

## **Open Government: a Systematic Review about the topic on Web Databases**

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**Abstract:** More open governance practices are being increasingly used by public officials as a form of a more transparent and participatory management of the population, so that promotes accessibility to public data and the solution of the population's needs. Given the growing interest in open government theme, this study aimed to analyze the academic research on open government, identifying the main aspects related to the theme. For this, we carried out a systematic review of the literature, in which through a search strategy in online databases recovered after refinement, 124 documents for analysis. The results were divided into two subsections, in the first was carried out a bibliometric analysis of retrieved articles, and in the second were discussed some aspects about the subject. Thus, it was concluded that the practice of open government is an important methodology used for governments having more legitimacy among the population.

**Keywords:** Open Government, Governance, Transparency.

## **1. Introduction**

In democracies, where governments are elected by the people for the management of public agencies, it is essential to ensure transparency and accountability to the population accounts, so that it can monitor, evaluate and validate the actions of their representatives (Harrison & Sayogo, 2014). Thus, as a government becomes more open it is able to enhance both the legitimacy and reliability of their actions, so that it can meet the needs for more accessible information and services, as well as best quality, by the population, and consolidate the existing democratic model (Bernardes, Santos & Rover, 2015).

According to Gomez, Insua, Lavin and Alfaro (2013) the increasing attention given to more participatory processes by current governments reflects the need to soften the democratic deficit that still exists in society, giving more power in public policy for citizens. In accordance to Nam (2012) is essential the popular support in government's actions, since the population is not only customer of government services, but also funding, through taxes, in addition to having the power to vote and elect their leaders. According to Attard, Orlandi, Scerri, and Auer (2015), besides influencing on decision making, citizens can provide feedback on government activities as well as collaborate in the development of public policies, through actions of open government.

Therefore, recently open government has become popular among politicians and governments, as through this management model is expected that several benefits are acquired, such as efficiency, lower levels of corruption and the advance of government's legitimacy (Meijer, Curtin & Hillebrandt, 2012; Yang, Lo & Shiang, 2015). Thus, according to Abu-Shanab (2015) and Attard et al. (2015), we can define open government as an evolution of e-government, in which the prerogative is that government information are made available to citizens in a transparent, participatory, accountable and collaborative manner.

Thus, it was found that in recent years' various government movements related to open data emerged around the world, and the prerogatives matched with increased transparency and data reuse (Attard et al., 2015). As stress Yang et al. (2015) open data represent an important pillar to support the actions of open government, and because of this fact has been receiving attention of researchers to study the subject. Thus, as emphasized Lourenço (2015) one of these movements corresponds to the emergence of open data portals, since increased the perception of governments to become more transparent, where this transparency helps both the accountability of governments and for re-use of information to create new products and services.

In literature the actions to open government involvement has been discussed by several authors, and has various nomenclatures, which despite their labels and different objectives, represent the interaction between government and the population as "citizen sourcing" (Lukensmeyer & Towers, 2008), "the Electronic Democracy", "eParticipation", "e-Government" (Collins, 2009 and OECD, 2003), " Collaborative Public Management " (McGuire, 2006), "Citizen Engagement" (OECD, 2004) "Wiki government" (Noveck, 2009) or "government 2.0" (O'Reilly, 2009; Wijnhoven, Ehrenhard & Kuhn, 2015).

Yet, as addressed by Meijer et al. (2012), despite the opening of government be widely held by leaders and policy documents, academic studies are just beginning to focus on the subject. Thereby, the open government still represents a new idea and which is in beginning of its operational phase, so that still needs further studies (Wijnhoven et al., 2015). In this sense, a theoretical analysis of open government elements it is necessary, as barriers and impacts, as well as how to correct and improve how to implement open data (Whitmore, 2014). Still, checking the importance of studying practices of transparency and public participation, it is essential that further studies address the practice of open government, drafting a more explicit concept of open government to facilitate its multidisciplinary exploration (Meijer et al., 2012).

Thus, as open government postulates identify transparency, collaboration and participation, since they can provide citizens being active subjects and co-authors of public actions and government policies (Nam, 2012; Bernardes et al., 2015). In this context and seeking to solve the gap of few works that explore the theme of open government, this research asks: how literature is addressing the theme of open government as a mechanism that emerge a more participatory democracy?

Therefore, this study is organized in five sections besides this introduction. In the next section will be addressed the theoretical foundations that supported this study, addressing the main questions related to open government practices. In the third section is presented the research method in which this study is subsidized. In section four are presented the results of the survey, which is presented the bibliometric analysis, as well as the main themes that address the theme of open government. Finally, we present the conclusions and bibliographic references, in sections five and six, respectively.

## **2. Theoretical Framework**

Opening of governments, could mean, according to Harrison and Sayogo (2014), that governments are willing, through transparency, the participation and accountability, to ensure

that their actions, services and products are accessible to the public and can be recognized by citizens as democratic processes. Thus, according to (OECD, 2001), the definition of open government can be considered as the transparency of actions taken by the government, access to public services and government information, as well as the government's competence to respond to new ideas, demands and needs of the population.

Therefore, the concept of Open Government came to prominence following initiatives in 2009, of the US president at that time, Barack Obama, in issuing in his first term day, a memorandum on transparency and open government (Mcdermott, 2010; Baltador & Budac, 2014). As emphasize Hellberg and Hedström (2015), the United States open government directive emphasizes that democracy demands accountability, that accountability demand and that transparency provides visibility. Although the open government have gained prominence after the government's actions of Barack Obama, actions to open government are old, closely related and derived from the concept of electronic government (Rover, 2013; Abu-Shanab, 2015). Thus, the e-government can be considered as the use of information technology in order to provide government data and to approximate the population to government activities (Carter & Bélanger, 2005; Abu-Shanab, 2015).

For this purpose, as stress Yannoukakou and Araka (2014), many governments around the world are considering practices more open, transparent and accountable of government. In the same lines implemented by the US government, the Obama government launched a partnership for open government in 2011, which is an attempt to strengthen open government initiatives around the world, and, Harrison and Sayogo (2014) identified through their studies that 60 countries around the world had joined to such commitments of the agreement for open government, and 38 of these countries had implemented national plans. Thereby, governments at different levels have adopted new technologies to become smarter by placing at the center of these innovations the interests of citizens and businesses (Puron-Cid, 2014). Thus, governments started to use media such as internet portals, databases display, applications for mobile phones and service (Diniz, Barbosa, Junqueira, & Prado 2009).

According to Ding, Lebo, Erickson, Difranzo, Williams, Li, Michaelis, Graves, Zheng and Shangguan (2011) has seen steady growth in data publishing of open government in portals arising from Web 2.0, a fact that makes arising a vital channel of communication between governments and their citizens. As point out Lourenço (2015), one of the leading portals that provide data is data.gov, where it can be seen a total of 44 countries that have

joined this movement of provision of open government data, which shows that this action is spread over several countries.

Whitmore (2014) emphasizes that government data portals has the purpose to benefit academics and professionals who can have easy access, manipulate them, as well as other tasks that if it was not available online would limit user's interest and data utility. However, according to Lourenço (2015), regardless of actual users, the government's portals must be created so that even ordinary citizens who do not have technical expertise are able to find them and use them. Thus Luna-Reyes, Bertot and Mellouli (2014) supplement that government portals can be used both to publish basic details of the government, but also to create and monitor specific requests.

Initiatives of open government data implementation (DGA) aim to increase the availability of readable data supplied under an open license, so these initiatives facilitate access to data and information held by governments (Kucera, 2015). As approaches Garcia and Maldonado (2012) the concept of open data can be considered as one of the most innovative initiatives to be charged by public administration, since the release of public data, as well as its easy access, confirm both the accountability through transparency and the encouragement of economic growth through the development of third-party services. Thus, DGA is seen as one of the facilitators of the Open Government movement, which seeks the establishment of modern cooperation between policy, public administration, industry and citizens, allowing for more transparency, democracy, participation and collaboration (Bauer & Kaltenböck, 2011).

However, despite various government data are openly available for reuse, often these data are organized and published incorrectly, which hinders its operation and use, generating problems in their quality, which can limit the understanding and interpretation of data. (Galiotou & Fragkou, 2013; Fragkou, Galiotou & Matsakas, 2014; Whitmore, 2014). Galiotou and Fragkou (2013) emphasize that the chaotic publications of open data may refer not only the same information to be found in different parts of the internet, but also the link between these sites is absent, as well as links to information do not exist.

These new technologies are currently having often, the purpose to support the interactions developed between governmental organizations and the population (Meijer, 2015). The opening of public information enables citizens the possibility to be informed about the activities of their government and to communicate with it, so they can keep their

government accountable for its actions and their costs and the possibility of participating in the political process (Janssen, 2011).

However, as highlighted by Wijnhoven et al. (2015), only the availability of government data does not include the government's interaction with the population who uses this data. For this, according to Abu-Shanab (2015), to achieve the complete state of open government, beyond informing citizens, the government must obtain feedback, as well as analyze and make use of these feedbacks, which presupposes a collaboration between the population and the public sector. In this respect, governments should be willing to provide more content on their sites, as well as develop methods to influence public participation with the available information (Snead, 2013). Ubaldi (2013) reports that there are not only legal and technical challenges associated with the implementation of the Open Government, but there are also challenges related to policy, funding, organization and culture.

### **3. Research Method**

In order to achieve the proposed objective of analyzing what has been published about the open government theme, the systematic review method has been used to analyze the large amount of knowledge available in a given area of knowledge, so that it must be transparent so that can be replicable (Tranfield, Denyer, & Smart, 2003).

As a way to collect the articles to be used in the research, we used the following key words: "transparency" and "social participation" combined with "open government." Therefore, the search covered the period from 2005 to 2015, and used Boolean operated in order to better match the keywords and thus recover more accurately the documents required for analysis. Thus, five online databases were selected, which are: Web of Science (ISI Web of Knowledge); Scopus; Scientific Electronic Library Online (SciELO); Emerald Insight; and ScienceDirect. The total number of articles retrieved by the search described corresponded to 190 documents.

Therefore, after finished the data collection according to the strategy described above, all recovered articles were tabulated using a spreadsheet and managed from the EndNote X7 software. It is emphasized that after reading the selected articles, 66 articles were discarded because they are duplicated in two or more selected databases. To this end, of all retrieved articles, 124 were considered for the analysis, which will be analyzed hereinafter by a bibliometric description.

## 4. Results

### 4.1. Bibliometric Description of Works

Publications about the Open Government subject are recent, with only one article published in 2005, two in 2006 and three in 2007 and 2009. Only after 2010 that publications started to reach high levels of publications, for this year were published 11 articles, 24 articles in 2011 and 29 articles in 2014, being 2014 the year with the highest number of published articles, as shown in Figure 1. By the time of the data collection completion, in 2015 there were 13 articles published. From 125 selected articles, 92% are related to the period between 2010 and 2015, showing that research in this area are recent. Thus, Figure 1 shows the evolution of number of publications over the years.

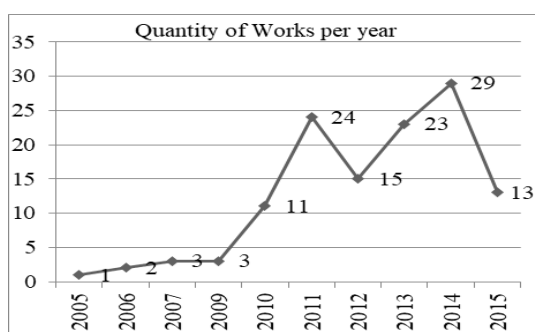


Figure 1. Quantity of works per year  
 Source: Elaborated by the authors

Among the authors who have more publications on the subject, it is noted that they have two published works. Among the authors are Sukumar Ganapati of Florida International University, being mentioned by 15 other works, Teresa M. Harrison da University of Albany State University of New York, being referenced 14 times in other works, Anneke Zuiderwijk of Delft University of Technology, cited by 1 other study, Clare Birchall of King's College London, mentioned by others 11 studies, and Mark Fenster of University of Florida, which was referenced in others 5 works. This, in Figure 2 it can be seen that the authors who have published more in the area, as well as their studies and year of publication.

Author	Article	Year
Birchall, Clare	Transparency, interrupted: Secrets of the left	2011
	'Data.gov-in-a-box': Delimiting transparency	2015
Fenster, Mark	The implausibility of secrecy	2014
	Transparency in search of a theory	2015
Ganapati, Sukumar	Open e-government in U.S. state governments: Survey evidence from Chief Information Officers	2012
	The use of ICT for open government in U.S. municipalities: Perceptions of chief administrative officers	2014
Harrison, Teresa M.	Open government and e-government: Democratic challenges from a public value perspective	2012
	Transparency, participation, and accountability practices in open government: A comparative study	2014
Zuiderwijk, Anneke	Design principles for improving the process of publishing open data	2014
	Open data policies, their implementation and impact: A framework for comparison	2014

Figure 2. Authors who published more in the area.  
 Source: Elaborated by the authors

The most cited work, Transparency and technological change: Ensuring equal and sustained public access to government information, with 71 citations, refers to authors Paul T. Jaeger and John Carlo Bertot, published in Government Information Quarterly magazine, in 2010. In this study, the authors explore the challenges of open government, such as the inclusion of members of the public with limited access to the internet, the use of non-governmental channels to promote government information, and the e-government project.

The second most cited work refers to the article Building open government, by the author Patrice McDermott, of 2010, published in Government Information Quarterly magazine. The article talks about the Open Government proposal of President Obama, and the recommendations that would be used together to create an "Open Government policy", such as transparency, participation and government collaboration.

The study of Sharon S. Dawes, Stewardship and usefulness: Policy principles for information-based transparency, published in Government Information Quarterly magazine in 2010, is a conceptual and empirical exploration of the tensions related to increased openness and transparency in government by means of access to information and disclosure.

The fourth most cited article, Citizen attitudes toward transparency in local government, by the authors Suzanne J. Piotrowski and Gregg G. Van Ryzin, was published in 2007 in the academic magazine American Review of Public Administration. The authors explain in this study that citizens have different levels of interest and demand for government transparency, and using data from an online survey with over 1,800 respondents, they developed indexes to measure the citizens' demand for the transparency in government.



In Figure 3 below we present the 10 most cited articles from the 125 studies analyzed.

Title	Authors	Journal	Year	Citation
Transparency and technological change: Ensuring equal and sustained public access to government information	Paul T. Jaeger, John Carlo Bertot	Government Information Quarterly	2010	71
Building open government	Patrice McDermott	Government Information Quarterly	2010	61
Stewardship and usefulness: Policy principles for information-based transparency	Sharon S. Dawes	Government Information Quarterly	2010	58
Citizen attitudes toward transparency in local government	Piotrowski, Suzanne J.; Van Ryzin, Gregg G.	American Review of Public Administration	2007	46
What happens when transparency meets blame- avoidance?	Hood, Christopher	Public Management Review	2007	45
Suggesting frameworks of citizen-sourcing via Government 2.0	Taewoo Nam	Government Information Quarterly	2012	45
An Open Government Maturity Model for social media-based public engagement	Lee, G., Kwak, Y.H.	Government Information Quarterly	2012	37
The transparency president? The Obama administration and open government	Coglianesse, C.	Governance	2009	36
TWC LOGD: A portal for linked open government data ecosystems	Ding, Li; Lebo, Timothy; Erickson, John S.; et al.	Web Semantics: Science, Services and Agents on the World Wide Web	2011	35
Open government: Connecting vision and voice	Meijer, A.J., Curtin, D., Hillebrandt, M.	International Review of Administrative Sciences	2012	27

Figure 3. Articles more cited in the area.

Source: Elaborated by the authors

Finally, from Table 1, it can be analyzed the keywords that most appear in searched articles for analysis, such as Open Government and Transparency which were used in the search of articles for study.

Table 1. Frequent Keywords

Keywords	Qt
Open Government	68
Transparency	48
Governance	48
Social Media	12
Open Data	12
E-Government	8
Participation	8

Source: Research Data

In addition, other words were found as e-government appearing in 8 articles, open data in 12 articles and social media in 12 articles, which shows the growing interest for studies that connect the Open Government subject with to the e-Government for being a more affordable and easy participation of public data by population.

#### 4.2. Open Data

New technologies and social media can change the communications between government and citizens, contributing to public administration transformation, which enable citizens' active participation, collaboration between public services, government, and citizens,

and transparency of state activities (Karakiza, 2015), as the use of information and communication technologies have become common, governments also need to take advantage of these tools (Yavuz & Welch, 2014). The appearance of open data portals has increased the perception that governments are becoming more transparent (Lourenço, 2015). However, the national level of democratic development, is the most consistent indicator of transparency, participation and accountability (Harrison & Sayogo, 2014).

Since 2011, governments from many countries associated in a global partnership called Open Government Partnership (OGP), in order to adopt open government (Puron-Cid, 2014). According to Yannoukakou and Araka (2014), open government data is the data produced or commissioned by government or government controlled entities, which can be freely used, reused and redistributed by anyone. Data and information are more accessible than they ever have been in history (Curtin, 2010), government websites now represent one of the chief interfaces between local government and their community constituents (Yavuz & Welch, 2014).

The data portal LOGD (linked open government data) is an open source infrastructure to support open government data production and consumption, and has been adopted by Data.gov (Ding, et al., 2011). “[LOGD] are all stored data connected via the World Wide Web which could be made accessible in a public interest without any restrictions for usage and distribution (Geiger & Lucke, 2012 as cited in Yannoukakou & Araka, 2014)”. The Data.gov is a central component of Obama Administration’s Open Government Initiative, contains several catalogs of downloadable data sets, examples of data use, and an online dialog that invites public comment on ways to improve the site and the data it contains (Dawes, 2010).

The Mexican open government project is called PbR-SED, which means in Spanish “Results Based Budget results of evaluation system performance”. The initiative publishes and updates information about public finance, public investments, federal transfers, performance indicators and evaluations, among other things (Puron-Cid, 2014).

With the data portal in Chicago, it became easier for the government to easily find the most urgent needs of the community, looking at the popularity of certain types of data sets (Kassen, 2013).

The European Union data portal (open-data.europa.eu) is presented as a unique access point to a wide diversity of data produced by various institutions and organizations of the European Union (Avilés & Cuenca, 2014).

According to Zuiderwijk and Janssen (2014), to implement open data policies and achieve goals such as, economic growth, innovation, and transparency, the culture should be developed considering that the data publication should actually be the default.

The influences of the external environment can make the organization more or less transparent, affecting the level that websites are opened in public organizations (Yavuz & Welch, 2014). Such as the use of e-government to promote the transparency, which will not suit members of the public without internet access or with inadequate access (Jaeger & Bertot, 2010).

### **4.3. Transparency**

Information guides people's action in almost every life dimensions. This information should enable citizens' secure decision making of a democratic society (Fung, 2013). According to Mcdermott (2010), transparency promotes accountability and provides information for citizens about what their government is doing.

Transparency, participation and collaboration are the three pillars of the open government. Transparency implies that open government agencies should disclose information about their decisions and operations online in publicly accessible way (Ganapati & Reddick, 2012).

Data transparency is important to facilitate the participation and collaboration. Increase data transparency should be the first step to an open government, since it can be considered easy and quick to implement (Lee & Kwak, 2012). The main point is to know how to use the technology to increase transparency (Snead, 2013), the use of social media can promote information provision, debates, responsibility and still contribute to blame attribution (Stamati, Papadopoulos & Anagnostopoulos, 2015).

According to Dawes (2010), two broad principles – stewardship and usefulness - help simplify and balance the many considerations that are necessary to achieve greater government transparency and to realize the potential public value of government information.

There has been a strong movement towards fiscal transparency, which is the brand of a responsible government, all over the world in recent years, both in developed countries and in developing countries (Deng, Peng & Wang, 2013). Transparency in fiscal matters indicates the government's commitment to open its internal decision process (Harrison & Sayogo, 2014).

China government through the application of transparency and information dissemination is practicing an informational governance to protect the environment (Zhang,

Mol & He, 2015). And the Mexican government is applying new technologies and innovations to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen public governance (Puron-Cid, 2014).

The internet has made transparency an easier process for governments, but also creates complications to ensure the equal access and information preservation of a digital born government (Jaeger & Bertot, 2010).

#### **4.4. Social participation**

Social participation seems to be a characteristic that, when present allows the public to have essentially a voice in the government or when is absent complicates citizen participation in government subjects (Unsworth & Townes, 2012). In Open Government context, citizens' participation in policy formulation is an "central element" of good governance, and in decisions related to creation and public budgets adoptions, the participation is a "fundamental right and responsibility of all citizens" (Harrison & Sayogo, 2014). So, Meijer et al. (2012) says that citizens need information to see what is happening inside the government and participation to express their views about the subject.

Recognizing that information is an essential precondition to citizens involvement, in on his first day in office as US President, Barack Obama issued a memorandum on Information Transparency and Open Government, aiming beyond government data transparency and government collaboration, had also focused on raising the citizens participation in the government affairs that are mostly only known by public officials, action held by analyzing that public engagement enhances government efficiency and improves the quality of their decisions, making government more open (Ganapati & Reddick, 2012).

Make the government more open is broadly understood as use information technology to generate participation, therefore, in the mid-1990s emerged based on e-business ideas, the e-government (Electronic Government), which aims to focus on information dissemination and provision of services over the Internet (Evans & Campos, 2013). For this, governments have used online media such as social networks, web portals and forums to disseminate their information, to promote the engagement of the population with the public sector (Mcdermott, 2010).

Ahmed (2014) argues that it is impossible to notice the imaginary line between two concepts in the context of social media, the expressive and the collaboration definitions of social media: (A) Expressive social media allows people to assert their opinions by sharing text, image, video and music with others, while (B) collaboration enables people to join their

efforts with the government and work together to achieve a common goal. With these scenarios in mind, we can look at participation as a tool that uses public input through expressive social media to strengthen the political decisions and government services (Veljković, Bogdanović-Dinić & Stoimenov, 2014).

Although the incentive as prizes and the advantages of making the government more open, there is a strong aversion by public institutions to expose data regarding the use and management of public resources (Maramieri, 2014). Open the doors to the society, requires in fact, the courage and the will of being exposed to criticism and justify the choices that may be considered wrong or controversial (Lourenço, 2013).

A critical factor can be the positive effects of more openness and more active participation can be seen, in the first place, only by the richest classes of the population, those who can connect to the Internet easily, and those with larger culture, which allows people to see the positive intangible aspects (Maramieri, 2014). Another key element is, indeed, the double meaning of transparency: on one hand, a greater transparency means greater ability to control the behavior of public managers and employees, on the other hand, would be likely to result in unjustified reduction of personal freedom (Di Donato, 2010).

## **5. Conclusion**

Nowadays governments are looking for practices that make them more open and responsible before the population, by investing primarily in practices that influence the transparency, social participation and collaboration with society. For this, governments are developing new technologies to this way of more participatory governance, as sites for the provision of open data. So, before this opening movement of governments, this research aimed to identify in the literature on the subject, through a systematic review, how the subject has been treated by many researchers in the world.

Through the bibliometric review conducted, it was observed that the subject has gained greater emphasis recently, especially from 2010, where the publications were more accentuated. In addition to the publications evolution, it was possible to identify other aspects related to the production and publication on the subject, such as, the major works and authors on the subject of open government, the magazines that most published articles and the main keywords.

Through the analysis of the articles retrieved in data collection, it was identified three main issues related to the topic. Mostly it is approached about the concepts of open data, an important aspect related to the opening of governments which calls for easy access to

government data. Later, we discuss about transparency, a fundamental action of governments to legitimize and also achieve greater participation by the population. Finally, we analyzed the subject from the perspective of social participation, since the open government, besides transparent should encourage the integration with citizens in the validation of government actions.

Still, is verified that this article contributed to the practical aspects related to open government issue, since currently the governors, to legitimize democracy, should act in a transparent way, and encourage public participation in government actions, so you can optimize government processes, according to the population's needs and contribute to the social welfare of society.

Finally, noting that further research is needed to continue contributing to the development on the topic of open government, it fits to empirically analyze cases of open government in each country, since the theme has been widespread among public governments and developed in several countries, a fact that instigates an investigation of the peculiarities and specific needs of each location.

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