

Open Access to Government Data for Citizen Empowerment: An Indian Experience

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Abstract

Access to government data empower citizens and brings in greater public participation. The open government data (OGD) movement started with the formulation of principles to govern the open data movement. Considering the social, economic, political value and the transparency and public participation that the open government data will put forward government around the world opens up access to government data. Many developed and developing countries are adopting national data sharing plans to facilitate easy access to data. In this paper authors highlights the conceptual framework of OGD and its principles, how government data will empower the citizens through various policies, programmes and Acts and provides OGD initiatives in India.

Keywords: Open government data; Empowerment; Open government platform; National data sharing and access policy.

Introduction

Governments around the world are becoming more transparent and promoting inclusive and participatory governance. It not only inculcates public debate but also generates efficient development models. Open government is an innovative strategy for changing how government works. By using network technology to connect the public to government and to one another informed by open data, an open government asks for help with solving problems. The end result is more effective institutions and more robust democracy.[1] Data produced by government are quite large and need to be explored carefully to analyze and make conclusions. Most of the government organizations

throughout the world are supporting the open data movement to expose the data generated by them for public use and re-use. Until now the government data available were abstract and aggregated. May be this is largely due to the constraints of channels i.e. collection, processing and distribution. With the advent of ICT and efficient use of the ICT by the government sector now it is easier to get hold of desegregated data and complete data sets. This is a great motivation for the researcher to foster ideas and innovation and imagine perceived conclusions. The governments should proactively disclose their data and encourage their citizens to “co-create” solutions. Opening up data is a process, not an event – there has to be a “steady pipeline of high-quality data’.[2]

Open government platform (OGPL) was developed to provide an open source scalable tools which can be used to build up the portals. National Data Sharing and Access Policy were implemented in India to facilitate easy access to government data through the portal data.gov.in and the results were encouraging.

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Open Government Data: A Conceptual Framework

The term “OPEN” suggests participation and engagement—a democratized, accessible sharing and re-use of information among all the people who might benefit from it. This implies an absence of legal barriers to innovative new projects, and a larger cultural enthusiasm for innovative and sometimes unexpected developments. “Open data” combines both senses of the word “open”—both the term’s technological meaning and its philosophical meaning—with a focus on raw, authoritative, or unprocessed information that allows individuals to reach their own conclusions.[3]

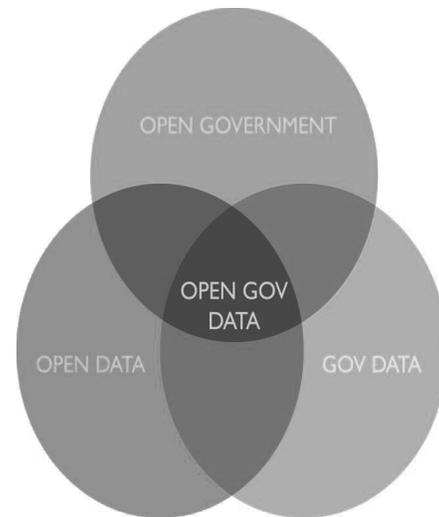
According to the definitions suggested by World Bank data is open if it satisfies both conditions below:

- ❖ Technically open: available in a machine-readable standard format, which means it can be retrieved and meaningfully processed by a computer application
- ❖ Legally open: explicitly licensed in a way that permits commercial and non-commercial use and re-use without restriction

Open Government Data (OGD) is nothing but data produced, owned and controlled by the government may be collected directly or through commissioned agency and satisfied the conditions of being open that is it can be freely used, reused and redistributed by anyone. The large part of government data is socio-economic in nature which has direct impact towards the public and to the society, quite essential for transparency and participatory governance. Also the legal data, business data, meteorological data produced by the government has great social and economic impact.

The Principles of Open Government Data

The policy for public information often is framed in terms of 3 A’s: Accessibility, authenticity, and accuracy (Tauberer, 2012). [3] These three words form the foundation of



Source: UNESCO

sharing government information. The data produced by the government should be accessible to one and all. For that reason utmost care need to be taken for the formats in which it should be made available and the necessary delivery mechanism. Government data should be authentic as most of the time this is the only source of data available. Accuracy brings in confidence for use and re-use of government data.

Sunlight Foundation has updated and expanded upon the Sebastopol list and identified ten principles that provide a lens to evaluate the extent to which government data is open and accessible to the public. The list is not exhaustive, and each principle exists along a continuum of openness. The principles are completeness, primacy, timeliness, ease of physical and electronic access, machine readability, nondiscrimination, use of commonly owned standards, licensing, permanence and usage costs.

- ❖ *Completeness*: Datasets released by the government should be as complete as possible, reflecting the entirety of what is recorded about a particular subject.
- ❖ *Primacy*: Datasets released by the government should be primary source data. This includes the original information collected by the government, details on how the data was collected and the original source documents recording the

collection of the data.

- ❖ *Timeliness*: Datasets released by the government should be available to the public in a timely fashion.
- ❖ *Ease of Physical and Electronic Access*: Datasets released by the government should be as accessible as possible, with accessibility defined as the ease with which information can be obtained, whether through physical or electronic means .
- ❖ *Machine Readability*: Machines can handle certain kinds of inputs much better than others.
- ❖ *Non-discrimination*: “Non-discrimination” refers to who can access data and how they must do so. Barriers to use of data can include registration or membership requirements.
- ❖ *Use of Commonly Owned Standards*: Commonly owned (or “open”) standards refer to who owns the format in which data is stored. For example, if only one company manufactures the program that can read a file where data is stored, access to that information is dependent upon use of the company’s processing program.
- ❖ *Licensing*: The imposition of “Terms of Service,” attribution requirements, restrictions on dissemination and so on acts as barriers to public use of data.
- ❖ *Permanence*: The capability of finding information over time is referred to as permanence. Information released by the government online should be sticky: It should be available online in archives in perpetuity.
- ❖ *Usage Costs*: One of the greatest barriers to access to ostensibly publicly available information is the cost imposed on the public for access—even when the cost is minimums.

Open Government Data and Citizen Empowerment

Many arguments have been put forward to justify the release of government data: transparency and accountability arguments;

arguments that OGD can allow citizens greater control over public sector reform; economic benefit arguments and arguments that OGD can help develop a web of linked-data.[4] Public data has significant potential for re-use in new products and services. Overall economic gains from opening up this resource could amount to • 40 billion a year in the EU.[5] For UK alone it is valued at UKP 16 billion.[6] From the above two statement it is quite clear that the economic benefits are quite significant. Opening up of government data will also facilitate linked data initiatives which will enhance the data visibility and cross linking. The major benefits that the OGD movement will brings in are as follows:

- v *Transparency and Accountability*: Good governance is based on transparency and accountability. In a democratic society citizens need to know what their government is doing. Transparency is now held to be a key part of democratic governance. Democratic countries not only are more likely to be transparent, they also tend to produce more information than authoritarian governments.[7] Free and open access to government data and information is essential to evaluate the performance of the government. Also it is necessary that the same information may be allowed to share with other citizens. Transparency isn’t just about access; it is also about sharing and reuse.
- ❖ *Social, Political and Economic Value*: Data is a key resource for building social, political and economic activities. Everything from finding locations to building a search engine requires access to data, much of which is created or held by government. By opening up data, government can help drive the creation of innovative business and services which in turn will create more jobs and drive the economy and society to next level. Key areas that need to be considered when assessing impact of OGD are:
 - *Political Dimension*: governance, transparency & accountability.

- *Economic Dimension*: better public services, greater efficiency and growth.
 - *Social Dimension*: inclusion, poverty, diversity, gender, youth.[8]
- ❖ *Participatory Governance and Citizen Engagement*: Citizen engagement is seen as the interaction between governments and citizens in order to share information and power in policy processes, including but not limited to public service provision and delivery, and more specifically in defining the issues that affect them, identifying possible solutions, and developing priorities for action, often jointly with the government and other governance actors. [9] Open access to government data will facilitate more participatory governance and active citizen engagement. When the citizens were aware of the initiatives and results they will engage themselves to improve decision-making. Opening up access to data can help to address asymmetries of information between companies and officials and citizens, NGOs and grassroots groups. With open data there is the possibility for local communities to build up their own understandings and interpretations of key issues, and for intermediaries to contextualize information in ways that make sense to diverse groups, including citizens at the grassroots.[10]
- ❖ *Innovation and Efficiency*: The availability of data will bring in more researcher to work on the areas which were never been accessed and foster innovation in policy and practices which in turn results in governance efficiency. Open data is an essential raw material for a wide range of new information products and services that build on new possibilities to analyze and visualize data from different sources (European Commission, 2011).

Government Data Dissemination Policy in India

The government data are collected in decentralized manner by the ministries and departments and it was aggregated only briefly

by Ministry of Statistics and Programme Implementation for its landmark statistical products. Majority of detailed data lied scattered and that's why some time it goes unnoticed. Most of the Ministries and Department have their own data dissemination policy. In the year 1998 Department of Statistics, Ministry of Statistics and Programme Implementation brought out "National Policy on Dissemination of Statistical Data". The policy envisaged that the raw data should be made available to the users and the department of statistics will maintain a data warehouse which will facilitate the data users. The unit level data were made available to international user as well.

Unfortunately the official data source agencies followed their own model of distribution and pricing. And over the time the data warehouse concept couldn't gather momentum. But still there are many positives could be observed that some of the important data were made available online 24x7. The census department started publishing the data online since census 2001, Registrar of Companies data is available for primary information, Agricultural statistics, Education Survey data were made available through APIs.

Right to Information Act and Data Dissemination

The right to access government information has long been viewed as essential to participation in the democratic process, trust in government, prevention of corruption, informed decision making, the accuracy of government information, and provision of information to the public, companies, and journalists, among other essential functions in society.[11] Right to information act came into existence in 2005 with a motive for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority

The section 4(2) and 4(3) of the rights to information act which deals with information

dissemination read as follows:

- ❖ (2) It shall be a constant endeavour of every public authority to take steps in accordance with the requirements of clause (b) of sub-section (1) to provide as much information suo motu to the public at regular intervals through various means of communications, including internet, so that the public have minimum resort to the use of this Act to obtain information.
- ❖ (3) For the purposes of sub-section (1) Every information shall be disseminated widely and in such form and manner which is easily accessible to the public.

Open Government Data: International Experience

The open movement compelled the governments throughout the world to join the revolution and make them more transparent and collaborative. Transparent governance became the catchphrase, and that can only be achieved by becoming more open and accessible to public. Both developed and developing world started discussing about the open information policy. Eight developed and

developing countries started a movement called Open Government Participation in July 2011 and the open government data was one of the important objectives of the forum. There are 62 countries part of this forum. India was initially a group 1 country member and decided to opt out before the first meeting itself. But many countries have already formulated country specific policy to make government data openly available to users. Some of the early movers were New Zealand, United Kingdom and United States. It is not only the countries, but also institutions like World Bank and United Nations Organizations also made their data openly available for public use for greater public participation and engagement.

The Web Foundation carried out the study web index every year since 2008 which rank the countries based upon the use of the web for social, economic and many other parameters. Total of 61 countries were studied as a part of the 2012 study and the ranking process. Open Government Data Index was also created based of the responses received from the primary survey and secondary data. The top five countries in the OGD index are United States, Mexico, Singapore, United

Table 1: Worldwide Open Government Data Policy Initiatives

Country	Policy/Plan	Launch Date	Data strength (As on October 2013)
New Zealand	-	November 2009	2,363
United Kingdom	Putting the Frontline First: Smarter Government	December 2009	10,404
United States	Open Government Memorandum and Plan	January 2009 and April 2010	91,048
Australia	Declaration of Open Government, Government response to the Gov 2.0 report	May 2010 and July 2010	532
Spain	"Avanza2"	July 2010	1,221
Canada	Open Government Initiative, Open Data Pilot Project	March 2011 and Sept 2011	197,825
Kenya	Kenya Open Data Initiative	July 2011	545
Brazil	Law on Access to Public Information	November 2011	2,968
India	India National Data Sharing and Accessibility Policy	March 2012	4,935

Source: Compiled by the authors

Table 2: Open Data Index Rank comparison between the Best and Brazil, India and China

Scores: 1 - 10, where 1 is worst score and 10 is best score	United States	Mexico	Singapore	United Kingdom	New Zealand	China	India	Brazil
Open Data Index Rank	1	2	3	4	5	18	32	37
To what extent are government agencies publishing information on the Web using open licenses?	9	9	8	6	8	5	4	3
How easy is it to access government data on the Web in open, machine readable formats?	9	10	9	9	7	9	6	4
Does the government have a specific Open Government Data initiative?	9	10	9	10	10	6	5	9
To what extent are Web applications and services in areas such as health, education, security, budgets etc "built" on top of government data?	9	6	8	7	8	6	5	4

Source: Open data index, web foundation

Kingdom and New Zealand. China, India and Brazil were placed in 18, 32 and 37 respectively.

Open Government Data in India

The open government movement is not quite smooth in India. India opts out of the international forum for open government partnership before the first meeting itself being. But, institution like Reserve Bank of India and Ministry of Statistics and Programme Implementation has done quite a lot to make data available to the users freely and timely. Projects like the MCA21 by the ministry of corporate affairs agricultural information networks were strengthened through the NeGP (National E-government Plan). Availability of government data on the web made available information for social audit and performance analysis. Most of the data of centrally sponsored schemes are now available online for e.g., NREGA, RKVY etc.

The detailed analysis of the web index survey clearly shows that India still has to achieve many more. From Table-e we can

observe that against the parameters like publishing information on the web, accessing government data on the web, open government data initiative and development of web application and services the score was 4, 6, 5 and 5 respectively out of maximum possible 10. When the survey was conducted India had not launched its open government data program. We can expect the ranking to move upward especially on the back bone that the open government data initiative in place and many more application been developed on the government data platform for analysis and visualization.

National Data Sharing and Accessibility Policy

None the less the open government data movement kick started with the notification of National Data Sharing and Accessibility Policy in March 2012 with an objective to facilitate the access to government owned sharable data and information in both human readable and machine readable forms through a network all over the country in a proactive and periodically updatable manner.

a) *Access Policy*: The data access has been categorized as Open access, Registered access and Restricted access:

Open Access: this set of data is open to all with conforming to open data definition.

Registered access: Datasets available under this category will be made available only to registered users after due authentication”.

Restricted Access: The data under this category will be part of the negative list and only persons with necessary authorization will have access to these data sets.

The copyright policy does not explicitly confirm open license policy which allows use and reuse of the data. Ideally creative commons zero, open data commons or open government license should be adapted for copyright policy.

b) *File Formats*: Conforming the basic principles of open government data NDSAP recommends that datasets has to be published in an open format and machine readable. Considering the current analysis of data formats prevalent in Government, it recommends that data should be published in any of the following formats:

- ❖ CSV (Comma separated values)
- ❖ XLS (Spread sheet - Excel)
- ❖ ODS (Open Document Formats for Spreadsheets)
- ❖ XML (Extensive Markup Language)
- ❖ RDF (Resources Description Framework)
- ❖ KML (Keyhole Markup Language used for Maps)
- ❖ GML (Geography Markup Language)
- ❖ RSS/ATOM (Fast changing data e.g. hourly/daily)

c) *Meta Data*: A set of 10 metadata were defined for description of the records. The metadata were Title, Description, Sector/ Sub-sector, Database Jurisdiction, Keyword, Access method, Reference URL,

Dataset group name, Frequency and Policy Compliance. The first six metadata are essential where as the rest are optional. Unfortunately the planners didn't considered using standard metadata format like SDMX (Statistical Data Metadata Exchange) or Dublin Core Metadata. The Open Data project by the Canadian Government is already using Dublin Core Metadata sets for the detailed description.

The Portal: data.gov.in

The portal for sharing open government data developed by National Informatics Center is data.gov.in. The portal was formally launched in September 2012. This open government platform was developed as India-United States collaboration. This is an open platform and has been adopted by many other governments though out the world.

The open government platform has following features:

- ❖ Publish government data, documents, apps, tools & services from multiple departments within a government
- ❖ Build on Web 2.0 open-source technologies with low-cost scalable infrastructure
- ❖ Engage Citizens in their open data initiatives for better understanding of their needs
- ❖ Provide publicly available application programming interfaces (APIs) and other tools to add external software modules for data visualization, wizards, and other purposes
- ❖ Create data-rich community spaces around topics of national priorities and international interest
- ❖ Empower end-users to share datasets via social media platforms such as Facebook, LinkedIn, and Twitter

This portal has 4 inbuilt modules for integrated data management system as follows:

- ❖ *Data Management System (DMS) – Backend*



Module for contributing datasets/apps by authorized users from Ministry/ Departments/Organizations of the Government through a predefined workflow in the standard metadata format.

- ❖ *Content Management System (CMS)* – Module for managing and updating various functionalities and content of the Data Portal India by the System Administrator of the Portal.
- ❖ *Visitor Relationship Management (VRM)* – Module for collating and disseminating the feedback/suggestions from the stakeholders on datasets and applications. Feedbacks/suggestions could be shared through feedback form, suggest datasets/apps and contact us.
- ❖ *Communities* – Module which brings together different sets of people sharing the same interest, belonging to the same sector or having interest for the same datasets. This module facilitates a platform for

interaction and knowledge sharing.

The portal currently holds 4935 data sets contributed by 55 departments and it has also 7 apps. The visitors numbers are also quite encouraging now touching almost 4,00,000 per month.

Conclusion

The Open data movement has just gathered momentum and it is well appreciated by the user. But as the case of any data for sustainability it is important that it has to be continuously updated and up to date information should be available. The features like user engagement and application developments will create sufficient interest among the perspective users and developers. The major development going forward will be the linked open government data and need to be explored at the earliest to facilitate semantic web experience to data users.

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