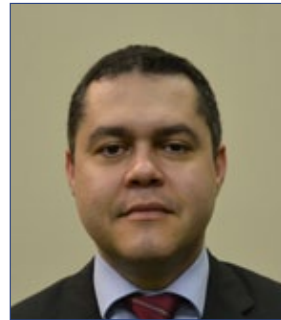


Open Data: a Strategy for Increased Public Management Transparency and Modernization



Clayton Ferreira da Silva

is a civil servant of the Federal Court of Accounts - Brazil.



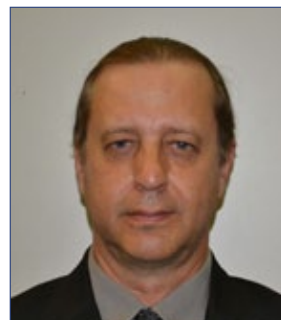
Wesley Vaz

is a civil servant of the Federal Court of Accounts - Brazil.



Erick Muzart Fonseca dos Santos

is a civil servant of the Federal Court of Accounts - Brazil.



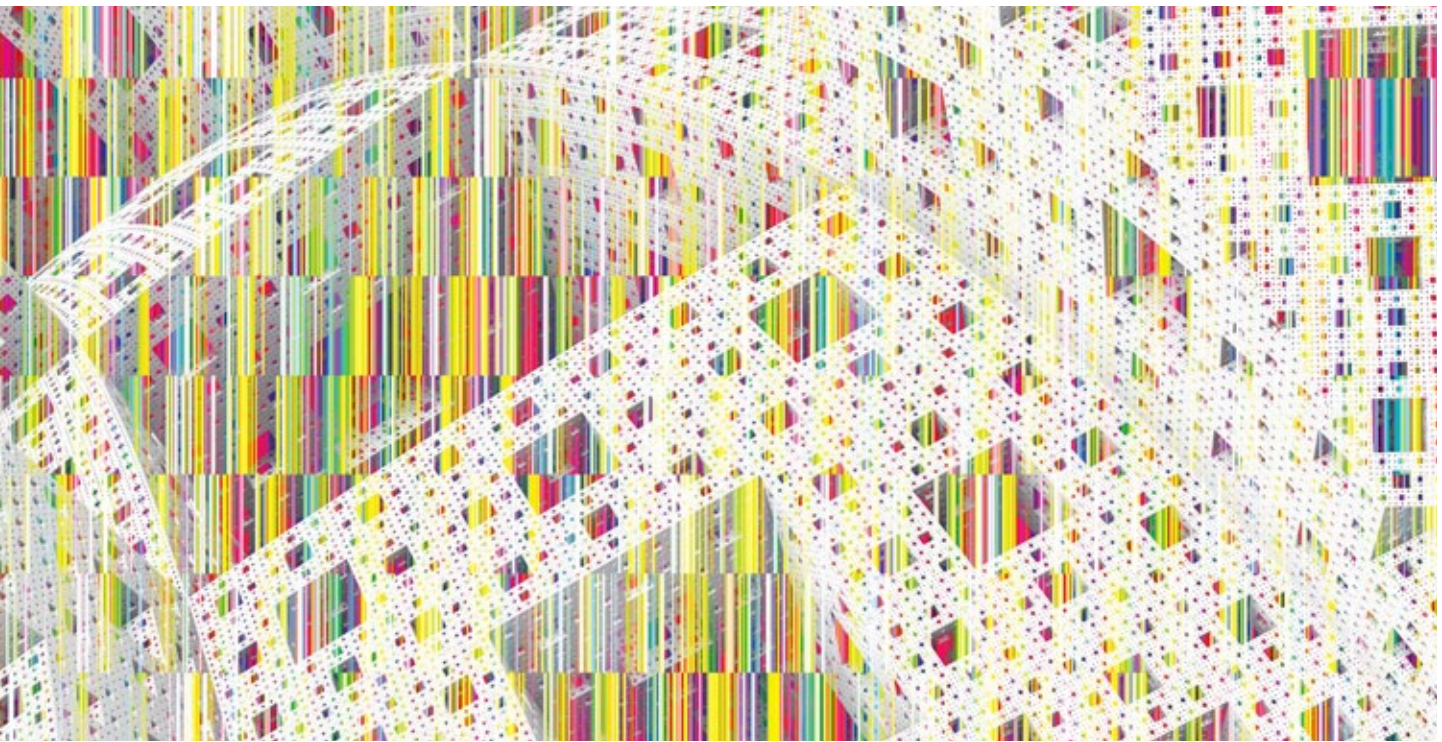
Remis Balaniuk

is a civil servant of the Federal Court of Accounts - Brazil.



Mônica Cotrim Chaves

is a civil servant of the Federal Court of Accounts - Brazil.



SUMMARY

At a time when improving public management, promoting social participation and the meeting need to provide better public services are high on our agendas, the open government data policy is a key input for the construction and consolidation of open government. This new paradigm allows citizens to obtain information about government actions, thus enabling their active contribution to decision-making and improving the functioning of the State. The contemporary nature of the topic as well as the evolution of practices at the international level have motivated this article, which provides an overview of the concepts, characteristics and risks associated with open data. It also describes the international scene as regards the opening of government data, discusses some local initiatives, and presents the Brazilian regulatory framework on the matter.

1. INTRODUCTION

Government transparency is one of the cornerstones of democracy and becomes effective through citizen access to government information. This match between transparency and information has given rise to the concepts of Open Government and Open Data. The first highlights the broad intention of a government to be transparent while the latter indicates the path to be followed for bringing this transparency into fruition.

For years, organizations in various countries have been striving to share open government principles and practices and disseminate them among governments. Nevertheless, open data is still an evolving and underexplored subject, with much room for progress as regards consolidating the open government culture.

In addition to ensuring transparency, the open government data policy has several other potentials, such as improving public management, fostering social control, promoting social participation, and stimulating innovation.

The implementation of this policy leads organizations, citizens, academics, businesses, and public institutions in different countries to build solutions for sharing information produced by or in the custody of public institutions, besides bringing knowledge to citizens and establishing channels of communication between civil society and the government.

The Brazilian government has formally committed to the topic by joining the Open Government Partnership (OGP) in 2011. Since then, it has carried out actions related the topic in the Public Federal Administration, having enacted the Access to Information Act and published the Open Data Policy in 2012, in addition to fostering the implementation of websites for the centralized provision of open government data.

Given the relevance and contemporary nature of the topic, the objective of this paper is to present related concepts as well the international context and data

publishing initiatives introduced in Brazil as a key instrument of the transparency and public management modernization strategy.

This paper is organized as follows: Section 2 addresses concepts and characteristics based on open data and open government publications and academic studies as well as benefits and associated risks. Section 3 describes global-level on data opening and discusses the international open data scenario. Section 4 presents the national situation, describing the regulatory framework on the matter in Brazil and existing initiatives. The conclusions are presented in Section 5.

2. CONCEPTS AND CHARACTERISTICS

This section will address the main concepts related to open data and list the benefits and some of the risks inherent in the initiative.

2.1 OPEN GOVERNMENT

According to the OGP, the term open government refers to projects and actions aimed at promoting transparency, fighting corruption, increasing social participation and developing new technologies with the aim to making governments more open, accountable for their actions, and able to meet the needs of citizens (OGP, 2011a). It is an international initiative that seeks to globally disseminate and encourage government practices related to government transparency, access to public information and social participation.

Brazil is recognized as a protagonist in the international scene with regard to open government and was invited to be one of the founding countries of the OGP, alongside other countries. It was also the first chair of the Partnership, together with the United States. Currently, Brazil is a member of the OGP Steering Committee, which now has 65 member countries.

At the launch of the Partnership, the eight founding governments (South Africa, Brazil, United States, Philippines, Indonesia, Mexico, Norway and the United Kingdom) signed the Open Government Declaration (OGP BRAZIL, 2011), in which the countries recognized the demand of civil society for more openness in government and committed to uphold the principles and goals of open government.

According to the Open Government Declaration (OGP BRAZIL, 2011), for a government to be considered open it must commit to: 1) increase the availability of information about governmental activities; 2) support

civic participation; 3) implement the highest standards of professional integrity throughout the Administration; and 4) increase access to new technologies for openness and accountability.

Additionally, OGP commitments should be structured around a set of five areas of action, which the Partnership refers to as Grand Challenges: 1) improving public services; 2) increasing public integrity; 3) more effectively managing public resources; 4) creating safer communities; and 5) increasing corporate accountability.

For the OGP (OGP 2011b), improving the quality of the country's governance as well as of public services provided to citizens is the basis for the sustainability of a government that is more transparent, more open to popular participation and more willing to promote accountability.

As seen, the concepts of open government and transparency are strongly correlated. Open government and, consequently, transparency, are often considered inducers of responsibility and accountability as well as of the fight against corruption, inefficiency and waste.

2.2 OPEN DATA

With the advancement of digital technologies, the practice of open government with regard to information and governmental transparency gradually began to make use of resources for processing and disseminating electronic data in large amounts and high speed. Currently, transparency is strongly associated with the availability of so-called open data, which, in principle, enable scrutinizing the universe of governmental actions in more detail.

As defined by the Open Knowledge Foundation (OKF), "data are open when anyone can freely use them, reuse them and redistribute them, being subject, at most, to the requirement of attribute and sharealike" (OKF; BRAZIL).

The expert in public policy David Eaves proposed three laws, and although originally presented for open government data, it can be said that they apply to open data in general (EAVES, 2009):

1. If it can't be spidered or indexed, it doesn't exist;
2. If it isn't available in open and machine readable format, it can't engage; and
3. If a legal framework doesn't allow it to be repurposed, it doesn't empower.

In 2007 an OKF working group also established the eight principles of open government data:

In the genesis of these laws (rules) and principles, there are reasons and justifications strongly linked to the reality of the digital world and the principles of public transparency.

3.1 POTENTIAL BENEFITS FROM OPENING DATA

In an article entitled *Effective Open Government: Improving Public Access to Government Information*, published in 2005, the Organization for Economic Cooperation and Development (OECD) pointed out that data transparency and openness are an essential part of any modern government (OECD, 2005), highlighting as benefits democratic participation and understanding, improved decision-making processes, improved government data management, efficient management of services provided to citizens, in addition to less corruption.

Literature lists other potential gains from open public information. The OKF emphasizes citizen participation in government management, since the availability of government data not only brings information to citizens, but also creates the possibility for them to engage in decision-making processes and contribute to public actions. It is the empowerment of citizens, who become agents of social transformation by monitoring and overseeing government actions and public policies.

By making its data available, the government also contributes to the generation of business and innovative services with both commercial and social value. Organizations, citizens, academics, businesses and even public institutions have the possibility to use public data for producing and sharing new knowledge and new services, based on the concept of co-participation between private entity and government in the provision of public services. Since the State has limited capacity to provide the quantity and diversity of services that society can and wants to consume, combined efforts seem to be timely.

An international example of civic application built along these lines is England's best places to live (ILLUSTREETS, 2013). Developed in England, the service proposed by this website helps citizens to choose where they want to live in the country, with indicators on the selected region. Through an interactive map, colored according to the standard of living, citizens choose a focal point (region) for research. After that, indicators on the selected region are presented such as: standard of living, crime rate, average prices of rents, characteristics of the local population, unemployment rate, distribution of the use of facilities (parks, buildings, homes, roads, etc.), local and nearby schools, and public transportation. The Solution also provides the details of this information. Open data used by the Solution come from various government sources, including transportation, police, education, and health departments. Other civic solutions can be found in the report justifying Decision 2569/2014-TCU-Plenary.

In Canada, open data brought to light a fraud scheme related to tax exemption on charitable donations, which resulted in the claim of \$32 billion in taxes due (EAVES, 2010). In Spain, a study shows that about 5,000 jobs are related to companies that create applications, products and services, using public sector information (ZIJLSTRA, 2012). In Uganda, the access to information policy and the resulting disclosure of public funds received by each school contributed to reducing the corruption that encroached upon those funds, and the schools, which previously received only 20% of the funds to which they were entitled began to receive 90% of said funds (HUBBARD, 2007).

3.2 2.4 OPPORTUNITY TO USE OPEN DATA WITH SOCIAL PARTICIPATION

Social participation is one of the pillars of open government, encouraging citizens to become acquainted with, check, oversee and monitor public actions of interest to them. On the other hand, with

Tabela 1:
princípios dos dados
abertos governamentais

1. Complete	All public data is made available. Data is electronically recorded information, including but not limited to documents, databases, transcripts and audiovisual recordings. Public data is data that is not subject to valid privacy, security or privilege limitations, and is regulated by statutes.
2. Primary	Data is published as collected at the source, with the highest possible level of granularity, not in aggregate or modified form.
3. Timely	Data is made available as quickly as necessary to preserve the value of the data.
4. Accessible	Data is available to the widest range of users for the widest range of purposes.
5. Machine processable	Data is reasonably structured to allow its automated processing.
6. Non-discriminatory access	Data is available to everyone, with no requirement of identification or registration.
7. Non-proprietary formats	Data is available in a format over which no entity holds exclusive control.
8. License-free	Data is not subject to any copyright, trademark, patent or trade secret. Reasonable privacy, security and privilege restrictions may be allowed as regulated by statutes.

the communication channels established, citizens can also provide information to the State, thus contributing to the assessment and adjustment of public policies as well as to the improvement of public data, among other benefits.

This relationship between the State and civil society is already seen in solutions based on open data. OKF (2013) lists some examples in which social participation has enabled, for example, improving the quality of government data (GRAY, 2013). As an illustration, the United Kingdom, by providing data on 300,000 bus stops in the Open Street Map (OpenStreetMap), has made it possible for the community to contribute by correcting information on 18,000 bus stops, ultimately leading to the improvement of public transport information in that country (BOLY-CHEVSKY, 2013).

However, for civil society to actually participate, the mere publication of government data is not enough. The availability of public information, easily accessible to citizens, needs to be disseminated and attract the interest of users, for both the creation of new products and services and the construction of new and different views on the information provided.

Moreover, the provision of open data by governments should not be considered an end in itself. Various professionals and researchers have been warning about a certain “illusion” of transparency that open data can create. In addition, they shed light on a number of issues underlying the topic that are not being discussed at the necessary depth, such as the difficulty to interpret and take from government data information that is useful to the reality of citizens, and the risks of invasion of privacy or disclosure of confidential or incorrect data.

The set of risks inherent in the adoption of open data are divided into three main groups: 1) costs of the continued availability of data; 2) quality, usefulness, and usability of data; and 3) privacy and protection of personal data.

4. INTERNATIONAL CONTEXT OF OPEN GOVERNMENT DATA AVAILABILITY

OGP, Open Data Institute (ODI), W3C, W3C Brazil, OKF, OKF Brazil, Open Institute, Fundar, Sunlight Foundation, and Global Open Data Initiative are some of today’s organizations engaged in open data.

The British government was the first to publish open data, with the initial goal of providing the

largest amount of public data possible by establishing a small infrastructure and conducting experiments (W3C BRAZIL, 2013). Since then, it has maintained its leadership position in open government practices. Despite being a reference, the country believes that much has yet to be done and, therefore, the efforts to consolidate an open data culture remain high on the government agenda.

International studies indicate that, in general, countries have not yet developed their full capacity to provide raw government data. Consequently, the international community is becoming increasingly concerned about measuring the data opening level of nations and assessing their value added, i.e., the social and economic impact of their initiatives. In order to stimulate innovation and improve transparency and accountability for public expenditure, nations and organizations around the world are seeking to find out how open data add value.

One of the indicators used in this measurement is the number of datasets provided by the country. However, a simple comparison of that number can lead to wrong conclusions, since what matters the most is the information being provided (its content) and its potential impact. The total number of datasets can be considered in evaluating the degree of openness of a country or state, in conjunction with other indicators.

The Open Data Barometer (NETWORK, 2013), a project of the Open Data Institute and the World Wide Web Foundation, seeks to develop evaluation methods for open data. Its goal is to gauge the impact of open data initiatives, taking into account the dissemination of the government policy on open data and its use worldwide. The project analyzes global trends and ranks countries using a methodology that factors in the readiness to ensure the benefits of open data, the actual levels of implementation and the impact of open data initiatives.

In 2013, a study covering 77 countries was conducted and published in the Open Data Barometer Global Report (DAVIES, 2013). This initiative showed the UK as the most advanced country in terms of open government data, followed by the United States, Sweden, New Zealand, Denmark and Norway, with Brazil holding the 28th position. In this regard, it should be pointed out that, in the analysis, open government data initiatives in our country were considered to have no economic impact whatsoever (W3C BRAZIL, 2013; BAROMETER, 2013; ODI, 2013).

The report argues that the success of initiatives requires more than just the provision of datasets. It requires action by agents, known as intermediaries, able to transform government data into platforms and products with social and economic value, equipped to work with data in different ways. In this regard, the Open Data Barometer (DAVIES, 2013) recognizes that achieving the benefits of open data and ensuring its sustainability requires addressing a diverse number of variables in order to build and maintain an ecosystem around the central data infrastructure of an open government data program.

OKF created the Open Data Census (OKF CENSUS), in which seventy countries participate on a voluntary basis by contributing information about the databases made available. This information served as input for the publication of the Open Data Index (OKF INDEX), which measures the availability of open data. In this index Brazil ranks 24th, with 480 points out of 1,000. The ranking is led by the United Kingdom, with 940 points.

The World Wide Web Foundation created the Web Index (WEB INDEX, 2013) to assess the contribution of the internet to developing and strengthening the rights of citizens in 81 countries, with indicators covering four areas: Universal Access; Freedom and Level of Openness; Relevant Content; and Empowerment. In the Web Index 2013 the top five positions are held by Sweden, Norway, the United Kingdom, the United States and New Zealand, with Brazil ranking 33rd.

In an attempt to standardize an open data classification, Tim Bernes-Lee suggested a progressive open data-publishing model, known as Five Stars of Linked Data (BERNES-LEE). The model seeks to induce governments to take the first step to open information by publishing data online in their original format and gradually improve the level of openness.

The U.K. National Health Service (NHS) recently published an article prepared by the GovLab, proposing a conceptual structure to assist in measuring the impacts of data opening on healthcare and in assessing specific circumstances that maximize said impacts (VERHUST et al, 2014). The aim of the authors is to enable this model to be used by researchers and program managers when defining open data initiatives in healthcare by establishing priorities and ways to measure their impact, not only at the end of the implementation process of the initiatives, but also throughout it. The relevance of the study, which

with the necessary adaptations can be extended to all other areas of public administration, lies in measuring results in an initial moment, when the data opening initiative is defined.

Special mention should also be made of the first report on open data trends conducted by the Court of Accounts of the Netherlands, completed in March 2014. The report, like this Article and the report that informed Decision 2569/2014-TCU-Plenary, addressed open data concepts, policies and related legislation, besides the local national scene (REKENKAMER, 2014), and highlighted the concern about assessing controls related to the topic.

5. NATIONAL CONTEXT OF OPEN GOVERNMENT DATA AVAILABILITY

This section presents the main aspects of the Brazilian legislation on open data, as well as some examples of data opening initiatives in progress at federal, state and local level.

5.1 OVERVIEW OF BRAZILIAN LEGISLATION

Subsection II, Article 37, § 3, and Article 5, item XXXIII of the Brazilian Federal Constitution, when addressing the need to regulate forms of citizen participation in the public administration, emphasize the access of users to administrative records and to information about Government initiatives.

As for the right of access to information, Law 12,527/2011 – the Access to Information Act (LAI) was published in order to ensure compliance with the aforementioned provisions of the Federal Constitution, and the procedures established therein are binding upon the Union, States, the Federal District and Municipalities. In this regard, LAI provides for the obligation of the State to provide passive transparency, i.e., the obligation to respond to society's demand for information, and establishes new obligations regarding active transparency to be met by public agencies and entities, such as those relating to the so-called open government data.

With respect to open data, Article 8 of Law 12,527/2011 and its paragraphs 2 and 3 provide for the duty of public agencies to promote, the disclosure of information of collective or general interest produced by and in the custody of said agencies, regardless of requests. This information must be made available in places easily accessible to all persons, in

addition to establishing the requirements for disclosure on the official websites.

A more detailed and specific non-statutory regulation on open data is Normative Instruction SLTI/MP 4 of April 18, 2012, establishing the National Open Data Infrastructure (INDA). Pursuant to Article 1 of IN-SLTI/MP 4/2012, INDA is “a policy to ensure and facilitate access by citizens, society and, in particular, the various public sector spheres to data and information produced by or in the custody of the Federal Executive Branch”. IN-SLTI/MP 4/2012 establishes as members of INDA, on a mandatory basis, all entities of the Information Technology Resource Management System (SISP) and, optionally, by signing the term of agreement, all other agencies and entities of the Executive, Legislative and Judicial Branches at Federal, State, District and Municipal level.

According to the provisions of Article 1 of IN-SLTI/MP 4/2012, the objectives of INDA are: to: define, organize, and coordinate the open data policy; define and regulate the standards and technical aspects relating to the availability and dissemination of data for use by the Federal Executive Branch and society; seek to continuously improve the publication of open data, based on best practices implemented at national and international level; and promote social participation in building an ecosystem to reuse and add value to open data, among others.

In relation to the open government legislation, Decree n/n of September 15, 2011 established the national action plan on open government, which is intended to promote actions and measures aimed at increasing transparency and access to public information, improving the delivery of public services and strengthening public integrity.

The aforementioned Decree, in its Article 3, also provides for the creation, by the Federal Government, of the Interministerial Committee on Open Government (CIGA), a decision-making body responsible for guiding the implementation and development of Brazil’s open government action plans. The committee is composed of eighteen ministries represented by their respective ministers, and coordinated by the Office of the Chief of Staff.

Article 1, items II and III of the same Decree, also highlights the duty of public administration to promote social participation. It establishes as guidelines of the national action plan on open government, among other actions: 1) fostering social participation in decision making; and 2) encouraging the use of

new technologies in the management and delivery of public services, which should foster innovation, strengthen public governance and increase transparency and social participation.

Likewise, one of the objectives of IN-SLTI/MP 4/2012 (Article 1, section X) is the promotion of social participation in building an ecosystem to reuse and add value to open data. Within this spirit, the normative instruction also determines that citizens and civil society organizations interested in INDA activities may be part of its organizational structure and participate in its implementation (Article 3, §1 and §2).

Therefore, the Access to Information Act and all other regulations mentioned herein are important instruments to enable and demand the implementation of actions aimed at ensuring the transparency and openness of government information. However, considering the innovative nature of the topic, some subjects are still to be regulated, such as the processing of personal information, which is essential to define which public data are of collective or general interest.

5.2 NATIONAL OPEN GOVERNMENT DATA INITIATIVES

Research on open data initiatives at the federal level has shown heterogeneity in the degree of openness between Public Federal Administration entities and agencies.

The Chamber of Deputies, for example, stands out among Federal Public Administration agencies for having a specific physical and personnel structure to implement open data initiatives, namely the Hacker Lab, in addition to counting on the support of the upper levels of the House. Opened in early 2014, the Hacker Lab provides physical space for free access and use by all citizens, especially programmers and developers, who can use public data to develop citizenship-related actions. In order to promote collaborative actions to improve legislative transparency and understanding of the legislative process, in 2013 the Chamber of Deputies held a Hackathon, a marathon with a very busy agenda, in which applications developed by citizens were selected and awarded prizes.

The Ministry of Justice is another institution that has implemented initiatives to promote open data, having even published its Open and Spatial Data Plan in August 2014. The Ministry held two Hackathons in 2013, and has around a dozen datasets cataloged on the Brazilian Open Data Portal.

Brazilian entities providing data and information about the country also make available part of the large amount of information produced by them or in their custody. The Institute of Applied Economic Research (IPEA) provides access to statistical series data generated by it or in its custody (IPEADATA). The information covers economic, financial, demographic, and geographic data and social indicators, and may be surveyed by topic, data source and other filters. The Brazilian Institute of Geography and Statistics (IBGE), in turn, provides information from official data taken from its surveys as well as from other government sources (IBGE).

With respect to the open government data websites created by the Federal Government, special mention should be made to the Brazilian Open Data Portal (BRAZIL). Besides serving as a catalog of open data produced by or in the custody of public administration entities, it provides links to technical guidelines on the topic for both the internal public and civil society, especially application developers. Another website related to the topic is the Transparency Portal (UNION), an initiative of the Comptroller General's Office launched in November 2004 to increase the transparency of public management. The portal, which allows citizens to learn how public funds are being used and exercise social control, also provides multiple open format datasets, thus allowing users access to spreadsheets with data posted on the portal.

At state and municipal levels, it should be pointed out that the State of São Paulo launched the SP Open Government initiative, a Knowledge Management and Innovation policy, and has recently entered into a partnership with the United Kingdom to expand the databases available, improve access to the state's official portals and stimulate the development of new applications, services and businesses (SP OPEN GOVERNMENT). The state of Rio Grande do Sul also has an open data portal (RS DATA) which, at the moment, provides seventy datasets, many of which are historical series. In its search for qualified management based on incentive to innovation and entrepreneurship, the municipality of Porto Alegre created DataPoa (DATAPOA), the open data portal of Porto Alegre aimed to invite the community to participate in the development of intelligent solutions for the city, thus establishing collaborative ties between local government, businesses, developers, and citizens.

An example of a Court of Accounts engagement in open-data related actions is the Court of Accounts of the State of Pernambuco (PE-TEC), which developed

its Citizen Portal in order to democratize access to information on government management. The portal features an open data section, with files available on budgetary and financial execution, as well as government procurement and contracts (PERNAMBUCO).

Although still modest, the country already has some civil applications, an example of which is the QEDu solution, in the educational area, an open and free portal containing information about the learning level of 5th and 6th grade students from municipal and state schools in Brazil. Using data from the Brazil Test, the School Census and IDEB, the QEDu provides information on the educational infrastructure; the profile of students, teachers and principals; and some indicators of student learning and teaching quality (QEDU).

The main difficulties faced by agencies in the data opening process include: the sustainability of the initiatives generated, particularly of the solutions developed by society or collaboratively; lack of staff and governance in managing the process; and lack of standardization.

6. CONCLUSION

The reasons that motivated the implementation of the open government data policy are clear and pressing. The availability of public data promotes increased social participation; citizen empowerment through the understanding and monitoring of government actions; and improved quality of government data, management efficiency, services delivered to citizens, and public policy design and implementation process.

Notwithstanding the existing regulatory framework and the work already done by the actors engaged in this policy, much still remains to be done for the establishment of an open data culture in Brazil. In principle, improving the expected results of this policy requires establishing a larger set of incentives to institutions, including awareness campaigns on the importance of the topic, so as to further stimulate the coordinated and active participation of public institutions in open data initiatives covering the three government branches: Executive, Legislative and Judiciary.

By describing international cases and discussing the topics revolving around open data policies, we hope this paper has contributed to clarifying fundamental concepts as well as to motivating actors to implement open data-related actions.