



European Public Sector Information Platform

Topic Report No. 2013 / 08

UNDERSTANDING THE IMPACT OF
RELEASING AND RE-USING OPEN
GOVERNMENT DATA

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Published: August 2013

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Keywords:

impact, benefit, social, political, economic, transparency, accountability, employment, growth, unemployment, innovation, openness

Abstract/ Executive Summary:

This report will reflect on the latest research efforts to understand, structure and measure the impact of open government data. It will present key theories of change related to implementing open data policies, releasing and re-using public sector data. It will complement these theories with measurement indicators suggested by various studies and reports on open government data. Finally, it will suggest a number of research and action areas to address in order to maximize the potential benefits of open government data.

Introduction

While there has been a proliferation of open data portals and data re-using tools and applications of tremendous speed in the last decade, research and understanding about the impact of opening up public sector information and open government data (OGD hereinafter) has been lacking behind. There have been some attempts to grasp and measure the impact of OGD, but more often than not, finding an appropriate measuring stick to certain data initiatives meant having to deal with very challenging questions.

This, of course, is due to the complexity of the issue. The direct and indirect impact of releasing and re-using data can take many forms and can occur at various stages. Certainly, discovering a measuring stick will not lead to 'one size fits all' situation, however it is important to not let go OGD impact management unchallenged.

There are many stages of opening and re-using data as well as many players involved. Understanding possible effects of open government data initiatives can lead to more effective open data policies and better targeted data re-use efforts. Furthermore, clearly communicating the value and possible benefits to all stakeholders can help obtain a multi-stakeholder buy-in, which is of immense importance.

Until now, there have been some research efforts to structure the concept of the impact of OGD suggesting various theories of change, their measuring methodologies or in some cases, concrete calculations as to what financial benefits opening government data brings on a table. For instance, the European Commission conducted a study¹ on pricing of public sector information, which attempted evaluating direct and indirect economic impact of opening public data and identified key indicators to monitor the effects of open data portals. Also, [Open Data Research Network](#) issued a background report² in April 2012 suggesting a general framework of key indicators to measure the impact of open data initiatives both on a provision and re-use stages. It has also issued a working paper on the emerging impacts of open data (ODDC conceptual framework)³ in July 2013. The Open Data Research Network continues

¹ Pricing of Public Sector Information Study, Final Report, EC ISM Directorate General, October 2011

² Understanding Open Government Data and addressing its Impact, Felipe Heusser, April 2012

³ Working paper #1: Researching the Emerging Impacts of Open Data ODDC Conceptual Framework, July 2013

working in this direction and is determined to carry on researching the currently under-researched field of measuring the impact of OGD.

Building on the research efforts up to date, this report will reflect upon the main types of impacts OGD may have and will also present key measuring frameworks to observe the change OGD initiatives may bring about.

PART I: Enabling an environment for open government data

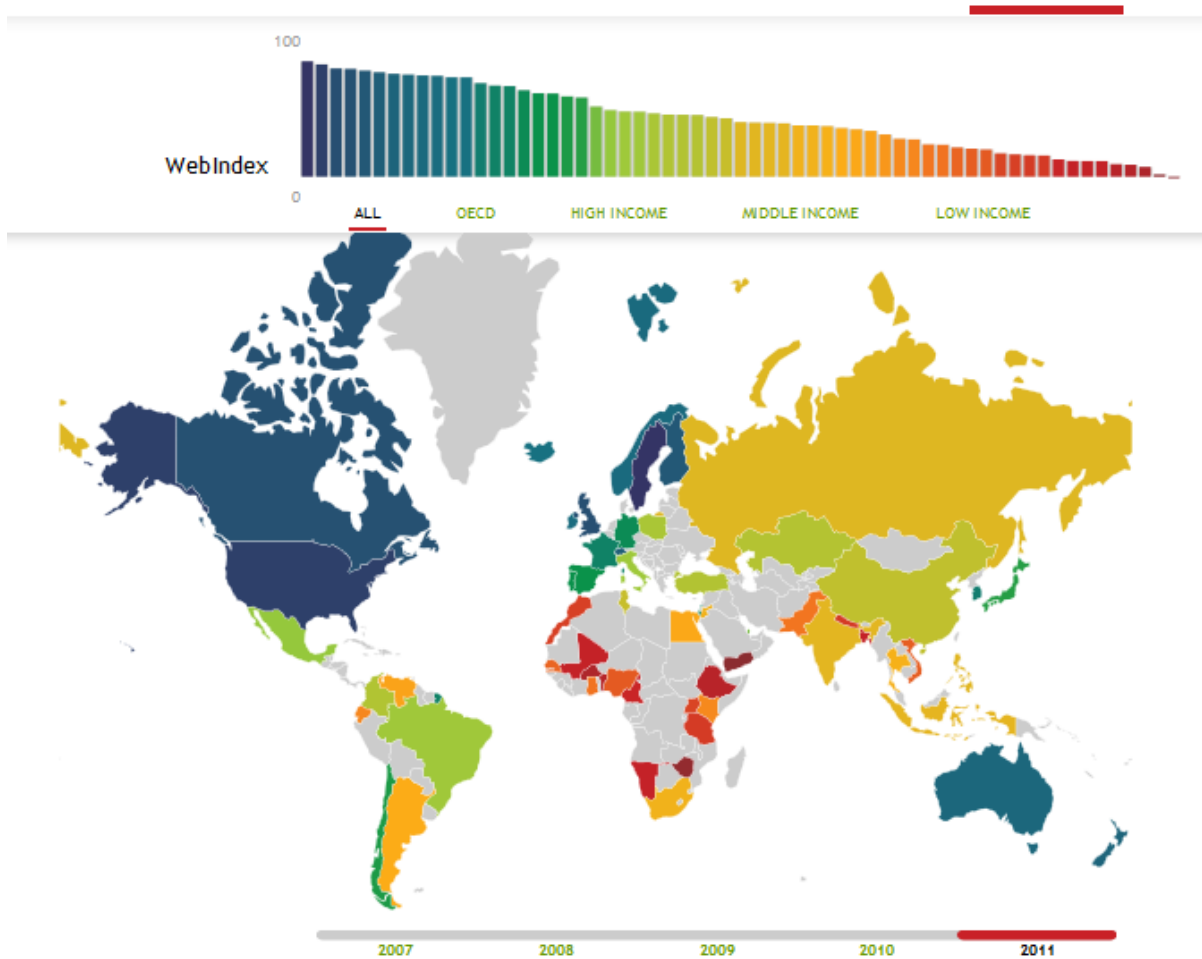
Understanding the economic, social and political areas in which OGD can have an impact is of immense importance. Certain open data initiatives do not live up to their potential due to a lack of analysis of the context and enabling environment. Country's context and climate in which government data is released and re-used can be grasped using various relevant studies which currently exist.

For instance, a part of the well-known Web Index⁴ measures effects opening government data has on governments' efficiency in operations, public transparency & accountability and also environmental sustainability. The Index reveals that there is a clear-cut correlation between country's general income and extent of Internet usage.

The Index suggests that countries with higher general income have higher Internet usage levels thus more significant impact of open government data on governments' efficiency in operations, public transparency, accountability and environmental sustainability.

⁴ <http://www.webfoundation.org/projects/the-web-index/>

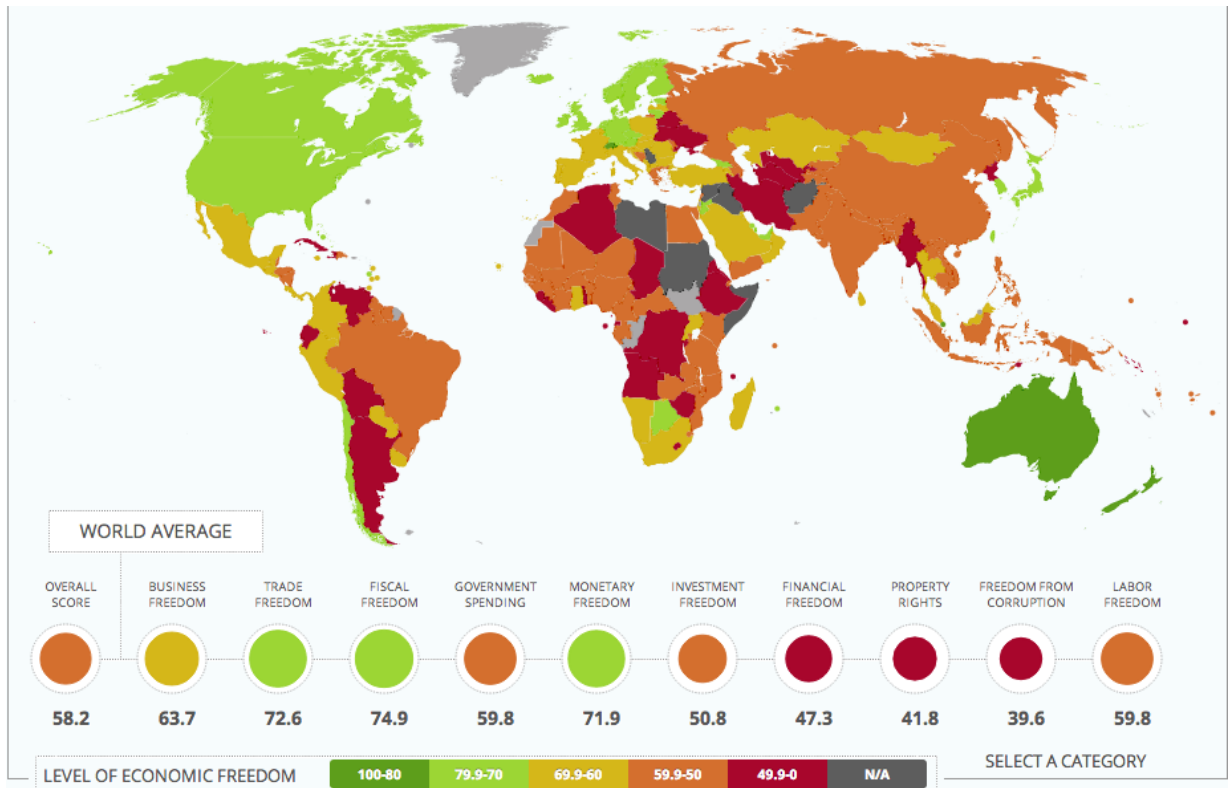
Web Index 2012: the correlations between country's income and the Web Index.



This, of course, is not to suggest that opening government data has a substantial impact on a general income of the country. Perhaps, it is more the case that the demand and supply of OGD is more present in higher income countries.

Similarly, 5 out of 10 countries leading the Economic Freedom Index also find themselves in the top 10 of the Web Index (Australia, New Zealand, United States, Switzerland, Canada). The Economic Freedom Index measures ten components of economic freedom, assigning a grade in each using a scale from 0 to 100, where 100 represents the maximum freedom. The countries with higher Index of Economic Freedom, perhaps, have friendlier enabling economic environment for OGD release and re-use.

The Index of Economic Freedom: is there a link between economic freedom and extent of open government data release and re-use?



Having in mind that one of the main benefits of OGD is believed to be increased transparency and accountability, presumably, levels of corruption in a particular country can also be relevant. 7 out of 10 top countries in the Web Index are also leading the Transparency International's Corruption Perception Index⁵ (Sweden, Canada, Finland, Australia, New Zealand, Norway, Switzerland). While it is difficult to prove a direct link between levels of perceived corruption and socio-economic and political impact of web technologies in a country, it has been widely accepted that levels of perceived corruption negatively affect business environment, social and political climate in a country - concepts creating an enabling environment for OGD.

⁵ <http://www.transparency.org/research/cpi/overview>

Web Index & Corruption Perception Index: how does corruption perception levels affect environment for open data?

Web Index 2012 scores

Rank	Country	Web Index	Impact
1	Sweden	100	100
2	United States of America	97.31	91.07
4	Canada	93.42	90.64
3	United Kingdom	93.83	87.86
5	Finland	91.88	86.44
10	Ireland	87.42	84.45
8	Australia	88.44	83.91
7	New Zealand	89.15	83.66
9	Norway	87.76	83.59
6	Switzerland	90.49	83.55

RANK	COUNTRY	SCORE
1	Denmark	90
1	Finland	90
1	New Zealand	90
4	Sweden	88
5	Singapore	87
6	Switzerland	86
7	Australia	85
7	Norway	85
9	Canada	84
9	Netherlands	84

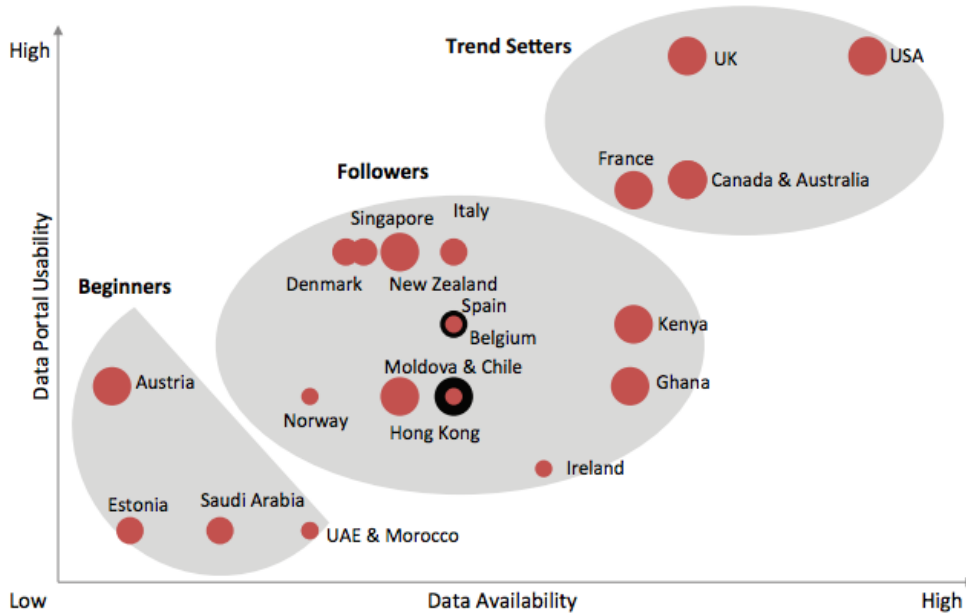
Finally, the Capgemini Group⁶ analysis on OGD and its economic benefits suggests that, UK, USA, France, Canada and Australia are main trendsetters in terms of open data initiatives⁷ - majority of these countries also lead the World Web Index mentioned above. In addition, many of them also perform well in the Corruption Perception Index and the Index of Economic Freedom.

⁶ www.campegmini.com

⁷ Source:

http://www.capgemini.com/sites/default/files/resource/pdf/the_open_data_economy_unlocking_economic_value_by_opening_government_and_public_data.pdf

Who leads the way in opening and utilizing open government data?

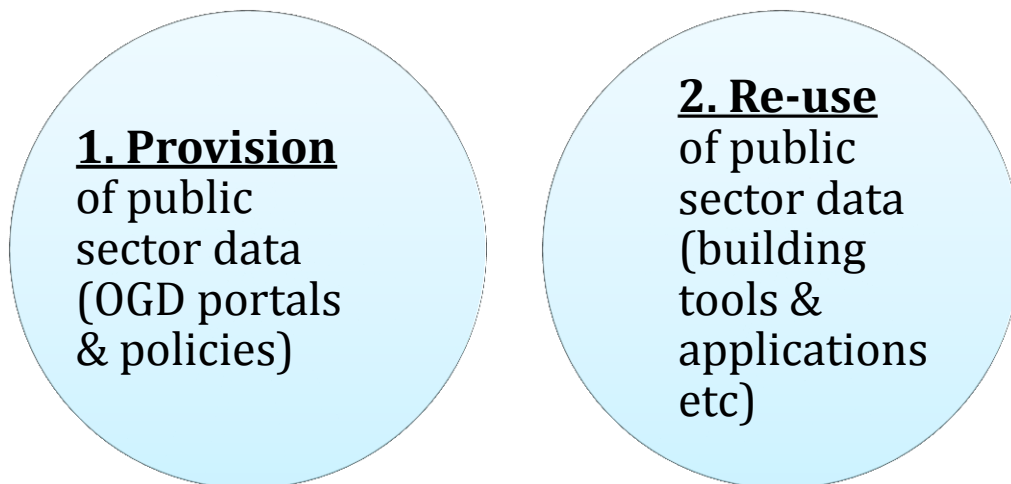


General income, economic freedom, perception of corruption and other general aspects characterizing a particular country can hardly be directly linked to a development of web technologies and more specifically, the impact of web technologies on transparency, accountability, government efficiency and environment. However, these aspects are of immense importance for creating an enabling environment for web technologies and also opening public sector data and information, its re-use and further impact.

PART II: General impact framework: when and who can be affected?

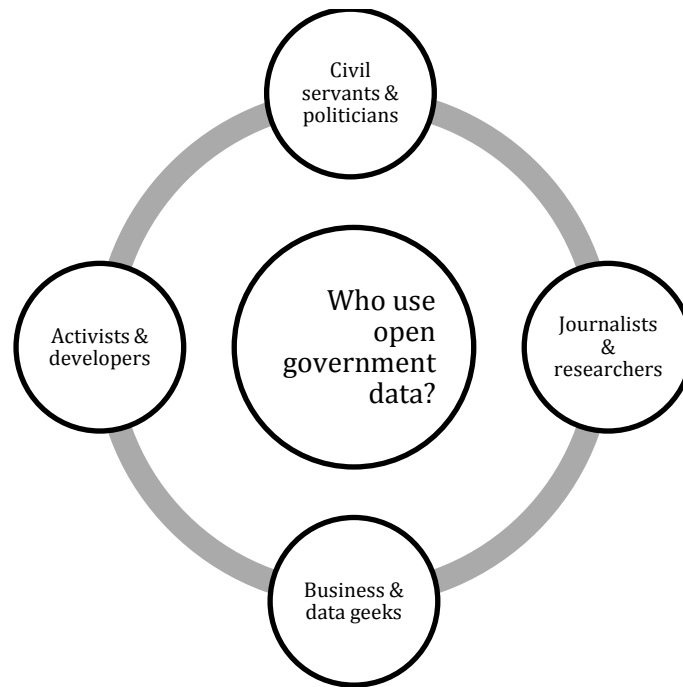
The impact of OGD can generally take place on two stages. First, it is possible to identify and measure the impact of open data **provision** stage (governmental open data portals or fragmented provision of data by public sector etc.). Secondly, there may be a possible impact as a result of **re-use** of open government data (building tools, applications, conducting analysis etc.).

When can OGD have an impact?



To make it more complex, opening and re-using public data can have impact on a large number of stakeholders. Government data has been re-used by all sectors: the government (public), business (private), non-governmental organizations and citizens.

Who can be affected by OGD?



Many stages of opening and re-using data, a large number of stakeholders, numerous purposes and differences in enabling environment makes it extremely challenging to systemize and structure a possible framework of the impact of opening and re-using open government data.

Therefore, exploring an exhaustive list of the possible impacts of opening and re-using government data is outside the scope of this report. The report will present the key types of impacts addressed by academic and practitioners in previous studies and reports.

It has been agreed that OGD may have an impact of country's economy and growth, politics, social climate and environment. This report will address the three main types of impacts: economic, political and social. Worth noting is the fact that none of the effects are exclusive - they are all closely interlinked.

Key possible effects by opening & re-using open government data

<p>Economic</p> <p>New job potential New goods / services Knowledge-economy growth Increased efficiency in public services Growth of related markets</p>	<p>Political</p> <p>Transparency & accountability Civic participation Political awareness Access to information</p>	<p>Social</p> <p>Increased inclusion and empowerment Civic participation Access to information Support personal decision-making capabilities</p>
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This however, does not suggest, that these types of impacts are more relevant or important than others. For instance, the impact of OGD on environment has also received a tremendous attention and surely not without a reason. The market for private weather services is growing. 74% of representatives of the meteorological sector claim that data volume download has been increasing lately. There are around 70 active companies in European meteorological sector, which constantly grows.

However, as noted this report is chosen to reflect upon economic, social and political impacts of OGD and suggest main theories of change related to each of them. It will also present main measuring indicators related to each of them, suggested in a research up to date.

PART III: Open government data and its economic impact

One of the key motivating aspects for a government to open up its data is the possible economic gain as a result of such action. Calculating the direct and indirect economic benefits of opening and re-using OGD has been of a significant challenge, due to the fact that indirect economic benefits can take place in many sectors and take many forms.

When it comes to the EU market, several studies have been undertaken to measure different aspects of PSI, including its economic value (e.g. [PIRA](#), [MEPSIR](#), etc.), PSI re-use economic potential (e.g. [OFT](#) study in the UK), PSI re-use in the GI, meteorological and legal sectors ([MICUS](#)), economic analysis for assessing different charging models (e.g. [Cambridge Study](#)), etc.

While all of these studies provided a number of different approaches and methodologies on structuring economic impact and its measurement, there has not been a single, unified method, or methodology to calculate direct and indirect benefits of open public data within the European Union. This is of course, not without a reason - finding a unified methodology is nearly impossible due to a complexity of the issue. However, the Commission currently undertakes the challenge to continue conducting research and find a usable measuring stick to measure economic benefits opening public information and data brings⁸.

According to the research up to date, and as summarized by Graham Vickery in his recent review on recent studies on PSI re-use and related market developments⁹, the narrowly defined **EU27 direct PSI-related market** was of the order of **EUR 28 billion in 2008**. All studies show relatively rapid growth in PSI-related markets and assuming annual growth of 7% the direct PSI-related market was **around EUR 32 billion in 2010** and around **38 billion currently**. This, of course, is the calculation of related market sizes and referring to these estimates requires care. The same review suggests that the total direct and indirect economic gains from easier PSI re-use across the whole **EU27 economy would be in the order of € 140 billion annually**.

⁸ http://ec.europa.eu/information_society/policy/psi/facilitating_reuse/economic_analysis/index_en.htm

⁹ http://ec.europa.eu/information_society/policy/psi/facilitating_reuse/economic_analysis/index_en.htm

As noted above, the Commission is still looking for a decent economic impact measuring stick. Besides complicated economic benefits calculation methodologies and the question of how beneficial opening and re-using data is, what's more important to understand for most OGD stakeholders is *how* opening and re-using data can bring about economic benefits and *who* can be affected.

It is important to once again distinguish between economic benefits brought by opening data and re-use of that data. On both stages, it is clear that OGD can have economic effects on all the stakeholders in a conversation: government, private sector, NGOs and citizens.

When it comes to more concrete economic benefits, and building on the work by the Capgemini Group¹⁰, the proposed economic benefits of opening data to government, private sector, NGOs and CSOs are as follows:

Benefit to government	Benefit to private sector	Benefit to NGOs / civil society
Increased tax revenues through increased economic activity	New business opportunities for services / goods	Better informed monitoring
Creation of jobs	Reduced costs for data conversion (no need to convert into raw formats anymore)	New venues for project action: building tools/applications
Reduction in data transaction costs		
Increased service efficiency (esp. through linked data)	Better decision-making based on accurate information	Increased sustainability potential through increased capacity
Increased GDP	Better-skilled workforce	
Encouraged entrepreneurship (economic growth)		

Besides economic benefits mentioned above, the Open data Research Network¹¹ suggested a number of other benefits which needs further research efforts such as:

- Open data empowering transformation in specific sectors such as the financial one;
- Open data generating new kinds of Public-Private partnership models;
- Open data policies accelerating the process of private businesses releasing its own data;

¹⁰ Capgemini Group is one of the world's foremost providers of consulting, technology and outsourcing services www.capgemini.com (last accessed 12 August 2013)

¹¹ <http://tumblr.opendataresearch.org/post/23536123039/odrbrasil>

- Open data disrupting traditional business models, lowering entry barriers and making the services industry more modular.

Benefits to government

Governments should pay particular attention to stimulating provision and re-use of open data. It is often hard to do as demonstrating immediate economic benefits is often a challenge. This is especially the case in countries where some public data cost and there are responsible institutions that charge fees for public data. However, several studies show, that in countries where governmental bodies providing public information have moved to marginal/zero cost charging models, the number of re-users increased by between 1,000% and 10,000% leading to an increase in revenues. For instance, the Austrian public sector body responsible for geographic information, BEV, lowered charges by as much as 97%, resulting in a 7,000% growth in demand for certain product groups.¹² This shows, that in a long-term, economic benefits to government may come back if data charging policies change.

It is widely believed, that open government data can help increase government effectiveness and efficiency in operations. For instance, putting data and information online helps save service time for government bodies. Often, freedom of information legislation puts public officials under pressure to deliver information to the public in a timely and efficient manner. The Bristol City Council calculated that answering a request by telephone or in person, may costs up to 15 times more than over the internet. Putting the data online can help save these costs. In addition to that, a very important aspect to OGD is the fact that many types of services can be *crowdsourced* and / or delegated to private sector. For instance, applications re-using environmental data and offering, say, pollution maps or easy route-planning solutions help governments save time while at the same time providing opportunity to generate income to private sector.

Using Linked Data can also help save public funds. The National Health Services (NHS) in UK started publishing infection rates of all hospitals on the portal data.gov.uk. This publication, coupled with the sharing of league tables showing the worst hospitals, encouraged exchange of best practices amongst hospitals. It brought down infection rates from around 5,000 patients

¹²

http://www.capgemini.com/sites/default/files/resource/pdf/the_open_data_economy_unlocking_economic_value_by_opening_government_and_public_data.pdf

annually to fewer than 1,200. The initiative also achieved a cost savings of £34 million.¹³

One of the key indicators backing up the idea of open data is stimulating economic growth by new job creation. With new firms and organizations that create goods and services based on open data, it is clear that there is a potential of reducing unemployment rates and stimulating economy. For instance, the Spanish infomediary sector (companies that re-use public data) is worth between 330 - 550 million EUR of volume. It also employs between 3600 to 4400 employees.

In addition, the market size and growth of the geographic information sector shows the potential of Open Data as an engine for job creation. The German market for geoinformation in 2007 was estimated at €1.4 billion, a 50% increase since 2000. In the Netherlands, the geo-sector accounted for 15,000 full time employees in 2008.¹⁴

Benefits to private sector

When formulating open data policies, it is crucial to take into account needs and demand by private sector. Spanish Open Data Annual Report lists types of information that are required by Spanish businesses the most:

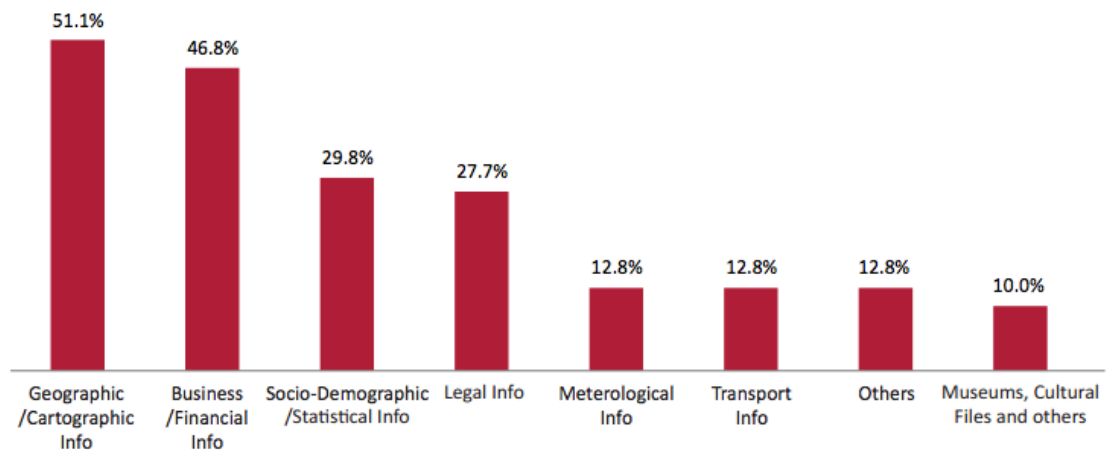
¹³

http://www.capgemini.com/sites/default/files/resource/pdf/the_open_data_economy_unlocking_economic_value_by_opening_government_and_public_data.pdf

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http://www.capgemini.com/sites/default/files/resource/pdf/the_open_data_economy_unlocking_economic_value_by_opening_government_and_public_data.pdf

Figure 4: Most Popular Open Data Domains: Percentage of companies working with specific domain of Open Data (n=150), Spain, 2012



First of all, OGD stimulates creation of new business entities. In Spain, an estimated 150 companies focus exclusively on re-using government data.¹⁵ New opportunities to provide innovative services drive creation of new firms and organizations.

Secondly, and most importantly, OGD opens possibilities for new services and goods creation. According to a study by the Research Institute of Finnish Economy, firms that reuse government released geographical data, either freely or at marginal costs, grew 15% more per annum than in countries that price such information with an objective of recovering costs.¹⁶

For instance, the Lithuanian tool www.kurgyvenu.lt ("where do I live"), which is built exclusively on government data, provides Lithuanian public with an easy way to learn about their neighbourhood - it provides information about pollution and noise around your house, crime levels, housing prices, schools and kindergartens nearby with their rankings, average estate and utility costs, distances to sites of interest etc. This has proved to be a tremendously relevant service to the public.

Benefits to NGOs / civil society / citizens

NGOs and civil society organizations have mostly been undertaking a duty of re-using open government data to achieve their strategic goals. As most of NGOs and CSOs are non-profit organizations, open government data has been providing them with new ways and venues to

¹⁵ Spanish Open Data Portal Annual Report, "Characterization Study of the Infomediary Sector", July 2012

¹⁶ "Does Marginal Cost Pricing of Public Sector Information Spur Firm Growth"; Research Institute of Finnish Economy

create innovative services to public. Open government data provides solid basis for action for organizations, such as Sunlight Foundation, My Society, Open Knowledge Foundation and many others that occupy the niche of re-using and contextualizing public data.

Main benefit OGD brings to NGOs and CSOs is putting them in a better position to monitor government actions and provide public with new tools to engage into politics and public life. For instance, parliamentary monitoring tools, such as opencongress.com, theyworkforyou.com or sejmometr.pl re-use parliamentary data and by simplifying it, offers an innovative ways for the public to monitor parliaments and engage in their work. This puts organizations in a better position to sustain their budget by providing new venues for fundraising from the public and donor community.

How to measure economic benefits of OGD?

It is implied that the potential benefits require different measuring mechanisms. Therefore, it is important to crystallize the key benefits and goals a particular government can achieve when opening data. Building on the work of Open Data Research Network and the Capgemini Group, below are the key measuring indicators to measure each of the impacts outlined in a research efforts up to date.

Type of impact	How to measure?
Increased tax revenues	<p><i>Direct benefit:</i> identify infomediary sector and observe their income, employment and tax revenue curves</p> <p><i>Indirect benefit:</i> Identify the sector that non-exclusively uses open data and observe its income, employment and tax revenue curves</p>
Reduction in data transaction costs	Calculate current transaction costs, conduct cost-benefit analysis prior an implementation of open data policy and observe transaction expenditure on a regular basis

<p>Public service efficiency / effectiveness</p>	<p><i>Efficiency:</i> observe if opening and re-using data create tools / applications that save time & costs of public services</p> <p><i>Effectiveness:</i> Observe the number of <i>crowdsourced</i> / outsourced applications re-using open data (what is these applications' traffic)?</p>
<p>Creation of new business entities</p>	<p><i>Direct:</i> observe the growth of infomediary sector</p> <p><i>Indirect:</i> observe the growth of sectors that use open data on a non-exclusive basis.</p>
<p>Creation of goods and services</p>	<p><i>Direct:</i> observe the growth of goods and services that use open data exclusively</p> <p><i>Indirect:</i> observe the growth of goods and services that use open data on a non-exclusive basis</p>

PART IV: Open government data and its political impacts

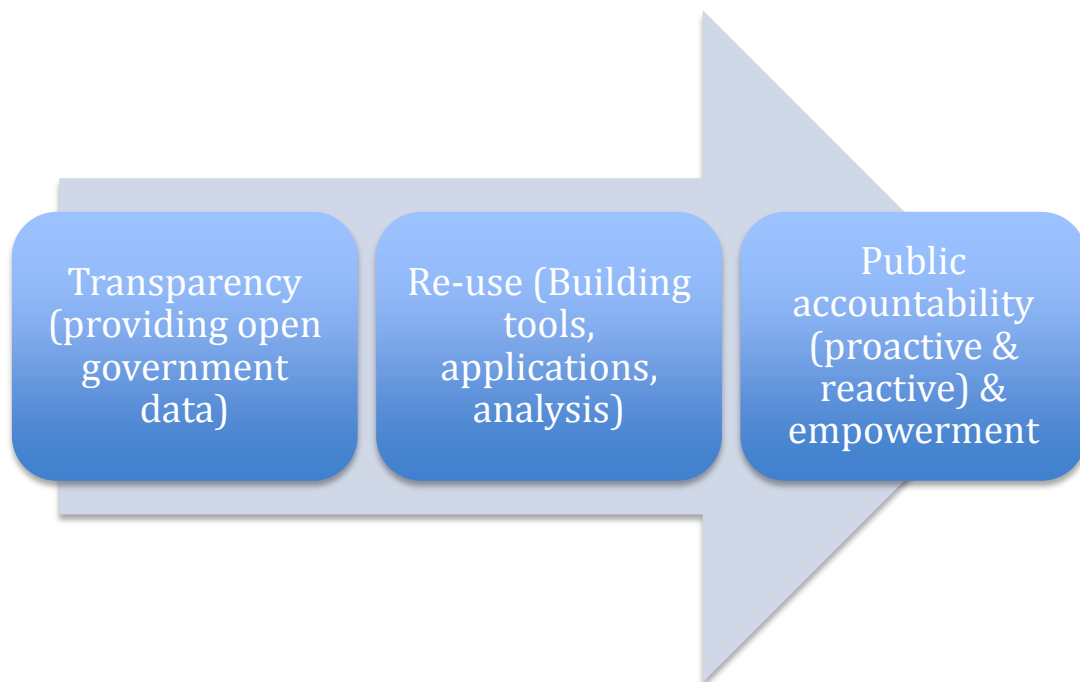
Political motives have also been on the forefront of arguments by open data activists. It is now hard to imagine a modern politician missing out on terms, such as "increased transparency", "inclusion of people into decision-making" etc. These terms become of a somewhat speculative nature, therefore understanding what they really mean in practice is of immense importance. Even more, understanding how to measure these political developments with soft, often non-quantitative indicators is crucial.

Main political benefits of open government data are increased transparency and accountability. Often, in this context, transparency is understood as phenomena when more information and data is accessible to wider society. Transparency can be both proactive and reactive. Proactive transparency is exercised when government proactively put data and information into public domain. Reactive transparency is closely linked to freedom of information legislations and situation when government is put under obligation to respond to FOI requests.

There is a direct link between OGD and transparency - the more open government data there is online, the more factual transparency there is. This, of course, affects large number of actors. Data geeks, journalists, government officials, NGOs, citizens and many other can benefit from an increased transparency directly in their work.

However, it is commonly agreed that transparency is not the goal in itself. The concept of transparency has to be triggered by one or more stakeholders in order to actually make sense and lead to an ultimate goal- increased public accountability. Understanding how to grasp and measure the impact of open government data in terms of accountability and actual empowerment has been of a challenge to many organizations.

How can open government data contribute to an increased transparency & accountability?



As mentioned above, triggering transparency has been perceived as a task for NGOs, civil society, journalists and activists using the government data to hold politicians and those in power to account. There has been a large number of political monitoring and accountability tools built based on open data to help organizations and citizens better understand what can public official be held accountable for. Tools, such as www.parliamentwatch.org, which provides massive lot of information about German parliament has been successful in triggering public interest in daily activities of the parliament. Nowadays, the tool is responsible for more than 80% of citizen-MP questions in Germany.

The Lithuanian www.manoseimas.lt tool, using the voting data of the Lithuanian parliament, provides the public with an easy way to understand how the parliament votes and how does it match with users' opinions. The tool was used by around 5% of voting population in the capital of the country in the parliamentary election 2012. Such tools and their likes are springing up all over the world nowadays scaling the potential of open government data.

How to measure the political impact of OGD?

Understanding how opening and re-using government data can lead to more public accountability can help shape better open data policies and also re-use data more effectively.

Felipe I. Heusser in his report on Understanding Open Government data and addressing its Impact¹⁷ suggest a set of indicators to measure both transparency and accountability as impacts of implemented OGD policy (mainly addressing data provision stage):

Type of impact	How to measure?
OGD & direct impact on increased transparency (more available and findable information & data online)	Observe the amount of data and information available online and its growth
Accountability: OGD policy and available data enables more actors to exercise accountability, existing watchdogs have more tools/data to account as a result of OGD, and more formal/informal titles are in place to legitimate the accountability relationship	<p>Observe if existing watchdogs <i>perceive</i> that there is more information than there was prior to OGD policy implementation that is useful to exercise accountability. In the same way, observe if watchdogs also perceive that there are more tools available to exercise accountability than there were prior to OGD policy implementation.</p> <p>The same perception measuring can be undertaken with bureaucrats and civil servants.</p>
	Observe if the implementation of OGD policy fosters more active accountability actions from actors who traditionally practice accountability (media, watchdogs, NGOs)
	Observe if implementation of OGD policy fosters more formal and informal titles that give legitimacy to the accountability relationships

¹⁷ http://public.webfoundation.org/2012/04/ODRS/OPENDATAPAPER_DRAFT_VERSION.pdf

PART V: Open government data and its social impact

Social impact of OGD is closely interlinked with abovementioned effects, namely, economic and political. Increased political transparency has an effect on civic participation as more open data puts civil society, NGOs, citizens and other stakeholders in a better position to observe governments and involve into decision-making in a better-informed way. The same way, if OGD is used for commercial purposes, say building a pollution application, it may have an impact on those who previously did not have access to pollution data and now can make better-informed decision on estate purchase, for instance.

As mentioned above, the main social benefits dealt with in previous research efforts are increased inclusion, empowerment, civic engagement and better protection of the right to know.

Increased inclusion and empowerment

Social inclusion is defined as the voluntary inclusion of individuals and groups into society's political, economic and societal processes, which ensures their full participation in the society in which they live.¹⁸ One of the main benefits of opening government data is the fact that the state shares the knowledge it has with a wider circle of stakeholders. Open data can bring new policy stakeholders into policy debates and can enrich policy formation with more insights from the private sector, NGOs, civil society groups and others. Having effectively implemented open data policies and engaged other stakeholders into re-using data, the asymmetry of knowledge between companies, officials, citizens, NGOs and grassroots groups may diminish. With open data being presented in an understandable manner, local communities can build up their own understandings and interpretations of key issues. The main challenge lies in intermediaries taking up relevant data, presenting and contextualizing it, so it is more user-friendly for wider society.¹⁹

Increased levels of civic participation & engagement

Civic participation or engagement is defined as a process through which stakeholders influence

¹⁸ <http://www.un.org/esa/socdev/publications/measuring-social-inclusion.pdf>

¹⁹ Researching the emerging impacts of open data

and share control over public initiatives and the decisions and resources which affect them.²⁰ There is a widespread presumption, that empowering civil society and others with information may strengthen their capacity to participate in a public decision-making. However, it is also widely accepted that opening data as such does not necessarily lead to increased civic participation levels. The main challenge is to empower journalists, NGOs and civil society organizations so that they can re-use the data to enable better-informed civic participation. For instance, Transparency International Slovakia re-used the public procurement data in Slovakia since 2009 and built a tool <http://vestnik.transparency.sk/en/>, which enables user to easily find out different aspects about public procurement in Slovakia: leading seller and procurer, which goods and services are procured the most etc. The tool does enable Slovak NGOs and other civil society organizations to monitor public procurement in a more effective and easy way.

Increased protection of the right to information

The increased protection of the right to information has been referred to as one of the main benefits of OGD. In the context of OGD, access to information often refers to the concept of proactive transparency and accountability mentioned above. The hypothesis suggested by a number of previous research efforts presumes that amount of open government data online ensures more effective protection of the right to know. It is hard to argue with that. The EU open data portal open-data.europa.eu contains more than 6 thousand datasets. The UK open data portal contains a little below than 10 thousand datasets. There is a direct link between the amount of information and data online and citizens' position to learn about their state. However, it has been widely accepted that open data movement can in no way affect the right to information regimes secured by FOI legislation. This means that while proactive transparency and accountability is a positive development, the concept of reactive transparency and accountability enforced by FOI legislation needs to be further strengthened. In other words, open data and proactive provision of information should not replace the right to information regimes.

How to measure the social impact of OGD?

Measuring social impact of open data and its re-use initiatives has not been addressed in a

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<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/0,,contentMDK:20502693~HIPK:1306092~menuPK:1304499~pagePK:148956~piPK:216618~theSitePK:244363,00.html>

comprehensive detail yet. This remains a challenge to a large number of governments and civil society organizations re-using the data and trying to understand how effective they are in their efforts. When it comes to measuring itself, complex concept of civic participation, inclusion and empowerment are hardly attributable to solely open data initiatives.

How to measure the social impacts of OGD?

Type of impact	How to measure?
Increased inclusion and empowerment	<p>Observe if there are new tools / applications created that provide new ways for the public to get more relevant data and information</p> <p>(also, their traffic / usage)?</p> <p>Measure the perception of certain society groups as to if they believe there are more way get relevant data and information and thus eliminate knowledge asymmetry as a result of data provision and its re-use.</p>
Civic participation	<p>Observe if there are new tools / applications created that provide ways for the public to engage into decision making and policy shaping procedures.</p> <p>Measure the perception of certain society groups as to if they believe there are more ways to engage into decision-making and policy shaping processes</p>
Access to information	<p>Observe amount of data and information available online (proactive transparency)</p> <p>Measure public perception as to if it believes there are more information available thus their right to know is better secured</p>

PART VI: Conclusion and final remarks: maximizing benefits of OGD

From the research conducted up to date, it is clear that understanding, structuring and measuring the impact of opening and re-using open government data has been of a challenge to many governments and organizations. While measuring the impact of OGD is a complex issue, it is important to ensure that governments engage in a multi-stakeholder conversation to better manage possible impacts and also maximize the benefits of OGD release and re-use.

First of all, structuring and measuring potential benefits of OGD requires further research. The European Commission is determined to continue monitoring, researching and calculating direct and indirect economic benefits to a number of sectors within the EU.

The Open Data Research Network has set itself an ambitious academic research agenda and is determined to further structure understanding of OGD effects. Researching and understanding the OGD impact should be a multi-stakeholder effort and various sectors should be involved in a process.

Secondly, in order to better observe the emerging impacts of open data policies and OGD re-use efforts; government should pay more attention to creating feedback mechanisms between policy implementers, data providers and data-re-users. For instance, the Spanish open data portal allows users to send their feedback, requests or questions in such way enabling easier communication between data providers and other stakeholders.²¹

Thirdly, many countries face a similar question as to how interactive supply and demand sides should be. Finding a balance between demand and supply requires mechanisms of shaping demand from data re-users and also demonstration of data inventory that governments possess. An example of such attempt is UK open data portal²² that allows public to request a dataset that is still not present in the online database.

Lastly, open data policies require regular monitoring. Authorities should be able to see what society sectors are affected by open data initiatives, so that they can improve their data provision and re-use efforts. A good example of this is a Characterization Study of Infomediary

²¹ <http://datos.gob.es/datos/?q=sugerencias>

²² <http://www.data.gov.uk/>

Sector²³ in Spain that analyses economic benefits of open data and its potential in a great detail.

While there have been attempts to deal with each of the recommendations above, understanding and managing the impact of open government data initiatives still remain a tough task. It is of immense importance that finding right answers to tough questions remain a multi-stakeholder effort. Advancing on research and the better management of the impact will lead to more effective open data policies and more sustainable open data re-use efforts.

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http://datos.gob.es/datos/sites/default/files/121001%20RED%20007%20Final%20Report_2012%20Edition_%20vF_en.pdf

About the Author

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