Open government conceptualization

Azar Besine

PhD in Public Administration, Assistant Professor, Stanford University

ARTICLE INFO

ABSTRACT

Open government is a new phenomenon that attracted much research in recent years. The major dimensions of open government included some redundancy with respect to the indications of these concepts. Through an extensive literature review, this study tried to breakdown the three major pillars of open government into their known sub-dimensions. The second step was to summarize the basic concepts reported in the literature and map them to these dimensions. Finally, this work tried to synthesize the basic concepts into four major dimensions. The proposed dimensions are: transparency, information accountability, collaboration and empowerment.

The second objective of this work is to validate this proposed model by utilizing an empirical test using confirmatory factor analysis. The research model proposed tried to predict Jordanians' intentions to use e-government services using the four proposed dimensions of open government. Empirical results supported our premise and indicated a good fit of dimensions and acceptable loadings on each dimension. Also, the regression test predicted the intention to use e-government websites with an acceptable coefficient of determination ($R^2 = 0.409$). Empirical results indicated a significant prediction of intention to use e-government website by all dimensions proposed with more weight for information accountability. The reengineered model was supported by the data and calls for more validation by researchers.

© Elsevier Inc. All rights reserved

1. Introduction

The latest reports issued by the United Nations adopted a four stages model based on the excellent achievements of member countries in regard to utilizing the web and providing comprehensive information to their stakeholders (UNDESA, 2010, 2012, 2014). The only downside of such shift is the negligence of the capacity, density, and adequacy of information within each stage that was indicated by the second stage. The notion of open government is closely related to information status, where more information is published and at some stage, the quality of information is an indicator of such openness. Big and open data is a new trend that is attracting countries towards a more open image.

The importance of e-government projects is not deniable, where more and more countries are utilizing the Internet to open doors for communication and collaboration with their citizens. The Internet is an open channel that encourages people to be active participants in the political arena, and especially disadvantaged segments of society (Al-Rababah & Abu-Shanab, 2010; Spaiser, 2012). Based on this, most countries of the world are embracing e-government projects.

The new direction of e-government towards a political role is attracting more research in e-government, where some researchers are embedding some political dimensions like participation and transparency in their propositions (Abu-Shanab, 2013a). Open government is the new phenomenon related to the concept of e-government. It emphasizes the status of information in each stage. Regardless of the country's achievement in its e-government project, its open government status can be assessed. Open government is built around a collaborative relationship between governments and citizens, where both become partners in solving problems (UNDESA, 2013; Unsworth & Townes, 2012). To make this collaboration process a success story, credibility, trust and accountability are the foundation. Many examples related to open government are reported in the literature (Cerrillo-i-Martínez, 2011; Coglianese, 2009; Mergel, 2012).

The concept of open government is an old one and goes back to the 1950s (Yu & Robinson, 2012), still it is not defined well and includes some redundancy in regards to its dimensions. As an example, the collaboration pillar proposed by Obama's administration is a dimension of the e-participation (a second pillar of open government). Such tautology makes empirical research difficult and the conceptual research utilizing these two concepts problematic. This paper will review the literature to understand and synthesize the concept of open government. Also, new definitions of some dimensions are proposed based on previous literature. The second step was to reengineer the concept to remove any redundancy or tautology in the concept. Finally, an empirical test was implemented

E-mail address: abushanab@yu.edu.jo.

to verify our proposition. Conclusions and future research are stated in the last section.

2. Literature review

Open government is an old concept that started to attract more research recently after Obama's administration called for more efforts towards an open government. Such phenomenon is closely related to e-government based on the extensive utilization of information and communication technologies (ICTs) towards an open government and available data and communication among all stakeholders. Public administration scholars proclaimed that the focus in the last two decades shifted towards open technology and open data (Yu & Robinson, 2012), which closely connected open government to e-government.

Open government is not a sub-dimension of e-government, nor it is a different concept, but it is e-government with more focus on information status. It is important to understand e-government to set the stage for more in-depth analysis of open government concept. This study will utilize the comprehensive definition of e-government proposed by Abu-Shanab (2013a, p. 16) to shed some light on some related concepts:

> "E-government is the use of ….to: First, setup public policies, and apply them in a decent, **transparent**, and in a high degree of **accountability**; second, provide a better service to ….., third, improve government's performance.. and fourth, reach out for citizens to fully participate in the political and social reform in an effective **participatory**, **consultative** and **empowerment** process. Such process is for the purpose of reaching good connected governance and society development."

The early definitions of e-government focused on providing service to citizens (Basu, 2004; Evans & Yen, 2006; Layne & Lee, 2001; Yildiz, 2007), which tolerated e-government concepts around public administration. Later, the concept expanded to the political science area, where it mixed four major dimensions (Abu-Shanab, 2013a): providing service to citizens and businesses, improving government's performance, social inclusion and development, and e-democracy and participation. Such evolvement expanded the concept into what we see in the previous definition, where we can see concepts like transparency, accountability, better performance, collaboration with partners (all types), and democracy and participation. One of the latest concepts that evolved from e-government is open government.

Open government concept revolves around freeing information to gain more efficient public work and better and cheaper service for the public (Updegrove, 2009). Open government is linked to democracy based on the intrinsic good for modern states (Davies & Bawa, 2012). It is important to realize that public information is useful for citizens and thus needs to be published and accessed freely (Dawes, 2010). The Obama administration defined open government around three dimensions: transparency, participation and collaboration (Obama, 2009). The Merriam Webster dictionary translates open into permitting passage, not zipped, completely free from concealment and exposition to attack or question. Such language meanings relate to the previous definition by opening the channels to citizens (and businesses) to access information and services, and being transparent at the same time. Such openness means also to include all categories of people (which relates to democratic principles).

Open Government is also defined as publishing public sector information in an interoperable and standard formats to enhance people's access to data. Such requirement might call governments to use open standards and architecture (Fishenden & Thompson, 2013). Open government also means enabling citizens to play new roles in their relationship with the government; moving towards democracy that implies the right for citizens to collectively and individually participate in governance (Janices & Aguerre, 2013). This progression from opening data to engaging citizens more in the communication or collaboration with government is emphasized as researchers disputed the status of open

government (Evans & Campos, 2013). The authors concluded that efforts of governments in engaging citizens are not enough.

Another interesting view by Yu and Robinson (2012) calls for separating the terms of open data from open government. The authors reviewed the progression of open government concept and concluded that the term open government includes a theme of accountability, which interfaces with the political face of governments. They tried to relate the spectrum of accountability/service delivery to the data status. Their conclusion is to separate the two spectrums to make it easy for public officials to embrace open government concept and avoid its accountability side. On the other hand, Welch and Wong (2001) measured accountability by using website openness. Our premise here is more towards both sides, where the political nature of e-government is not deniable and the website openness is a critical measure of government's accountability.

Similar to e-government, researchers proposed a maturity model for social interaction engagement in open government that consisted of five stages also: initial conditions, data transparency, open participation, open collaboration, and ubiquitous engagement (Lee & Kwak, 2012). Some researchers called for public sector's reform to successfully embrace the open government paradigm (Harrison, Pardo, & Cook, 2012). The authors tried to propose a research agenda for public sector and governments to help switch from the traditional outdated bureaucratic style to the future information age, which is networked and interdependent.

It is still challenging to employ open government concepts; examples of such raised issues are the following: information security, privacy, competency of legal framework, information integrity and completeness, data quality, the accessibility and knowledge divide, and concepts of open data enforcement (Janssen, Charalabidis, & Zuiderwijk, 2012; Kassen, 2014; Kucera & Chlapek, 2014; Martin, Foulonneau, Turki, & Ihadjadene, 2013; Rahman, 2014). Still many researchers realized the direct benefits of open government and open data like: better efficiency, unified processes, crowd sourcing of feedback, better citizens participation, standardized operations, improved operations, and more satisfied citizens (Bertot, Gorham, Jaeger, Sarin, & Choi, 2014; Robinson, Yu, Zeller, & Felten, 2009; Tinati, Carr, Halford, & Pope, 2013).

The argument behind such start depends on the core meaning of open government, where being transparent is the major dimension. If governments need to know the needs of their citizens, then they should open communication with them, which means more participation. Finally, being open is not about informing and receiving feedback, but employing such feedback, which puts governments into the collaborative mode with their citizens. Such process is critical to reach the full open government state. Robinson et al. (2009) called for a more intuitive website design that encourages citizens to interact with their governments. Such requirement is essential for the success of open government initiative. The authors concluded to the fact that the evolvement of open government is closely related to the capabilities of technology employed by government to open the communication channel with its citizens. Based on this, we adopted a tentative visual modeling of the open government process, which is depicted in Fig. 1 (Abu-Shanab, 2015).

On the other hand, the confusion and fragmentation in e-government concept is leaked into the open government concept, where some dimensions are redundant or overlapping. As an example, collaboration is an advanced level of participation, which puts research in a tautological standing. It is obvious that we need to better understand the three pillars of open government before starting any research in this domain. Abu-Shanab (2015) served our objectives by linking the major dimensions of open government in a process fashion, but that would not cover our premise of the whole concept. The breakdown structure of the three pillars of open government in Fig. 1 provided a good start to compare sub-dimensions and see the redundancy between the dimensions. Also, the indication of evolutionary nature of open government (Lee & Kwak, 2012) calls for a need to see some unique features evolving overtime.

The other issue that we need to focus on is open data and big data concepts. Open data is data that is easily available to be reused, free of cost, accessible to all stakeholders, and free of copyright constrains (Barry &
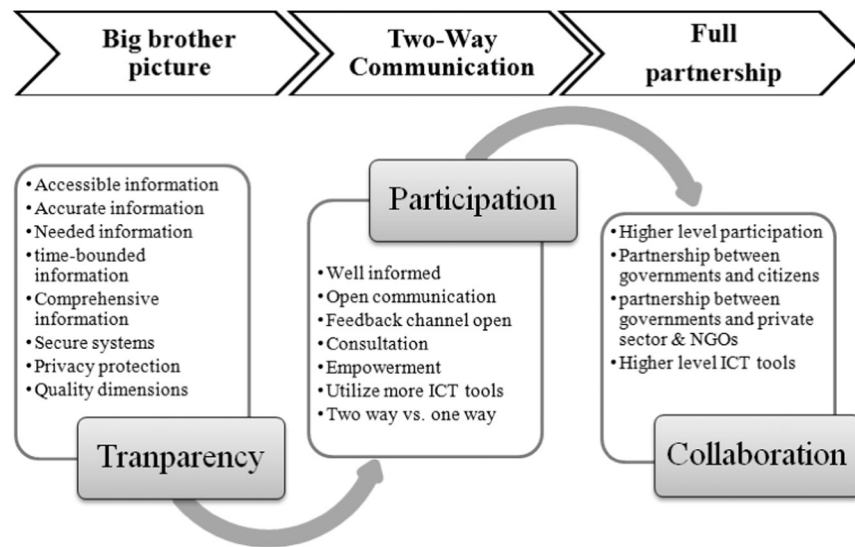
Fig. 1. Open government flow model. Source: Abu-Shanab (2015).

Bannister, 2014). Other researchers added to the previous characteristics of open data, within the open government paradigm, to be in an editable and changeable format (Rojas, Lovelle, Bermúdez, & Montenegro, 2013). Based on the previous review, we can conclude that open data, is data that is accessible to all stakeholders, can be used and reused, and can be distributed freely. Open government distilled this feature where it requires open transactions (data and operations) by governments that reinforce transparency, participation, and collaboration by all stakeholders in a country.

Looking deeply into the definitions of open data, which relates to open government, we become more confused by the distracted set of concepts that are fragmented between the major dimensions of open government. Transparency means easily available, free of cost, and copyrighted, where changeable and editable belong to participation or collaboration.

We can define open government as a direction of e-government where more information is exchanged between governments and their citizens (businesses) in a transparent, participative, accountable and collaborative mode. The open government process needs to keep all characteristics of information up to the required quality. To reengineer the open government concept, we need first to review research available about open government dimensions. The following sections will try to review sample literature related to the three dimensions to make it easy to map such concept and reengineer it. We will start with participation as it encompasses more dimensions than the other two pillars: transparency and collaboration.

2.1. Participation

e-Participation involves "*the extension and transformation of participation in societal democratic and consultative processes mediated by information and communication technologies (ICTs), primarily the Internet*" (Saebo, Rose, & Flak, 2008; p.400). Another direction emphasized the higher levels of participation, where Maier-Rabler and Huber (2010) see e-participation as the engagement and involvement of citizens in the decision making process utilizing ICT tools. The objective of participation is improving the social and political responsibility (same source).

Participation is attained through more than one force in society; one of them is open government data. It is conceptually assumed that a link between open government and participation growth would be significant. A proposition by Goble (2013) concluded that linked open data will lead to better public participation. The author proclaimed that less than 5% of the available data sets on UK websites are considered linked data. Such issue

raises concerns about the progress of such initiatives throughout the world. Some researchers related open government with participation as they proclaimed that open government efforts will yield to better participation (Evans & Campos, 2013). The authors cautioned that such efforts might fall short if the purpose is to introduce the complexity of policy formulation to citizens. Other researchers claimed that the use of open government data will generate economic and social value through four mechanisms: Efficiency, innovation, transparency and participation (Jetzek, Avital, & Bjørn-Andersen, 2013). Finally, the size of published linked data is largely contributed to theoretical research contributions and not for applicable industrial data suitable for public use (Rodríguez-Gonzalez, Valencia-Garcia, & Colomo-Palacios, 2012).

Other research directions by Al-Dalou' and Abu-Shanab (2013) extensively summarized the literature related to e-participation and concluded to five levels of e-participation: e-informing, e-consulting, e-involving, e-collaborating, and e-empowering. Such premise confuses the dimensions of open government as it considers collaborating as part of the participation process. It is still considered by some researchers that e-participation is a major dimension of e-government, which puts open government as a dimension of participation initiatives (Abu-Shanab, 2013a). Furthermore, e-participation is expanding to include Web 2.0 and social media applications. Part of the tools reported to have significant influence on participation is using Wikis (Reddick & Ganapati, 2011). Many tools are supporting participation initiatives and specially web 2.0 tools like websites, social media, wikis, blogs and video publishing websites (examples are included in the work of Abu-Shanab & Al-Dalou', 2012).

At this point, we need to check the dimensions of e-participation to set the foundation of our premise in analyzing the dimensions of open government. The levels of e-participation ranged from 3–5 levels. Still, it included more than this number of terms. The following table depicts a simple analysis of the terms used and the literature related to that (Table 1).

Based on the tentative analysis done, it is important to define the terms used in Table 1 according to the sources cited. We collected all definitions and citations related to each level and summarized them into a simple paragraph (we can consider them as summated definitions). A summarized definition for each level is stated in Table 2.

We adopted a five level scheme tentatively to build our proposition of open government dimensions. The following step is to explore the two other dimensions of open government (transparency and collaboration) to see what research has established in this area. Then, we try to reengineer the open government concept.

Table 1
Mapping e-participation levels across literature.

Citation	Informing enabling	Consulting engaging	Involving	Collaborating	Empowering
OECD (2001)	Information	Consultation		Active partic.	
IAPP (2007)	Informing	Consultation	Involvement	Collaboration	Empowerment
Macintosh (2004)	Enabling	Engaging			Empowering
Wimmer (2007)	Informing	Consulting		Collaborating	Empowering
Gatautis (2010)	Informing	Consulting	Involving	Collaborating	Empowering
Tambouris, Liotas, and Tarabanis (2007)	eInform	eConsult	eInvolve	eCollaborate	eEmpower
Fedotova, Teixeira, and Alvelos (2012)	Informing	Consulting	Involving	Collaborating	Empowering
Ahmed (2006)	Information	Consultation		Active part.	
Medimorec, Parycek, and Schossböck (2010)	Information	Consultation	Cooperation	Codeter-mination	
UNDESA (2008, 2010, 2012, 2014)	e-Information	e-Consultation			e-Decision making

2.2. Transparency

Transparency is the first major initiative proposed by the Obama administration, where a website was opened (www.data.gov) to grant accessibility to Federal data (Anonymous, 2013). Since then, the initiative accomplished few directions like better participation by the public, more data availability, more data disclosure, more compliance to accessibility standards, and a review of existing rules pertaining to open data. Such directions were attained through many initiatives and policies. After two years of the US initiative, an empirical study was conducted to see what factors influenced the three pillars of open government based on the perceptions of US public officials; the authors concluded that publishing accurate and needed reports will result in a better transparency (Reddick & Ganapati, 2011). The transparency dimension of open government revolves around data and information. Information dimensions related to public records include the following: accuracy, validity, security, preservation (Dawes, 2010), comprehensiveness, relevancy, timely (Abu-Shanab, 2013a), reliable, and of high quality (Harrison et al., 2012).

Transparency is defined as the extent to which governments make available data and documents to the public according to their needs, where they later assess governments' actions and hold them accountable for their actions (Florini, 2007). The two sided perspective of transparency is open data (availability of information) and accountability. The availability of information for the public is the dimension that attracts research attention more. The relationship between transparency and e-government is conceptually legitimate, where the more governments use ICT, the more they need to be transparent and vice versa. Such argument is supported by Harrison et al. (2012) as they asserted that the shift from information use within e-government websites to more transparent systems is directing towards a more political term

which is democracy. Other researchers went further to test if e-government and transparency are related empirically, where an association test was conducted for global archival data and concluded to a significant correlation between them (Abu-Shanab, 2013b).

A study by Grønbech-Jensen (1998) differentiated between two styles of transparency: Scandinavian style transparency and community style transparency. The author asserted that the Scandinavian transparency requires government to open their data, documents and registers to citizens to access and make governments accountable. On the other hand, keeping citizens informed of public activities is the core of community style transparency. Transparency is critical as the more governments open their data for public the more the chances they drop in the trap of violating privacy issues (Goodspeed, 2011). Privacy is related to the right of protecting citizens' information from unlawful use (Gajendra, Xi, & Wang, 2012). Others claimed that privacy is the right to be left alone (Warren & Brandeis, 1890) or the freedom from others judgment (Nissenbaum, 2004). The recent excessive adoption of social media applications used by e-government indicates that government agencies appear to endorse the security, privacy, and other policies employed tacitly by those providers of social media (Bertot, Jaeger, & Hansen, 2012).

Citizens are happy with the open data initiative and the advancement in transparency, but they might show some concerns in relation to privacy. A study of 134 surveys related to citizens' reflections on the ease of accessing information in the USA concluded that some citizens showed concerns about privacy and thus might influence their level of participation (Munson et al., 2012). The authors emphasized that citizens understood the benefits of open government, but still are concerned about privacy. Governments need to protect citizens and businesses private data by enforcing the necessary security measures. Based on that, more emphasis is needed on training public officials on privacy issues when enforcing transparent measures of data (Kimball, 2011).

Based on the previous summary, we can say that transparency can be defined as the open communication between governments and their citizens guarding for the full capacity of information status (dimensions of information: completeness, time related, relevancy, accuracy, quality, and ownership), and protecting their privacy and best interest when processing information (more on accountability issues). We also adopt Munson et al. (2012) perspective to increase citizens' comfort by changing policies related to accessibility, and increasing awareness and educating the public. The Indian experience indicated that open government partnership failure is forcing the government and parliament to consider some legislations related to transparency of information practices (Dey & Roy, 2013). Similarly, China forced agencies to disclose certain types of information, and then reviewed all agencies performance through an annual report (Government Website Performance Review). The final step was to measure performance using a set of indicators related to open government direction (Zhang & Li, 2013).

Table 2
Summarized definitions of e-participation levels.

Level	Summarized definition
Informing (enabling)	One way broadcasting of information for the purpose of introducing services, policy awareness, and announcements. Government produces and delivers information to citizens and businesses. It involves reaching and supporting citizens to access information (digital divide issues also).
Consulting (engaging)	A limited two way communication between government and citizens/businesses, where government seeks feedback and alternatives on predefined specific issues. Governments generate the consultation topic and citizens respond (top down consultation, private or public).
Involving	Working with the public towards a mutual understanding of public concerns and ensure that their feedback is received and accommodated (considered, but necessarily implemented).
Collaborating	Enhanced two way channel, with an active role of all stakeholders, where they propose, and shape policy. The objective is developing alternatives and preferred solutions. Still, the final decision is for government.
Empowering	Active participation through facilitating bottom-up ideas to influence the political agenda. The final decision making is for the public (control and policy making for public).

2.3. Collaboration

Information and communication technologies, the Internet, and social media opened doors for creating close partnerships and collaborative-
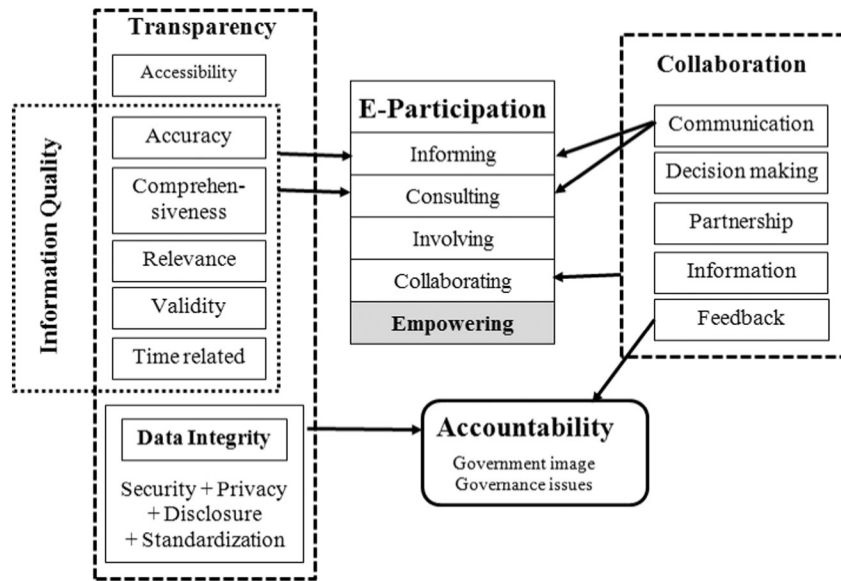
Fig. 2. Mapping open government activities and pillars.

based cooperation between governments and other stakeholders to make meaningful government connections with civic organizations and citizens (Orszag, 2009). Collaboration might deem essential between governmental agencies to reduce redundancy and generate some cost savings, but would exponentially increase such benefits when opening doors for crowed-sourcing when benefiting from people through social networks (Ganapati & Reddick, 2014). It might be important to build communities that foster collaboration and engagement based on crowdsourcing and innovations (Bertot et al., 2014).

Collaboration is the most controversial dimension among the three pillars of open government, as it means the inclusion of two parties in a process to produce something (a report, information, product, or any other item). Such argument might be easy to administer if the collaborating parties are public and capitulate to same source of authority. But when the two parties are different, like the transactions in G2C and G2B, then the final product is disputable and need to be defined with respect to ownership. Based on that, if we carefully review the Obama's initiative, we can see that it did not mean to open government without any restrictions, but emphasized the protection of privacy and security and guaranteeing the accessibility of disabled under national legal framework (Updegrove, 2009).

Collaborative effort by government is key in open government and closely related to transparency (Reddick & Ganapati, 2011). Even though the literature focused more on collaboration efforts between governmental agencies, the empowerment of people (the ultimate goal of democracy) is reached by more collaboration between people and their government (Al-Dalou' & Abu-Shanab, 2013). Collaboration does not mean G2C only, but might include G2B or G2G initiatives, where great synergies are attained through the cooperation towards saving money and reducing costs. Moreover, Ganapati and Reddick (2014) asserts that collaboration would generate innovation through the effective utilization of such networks (i.e. G2C, G2B, & G2G).

The literature related to collaboration emphasized the requirements of specific tools for the success of collaboration and public participation (Luna-Reyes & Chun, 2012). The authors emphasized a set of prerequisites to the success of open government initiatives and collaboration in specific, where they requested more emphasis on system planning and system implementation to improve the technical characteristics of e-government systems. The advent of new social media facilitates the successful collaboration and participation process (Chun, Shulman, Sandoval, & Hovy, 2010). The authors emphasized the role of social media in facilitating the freedom of expression and the building communities that encourage participation and collaboration. On the other hand, other researchers concluded that distributing e-government content on many channels and social media application was considered a challenge for some users (Bridges, Appel, & Grossklags, 2012). Another important requirement for successful collaboration is the accessibility of big and open data technologies (Bertot et al., 2014). The authors listed several policy instruments for such purpose.

We can define collaboration as the joint effort to participate in the democratic process. It involves a process of participation and deliberation of issues for the purpose of decision making (Chun & Cho, 2012). Such definition can be extended to be a sub-dimension of e-participation, a joint effort between governments and citizens (or businesses), a directed
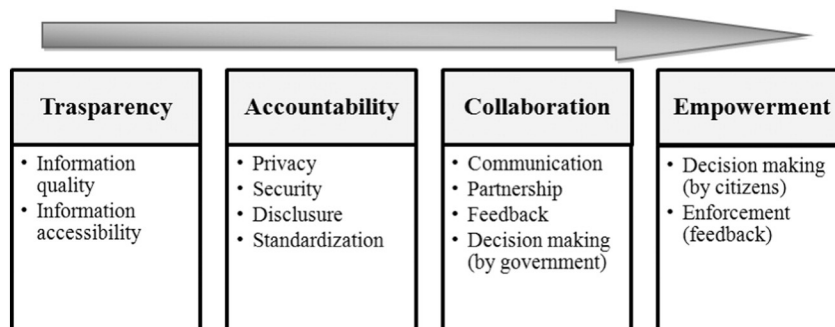

Fig. 3. Reengineered open government framework.

effort towards a product or service, and a legal protection of parties involved in ite process and their production. Such definition guards for privacy issues and requires specific tools and systems to allow for such collaborative process. Finally, it is not enough to provide information (or big and open data), but to foster its use by the public (Bertot et al., 2014).