complementary Federal Law n° 105/2001: this provides rules for the confidentiality of the operations of financial institutions.

These regulations establish the main parameters for access to information to the citizen of their own data, of tax law and fiscal, themes relevant to the topic presented in this article,



because one of the justifications given by the government agencies for not sharing databases is the affirmation that your administrative record is protected by fiscal confidentiality.

Within the scope of the *Cadastro Único's* history, the establishment and consolidation of the tool was still in progress, through qualification actions, begun in 2005, division of responsibilities among the federated entities, establishment of decentralized procedures and term of adhesion with municipalities for the actions of registration (inclusion and updating). In 2010, a new version of the *Cadastro Único* (form and totally online system) was launched, which was completed in 2014, with the migration of the last municipality, located in the North Region of the country.

In 2011, about the *Cadastro Único*, the Brazil Without Misery Plan (PBSM) was launched with a focus on combating extreme poverty (families with per capita family income less than U\$S 18) through three areas of action: access services, income guarantee and productive inclusion. This year, Federal Law n° 12,527/2011, entitled "Access to Information Law" (regulated by Decree n° 7,724/2012) was published, which is an important landmark to ensure access to information for citizens, pointing to transparency as a rule and secrecy as an exception, as follows<sup>8</sup>:

Article 3. The procedures established by this Law are intended to **ensure the fundamental right of access to information** and should be performed according to the basic principles of the Public Administration and the following guidelines:

I – observance of **publicity** as a general rule and of secrecy as the **exception**;

II – disclosure of information of public interest, irrespective of requests;

III - use of the existing means of communication made available by information technology;

IV – promotion of the development of a **transparency culture** within the Public Administration;

V - development of the social control of the Public Administration.

This law had an important role in establishing publicity as a general precept and secrecy as an exception and guaranteeing the citizen's right to request information from the Federal Government of his interest. During this period, the Transparency Portal was implemented

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<sup>&</sup>lt;sup>8</sup> Retrieved by: <a href="http://www.mpf.mp.br/atuacao-tematica/sci/normas-e-legislacao/legislacao/legislacao-emingles/law-12.527">http://www.mpf.mp.br/atuacao-tematica/sci/normas-e-legislacao/legislacao/legislacao-emingles/law-12.527</a>. The griffins are our responsibility.



with various information on public programs, public policies and resources and expenditures of the Federal Government.

The regulations of this period represent a new step to promote a change of culture in government agencies for transparency and integration.

In the years 2014 and 2015, three regulations are relevant:

(I) Federal Law n° 12.965/2014: entitled "Civil Internet Landmarks", *Marco Civil da Internet*, that establishes principles, guarantees, rights and obligations for the use of the Internet in Brazil. Regarding the performance of public power, we highlight<sup>9</sup>:

#### **CHAPTER IV**

#### THE ROLE OF PUBLIC AUTHORITIES

Article 24. The following are guidelines for the performance of Federal Government, States, Federal District and municipalities in the development of Internet in Brazil:

I – establishment of mechanisms of governance that are **multi-stakeholder**, **transparent**, **cooperative and democratic**, with the participation of the government, the business sector, the civil society and the academia;

II – **promotion of the rationalization of management**, expansion and use of the internet, with the participation of Brazilian Internet Steering Committee (CGI.Br).

III - promotion of **rationalization and technological interoperability of e-Government services**, within different branches and levels of the federation, to allow the exchange of information and speed of procedures;

IV – promotion of **interoperability between different systems and terminals**, including among the different federal levels and different sectors of society;

[...]

IX – the promotion of culture and citizenship; and

X – provide public services for attending citizens in an integrated, efficient and simple manner and through multi-channel access, including remote access.

(II) Decree n° 8.373/2014: establishing the Digital Bookkeeping System for Tax, Social Security and Labor Obligations - eSocial. The purpose of the "E-Social" is to standardize the transmission, validation, storage and distribution of tax, social security and labor information;

<sup>&</sup>lt;sup>9</sup> Retrieved by <a href="http://www.mpf.mp.br/atuacao-tematica/sci/normas-e-legislacao/legislacao/legislacao-em-ingles-">http://www.mpf.mp.br/atuacao-tematica/sci/normas-e-legislacao/legislacao/legislacao-em-ingles-</a>

<sup>1.</sup> The griffins are our responsibility.



(III) Decree n° 8.414/2015: establishes the Program *Mais Simples Brasil* (more simple program) and creates the Deliberative Council and the Program Steering Committee. This program was instrumental in organizing debates and discussions on the law of personal data protection, published in 2018<sup>10</sup>:

Article. 2 - § 1°. The *Bem Mais Simples Brasil* Program should contemplate the integrated and systemic performance in the provision of public services, with the application of technological solutions aimed at simplifying processes and procedures for attending to citizens, companies and non-profit entities, through use of simple and understandable language.

With these laws, it is observed in Brazil, the normalization of the use of the internet and citizen data and information with a view to promoting the culture of transparency, sharing of data for the rationalization of procedures and simplification of services. In 2016, with the presidential change, after impeachment of President Dilma Rousseff, in which Vice President Michel Temer takes over, there is a significant demand from society, public opinion and media for actions to combat corruption and expand control, auditing and economy.

The integration agenda is strengthened, because present highlights of the advantage of having an integral vision of society and of the public policies that each family accesses, as a solution for rationalizing and saving the actions of the Federal Government.

Within the scope of the *Cadastro Único*, an Interagency Working Group (GTI) was set up to carry out data cross-checks in order to identify *Bolsa Familia* beneficiary families who had evidence of omission or less income registered, identified from a cross-reference to the bases formal labor market data, social security and welfare benefits, business partners and the situation of family composition. This was an important work to establish a baseline of the qualification actions with the new ministerial management, but also to respond to the control bodies, especially the Federal Public Prosecutor and the Office of the Comptroller General of the Union in their actions of data crossings. The use of big data solutions for these control institutions was an innovation in the surveillance process.

From normative, starting in 2016, the following stand out:

 $<sup>^{\</sup>rm 10}$  These translations are the responsibility of the author, including the griffins.



- Decree nº 8638/2016 established the Digital Governance Policy, highlighting the principles of openness and transparency, sharing of data among federal public administration bodies, among others, and created the National Digital Government Network - Gov.BR Network.
- Decree n° 8936/ 2016 establishes the Platform for Digital Citizenship, providing for the provision of digital public services within the organizations and entities of the federal public administration, citing the Citizen Services Charter.
- Decree n° 8789/2016, which provides the rules and procedures to share databases in the Federal Public Administration without need to sign agreements.
- Decree nº 9094/2017, which provides rules for public services simplification and establishes the User Services Charter, reinforcing the guidelines for sharing information among the organizations and entities of the Federal Executive, applying technological solutions, integration and rationalization for the simplification of citizen services.
- Decree n° 9319/2018 that establishes the National System for Digital Transformation and establishes the governance structure for the implementation of the Brazilian Strategy for Digital Transformation (*SinDigital* and *EDigital*).
- Federal Law n° 13709/2018 which deals with the protection of personal data, as a result of several meetings and discussions with government bodies and National Congress, and also complies with the General Regulation on Data Protection (GDPR) of the European Union. The following is highlighted<sup>11</sup>:

Article 7 - The processing of personal data may only be carried out in the following cases:

I - by consent of the person;

[...]

III - by the public administration, for the treatment and shared use of data necessary for the execution of public policies provided for in laws and regulations or by contracts, agreements or similar instruments, subject to the provisions of Chapter IV of this Law;

[...]

Article 25. Data shall be maintained in an interoperable and structured format for shared use, for the execution of public policies, for the provision of

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<sup>&</sup>lt;sup>11</sup> These translations are the responsibility of the author, including the griffins.



public services, for the decentralization of public activity, and for the dissemination and access of information by the general public.

In the third analysis period, after 2016, there is a significant increase in the publication of regulations, which is aligned with the growth in the use of technological solutions and the establishment of a legal basis for government bodies to work towards the simplification of services to the citizen. To support the transformation of services into digital solutions, there are specific areas of government, such as the Enap - National School of Public Administration and the Digital Government Secretariat of the Ministry of Economy, as well as two governmental data integration initiatives for studies and research, monitoring of social policies and programs:

**Laboratory of Data Science of the Institute of Applied Economic Research - IPEA** (**IpeaDataLab**): Created in 2017 with the objective of integrating government administrative records and processing large data volumes, from free software and data analysis techniques and record linkage. The focus is to subsidize the Government with research, studies and analysis of public policies.

GovData: A set of shared databases with environment and infrastructure of hosting and data crossing (Datalake GovData), from different tools such as Hue (Hadoop User Experience), Rstudio and Qlik Sense. The government agencies contract this service, with the public companies "Federal Service of Data Processing – SERPRO" and "Company of Technology and Information of Social Security – DATAPREV", depending on their needs and demands.

Despite of the innovation of cross-checking of large databases from these initiatives, in the context of the *Cadastro Único*, there have not been significant changes, given the accumulated experience of the Ministry of Citizenship in performing data crossings for the audit process since 2005, methodology and definition of keys for crossing in addition to the number of documents (such as the use of the person's name, mother's name and date of birth – "matchkey") and prioritization criteria between sources depending on the similarity and updating of the registered information. In addition, the Ministry already uses technological



solutions for analysis and manipulation of large databases with the Teradata application and documentation via the SQL language.

In 2019, with the publication of Decree no 9723, the Individual Taxpayers Register (CPF) was established as a sufficient and substitute document for the presentation and government services. This represents a new step towards the establishment of the national single document (Decree 9.278/2018 regulates the National Identification Document - DNI) and the requirement of integration of the bases so that citizens can be located and served in public services only with their number of CPF.

What is observed in the historical, in relation to the normative aspects, is that Brazil has a relevant legal basis for the construction and transformation of an environment that uses information and communication technology to improve public policies, but there are still discussions on issues of transparency and secrecy, coordination aspects and organizational culture of data sharing. In addition to the technological debate, it is necessary to analyze the administrative aspects (centralized and decentralized management, teams, resources, procedures and training) and institutional aspects (guaranteeing privacy without making public policies inviable).

Under the Federal Government regulations, the Law on Access to Information and the Civil Internet Framework were important to modify the status quo of allegations of secrecy and restriction of information, for a culture of transparency and citizen protection.

The Brazilian Court of Audit has supported integration and interoperability actions, as cited below in Judgment 2901/2018 which evaluates public policies for urban and rural productive inclusion, in particular the *Progredir* Program (user of *Cadastro Único* information) and highlights the importance of the use of the *Cadastro Único* to select the target audience, but also to detection the situation of families at the local level, pointing to the low culture of sharing, as follows:

When one considers the policies of productive inclusion, both urban and rural, one of the issues that stands out is the degree of focus of these policies: are they reaching the one who in fact needs the most?

One way of seeking an answer to this question could be through **cross-checks** between public policy monitoring systems and the *Cadastro Único*, in order to assess whether the people who are enrolled in this registry are able to receive



government incentives in order to encourage their productive inclusion and their emancipation.

[...]

This problem of managers' lack of knowledge about the level of reach of their policies to the public of the *Cadastro Unico* stems from a much greater problem and even more serious than the **low culture of information sharing between the different organizations of the federal government**. It is not usual for information to be handled together and for sharing the various knowledge niches to support joint decision-making. These issues involve aspects of **power related to the possession of information**, but also involve the **operational difficulty** that arises from the high cost of extracting public databases, which makes such extractions occasional and extraordinary events rather than routine and essential activities. (page 57)

As regards the intersection of the public policy bases with the *Cadastro Único*, there is an ongoing initiative in the search to solve the problem described above, *Cadastro Único* Network, which is implanting a **virtual space of interaction** between the data of the user programs of the *Cadastro Único*.

[...] the Network aims to allow the construction of **common identity**, standardized procedures and solutions that **meet the various needs of social policies that have** as a reference the *Cadastro Único*, aiming at a **systemic integration** of these policies.

[...] Thus, it is defended that the *Cadastro Único* Network initiative be fully implemented, so that public policy managers and the government itself will have updated and systematized knowledge about the level of focus of their policies in relation to the public of the *Cadastro Único*.

The Judgment directs the following determination to the managing ministry of the  $Cadastro\ Unico$ :

To determine to the Ministry of Social Development that in 180 days, in view of Decree 8.789/2016, promote the Information Technology infrastructure necessary for the full implementation of the *Cadastro Único* Network.

On the other hand, in the scope of internal control, the Office of the Comptroller General of the Union also sent recommendations to the Ministry of Citizenship, requesting the adoption of a prior process to verify information self-declared by the family in the *Cadastro Único*, before it is selected for social policies and programs and providing transparency to municipalities to proceed with the registration update (Annual Audit Report of Accounts 2017). However, the process of integrating data and information depends on cooperation between different agencies and actors and is not only a task of the Ministry of Citizenship and specifically the *Cadastro Único*, but of the Federal Government as a whole. Moreover, the suggestions pointed out represent significant changes in the routines of identification of the



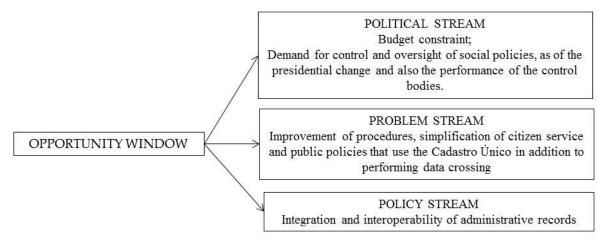
target audience (through the  $Cadastro\ Unico)$  and the selection and maintenance of the benefits and services offered by the user programs (each with its own rules). There is also a need here to separate the responsibilities that are incumbent upon each entity in the process.

As of 2016, with the presidential and management change of the Ministry of Citizenship, a new round of cross-checks in various scopes from **big data** solutions were carried out. The establishment of a *GTI* to qualify the data of the *Cadastro Único* of beneficiaries of the *Bolsa Família* program marked a baseline for the new management, adding databases other than those historically used (like business partners and national register of legal entities) and being a response to the action of the Public Prosecutor's Office. Nevertheless, all evidence of control and supervision continued to be cross-checks *a posteriori*, rather than actual integration.

At this moment, depending on the performance of the public policy entrepreneurs, a window of opportunity may arise, according to Kingdom analysis framework (2011), to implement institutional improvements and transformations based on the combination of: budget constraint and demand for control and rationalization of policies and social programs, especially with the pressure system used by internal and external control bodies, which has the authority to impose determinations and recommendations on managers with deadlines and sanctions for non-compliance (political stream), the need for improvements in qualification of the *Cadastro Único* and simplification of the service to the citizen, in addition to the data crossing routines of the *Cadastro Único* with other administrative records (used in the *Averiguação Cadastral* process), which can cause rework to the municipalities (problem stream) and the integration agenda and interoperability of policy stream, as shown in the table below:



Figure 2 - Possible window of opportunity to improve the processes of qualification of the  $Cadastro\ Unico$ 



Source: Own elaboration

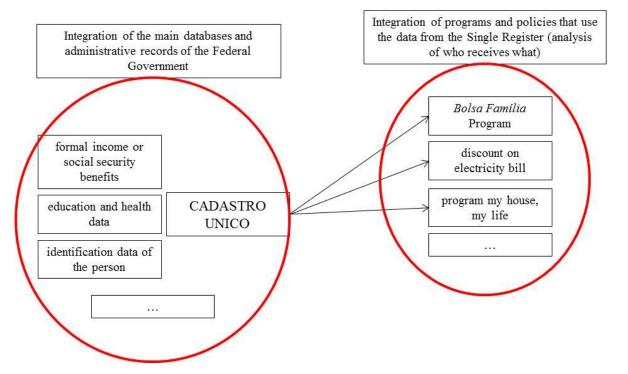
After 2005, with the implementation of annual routines of audits, in 2010, with the implementation of an online version of the registration system and, in 2011, with the consolidation and recognition of the *Cadastro Único* as the gateway to all actions of the Plan Brazil Without Misery, significantly broadening the number of programs and policies that use its data and information, integration takes two strands connected to the effective improvement of public services to the citizen: the integration of government databases for the selection of public, avoiding that the citizen needs to inform the same data to different organizations and public policies; but also, there is the return of information: the integration of families and people who are beneficiaries, so that the State can have a global vision of the public policies that each family accesses, as shown below:



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Figure 3 – Two challenges for integration in the context of *Cadastro Único* 



Source: Own elaboration

As seen in the implementation history of the *Cadastro Único*, this tool alone is already an innovation in the way of making public policies, as it centralizes in a single procedure, instrument and database the identification and characterization of Brazilian families in poverty, in order to organize and rationalize the selection and monitoring of this poverty target public.

The path to a new model of integration is not only a technical, but mainly political agenda and a change in organizational culture. There is an opportunity for the convergence of regulations, society demand for rationalization and simplification of services, implementation of digital government, increase the use of new information and communication technologies, these are real possibilities for improvements in efficiency, effectiveness and economics of public policies in Brazil. However, the result of this for the future of the *Cadastro Único* and for the policies that use it is still an open question.

In the subsystem of public policies to combat hunger and social development there are coalitions that dispute space of influence, resources and opportunities. In this exploratory and descriptive study, through the revision of the legislation related to the integration of databases



and simplification of services to the citizen, we observe the performance of a coalition that focuses on the rationalization, efficiency and economics of social policies. With internal and external events related to presidential and ministerial change, massive use of big data solutions by public agencies and demand from public opinion for greater control of public policies, such as *Bolsa Família*, entrepreneurs had space and window of opportunity to promote these integration, transparency and simplification. However, the way these changes are being operated by the bureaucracy still needs further studies, which are under development in my doctoral thesis.

# Conclusion: the agenda of integration of databases in Federal Government and the future of *Cadastro Único*

With this work we can observe the initiatives of integration of databases in progress in Brazil and how this agenda has advanced. With the analysis of the period from 2005 to 2018, there is a growing progress, especially in the scope of legislation, for the data integration, rationalization and economics of public policies and simplification of citizen services. However, there are still ambiguities and divergences in interpretations between legislations, such as which data and information may or may not be shared, by whom and for whom and for what purposes, which runs counter to privacy, transparency, accountability and coordination. On the other hand, progress in legislation has not been accompanied by other key issues such as quality internet access and organizational culture shifting to data sharing.

In this context, for the *Cadastro Único*, a tool for identifying the low-income population present in all Brazilian municipalities and with an online registration system, which serves a specific population, often still invisible to the public policies, we observe how the agenda of integration of databases can be boosted with the demand for improvements of the *Cadastro Único*. The practical example of the *Cadastro Único* case study shows changes driven in an endogenous and exogenous way, where the sources of this change, in certain periods, were built internally in the institutions, through the actors that work directly with the policy at the federal level (public servants of MDS) and, on the other hand, were responses to external



demands that feedback a process of institutional development that was already under way or not and especially regulatory review pressure. The use of data and information of the low income population, from the *Cadastro Único*, in different periods of time and depending on the socio-political context and the actors involved and his different interpretations that could legitimize or justify changes in opinions, decisions of government actors, according to previous results of this study. This is in a political context of budget constraint, increasing demand for greater control of public policies, without undermining the poverty alleviation indexes already achieved, and using the technological innovations of database integration and interoperability, especially after 2016.

The actions of data crossings to identify income omission or underreporting in the *Cadastro Único* and the *Bolsa Família* Program are routines since 2005. Furthermore, since 2010, *Cadastro Único* operates in an online registration system, even with the difficulties of accessing the Internet in Brazil. These factors alone have already identified the *Cadastro Único* experience as an innovative example of integration and rationalization (of target audience), but there is a space for other models of data integration, like to integrate existing public policies (analyzing who receives what and studying other actions that the State can take to promote social development) and the integration of citizens' data sources (in order to simplify service, besides rationalization and efficiency). The results depend on the action of public policy entrepreneurs to take advantage of window of opportunity to leverage negotiations and political articulations and change of organizational and procedural culture in public agencies.

In order to deepen the analysis and conclusion of how the data integration agenda affected and affects the *Cadastro Único* and the social policies that use it, it will be necessary to collect data from other sources of information, such as interviews with key actors in the Federal Government. These next steps of the research will be developed in my doctoral thesis, whose theme is the decision process involving the implementation of the *Cadastro Único* (permanence and change), analyzing the advocacy coalitions actions (and their use of technical information and the image of the target public) to promote changes at public policies that use *Cadastro Único* (poverty target).



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