Open Government Data

8.1. Introduction

One of the tools used to increase transparency and participation is Open Government Data (OGD), which can be defined as government information proactively disclosed and made available online for everyone's access, reuse and redistribution without restriction. The term OGD came into prominence relatively recently after the publication of a set of principles by a group of experts and advocates in Sebastopol, California, United States of America. Often referred to as the "8 Open Government Data Principles" or "Sebastopol Principles",[1] they set out best practice recommendations on how governments publish data on the Internet.

OGD introduces a new approach to publishing government data and helps bridge the gap between government and citizens. It represents the ability of all stakeholders to have full and free access to public data and opens up the opportunity for people to evaluate the performance of various administrative institutions. Combined with the use of modern ICTs, this open platform allows for greater accessibility of key records to a much wider audience. Making data easily available gives citizens the opportunity to make informed decisions about public policies and identify development opportunities. Consequently, opening up government data can lead to more efficient use of resources and improved service delivery for citizens.

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Chapter 8

8.2. Global and regional trends

8.2.1. Survey findings on Open Government Data

The 2014 *Survey* introduced new questions to assess the level of data publishing in national portals. The *Survey* started its assessment with the basic premise that all government data can be made public as long as there are no conflicting privacy or national security concerns. During the initial assessments, researchers looked for the mere presence of datasets in national government portals. In the succeeding assessments, they evaluated and categorized the type of data available according to sectoral focuses, such as education, health, finance, social security, labour and environment. Table 8.1 summarizes the main features of Open Government Data assessed in these national portals.

Table 8.1.   Summary of features assessed related to data publishing

Existence of datasets in government portals including sectoral datasets for education, health, finance, social security, labor and environment
Existence of dedicated portals for data publishing such as open government data catalogues
Availability of datasets in various technical formats particularly in those formats that enable accessibility
Number of different government agencies that provide datasets
Guidelines by government agencies describing how to make use of datasets
Availability of datasets on location information such as maps
Availability of public channels to propose new datasets

The 2014 *Survey* questionnaire includes a set of questions assessing the development of data publishing (see Survey Methodology). All sources of data used in this chapter come from this questionnaire, unless otherwise stated. Table 8.2 presents the countries that scored higher than 66.6 per cent on data publishing in 2014. Figure 8.1a highlights the regional representation of countries with a higher than 66.6 per cent score in data publishing.[2] 21 countries from Europe, 15 from Asia and 9 from the Americas are on this list, as well as 3 African countries and 2 countries from Oceania. Figure 8.1b presents the distribution of countries with a score higher than 66.6 per cent according to income level; 86 per cent of these are high income or upper middle income countries. India, El Salvador, Georgia, Morocco, Republic of Moldova and Sri Lanka constitute the lower middle income bloc. Kenya is the only low income country on the list.

As the next step, researchers tried to locate sectoral datasets for education, health, finance, social security, labour and environment, as well as checked for the availability of any data related to disadvantaged and vulnerable groups, including immigrants, women, youth, people living in poverty, the illiterate, persons with disabilities and older persons. According to Figure 8.2, 130 United Nations Member States share data on government spending, 115 on education

Table 8.2.   Countries with a score higher than 66.6 per cent in data publishing

Albania	Denmark	Italy	Netherlands	Singapore
Australia	El Salvador	Japan	New Zealand	Spain
Austria	Estonia	Kazakhstan	Norway	Sri Lanka
Bahrain	Finland	Kenya	Oman	Sweden
Belgium	France	Latvia	Peru	Thailand
Brazil	Georgia	Lithuania	Portugal	Tunisia
Canada	Germany	Luxembourg	Qatar	United Arab Emirates
Chile	India	Malta	Republic of Korea	United Kingdom
China	Ireland	Mexico	Republic of Moldova	United States of America
Costa Rica	Israel	Morocco	Saudi Arabia	Uruguay

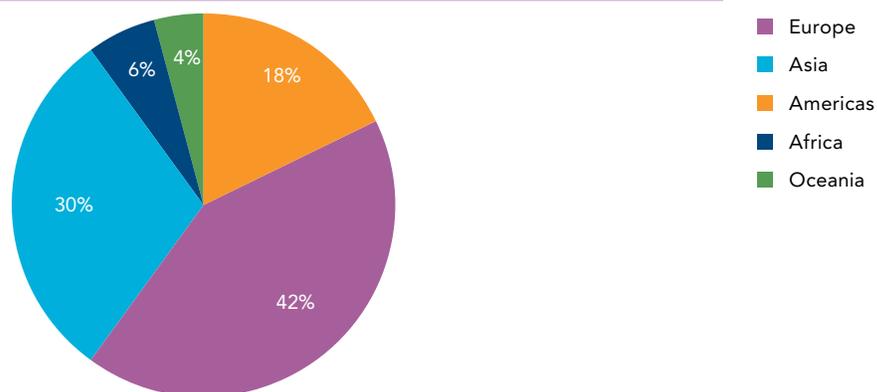Figure 8.1a.   Countries with a score higher than 66.6 per cent, by region
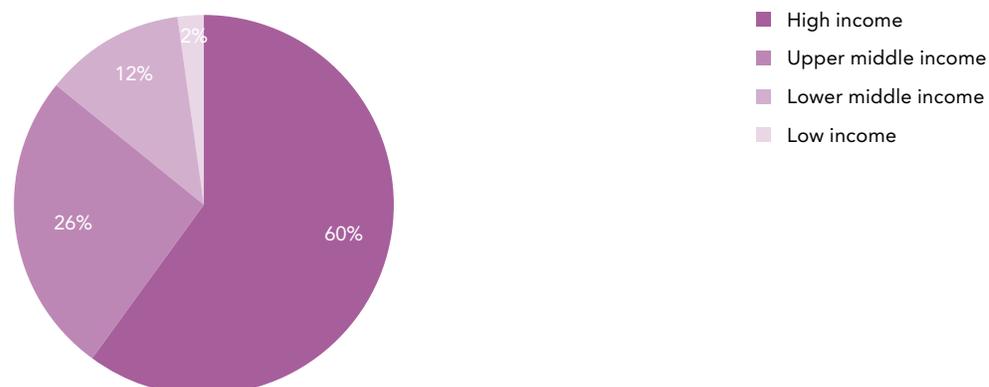

Europe 42%
Asia 30%
Americas 18%
Africa 6%
Oceania 4%

Figure 8.1b.   Countries with a score higher than 66.6 per cent, by income level

High income 60%
Upper middle income 26%
Lower middle income 12%
Low income 2%

data, 109 on health, 107 on labour, 106 on the environment and 94 on social welfare. In addition, the Survey noted that 97 out of 193 United Nations Member States have data specifically on disadvantaged and vulnerable groups. Sharing data on government spending was the most common data publishing activity undertaken by United Nations Member States. The advocacy of various non-governmental organizations in this area, such as OpenSpending,[3] which aims to track every government financial transaction across the World, or Open Budget Surveys,[4] a global research and advocacy programme promoting public access to budget information and the adoption of accountable budget systems, seems to contribute to this trend.

Figure 8.2. Number of countries offering data, by sector
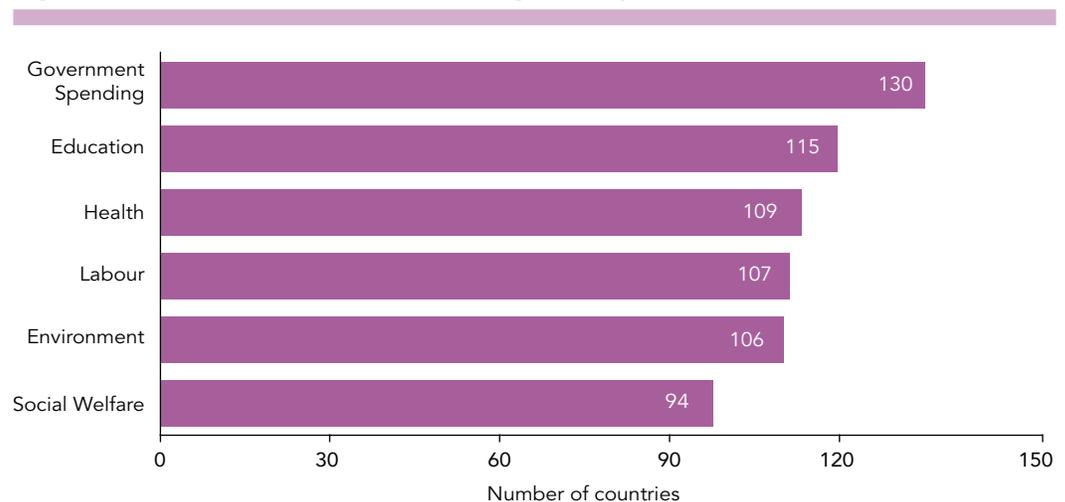
The *Survey* then assessed whether government data is made available in a form that ensures ease of use and reuse. Indicators of accessibility included presence of a dedicated data portal, availability of guidelines on how to make use of data-sets, existence of a feedback mechanism to propose new datasets and technical openness of datasets (i.e. availability of datasets in various formats including in machine-readable structured formats, or non-proprietary formats like CSV in-stead of excel), open standards and availability of Application Programming In-terfaces (APIs) to access the published data.

While a large number of United Nations Member States provided sectoral data, only 46 of these have taken the next step and established dedicated portals for data sharing, as seen in Figure 8.3. In Europe, 44 per cent of countries (or 19 countries) have dedicated open data portals as compared to 7.4 per cent in Africa. Kenya, Tunisia, Morocco and Ghana are the only African countries with an open government data portal. The majority of countries with open govern-ment data catalogues are high income and upper middle income (nearly 85 per cent). Kenya is the only low income country with an OGD portal; the lower mid-dle income countries with such portals are India, Sri Lanka, Morocco, Republic of Moldova, Ghana and Indonesia.

The utility, quality and accessibility of information depend on the format used for data publishing. Processing and analysing data through software programs

(technical openness) requires open standards and open file formats exploring, sorting, filtering and recombining data. Technical data standards allow policy makers to compare datasets and generate the creation of relevant data. When data becomes more accessible, more people can engage in and benefit from data analysis which, in turn, can contribute to better policymaking. The 2014 *Survey* checked the availability of various data types in different formats and noted that 86 countries provide data in machine-readable structured data (e.g. Excel), 56 in non-proprietary formats (e.g. CSV), 24 countries provide Application Programming Interfaces (APIs) and only 11 countries provide data in open standards from W3C such as RDF and SPARQL (see Figure 8.4).

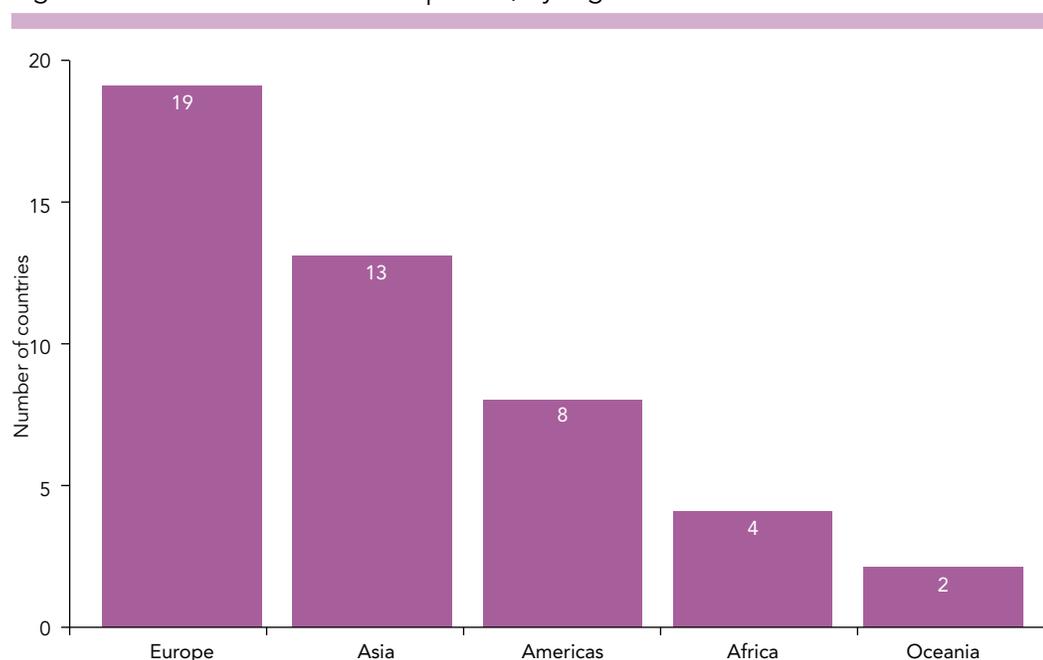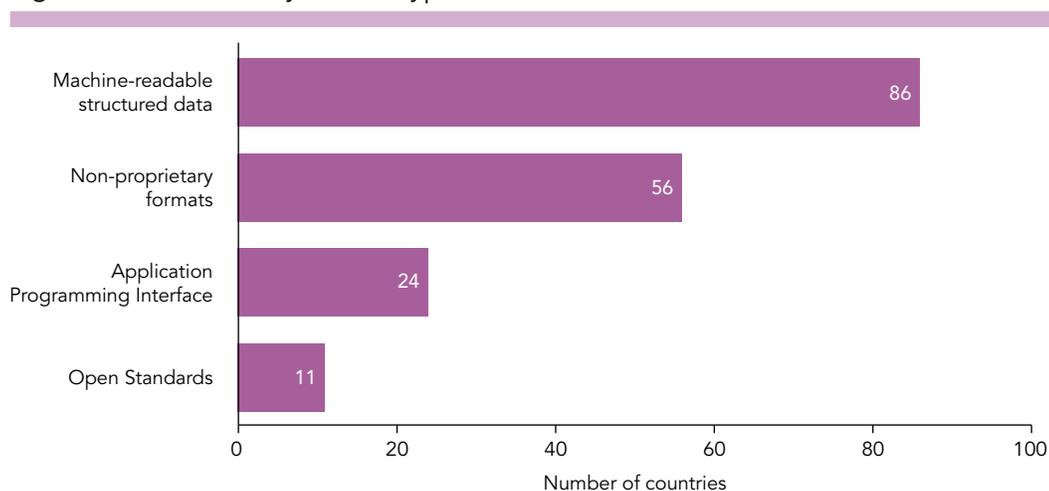Figure 8.3.   Countries with OGD portals, by region

Figure 8.4.   Availability of data types in different formats

Government agencies can increase the benefits of OGD initiatives by providing detailed descriptions of data fields as well as tools and guidelines for how to analyze and make use of the datasets. In 2014, 34 countries offered this type of instructional information. For example, the open data portal of Kenya has a section specifically for developers where it lists the tools designed to access and integrate the data. In the same section, developers can also learn more about upcoming events like workshops on utilizing government data and get information on the APIs used to provide access to the data.

Following a demand-driven approach into publishing datasets can help ensure that governments meet their citizens' needs. Governments can collect feedback on which datasets to publish by surveying citizens and other potential users, like civil society organizations, academic institutions or businesses. While individual citizens may want information useful for their daily lives, civil society groups would likely be more interested in data to help them hold governments accountable or data that can be used for advocacy. Businesses by contrast demand high-quality raw data to create value-added products and services. The 2014 *Survey* noted that 31 of the countries with a dedicated data portal have a section in their portals to receive inputs on the data types to be published.

Box 8.1. Bahrain open government data portal

The open data platform of Bahrain is an important initiative for the country as it aims to implement a public data hub and a strategy for open data to enable transparency, promote e-participation and inspire innovation. The primary role of the platform is to publish datasets from ministries and government agencies in an open format and making this data available to the public. The platform enables the public to have a central point of access to find, download and use datasets generated by the ministries and governmental entities in the country. The public benefits from the data provided in different ways, as gaining access to government data helps the public in acquiring a better understanding of how the government works. It also allows the general public and businesses to use the data for research, creating reports, provide feedback, develop web and smart phone applications and solutions based on public data. With the platform, the government pursues to expand the portfolio of the e-Government services by extending the growing efforts to the private sector, enhancing transparency and allowing people for creativity.

Source: http://www.data.gov.bh/

Providing datasets in bulk, with open standards and an open license, eases the job of data analysis and increases participation in policymaking. Providing datasets as they are, however, is already beneficial for transparency, participation and efficiency. The 2014 *Survey* scored Ireland, El Salvador, Luxembourg, Peru, Qatar, Georgia, Latvia, Lithuania, Thailand and Argentina higher than 66.6 per cent in data publishing, even though those countries do not have dedicated open government data portals. Researchers, nevertheless, were able to access many relevant databases across portals. This implies that they already have policies in place for centralizing and digitizing data and that they are ready to take the

next step: publish data in bulk and in open formats through dedicated portals. Greece, Malta, Ghana, Slovakia and Indonesia, conversely, have open government data catalogues but did not score higher than 66.6 per cent in data publishing, suggesting these portals should include a wider range of government agencies and more varied datasets in machine-readable formats.

8.2.2. Policy, legal and institutional frameworks for Open Government Data

Freedom of information legislation is essential for the development of Open Government Data. The foundations of OGD lie in the people's right to information, as enshrined in article 19 of the Universal Declaration of Human Rights and as recognized by the international community. The multilateral system, including the United Nations and other regional organisations, has addressed the right to information, commonly referred to as Freedom of Information (FOI), extensively through international treaties, conventions and other sources of international law. Domestic laws in about 93 Member States have addressed the subject through specific legislation (e.g. FOI acts, Access to Information Acts, etc.). 35 countries only have a FOI article in their constitutions—24 have relevant draft legislation. Meanwhile, 41 countries have no FOI legislation at all.

Privacy of personal information as well as confidentiality in national security matters need to be protected when publishing government data for public access and use. Preliminary research by UNDESA[5] found that 79 countries have addressed data privacy and security through specific legislation, usually called Data Protection Acts (DPAs). 15 only have data privacy and security provisions in their constitutions, six have relevant draft legislation and three countries cover data privacy in their access to information laws. 90 countries have no legislation on this at all.

Very few countries have passed or even drafted legislation requiring government data to be published in machine-readable formats with open licenses. Among the few recent initiatives taken by various national governments, in August 2011 New Zealand approved comprehensive general principles for data management[6] drawing from several aspects of the 8 Principles for Open Government Data.[7] These state that government data and information should be open, readily available, well managed, reasonably priced and re-usable, unless there are necessary reasons for its protection. The amendment made to the European Union (EU) Directive 2003/98/EC in June 2013 introduces a genuine right to reuse all content that can be accessed under national laws and invites Member State to make more documents available in machine-readable and open formats. The Republic of Korea enacted a law in July 2013 requiring government agencies to publish data in machine-readable formats.[8] An executive order in May 2013 by the United States of America,[9] which makes the open and machine-readable format the new default for government information, declared that information is a national asset whose value is multiplied when made easily accessible to the public. The Russian Federation's Government Order No. 583 of 10 July 2013 set out the rules for classifying public sector information as open data, the timeframe for updating this information, as well as other requirements concerning the publication of information as open data.[10]

Data is considered open when it is shared with an open license in a way that permits commercial and non-commercial use and reuse without restrictions. While the 2014 Survey did not assess the licenses in depth, a quick review of the data catalogues revealed that licenses vary from strict, with clear copyright statements, to less strict. The Creative Commons Attribution 3.0 License[11] is one of the most common license types, used, for instance, in Australia, Austria, Chile, Germany, Italy, New Zealand and Uruguay. Countries such as Albania, Bahrain, Morocco, Netherlands and Tunisia use a common adaptation of the Open Knowledge Foundation's Open Database License. In Austria in particular, cooperation between federal and local governments has led to the endorsement of a Creative Commons Attribution License for government data. Alliances such as these bring together federal, state and city governments, as well as local communities, to forge common standards and develop conditions in which OGDs can benefit all stakeholders.

An overview of the data catalogues reveals a variety of agencies and ministries responsible for open government data initiatives across countries: the Department of Finance and Deregulation in Australia,[12] the Federal Ministry of Finance in Austria,[13] and the Ministry of Finance and the Accountant General in Israel,[14] to name a few. In some countries, like Colombia[15] and Ghana,[16] the initiative is undertaken by the Ministry of Information and Communication Technologies. In others, there is cooperation between agencies, as with the Ministry of Finance and Infocomm Development Authority in Singapore,[17] and the Ministry of Finance and Public Administration and Ministry of Industry, Energy and Tourism in Spain.[18] Finally, in a few countries—France, the United Kingdom and the United States of America—a specific unit under the executive branch is engaged, like France's Etalab.[19]

While there are different agencies responsible for open government data initiatives in different countries, one common need within government agencies is having an individual responsible for institution-wide control, governance and utilization of data. This individual, usually called a Chief Data Officer (CDO), would also be responsible for the formation of new strategies around government data. It has already been noted that some governments, particularly at the local level, are moving towards having CDOs. For example in the United States of America, the Federal Communications Commission (FCC), has appointed CDOs at every one of its major bureaus including Consumer & Governmental Affairs, Enforcement and Public Safety and Homeland Security, to emphasize the importance of this role.[20] In a similar development, the newly enacted open data law by the City of San Francisco established the CDO position to implement the open data policy in cooperation with departmental data coordinators.[21] The CDO role is relatively new to government, although it has been common in the private sector since the early 21st century. Frequent changes in technology and advances in the types and formats of data available, as well as the emerging concept of transparency, are leading administrative institutions the world over to appoint Chief Data Officers at various levels.

Since open government data initiatives require cooperation among various government agencies, strong political and top level management support is needed. A vision should be complemented with a well-thought-out policy and strat-

egy. Countries that have progressed on open government data already have strong policies in place. For example, Bahrain's OGD policy aims to enhance public participation and private sector involvement by publishing datasets via their Open Government Data Portal, thereby allowing everyone to develop web and/or mobile applications that improve government transparency and public participation. The National Policy on Data Sharing and Accessibility (NPDSA)[22] of India aims at increating the accessibility and sharing of non-sensitive data among registered users, as well as the availability of this data for scientific, economic and social development purposes. The open data policy of the Obama Administration of the United States treats information as a valuable national resource and a strategic asset for the Federal Government, its partners and the public and further states that executive departments and agencies must manage information as an asset throughout its life cycle to promote openness and interoperability and properly safeguard systems and information.[23]

8.3. Opportunities and challenges

Open government data has the potential to improve decision-making on complex problems in government and increase transparency for a range of civil society as well as across government agencies. In addition, it can help governments improve the efficiency and effectiveness of their services by allowing the public to reuse and remix freely available data for any purpose, potentially leading to innovation, new services and thus to economic growth. However, it may also come with potential challenges and risks that policy makers need to be aware of.

8.3.1. Data for development

Readily available data on governments' efforts to fight poverty, achieve universal primary education, fight HIV and foster maternal health, raises citizens' awareness and helps them participate in and oversee government actions. This data, as provided by open data portals, gives the private sector opportunities to productively contribute to the development process. For example, data shared by the Liberian government will support donor-funded peacebuilding activities across the country and provide the government with information on the places, regions, projects and types of activities needed to make future decisions.[24] If this kind of project-level information were available in all areas where development goals face challenges, donors, host governments and civil society could more easily target, coordinate and evaluate development assistance.

Improving access to geographical information and geospatial data and building capacities to use scientific information in areas such as climate monitoring, land use planning, water management, disaster risk reduction, health and food security, will allow for more accurate environmental and social impact assessments and more informed decision-making at all levels. For example, in Cambodia, much of the data that is of great importance to smallholder farmers and rural populations— e.g. data related to agrarian structure, foreign investment, infrastructure development plans and their environmental implications—is generated and controlled by the government, donor agencies and private companies. Only a limited amount

of available information ever reaches the public's attention and is often difficult to access or systematically track. The open data portal, Open Development Cambodia,[25] unites disparate data collection efforts by individual groups advocating for social and environmental justice into a secure, coordinated network designed to strengthen their efficacy and make public previously inaccessible data in a politically neutral way. In another example, opening data nationally revealed some countries were being asked to pay up to 25 times more than their neighbours for the same pharmaceutical drugs. The findings enabled governments to put pressure on pharmaceutical companies to reduce prices.[26]

It is also important for governments and humanitarian organizations to standardize data sets before a crisis starts as stated in one of the reports of the United Nations Secretary-General. Then it will be possible to identify quickly, for example, the locations of key services like health centres or water sources. National and subnational authorities have a wealth of valuable data on the resources, infrastructures and capacities of their communities, but do not necessarily have mechanisms to enable the sharing of this information. Making this data available to partners and the public can help to drive better decision-making. For example, the Kenya Open Data Initiative[27] enables anyone to locate health facilities, while presenting broader developmental, demographic and statistical data that could be invaluable in a crisis. Adopting policies that improve the quality of data, facilitating the open exchange of information and implementing global best practices for the exchange of data, would further strengthen the coordination of emergency humanitarian assistance.

8.3.2. Readiness for Open Government Data

One key to a government's success in open government data is to assess the country's readiness to undertake such an initiative. Some international organizations have already led projects to assess country readiness for OGD initiatives. The Guidelines on Open Government Data for Citizen Engagement, developed by UNDESA, are a practical and easy-to-understand way for policy makers and technologists to design, implement and sustain open government data initiatives. Policy makers will find checklists on political commitment, capacity building, legislative, regulatory and institutional frameworks, cultural and human resources, financial conditions and technological infrastructure. The World Bank has also developed an 'Open Data Readiness Assessment' (ODRA) methodological tool for conducting an action-oriented assessment of the readiness of a government—or even an individual agency—to evaluate, design and implement an open data initiative. The tool assesses government readiness in various dimensions such as leadership, policy and legal framework, institutional structures, responsibilities and skills within government, data within government, demand for open data particularly for citizen engagement, open data ecosystems, financing and national technology and skills infrastructure. The Web Foundation, aiming to raise global awareness of the feasibility and benefits of open data in developing countries, has published readiness assessments for Ghana, Chile and Indonesia. The Foundation believes that initiatives should focus on releasing information that can be used to improve people's lives and should be structured to achieve an open govern-

ment paradigm shift that allows citizens to be better informed and more directly involved in political decision-making.

To have high-quality data in a government agency, systematic policies or legislation on the management of government information ought to be in place, like mandatory record keeping standards. Each agency must make and keep full and accurate records of its activities. These records must be authentic and have integrity and should be usable and in conformity with the standards and codes of best practice in the country. Each agency also needs to collect, store and manage information, ideally in digital form and through a standardized process. As such, there should be no irregularities in datasets; data should be consistent across agencies, complete, accurate and frequently updated. The power of data is often in the updating, not merely in baseline recording. Once these practices are in place, publishing data in OGD catalogues should be planned with the understanding of all agencies involved. Data publishing should not happen in an ad hoc manner without commonly agreed upon data and metadata standards and without the common identifiers which make finding, reusing, integrating and making sense of data from different sources. The interest and willingness to share data may be different across agencies. Raising awareness within the government and informing on the benefits of data sharing would be helpful in overcoming any potential reluctance. Once a data catalogue is established, the process must still be sustained, monitored and evaluated. Sharing data is important, but sharing updates to the data and keeping the data current is equally important.

In spite of the vast advantages of OGD, there are also potential downsides and risks. Some relate to privacy issues and data that can be personalized and misused against individuals or communities. The rights to privacy and to information are essential human rights in the modern information society. For the most part, they complement each other in holding governments accountable to individuals. There is the possibility of conflict between them, however, when access to government-held personal information is demanded. Governments need to develop mechanisms for identifying core issues to balance these two rights. A World Bank research paper[28] examines legislative and structural means to better define and harmonize the rights to privacy and information. Another concern pertains to national security. Governments can have a schema of classified data to exclude from their data catalogues. While developing OGD strategies, policymakers must keep in mind the safeguard of personal privacy and national security issues, especially because concern for these easily becomes a trigger for hiding data. Having an Information (Privacy) Commissioner, to whom citizens can relate their concerns, such as lack of access to certain data or the publishing of personal data, would also contribute to preventing conflicts in the OGD field. It is of paramount importance that these organizations be independent of the executive branch.

8.3.3. A sustainable Open Government Data ecosystem

Open Government Data has no value if the data published is not utilized. In order for OGD initiatives to thrive and develop, the stakeholders involved should actively promote and encourage opening more data, participation and the development of new applications. They should also foster an atmosphere of exchange

and collaboration among government agencies, citizens, civil society organiza-tions and other stakeholders. Training and capacity-building of stakeholders and potential re-users should be given high priority in order to broaden the initiative. Policy makers cannot see open data as an end unto itself, but rather as a tool to reach further objectives. Engagement should be demand-driven and should take into consideration the views and requests of data users. The data should not only be clear but also provide information about metadata, frequency of updates and manuals for working with the data.

Engagement strategies should also promote conversations about the data, by allowing users to comment on datasets, for instance. Interaction among vari-ous stakeholders as well as participation of newcomers can be enhanced and facilitated by providing standard tools, how-to wikis, FAQs and discussion fo-rums as well as capacity building workshops. A popular way of engaging with a community that reuses information and developing new applications is hosting competitions or hackathons. Most recently, many governments and international organizations interested in promoting open data have taken this approach. Table 8.3 lists some major initiatives. These events not only help capitalize on local tal-ent and community buy-in, but also generate ideas that transform the nature of traditional public service channels.

Open Government Data is also one of the main drivers of data journalism. Data-sets, critical thinking and thorough research provide context and depth to sto-ries on complex issues. Specifically, data also helps journalists convey their stories through visually appealing and easy-to-follow graphs (usually called infographs).

Government data is already commonly used in journalism—for stories on themes as varied as the environment, crime and education. Some countries are respond-ing in interesting ways when government data is underused. The Data Dredger project[29] in Kenya transforms government data into interactive sets and makes it more visually palatable, encouraging traditional media to embrace data-driven journalism. This journalistic practice can also open up more data: the Govern-ment of the Netherlands, for one, publicly releases every dataset and document solicited via access-to-information requests on a specific website. This website thus contains a trove of information available to everyone.[30]

Table 8.3. Examples of Open Government Data competitions

Finland	Apps for Finland	apps4finland.fi
Netherlands	Apps for the Netherlands	nationaleappprijs.nl
Australia	GovHack	govhack.org
Germany	Open Data Challenge	opendatachallenge.org/
Singapore	Ideas 4 Apps Challenge	ideas.data.gov.sg
Africa	Apps for Africa	apps4africa.org
Worldwide	Water Hackathon	water.worldbank.org
International	International Space Apps	spaceappschallenge.org
International	Apps for Climate	wbchallenge.imaginatik.com

Box 8.2.   Promoting OGD usage in Moldova

One of the difficulties in launching open government data initiatives may lie in low public interest. Moldova is facing just such a problem.[31] Its citizens are not demanding disclosure of government data, in contrast with most other countries where government data was released under strong public pressure. Officials in Moldova supporting an open data initiative have held events to generate interest and awareness .around the issue, in addition to training sessions on data journalism and app development using open data. According to these officials, a Moldova-based NGO is working on a project called Budget Stories that would essentially release budgetary information in the form of infographics, creating visual stories behind the facts. In a separate initiative, a group of students in Moldova is combining different cartographic and geographic data to produce maps that will assist the government visualising certain domestic challenges.

Source: http://www.date.gov.md/

8.3.4.   Return on investment

Open Government Data is providing new economic opportunities, both for public and private sectors, however it is too early to assess the full magnitude of its impact. Deloitte reported in a study[32] that open data will drive growth, ingenuity and innovation in the United Kingdom's economy, as organizations exploit the data in order to achieve sustainable growth, stronger performance and more meaningful engagement. In its study,[33] the consulting firm Cap Gemini concluded that governments are not sufficiently leveraging open data for economic benefits and recommended they follow the example set by Spain, which has over 150 companies focused on selling services on top of open government data. The Cap Gemini study also discusses how governments can save money through the transparency benefits OGD brings, as well as create jobs and develop skilled labour. It cites Australia's spatial information industry, which is based on open data and employs over 31,000 people. According to a study[34] conducted by the Research Institute of the Finnish Economy, firms in countries in which public sector agencies provide basic geographical information, either freely or at marginal cost, have grown on average about 15 percent more per annum than those in countries in which public sector geographical information is priced according to the cost-recovery principle. Another study reports that, when effectively deployed, an open data platform delivers at least a tenfold return on investment. In the beginning, the largest contributors to this return are in cost savings and internal efficiency gains.

Open government data initiatives is a concern since these initiatives need more time in order to be seen as essential public services. When the United States Government shut down in October 2013, its open data portal was inaccessible for days. The notice read that the site was down due to lapse in federal funding—yet other online services, like passport application on firstgov.gov, were up and running. Even before the shutdown, there had been reports of cutting funds for open government data platforms throughout the country.[35] This suggests that these portals could be the first affected in a crisis. It is all too easy for govern-

ment agencies to forget that they would operate more effectively and efficiently with oversight from the portals, resulting, in turn, in taxpayer savings. OGD, when implemented well, tracks taxpayers' money and provides them with tools to hold public officials more accountable. It increases data quality, including in the data collection and maintenance stages. It also facilitates data sharing among government agencies and results in increased internal efficiencies. The short-term cost of releasing and maintaining data catalogues is likely to be outweighed by the long-term benefits.

8.4.   Conclusion

Data has always been a strategic asset, but its availability to the public has grown markedly in the last decade thanks to the precipitous advancement of technologies.

Opening up government data is fundamentally about more efficient use of resources and improving service delivery for citizens. The effects are potentially far-reaching for sustainable development: innovation, transparency, accountability, participatory governance and economic growth. The availability of data is paramount to the identification of development opportunities and policy decision-making. Better data can improve decision-making tremendously, but only where decision-makers favour policy that is evidence-based and context specific. The amount of data government agencies collect will grow exponentially in the coming years. Although open data provides many opportunities and capabilities for these agencies, its real impact will not be realised without carefully planned data management. A number of recommendations can be therefore extrapolated from the above conclusions:

- To stave off yet another development divide, in this case a data divide, it is important for countries to prioritize and invest in open government data initiatives.

- In order to grow and sustain open data initiatives, governments may want to consider updating their legal and institutional frameworks, as well as raising awareness at higher decision-making levels. Government agencies need to publish information proactively and be "open by default", rather than reactively disclose information in response to requests. In addition, existing regulations and laws can be reviewed to support open data initiatives and address privacy and security concerns. Information laws can be updated to specify new datasets to be published in open formats by all government agencies in a proactive way.

- Government agencies must have processes in place clearly defining which data to share with the public in which formats, at what time intervals and under which licenses, ensuring no restrictions on reuse of government information. In this context, not only policies but more importantly people, will make a difference in how the data is used to make governments more transparent, participatory and efficient.

- Countries undertaking open data initiatives need to closely monitor them to encourage usage, but also to improve internal processes. Policy makers aiming to benefit from open data can also foster an atmosphere of exchange and collaboration among government agencies, citizens, civil society organizations and other stakeholders.

- Training and capacity-building of stakeholders and potential re-users ought to be given high priority in order to broaden the impact of open data initiatives. It is also important to emphasize the quality of data—how well it has been collected and analyzed. Consequently, decisions regarding open government data may consider existing capacities in order to develop the appropriate knowledge, attitudes and skills necessary for data collection and analysis.