

Department of Economic and Social Affairs

Division for Public Administration and Development Management

Guide on Lessons for Open Government Data Action Planning for Sustainable Development



United Nations
New York, 2017



United Nations

DESA Mission Statement

The Department of Economic and Social Affairs of the United Nations Secretariat is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which States Members of the United Nations draw to review common problems and to take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint course of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

Note

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The term “country” as used in the text of this publication also refers, as appropriate, to territories and areas. Since there is no established convention for the designation of “developed” and “developing” countries or areas in the United Nations system, this distinction is made for statistical and analytical purposes only and does not necessarily express a judgment about the stage reached by a particular country or region in the development process. Mention of the name of any company, organization, product or website does not imply endorsement on the part of the United Nations. The views expressed in this publication are those of the individual authors (see acknowledgements) and do not imply any expression of opinion on the part of the United Nations.

Copyright

A United Nations Publication. Copyright © United Nations, 2017. All rights reserved.

Suggested citation: Guide on Lessons for OGD Action Planning for Sustainable Development, Division for Public Administration and Development Management (DPADM), United Nations Department of Economic and Social Affairs (UN DESA), New York, 2017.

Preface

In September 2015, the United Nations Member States adopted the 2030 Agenda for Sustainable Development as a roadmap for “people, planet and prosperity”¹. This plan of action to transform the world aims to eradicate poverty and inequality and achieve peace and prosperity in the next 13 years.

The Agenda, which includes 17 Sustainable Development Goals (SDGs) brings together social inclusion and economic growth with environmental protection supported by effective responsive, inclusive and accountable governance and multi-stakeholder partnerships.

Many Member States of the United Nations have started placing the SDGs at the center of their development plans. They are also becoming more aware of the need to increase their capacity for ensuring data quality, accessibility, disaggregation, timeliness and reliability in support of evidence-based policy making for systematic monitoring and review of progress of SDG implementation.

Making government data accessible to the public in an open format can have a positive impact in terms of efficient use of public resources and improved public decision-making and service delivery. Therefore, the benefits of open government data (OGD) and enhanced access to public information gain greater visibility and relevance in the context of the 2030 Agenda for Sustainable Development. OGD utilization can help both developed and developing countries implement SDG programmes, track progress and prevent corruption. It can also spur innovation, transparency, accountability, and economic growth. It is a critical way to make institutions inclusive and ensure “participatory decision making” as UN Member States committed to in the SDGs.

In 2014, the Division for Public Administration and Development Management of the United Nations Department of Economic and Social Affairs started implementing the project on “Strengthening of Capacities of Developing Countries to Provide Access to Information for Sustainable Development through Open Government Data”.

This project enhanced awareness of OGD requirements among government officials and other stakeholders while addressing capacities needed for developing action plans for implementing OGD initiatives in Bangladesh, Nepal, Panama and Uruguay. Through a broad range of capacity development tools and action, the project also assisted these governments to foster collaboration with relevant civil society actors within the OGD ecosystem (more information on this initiative is available at: <https://publicadministration.un.org/en/ogd>).

The Guide compiles content from capacity development activities conducted under the aforementioned project. It aims to share the project findings and inform governments and other sectors engaging in efforts to make data accessible to the public in an open format.

¹ United Nations, General Assembly, A/RES/70/1 - Transforming our World: The 2030 Agenda for Sustainable Development, 21 October 2015

Acknowledgments

The Guide on Lessons for OGD Action Planning for Sustainable Development was prepared under the overall guidance of Marion Barthelemy, Director of UN DESA/DPADM. The Guide was coordinated and reviewed by Valentina Resta with inputs from Aranzazu Guillan-Montero and Wai Min Kwok and Arpine Korekyan and document support from Jan-Willem Lammens and David Lung'aho.

The Division would like to also acknowledge the work and high professionalism of Daniel Dietrich and David Zamora, two international consultants, who designed and developed the project training materials that were compiled into this Guide.

UN DESA/DPADM expresses its gratitude to project focal points from the Access to Information Program (a2i) of Bangladesh; the National Information Commission (NIC) of Nepal; the Autoridad Nacional de Transparencia y Acceso a la Información (ANTAI) and the Autoridad de Innovación Gubernamental (AIG) of Panama; and the Agencia de Gobierno Electrónico y Sociedad de la Información y del Conocimiento (AGESIC) of Uruguay.

The work leading to the development of this Guide benefited from inputs from regional and national partners including the United Nations Economic Commission for Latin America and the Caribbean (UN ECLAC) and the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP). A special acknowledgement goes to government and civil society representatives from Indonesia, Mongolia, Malaysia, Philippines, Republic of Korea and Singapore in Asia; Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, and Peru in Latin America, who made presentations and shared their experience during eight national, two regional and one international capacity development workshops as well as three study tours organized by UN DESA/DPADM under the aforementioned project (more information is available at: <https://publicadministration.un.org/en/ogd>).

Acronyms

API	Application Programming Interface
CC	Creative Commons
CSO	Civil society organization
CSV	Comma separated value
DPADM	Division for Public Administration and Development Management
FTP	File Transfer Protocol
HTML	HyperText Markup Language
ICT	Information and communications technology
JSON	JavaScript Object Notation
NGO	Non-governmental organization
OD	Open Data
ODRA	Open Data Readiness Assessments
OECD	Organization for Economic Cooperation and Development
OGD	Open Government Data
OGDCE	Open Government Data for Citizen Engagement
PDF	Portable Document Format
PPP	Public-private partnership
PSI	Public Sector Information
RDF	Resource Description Framework
RSS	Real Simple Syndication
SMS	Short Message Service
SDGs	Sustainable Development Goals
UN DESA	United Nations Department of Economic and Social Affairs
UN ECLAC	United Nations Economic Commission for Latin America and the Caribbean
UN ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
W3C	World Wide Web Consortium
WSSD	World Summit on Sustainable Development

Table of contents

About this guide	6
Section 1: Sensitize actors on OGD	7
What is Open Government Data?	7
Why is OGD important for Sustainable Development?	8
How to approach an OGD initiative?	12
Inclusive and participatory process	13
Section 2: Assess OGD readiness	13
Readiness assessment and related methodology	14
Section 3: Strategize and plan	15
OGD Strategy and action planning	15
Section 4: Conduct training on opening government data	18
OGD Step-by-Step Guide for government implementers	18
Step 1 - Start small and keep it simple	18
Step 2 - Understand supply and demand	19
Step 3 - Choose and prioritize datasets	19
Step 4 - Protect privacy	20
Step 5 - Add context	21
Step 6 - Structure data	21
Step 7 - Select an open license	22
Step 8 - Publish data online	22
Step 9 - Ensure data accessibility and availability	23
Step 10 - Raise users' awareness about agency's data and listen to their feedback	23
Step 11 - Foster data reuse	24
Step 12 - Improve data skills	24
Step 13 - Keep data fresh and preserved over time	25
Section 5: Promote and reuse data for sustainable development	26
Design OGD pilot projects	27
Section 6: Monitor and evaluate	29
Define a set of monitoring and evaluation indicators	30
Further information	31
Glossary	32

About this guide

The Guide on Lessons for Open Government Data (OGD) Action Planning for Sustainable Development contains hands-on and easy-to-use information of particular relevance to the work of government policy-makers and technology experts that wish to understand *what* OGD is; *why* governments could use OGD as a tool for supporting transparent, accountable and participatory governance for sustainable development; and *how* to assess, plan, implement and evaluate successful OGD initiatives and programmes.

The Guide is structured in six sections. Section 1 contains a brief introduction on the *concepts and principles of OGD*. It explains why OGD is important for sustainable development and how to approach, plan and design an OGD initiative. With the aid of an *assessment tool*, Section 2 provides guidance on understanding the existing contextual challenges and opportunities for the implementation of an OGD initiative. Section 3 highlights key recommendations for planning and designing an *OGD strategy and action plan*. Section 4 provides step-by-step guidance for the *identification, preparation and publication of OGD*. Section 5 discusses the promotion and *support to the reuse of OGD* to create social and economic value and innovation. It also includes guidance on the design and implementation of *OGD pilot projects*. Section 6 provides advice on *monitoring and evaluating* OGD initiatives.

Each section contains an introductory text, followed by learning materials that provide additional or more in-depth information on the topic covered in the section. The aim is to enable users to deepen understanding of and review key concepts of OGD for sustainable development.

Furthermore, the Guide provides templates and blueprints as part of learning materials, which could be used for sensitization and training of government officials and other OGD actors.

The Guide fully recognizes that there is no single model for OGD and that actions and plans need to be adapted to the country context.

Section 1: Sensitize actors on OGD

What is Open Government Data?

Governments produce and maintain vast amounts of data. This includes statistical data, census data, data about public healthcare and education, parliamentary and election data, budget and spending data, cadastral data, environmental and weather data, geodata, satellite imagery, data on roads, traffic and public transport, among others.

OGD can be defined as government data (some of which may be contained in government documents) that is proactively disclosed and made available online for everyone's access, reuse and redistribution without restriction.

Following OGD principles, most of government data can be opened for public access and reuse, thereby creating value not only for public sector agencies but for the entire society. Exceptions include personal data and data that is of sensitive nature for national security.

Key principles for OGD include legal and technical openness, this is to say:

- data is either in a public domain or under a license that explicitly allows for its reuse for any purpose, including commercial reuse; and
- data is in a format that can be automatically processed by machines.

Some experts, through an international community of practice, have established additional detailed *principles for OGD*² to make the concept and implications clear for all. Some of the principles OGD needs to comply with are: completeness, primacy, timeliness, ease of physical and electronic access, machine readability, non-discrimination, use of commonly owned standards, and licensing.

Learning material N. 1.1: What is OGD?

Focus: Understanding OGD.

→ 1.1.a Presentation: [What is Open Government Data?](#)

→ 1.1.b Trainer guidance: [What is Open Government Data?](#)

→ 1.1.c Additional information: www.theodi.org/what-is-open-data and watch this [video](#)

-
- ²International Open Data Charter, Charter Principles, 2015, www.opendatacharter.net/principles
 - W3C, Publishing Open Government Data, 2009, www.w3.org/TR/gov-data
 - Sunlight Foundation, Ten Principles for publishing Government Information, 2010, www.sunlightfoundation.com/policy/documents/ten-open-data-principles

Why is OGD important for Sustainable Development?

“In a knowledge economy, government’s data holdings are a major asset that can be used to develop new products and services³”. The opening of government data is fundamentally about more efficient use of public resources and improved service delivery to the people. The effects of OGD utilization are potentially far-reaching, with positive impacts on innovation, transparency, accountability, participatory governance, social development, environmental protection, economic growth and other SDG related areas. OGD can help both developed and developing countries implement SDG programmes, track progress, prevent corruption and improve the effectiveness of resource use including aid. The benefits of OGD and improved access to public information gain greater visibility and relevance today in the context of the 2030 Agenda for Sustainable Development.

OGD is a precondition for any Open Government policy as it provides a basis for:

1. A well-informed public - people who understand why decisions are made and how tax money is spent, thus enabling them to effectively engage and actively participate in society;
2. More transparent and accountable government - this is a basis for preventing corruption and sustaining trust in public institutions;
3. Better data management and data sharing practices within governments - this leads to greater efficiency and savings of taxpayers’ money;
4. Evidence-based decision-making within the public sector - this is critical for more informed and more responsive public policies and services⁴;
5. The creation of innovations - new products and services built by third parties reusing OGD that may stimulate job creation and economic growth alongside enhanced social inclusion and awareness of environmental concerns, and more generally, progress towards the SDGs.

Sustainable Development Goals

On 25 September 2015, United Nations Member States adopted the 2030 Agenda for Sustainable Development. The Agenda is a roadmap for “people, planet and prosperity”⁵ that seeks not only to eradicate extreme poverty, but also to integrate and balance the three dimensions of sustainable development - economic, social and environmental - in a comprehensive global vision with a focus on inclusive, participatory development that leaves no one behind. This roadmap contains the following 17 *Sustainable Development Goals* (SDGs, please see also illustration below) and 169 targets:

Goal 1. End poverty in all its forms everywhere;

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture;

³ Don Lenihan, Canada 2020, <http://canada2020.ca/wp-content/uploads/2017/06/Open-Dialogue-June-13-2.pdf>

⁴ For instance, regarding the water sector, OGD supports sustainable management of water and sanitation for all by ensuring better access to information about water facilities and quality of water, and disseminating data about water-borne diseases. This, in turn, enables public sector agencies to enhance policies in this sector.

⁵ United Nations, General Assembly, A/RES/70/1 - Transforming our World: The 2030 Agenda for Sustainable Development, 21 October 2015

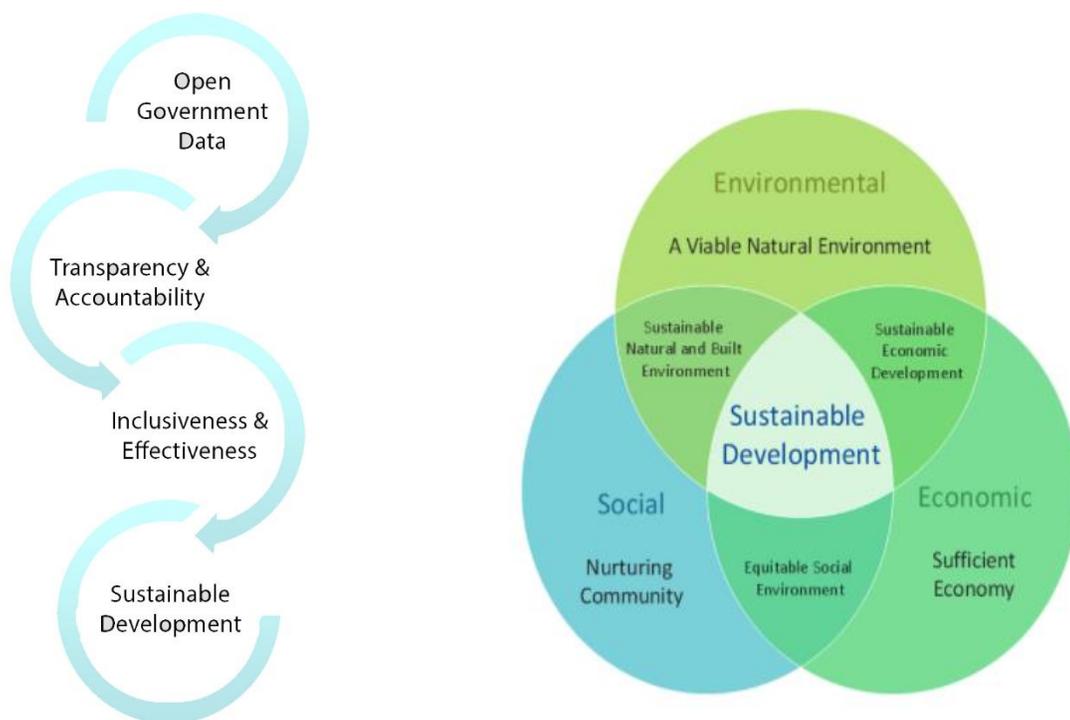
- Goal 3.** Ensure healthy lives and promote well-being for all at all ages;
- Goal 4.** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- Goal 5.** Achieve gender equality and empower all women and girls;
- Goal 6.** Ensure availability and sustainable management of water and sanitation for all;
- Goal 7.** Ensure access to affordable, reliable, sustainable and modern energy for all;
- Goal 8.** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- Goal 9.** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- Goal 10.** Reduce inequality within and among countries;
- Goal 11.** Make cities and human settlements inclusive, safe, resilient and sustainable;
- Goal 12.** Ensure sustainable consumption and production patterns;
- Goal 13.** Take urgent action to combat climate change and its impacts;⁶
- Goal 14.** Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- Goal 15.** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
- Goal 16.** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
- Goal 17.** Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.



SUSTAINABLE DEVELOPMENT GOALS



⁶ Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.



Diagrams: Sustainable Development and the role of OGD

Effectively planning, implementing, monitoring and being accountable for attaining the goals of the 2030 Agenda requires an increase in data, information and knowledge that is available to governments, individuals, companies, civil society and international organizations. By contributing to creating better information for sustainable development, OGD can be a resource and a supporting element for the 2030 Agenda.

OGD and leaving no one behind

The principle of leaving no one behind is at the core of the Sustainable Development Agenda. Well designed, accountable and transparent programmes in areas such as justice, health, education, nutrition, security, water and sanitation, anti-corruption, among others, will offer better conditions to all people, including the vulnerable groups. Thus, the latter can be seen as indirect beneficiaries of OGD. However, it is important to set an image of OGD not as a sophisticated or technological initiative, but as a tool with social purpose.

The poorest and most vulnerable are not expected to develop the capacities needed to use OGD (this is to say that not every individual needs to become a data analyst). However, intermediaries are needed to help translate complex data into actionable information that matters in the local, political and social context. A typical example is non-governmental organizations (NGOs). OGD can play an enabling role in this process. Before developing tools for the vulnerable communities, it is important for governments to

open up a space for understanding what these groups really need and work with them and other stakeholders on the use of data for solving their problems.

There are simple channels to inform possible beneficiaries and promote the use of data through services that offer direct options for the poorest and most vulnerable or those who represent them. These types of channels should be part of the discussion on how to reach those who do not have access to any information and communication technology.

A data revolution for sustainable development

The need for a 'data revolution' was first expressed by the High-Level Panel appointed by the former Secretary-General of the United Nations Ban Ki-moon to advise on the global development agenda after 2015. According to the High-Level Panel report:

“Better data and statistics will help governments track progress and make sure their decisions are evidence-based; they can also strengthen accountability. This is not just about governments. International agencies, CSOs and the private sector should be involved. A true data revolution would draw on existing and new sources of data to fully integrate statistics into decision making, promote open access to, and use of, data and ensure increased support for statistical systems.”
(HLP Report, P24)

The Panel drafted a report: A World That Counts - Mobilising The Data Revolution for Sustainable Development.⁷ At the first United Nations World Data Forum in January 2017 in Cape Town, South Africa⁸, the "Cape Town Global Action Plan for Sustainable Development Data" was developed, it stipulates three specific key actions⁹ related to open data (pages 4-5):

1. Explore ways of revising the Fundamental Principles of Official Statistics to include relevant and appropriate aspects of open data initiatives;
2. Clarify and support the role of the national statistical systems in open data initiatives, consistent with the Fundamental Principles of Official Statistics;
3. Encourage national statistical offices to embrace the open data initiative and ensure stakeholders of the national statistical system as part of part of the process.

It is critical to embed a commitment to realize the opportunities that open data provide into the SDG implementation strategies. Based on the national priorities for sustainable development, a country needs to identify its own data priorities and how to use data to produce information that enables the successful implementation monitoring and evaluation of the SDGs. In many countries, assistance from the

⁷ Independent Expert Advisory Group, A World That Counts report, 2014, www.undatarevolution.org/report

⁸ United Nations, UN World Data Forum, 2017, www.undataforum.org

⁹ United Nations, Cape Town Global Action Plan for Sustainable Development Data, 2017, undataforum.org/WorldDataForum/wp-content/uploads/2017/01/Cape-Town-Action-Plan-For-Data-Jan2017.pdf

international community may be instrumental to evolve towards OGD and improve the statistical system and availability of data.¹⁰

Learning materials N. 1.2: OGD for Sustainable Development

Focus: social, economic and environmental benefits of OGD in relation to sustainable development.

- 1.2.a Trainer Guidance: [OGD for Sustainable Development](#)
- 1.2.b Presentation: [Open Government Data for Sustainable Development](#)
- 1.2.c Presentation: [Social, economic and environmental benefits of OGD](#)
- 1.2.d Learn more about the [Sustainable Development Goals](#)
- 1.2.e Learn more about the [Data Revolution](#)
- 1.2.f Watch this video from the ODI: [What can open data do for you?](#)

How to approach an OGD initiative?

There is a consensus among OGD practitioners that to result in positive social, economic and environmental outcomes, OGD initiatives should follow an *'Ecosystem Approach'*¹¹ which creates an enabling environment on eight dimensions:

1. Government commitment;
2. Policy/legal framework;
3. Institutional structures, responsibilities and government capabilities;
4. Government data management policies and procedures;
5. Demand for OGD;
6. Civic engagement and capabilities for OGD;
7. Funding of the OGD programme;
8. National technology and skill infrastructure.

Evidence¹² from the evaluation of OGD initiatives shows that successful and sustainable OGD initiatives build on three key groups or 'layers' within society:

¹⁰ National statistical systems play a central role in the measurement of progress on the SDGs at the global level through collecting and providing data and metadata for 232 global indicators that were agreed upon at the 48th session of the United Nations Statistical Commission in 2017, and was adopted by the General Assembly in July 2017 as part of the resolution on data and statistics for the 2030 Agenda. United Nations Statistical Commission, Report of the Inter-agency and Expert Group on Sustainable Development Goal Indicators, E/CN.3/2017/2 and General Assembly resolution on the data and statistics for the 2030 Agenda, A/RES/71/313.

¹¹ Introduced by ODRA Assessment of the World Bank, opendatatoolkit.worldbank.org/en/odra.html

¹² TAI, Open Data Study, www.transparency-initiative.org/uncategorized/492/open-data-study-new-technologies

- An influential and active civil society ('bottom-up layer') that provides grassroots pressure for change. This can be achieved through traditional advocacy and/or by setting up innovative websites and demonstrating how OGD could be used for promoting sustainable development;
- Civil servants and administrators who see OGD as a way to improve efficiency ('middle layer');
- High-level government leaders, including Heads of States and Ministers, who provide political commitment and support ('top-down layer').

Inclusive and participatory process

Creating an inclusive and participatory process for planning, designing, implementing and evaluating an OGD initiative is pivotal for its success and sustainability. This will allow all concerned stakeholders to be involved and have an opportunity to express their views (this ensures that the initiative responds to the needs of stakeholders). If these conditions are met, it is likely that the OGD initiative will meet the public demand and will help generate positive effects on sustainable development.

Collaborative practices, including information sharing, participatory planning and decision-making, are useful routes to creating initiatives and partnerships for attaining shared goals. This does not mean that governments give up control. It is about engaging people, communities and other stakeholders, early and often, to take into account their diverse views.

Learning materials N.1.3: How to approach an OGD initiative
Focus: Ecosystem Approach for sustainable OGD initiatives.

→ 1.3.a Presentation: [How to approach an OGD initiative](#)

→ 1.3.b Trainer guidance: [How to approach an OGD initiative](#)

Section 2: Assess OGD readiness

The OGD assessment methodology developed by UN DESA/DPADM is designed to support governments, civil society and other stakeholders to assess the specific conditions for the implementation of OGD initiatives at the national and/or at the sub-national level. The objective of this assessment is threefold:

1. **Help understand the specific local context** (including enabling factors, obstacles and their implications) for the introduction of OGD initiatives. It helps identify opportunities and challenges, in order to formulate appropriate actions and policies to address them;
2. **Build a baseline information** and facilitate knowledge sharing and capacity building;
3. **Assist in defining an action plan** for the implementation of OGD initiatives by exploring key elements along the eight dimensions of sustainable OGD ecosystems, namely: government commitment; policy/legal framework; institutional structures, responsibilities and government capabilities; government data management policies and procedures; demand for OGD; civic engagement and capabilities for OGD; funding of the OGD programme; as well as national technology and skill infrastructure.

Because there is no single model for OGD, actions and plans need to be adapted to the context including the institutional setting as well as the legal and regulatory framework for policy and implementation existing in each country. In general, implementing OGD policy and programmes across multiple government agencies requires the establishment of a governance framework which fits the country context. This could include a working group on OGD with representatives from key government agencies, CSOs, academia, media and private sector. The working group may nominate a small and agile task force (e.g. a steering committee) which should ensure daily follow-up to the OGD initiative. The task force should be responsible for drafting the OGD action plan and coordinating all required activities.

Also critical is to understand the situation regarding statistical capacities and availability of quality data in the statistical office and other institutions.

Readiness assessment and related methodology

The methodology builds on the rich experience of practice and combines elements of the Guidelines on Open Government Data for Citizen Engagement (OGDCE Guidelines) developed by UN DESA/DPADM¹³, the Open Data Readiness Assessments (ODRA)¹⁴ from the World Bank, and the OURdata Index on OGD from the OECD¹⁵.

The methodology follows a multi-method approach, combining literature review and media monitoring, desk research, survey work, a self-assessment tool, expert interviews (semi-structured, open ended and informal), in-country visits, and stakeholder workshops.

The methodology contains three elements:

1. **Self-assessment tool:** A self-assessment tool designed to quickly assess the key factors in relation to the introduction of an OGD initiative within a country, including specific opportunities and challenges;
2. **Perception survey:** A short survey designed to capture people's perception of the supply and demand sides of OGD in a country and the general conditions for the implementation of OGD programmes;
3. Desk research and **interview questionnaire:** A desk research provides quantitative and qualitative data in preparation for expert interviews during in-country visits and workshops. The questionnaire is used as a guideline for conducting the interviews with country and domain experts.

¹³ UN DESA, OGDCE Guidelines, 2013, publicadministration.un.org/en/ogd

¹⁴ World Bank, Open Data Readiness Assessment (ODRA), 2015, V3.1, opendatatoolkit.worldbank.org/en/odra.html

¹⁵ OECD, OURdata Index on OGD, 2015, www.oecd.org/gov/digital-government/open-government-data.htm

These elements are complementary and build on each other. None of the elements is designed to be used as a stand-alone. The results from all three measures should inform the final product of the assessment, which is an OGD assessment report.

In other words, the assessment should point people to areas that require more attention and more in-depth analysis. The assessment does not provide any legal advice; nor is it designed to deliver final recommendations. Instead, it highlights opportunities and identifies gaps and challenges that need to be discussed with all stakeholders in a collaborative process to formulate recommendations and define appropriate actions.

Learning materials N. 2.1: OGD Readiness Assessment
Focus: Assessing and understanding the OGD context.

- 2.1.a Presentation: [OGD Readiness Assessment](#)
- 2.1.b Trainer guidance: [OGD Readiness Assessment](#)
- 2.1.c [OGD Assessment Methodology](#)

Section 3: Strategize and plan

OGD Strategy and action planning

An *OGD strategy* is a high-level policy paper that sets a long-term vision for an OGD initiative and formalizes government commitment in this domain. Based on an assessment of local conditions, which can be supportive or challenging for such an initiative (please refer to Section 2 of this Guide), the strategy should provide guidance on designing policies and prioritizing actions that are suitable to achieve the vision aligned with the country's national strategy. The latter may also include SDGs embedded into national policy priorities.

An *OGD action plan* is an implementation plan that should set ambitious but realistic goals and spell out resources¹⁶, activities, timeline, outputs, and indicators to achieve the long-term vision set in the strategy.

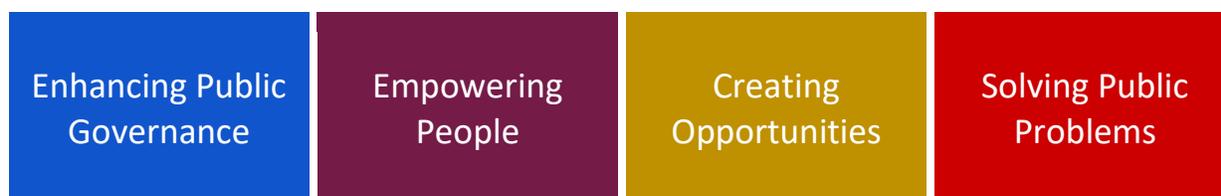
It is recommended that both the strategy and the action plan be designed through an inclusive multi-stakeholder process that follows the Design Principles for Digital Development¹⁷. This is important to ensure stakeholder engagement and commitment to work together to meet shared OGD goals. It is also critical to ensure that the strategy reflects the national context.

OGD Strategy

¹⁶ This exercise would benefit from an assessment of the resources available to implement an OGD programme.

¹⁷ Digital Development Principles Working Group, 2009. Design Principles for Digital Development, www.digitalprinciples.org

While designing an OGD strategy, it is important to start by thinking about the goals, e.g. the positive social, economic and environmental impacts which the strategy aims to achieve. Hence it is imperative to identify national priorities aligned with the 17 SDGs. These priorities can focus on different areas such as:



Source: Adapted from Open Data's Impact Repository – odimpact.org

An OGD strategy that prioritizes “enhancing public governance” will focus on the release of different datasets and will require different actions compared to a strategy that prioritizes, for instance, “empowering people” or “creating opportunities” or “solving public problems”.

Setting priorities for an OGD strategy, design and action plan is a process that may include:

1. Identifying and consulting with all relevant stakeholders;
2. Understanding where to start from (e.g. conduct an OGD assessment);
3. Establishing shared long-term vision;
4. Initiating a deliberative process to set priorities;
5. Agreeing on ambitious but realistic goals;
6. Defining in detail each goal in a collaborative manner;
7. Establishing mechanisms for carrying out iterative implementation with feedback loops and evaluation;
8. Establishing mechanisms for reviewing priorities and redefining actions.

OGD is a resource that cuts horizontally across different policy areas. With this in mind, making data available in open formats is only the initial step rather than an end goal of a public policy. An OGD initiative is a prerequisite to and/or enabling component for other policies, national development priorities and specific SDGs and Targets.

Learning materials N. 3.1: OGD Strategy design

Focus: Designing and implementing an OGD strategy and action plan.

- 3.1.a Presentation: [OGD strategy for sustainable development](#)
- 3.1.b Presentation: [OGD action plan design](#)
- 3.1.c Trainer guidance: [OGD action plan design](#)
- 3.1.d [OGD Strategy and action plan blueprint](#)

→ 3.1.e See also the [policy guidelines for OGD from Sunlight Foundation](#)

OGD Action Plan

An OGD Action Plan needs to be developed based on an OGD strategy that sets the vision for OGD development and the priorities for action planning. The action plan should be ambitious but realistic at the same time. To understand to what extent the plan is ambitious in a given national context, one needs to fully understand such context, including the challenges and opportunities to formulate policy and actions (please refer to Section 2 of this Guide).

The heart of an action plan is a list of specific goals that are well-defined, using S.M.A.R.T. goal methodology.¹⁸ Each goal should be:

- Specific;
 - Well-defined
 - Clear to anyone that has a basic knowledge of the project
- Measurable;
 - Knowing if the goal is obtainable and measuring progress towards completion
 - Finding out when the goal has been achieved
- Agreed upon;
 - Agreement with all the stakeholders on what the goals should be
 - Attainable and action-oriented
- Realistic;
 - Within the availability of resources, knowledge and time
 - Relevant and results-oriented
- Time-based.
 - Sufficient time is allocated to achieve the goal
 - Timeline with milestones are set to track progress

The OGD action plan should include commitments on three key areas:

1. OGD release (these will include specific commitments regarding the institutional and regulatory framework, financing as well as data management and publication processes);
2. OGD ecosystem (these will include specific commitments to strengthen the community of current and potential data users, and OGD reuse);

¹⁸ S.M.A.R.T. goal methodology: Specific, Measurable, Agreed Upon, Realistic, Time-Based, see: en.wikipedia.org/wiki/SMART_criteria

3. Monitoring, evaluation and learning (these will include specific commitments on how to monitor, evaluate and learn from the implementation of the OGD plan that should be complemented by indicators identified for the two previous commitment areas).

Section 4: Conduct training on opening government data

OGD Step-by-Step Guide for government implementers

The following guide consists of thirteen essential steps to identify, prioritize, prepare and publish OGD. Each of the steps provides the basic information and recommendations needed to move forward. The step-by-step guide is designed for government officials in charge at the level of data holding agencies.

Before starting to plan for an OGD initiative

Before starting to plan for an OGD initiative it is recommended thinking about opening data as a process that leads to change and can create social, environmental and economic value within government and society. Publishing government data is not just about technology and data. To be useful, OGD needs to be used. So, this process needs to start with a reflection on the potential users of data and the ways data might be made useful for others. The reflection should also include possible intermediaries that can help turning data into useful analysis, visualizations or tools. With this in mind, the following steps can be followed as a simple guide to OGD.

Step 1 - Start small and keep it simple

Numerous agencies have started their OGD initiative with few but relevant datasets. Limiting data volume helps thinking and acting in an agile manner.

It is recommended that the official in charge for the OGD programme within a government's agency should:

- Get early feedback on shared data;
- Create awareness of the new platform among co-workers;
- Learn from feedback and change the approach as needed.

'Keep things simple'. An agency official in charge of the OGD programme does not need to try to do everything at the same time. A step-by-step and iterative approach should be followed to enable learning and improving over time. The official should not worry too much about technology; there are several tools and platforms that help streamline this process.

Learning materials N. 4.1: How to start?
Focus: Lean and agile approach.

→ 4.1.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.1.b See also [Open Data Handbook, section how to open up data](#)

Step 2 - Understand supply and demand

OGD programmes can build on established digital data sources and information management procedures within government (supply). Where data is only available in paper form, it will be hard to release it in an open and reusable format quickly and cheaply. Conversely, good existing information management practices within government can make it much easier to find data (including the associated metadata and documentation) and assess the requirements for releasing it as part of day-to-day information management processes.

Data being published needs to be clear and user-friendly. To this end, it is important to understand the needs of existing or potential OGD users (i.e. “OGD demand”). This requires inviting prospective data users to roundtables together with agency officials responsible for the supply of data to be published. Data supply needs to be compared with data demand to identify potential gaps. This gap analysis will help making specific recommendations for future data generation and publication to ensure its usefulness including the poor and most vulnerable people.

It is recommended that the official in charge for the OGD programme within a government’s agency should:

- Identify potential users of the agency’s data;
- Connect data consumers and data producers;
- Listen to their demands;
- Identify potential gaps between supply and demand;
- Inform future data collection and publication accordingly.

This is not a one-time exercise; it should rather be done in an iterative way. Collecting users’ feedback periodically and using it for further improvement is recommended to ensure the continued relevance of OGD. This also has positive effects on sustaining the demand and use of the agency’s data.

Learning materials N. 4.2: Understanding OGD supply and demand

Focus: Understanding supply and demand to identify gaps.

→ 4.2.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.2.b See also [ODI Guide on engaging reusers](#)

Step 3 - Choose and prioritize datasets

Starting by publishing all data at the same time is not easily doable. Thus, it is recommended to prioritize the datasets the agency intends publishing first. Priority should be given to those datasets that have the best balance between being:

- Available for publishing (the low hanging fruits);
- Datasets of high-quality;
- Datasets for which there is high demand;
- Useful to meet specific SDGs and other national priorities.

Having this balance increases the chance that data will be reused immediately after its publication. This is important because it generates the kind of quick success stories that are helpful to get support for the process of opening more datasets.

Learning materials N. 4.3: Prioritization of data
Focus: Identifying and prioritizing data for publication.

- 4.3.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)
- 4.3.b See also the [ODI Guide on how to prioritize data to drive global development](#)
- 4.3.c See also the [Global SDG Indicators Database](#)¹⁹ to identify and prioritize datasets

Step 4 - Protect privacy

Privacy is an internationally recognized human right²⁰. The right to privacy encompasses the right to protection of personal data. Some government datasets (e.g. statistical data) are based on individual data about the population. Privacy of personal information as well as confidentiality in national security need to be protected when publishing OGD. It is critical to use anonymization techniques to make sure that no personal data appears in the dataset before publication.

It is recommended that the official in charge for the OGD programme should make sure that:

- The agency's open dataset does not contain personal data;
- If the dataset has been *anonymized*, it cannot be de-anonymized.

There are established techniques on data anonymization. However, there are also methods to de-anonymize data (for example removing individuals' names while leaving identification numbers that could be linked to numbers in a separate dataset). It is important to ensure that the method used for anonymization is effective against de-anonymization. In case of uncertainty on whether the dataset meets the standards of privacy and data protection, it is recommended to seek expert advice. Usually, the National Statistical Office or relevant agency should be able to provide advice on this issue.

On matters pertaining to national security and risk management, governments may need to define a schema of classified data to be excluded from their data catalogues.

Learning materials N. 4.4: Privacy and anonymization

¹⁹ UN, Global SDG Indicators Database, 2016, unstats.un.org/sdgs/indicators/database

²⁰ Over 150 national constitutions that mention this [right](#).

Focus: Understanding the importance of protecting personal data.

- 4.4.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)
- 4.4.b See also the [ODI Guide on Anonymization and risk control of publishing personal data](#)
- 4.4.c See also [The Right To Privacy in the Digital Age](#)

Step 5 - Add context

Context will give re-users a better understanding of the OGD. This context is usually contained in *metadata*. Metadata may include:

- Title;
- Description;
- Keywords;
- Legal information;
- License and attribution required;
- Geographical and temporal coverage;
- Granularity and completeness;
- Date of publication, when data was last modified and updating frequency requirement.

This information will help users better understand the content of data, how to interpret it and if it meets the user's specific needs. In some cases, more detailed documentation on how the data was collected and aggregated might be desirable to further guide the user.

Learning materials N. 4.5: Adding context and metadata

Focus: Adding context to help users understand data content and potential use.

- 4.5.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)
- 4.5.b See also the [W3C Data on the Web Best Practices, section: metadata](#)

Step 6 - Structure data

To be used and reused, OGD should be available in well-structured and standard formats. It is important to ensure that data be provided in a format that allows interoperability. To this end, data should be exported in one or several of the following structured formats:

- XML;
- XSL;
- CSV;
- JSON and GeoJSON;
- RDF.

This way data can be processed automatically by machines (sometimes referred to as *machine readability*). Unstructured information such as handwritten documents, or formats like Microsoft Word, *PDF*, or scanned images are not considered open data.

Learning materials N. 4.6: Structured data and data formats

Focus: Choosing structured data formats to ensure machine readability.

→ 4.6.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.6.b See also the [W3C Data on the Web Best Practices, section: data formats](#)

Step 7 - Select an open license

Explicit licensing is mandatory when publishing OGD so it can be reused by anyone for any purpose, including commercial reuse, without any restrictions. It is recommended to use a well-established license for Open Data to maximize *interoperability*. Examples include:

- Public Domain Dedication;
- Creative Commons Zero;
- Creative Commons Attribution 4.0;
- Creative Commons Attribution-Sharealike 4.0.

It is accepted practice to ask for attribution, but it is advisable to keep this as minimal as possible, e.g. name of the agency and a link to the license text.

Learning materials N. 4.7: Open licensing

Focus: Making data legally open by choosing an open license.

→ 4.7.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.7.b See also the [ODI Publisher's Guide to Open Data Licensing](#) and the Open Definition²¹ and a list of open licenses²² suitable for the publication of OGD.

Step 8 - Publish data online

OGD is truly open when it is easily retrievable and accessible. To start with, it is fine making data available for download on a simple website or on a *FTP server*. However, this does not automatically mean that the data can be easily found. Improving access to data requires to:

- Make it available online or set up a portal;

²¹ Open Knowledge International, 2008. Open Definition, opendefinition.org/od/2.1/en

²² Open Knowledge International, 2008. List of Conformant Licenses, opendefinition.org/licenses

- Have access to it for free and anonymously (e.g. through a non-mandatory sign-up to a website/portal).

To increase the accessibility of a public agency's data, it is recommended to publish such data into a Open Data portal. This portal will allow gathering data in one single place and easily generating visualizations and *Application Programming Interfaces (APIs)*. End-users will also be able to readily browse through datasets and use an advanced search for specific data.

Learning materials N. 4.8: Publishing data online

Focus: Smart ways to publish data on the web.

→ 4.8.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.8.b See also the [Open Data Handbook, section: making data available](#)

Step 9 - Ensure data accessibility and availability

Using consistently *Uniform Resource Identifier (URI)* for any published dataset ensures that the data can be accessed under the same *Uniform Resource Locator (URL)* on the Internet over time. It is also advisable to make datasets available for bulk download (for example as an export of an entire database). A way to strengthen data availability is through generating *APIs*. In this regard, it is important to:

- Use persistent URIs as identifiers for datasets downloads;
- Make data available as *bulk download*;
- Make data available via well documented APIs.

APIs allow re-users to build applications around data. Thanks to APIs, every time the originating agency updates its dataset, it will synchronize up with applications from third parties. APIs are particularly useful for making real-time data accessible. Although APIs ease OGD reuse, they should not replace bulk download.

Learning materials N. 4.9: Data accessibility and availability

Focus: Ensuring data accessibility and availability.

→ 4.9.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.9.b See also the [W3C Data on the Web Best Practices, section: data access](#)

Step 10 - Raise users' awareness about agency's data and listen to their feedback

Once the data is made available online, the data holding agency needs to make sure that the public is informed about it. This allows for OGD to get the attention it deserves and to be used. This requires to:

- Tell "the world" about published data;

- Ask feedback for future improvements.

It is important that the agency receives feedback from data users and uses this information for continuously improving data. Recommended modalities for engaging with potential reusers include social media or follow-up roundtables.

Learning materials N. 4.10: Socializing data and creating feedback channels
Focus: Promoting data and creating feedback channels

- 4.10.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)
- 4.10.b See also [Open Data Handbook, section: tell the world](#) and [ODI guide Engaging with reusers](#)

Step 11 - Foster data reuse

It is important to remember that data is published so it can be reused to create value. The agency needs to engage with potential reusers and intermediaries to help them making data useful for others, including vulnerable segments of the population, who may not otherwise benefit from this information. To this end, it is recommended investing time and resources in dedicated programmes that foster reuse uptake. This may include:

- Promote the reuse of data via *hackathons*, workshops or conferences;
- Engage with new intermediaries including those from the private sector and civil society, to expand data outreach and enhance its usefulness;
- Foster reuse by dedicated programmes like mini-grants and fellowship programmes, or business incubators, accelerators.

It is advisable going beyond hackathons and partnering with other stakeholders to set up dedicated programmes. These, in turn, support entrepreneurs and startups to engage with agency's data to develop new services and applications. Every successful business that has been built on data published by an agency is a success for the agency as well.

Learning materials N. 4.11: Fostering reuse
Focus: Promoting and supporting the reuse of data

- 4.11.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)
- 4.11.b See also the [Mckinsey report: How government can promote open data](#)

Step 12 - Improve data skills

Data can be useful not only to the public, but also (and mainly) to the agency which publishes it as well as other government agencies. Publishing data following open data principles makes it easier to access and

reuse it. However, government officials need adequate technical and data analytical skills to effectively use OGD. To this end, a government agency needs to:

- Introduce capacity development programmes to leverage its officials' technical and data analytical skills;
- Help other government agencies to understand and use its data.

Because capacities on *data literacy*, *data management* and *data analysis* need to be enhanced within many different types of organizations both inside and outside government, it is highly recommended to explore potential collaborations among OGD national stakeholders around capacity development.

Learning materials N. 4.12: Improving data skills

Focus: Data management and analytical skills.

→ 4.12.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.12.b See also data training by the [School of Data](#), and the [ODI training courses](#)

Step 13 - Keep data fresh and preserved over time

Outdated datasets often become useless. So, it is critical to update data whenever possible and publish it under a dedicated new version that it is clearly different from the previous ones²³. This does not mean “unpublish”/remove access to older versions. In some cases, it is essential that historical data remains available for comparison. So, it is highly recommended to ensure long term preservation and availability of data over time. In sum, it is important to:

- Keep data fresh;
- Use *version control* for updating data;
- Ensure long term preservation and availability over time.

OGD is a long-term contribution to the community it serves. This requires long term commitment, it takes time, human and financial resources and energy but it won't be long before the agency can benefit from its OGD and leverage it to enhance its responsiveness to the public it serves.

Learning materials N. 4.13: Updating, versioning and long-term preservation of data

Focus: Data freshness and preservation.

→ 4.13.a Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 4.13.b See also the W3C Data on the Web Best Practices, sections: [data versioning](#) and [data preservation](#)

²³ New versions do not replace historical older versions. Instead all versions are archived and the changes between them are stored in a track record file. This allows having complete transparency regarding changes made to previous versions.

Repeat the Sequence

Once an agency has successfully gone through the essential steps of identifying, prioritizing and publishing some datasets in open formats, OGD can be promoted and reused. The agency should analyze feedback from users to make adjustments and improvements. Agencies can also receive feedback from the potential reusers about existing demand for other datasets. This provides input for the next round of datasets to be identified, prioritized and published as OGD.

Learning materials N. 4.14: Data prioritization, preparation and publication

Focus: Preparing for data publication.

→ 4.14.a Presentation: [Data prioritization, preparation and publication](#)

→ 4.14.b Trainer guidance: [Data prioritization, preparation and publication](#)

Learning materials N. 4.15: Privacy and anonymization and data publication

Focus: Anonymizing data for publication.

→ 4.15.a Presentation: [Privacy and anonymization](#)

→ 4.15.b Trainer guidance: [Privacy and anonymization](#)

Learning materials N. 4.16: Data publication

Focus: Publishing OGD on the web.

→ 4.16.a Presentation: [Data publication](#)

→ 4.16.b Trainer guidance: [Data publication](#)

Section 5: Promote and reuse data for sustainable development

As mentioned earlier in this Guide, opening data is not a goal in itself; data needs to be used to create value in society. Different stakeholders engage with data to make it useful as follows:

- Governments: embrace OGD and modern technologies to leverage innovation, data-driven decisions, public service improvement, and new forms of collaboration to address social, economic and environmental complex problems;
- New intermediaries: build capacity to educate and empower a new generation of intermediaries (e.g. the media, NGOs and CSOs), to help turning data into meaningful and useful information for people, including the poor and most vulnerable;
- Advocacy organizations: support civil society organizations and think tanks to make effective use of data for evidence-based advocacy;
- Civic technologists: use OGD and technology to help build tools for inclusive and sustainable societies;
- Start-ups and innovators: support the commercial uptake of OGD reuse via dedicated incubation programmes to foster innovation, economic growth and job creation.

Various measures that need to be taken for sustaining the OGD ecosystem include: a) communication and outreach; b) promoting specific usages of OGD; c) sustaining reuse community engagement and building models of partnerships; d) using social networking services for greater outreach; and e) communication and feedback loops with stakeholders.

OGD platforms can provide information to social innovators and entrepreneurs in order to help them generate innovative ideas that help fighting poverty and empowering the poorest. Some examples include:

- Promoting better education of farmers and consumers about agriculture and nutrition while raising awareness of vulnerable groups' needs;
- Assisting people to more rapidly access health care facilities and/or addressing health epidemics in a more effective way;
- Improve policies and management of educational institutions for enhanced education through availability of data about schools' performance;
- Helping to address the needs of women in underprivileged areas through e.g. better access to and quality of key services based on OGD;
- Better access to information about water facilities and quality of water, and dissemination of data about water-borne diseases in specific locations;
- Better monitoring and management of energy, improved investments in renewable energy infrastructure and educating people about the importance of conserving energy.

Design OGD pilot projects

The implementation of pilot projects may be required around the use of OGD for creating value within society. The aim of these projects is to respond to latent demand and enable more responsive public services. When valuable and required data is available, national stakeholders have the means to create solutions (e.g. applications that use this data to provide a public service). However, the mere fact of making data available does not ensure that it will be immediately used by stakeholders. Designing and implementing a pilot project may be useful to identify “tools and resources available to help start-ups research ideas, experiment with options, or test prototypes²⁴”.

OGD pilot projects should be discussed with stakeholders and evaluated against the following criteria:

- Availability of data;
- Ease of release as open data;
- Ease of implementation;
- Relevance to solving specific problems;
- Relevance to the country's national development strategy and the SDGs;

²⁴ Don Lenihan, Canada 2020, <http://canada2020.ca/wp-content/uploads/2017/06/Open-Dialogue-June-13-2.pdf>

- Availability of government champions.

Ideally pilot projects should be aligned with one of the main objectives of OGD (please refer to Section 1 of this Guide).

Deliberative techniques such as design thinking, roundtables/workshops, and online surveys are recommended for the design of the pilot projects. These techniques help gathering information on stakeholders needs and involving them into the process right from the onset. It is further recommended to use agile project planning methods to create a clear understanding of the problem the project aims to solve. This process includes understanding challenges, beneficiaries, stakeholders and their interests, analyzing how data can be used, setting S.M.A.R.T. goals with performance indicators, and defining the iterative approach and success metrics to be adopted in collaboration with stakeholders.

For the actual implementation of pilot projects, the iterative approach needs to have usability testing and various stakeholder feedback loops. For the technical development, it is recommended to use collaborative platforms like versioning control systems and issue trackers for managing tasks.

Step-by-step approach for designing OGD pilot projects

1. Identify a potential societal problem that could be solved through the use of data;
2. Initiate a multi-stakeholder round table (including all individuals affected by the problem or who may have a solution for it e.g. CSOs and those who have the data that is needed as part of the problem solving). The round table has two outputs:
 - a clear problem statement (describing the problem and the approach to solve it), and
 - a detailed list of what data and in what quality/granularity/format is needed
3. Initiate a parallel process, by sending expert teams to:
 - provide technical assistance and training to data producing agencies to open identified datasets;
 - provide capacity building for the reuser group aligned with the problem statement;
 - arrange events (data expeditions, hackathon, workshops, etc.) to produce data-based products (analytical reports, applications, etc.) to solve the problem identified.
4. Evaluate and disseminate the results to stakeholders and the general public.

Step-by-step approach for designing OGD collaboration projects at the agency level

1. Identify and list problems that the agency intends to solve/could be solved with the help of data (e.g. lack of use of key information, data analytics, lack of participation, weak service delivery, difficulties to communicate, etc.);
2. Identify and list stakeholders with whom the agency could interact and link them with the specific problems previously identified. The actors could be government agencies, civil society organizations, private companies, academia, international organizations, among other stakeholders;

3. Conduct a multi-stakeholder round table, discuss the problems and broadly describe how stakeholders could be engaged using data. Problems that connect many stakeholders represent an opportunity for publishing data and fostering collaboration; and actors that are connected with many problems represent an opportunity for a deeper collaboration;
4. Select the problem or problems with greater opportunity of action and results, and initiate a collaboration project with the corresponding stakeholder or stakeholders. The project should follow an agile project methodology and closely work with the concerned individuals.

Learning materials N. 5.1: Promote and reuse data for sustainable development

Focus: Promotion and reuse of data

→ 5.1.a Presentation: [Promote data reuse for sustainable development](#)

→ 5.1.b Trainer guidance: [Promote data reuse for sustainable development](#)

→ 5.1.c Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 5.1.d Additional information: [UN E-Government Survey 2016](#)

Learning materials N 5.2: Pilot project design

Focus: Design of OGD pilot projects

→ 5.2.a Presentation: [OGD Pilot project design](#)

→ 5.2.b Trainer guidance: [OGD Pilot project design](#)

→ 5.2.c [OGD pilot project planning template](#)

→ 5.2.d [Prioritization template – group work methodology](#)

Section 6: Monitor and evaluate

The task of conducting monitoring and evaluation is important for sustainable OGD action plans because it allows stakeholders to:

- Understand the initiative's progress;
- Learn from experience and generate new capacities;
- Identify opportunities for improvement;
- Enhance accountability of the implementation and use of resources;
- Review and test assumptions that were identified at the beginning;
- Improve processes and policies;
- Better understand the relations between OGD publication and reuse;
- Ensure institutional memory; and
- Generate evidence to obtain support at the different levels to continue with implementation.

For this reason, different sets of indicators need to be defined for the OGD action plan. Each goal and commitment requires its own set of qualitative and quantitative indicators to ensure that implementation of the plan is moving in the right direction. Defined indicators also need to respond to the different stages of the implementation plan. This allows taking corrective actions as needed.

It is recommended that the set of monitoring and evaluation indicators of the OGD action plan (as it is done for identifying goals and commitments) be collectively defined and agreed upon with stakeholders. This will enable higher support for the implementation, evaluation and response actions. In the same manner, OGD stakeholders will also need to participate in the evaluation process and accept to bear responsibility for correcting what has been collectively agreed as necessary.

Even when there is high participation from the national OGD ecosystem stakeholders, feedback that may come from other parties (i.e. actors that are external to the OGD development process) should not be limited. This feedback can play an important part when conducting a monitoring and evaluation exercise. Thus, giving and receiving constructive feedback should be encouraged and embraced.

Define a set of monitoring and evaluation indicators

When selecting the different indicators that will measure the implementation of the OGD action plan, it is important to consider that there are indicators for different purposes. Some of them aim to measure inputs; others measure activities, and so on. Combining indicators from all the following categories helps conducting a comprehensive evaluation at all stages:

Type of Indicator	Inputs	Activities	Outputs	Outcomes	Impacts
Indicator that answers the question:	What resources are required?	What activities are required?	What does the project produce?	What are the short-medium term benefits?	How does the project contribute to strategic goals?
Explanation - Indicator that allows to:	Check that the assigned resources are used as defined	Check that the planned activities are being implemented	Check that inputs and activities are generating the expected outputs. If not, there is a need to make adjustments	Assess whether the outputs allow reaching the expected outcomes. If not, there is a need to make adjustments	Assess whether the outcomes contribute to achieving the strategic goals. If not, there is a need to make adjustments
Example of indicators	Estimate of financial and other resources	Organization of a capacity development workshop on OGD	Number of government officials trained Proportion of positive ratings on the training	Number and quality of datasets released through consultations between government and civil society organizations	Government officials' increased knowledge on OGD-related topics

Learning material N. 6.1: Monitor and evaluate

Focus: Understanding how to define indicators to monitor and evaluate OGD progress.

→ 6.1.a Presentation: [Monitor and evaluate](#)

→ 6.1.b Trainer guidance: [Monitor and evaluate](#)

→ 6.1.c Consult the UN DESA/DPADM [Guidelines on Open Government Data for Citizen Engagement](#)

→ 6.1.d Additional information:

<https://theodi.org/method-report-assessment-tools-for-open-data-initiatives>

Further information

Further information and support regarding OGD matters may be obtained by contacting the Division for Public Administration and Development Management of the United Nations Department of Economic and Social Affairs at: dpadm@un.org

Glossary

Application Programming Interface (API) - is a set of routines, protocols, and tools for building software applications. An API specifies how software components should interact.

Bulk download - enables a download of an entire database/dataset and also provides the option, for example to select specific countries and other data fields.

Comma separated files (CSV) - allows data to be saved in a table structured format. Such files can be useful as they are typically compact and thus suitable to transfer large sets of data with the same structure. However, the format is not consistent so such data is often useless without documentation. It is therefore important that documentation of the individual fields is accurate for the comma-separated formats. Furthermore, it is essential that the structure of the file is respected, as a single omission of a field may affect the interpretation of remaining data in the file without any opportunity to rectify the error.

Data analysis - also known as analysis of data or data analytics, is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making.

Data anonymization - is the process of information sanitization with the intent of privacy protection. It is the process of either encrypting or removing personally identifiable information from data sets, so that data remain anonymous and free of private information.

Data literacy - is the human ability to derive meaningful information from data, just as literacy in general is the ability to derive information from the written word. The complexity of data analysis, especially in the context of big data, means that data literacy requires some knowledge of mathematics and statistics.

Data management - is the development and execution of data architectures, policies, practices and procedures to manage the information lifecycle needs of an enterprise in an effective manner.

File Transfer Protocol (FTP) - is an Internet protocol for transmitting and sharing files between computers. Remote computers can connect anonymously, if allowed, or with a username and password in order to download files from FTP server using a FTP Client software.

HTML - refers to HyperText Markup Language. It is a common web data format. This may well be sufficient if the data is very stable and limited in scope. In some cases, it could be preferable to have data in a form easier to download and manipulate, but as it is cheap and easy to refer to a page on a website, it might be a good starting point in the display of data. Typically, it would be most appropriate to use tables in HTML documents to hold data, with various data fields and identifiers (IDs) to make it easy to find and manipulate data.

Interoperability - is the ability of different information technology systems and software applications to communicate and exchange data and information.

JSON - refers to JavaScript Object Notation. It is a simple file format that is easy for any programming language to read. Its simplicity means that it is generally easier for computers to process than others, such as XML.

Machine-readable formats - machine-readable means making any underlying data accessible for use by a computer-based process and not requiring human interpretation. Word document files are machine-readable in the sense that Word and other compatible programs can interpret the data and present it as text on a screen. Similarly, HTML is a standard format for displaying Web pages in a browser. But these need human interpretation to make sense of them. The key aspect for release of machine-readable formats data is that it can be extracted from any particular format and reused and repurposed by a computer program without human interpretation.

Metadata - means "data about data". Metadata is defined as the data providing information about one or more aspects of the data; it is used to summarize basic information about data which can make tracking and working with specific data easier.

Open and closed file formats - The formats in which information is published – in other words, the digital base in which the information is stored - can either be 'open' or 'closed'.

- An open format is one where the specifications for the software are available to anyone, free of charge, so that anyone can use these specifications in their own software without any limitations on reuse imposed by intellectual property rights.
- If a file format is 'closed', this may be either because the file format is proprietary and the technical specifications are not publicly available, or because the file format is proprietary and even though the specification has been made public, reuse is limited. If information is released in a closed file format, this can cause significant obstacles to reusing the information encoded in it, forcing those who wish to use the information to buy the necessary software.

Plain text - Plain text documents in formats such as .txt are generally machine readable. However, they exclude structural metadata, i.e. developers will need to create a parser that can interpret each data as it appears. There are also issues associated with switching plain text files between operating systems, as MS Windows, Mac OS X and other Unix variants have their own way of indicating the end of the line.

Privacy - Privacy can be defined as the presumption that individuals should have an area of autonomous development, interaction and liberty, a "private sphere" with or without interaction with others, free from State intervention and from excessive unsolicited intervention by other uninvited individuals. The right to privacy is also the ability of individuals to determine who holds information about them and how is that information used. (source: UN A/HRC/23/40)

Proprietary formats - are specific data formats used in some dedicated systems or applications. Information on these proprietary formats can usually be found, for example through a link to the supplier's website. Generally, it is recommended to display data in non-proprietary formats where feasible.

RDF - refers to resource description framework (RDF). It is a W3C-recommended format to represent data in a form that makes it easier to combine data from multiple sources. RDF data can be stored in XML and JSON, among other serializations. RDF encourages the use of URLs as identifiers, which provides a convenient way to directly interconnect existing open data initiatives on the Web. RDF is still not widespread but it has been a trend among Open Government initiatives, including the British and Spanish Government Linked Open Data projects. The inventor of the Web, Tim Berners-Lee, has recently proposed a five-star scheme that includes linked RDF data as a goal to be sought for open data initiatives.

Scanned image - is a pictorial image of a document with its full text content, available in various formats such as TIFF and JPEG-2000. While a scanned image is probably the least suitable form of data, it may be relevant for data that are not created electronically - for example, old church records and other archival material.

Spreadsheets - Many authorities create some form of data and information spreadsheet, for example Microsoft Excel, Google Sheets, etc. This data can often be used immediately with metadata defined by the column headings (identifiers). However, in some cases, for example, when macros and formulas are used in spreadsheets, such data form may be somewhat cumbersome to handle. It is therefore advisable to document such calculations in the spreadsheet itself to make it more accessible.

Text document - are documents in formats like Word, ODF, OOXML, or PDF. It is relatively cost-effective to produce text documents, but such format does not provide a consistent structure consistent across different platforms and applications, which often means that it is difficult to utilize automated means to read and enter data.

Uniform Resource Identifier (URI) - is a string of characters used to identify a resource. Such identification enables interaction with representations of the resource over a network, typically the World Wide Web (WWW), using specific protocols.

Uniform Resource Locator (URL) - a protocol for specifying addresses on the Internet. It identifies a particular file on the Internet, usually consisting of the Internet protocol, such as http, followed by the web domain name.

Version control - (also known as revision control or source control) is the management of changes to documents, computer programmes, large web sites, and other collections of information. This is to say a system that records changes to a file or set of files over time so that one can recall specific versions later.

XML - refers to Extensible Markup Language. It is a widely-used format for data exchange because it keeps the structure in the data in a consistent manner and allows developers to access parts of data without interfering with the rest.