OECD Digital Government Studies

Open Government Data Review of Mexico

DATA REUSE FOR PUBLIC SECTOR IMPACT AND INNOVATION

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BETTER POLICIES FOR BETTER LIVES

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Foreword

The Mexican National Open Data Policy, as part of the National Digital Strategy, has over a short period of time set a far-reaching and ambitious vision and objectives, and the current central administration has taken strategic decisions and invested resources to deliver policy results. This has taken place alongside Mexico's active involvement in the international open data community and undertaking of important global commitments, such as the adoption of the International Open Data Charter and the G20 Anti-Corruption Open Data Principles. As a founding member of the Global Partnership for Sustainable Development Data, Mexico has also helped highlight the critical value of open government data for the achievement of the United Nations' Sustainable Development Goals.

This *Open Government Data Review* was prepared by the OECD Secretariat at the request of the Mexican government to assess the current state of open data implementation in the country and provide guidance for further improvements. The Review's policy recommendations identify the main areas where opportunities could be exploited to capture the full potential of open data. The Review will contribute to developing a road map for designing and implementing open data initiatives that deliver benefits for the Mexican economy and society. At the request of the Mexican government, the Review includes a specific chapter on open government policies in Mexico.

The core message of this Review is that Mexico should focus its efforts on strengthening its open data "ecosystem" and on increasing the impact of open government data for national stakeholders. The Review offers recommendations for aligning the vision for open data set by the centre of government with the vision for public institutions and its broader open government agenda, and for further reaching, engaging and collaborating with key external actors. More active collaboration between visionary public institutions, civil society organisations, skilled entrepreneurs and civic innovators could increase the reuse of open data, leading to value co-creation. Building user communities around open data is one of the main challenges for the Mexican government, but it is essential for achieving real economic, social and governance benefits and for fully exploiting the value of open data for specific policy sectors.

The OECD *Open Government Data Review of Mexico* draws upon previous cross-country comparative assessments of open data and open government policies and initiatives in OECD member and partner countries, and was informed by the OECD 2015 *OURdata Index* (Open, Useful and Re-usable Government Data Index). The Review's analysis and policy recommendations are based on the OECD analytical framework for open government data laid out in the working paper "Open government data: Towards empirical analysis of open government data initiatives", and on the OECD *Recommendation of the Council on Digital Government Strategies*. The chapter on open government policies follows the methodology of the OECD Open Government Reviews. The OECD held a peer-review mission to Mexico in November 2015, and met with public officials from central and local public sector institutions, and with actors from the

social and private sectors and the media. Findings are also based on two surveys administered across public sector institutions within the Mexican administration, and across private, academic and social organisations involved in open data in the country. The Review's assessment and recommendations were discussed during the 2nd OECD Expert Group Meeting on Open Government Data in April 2016.

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This Review was prepared by the Public Governance and Territorial Development Directorate of the OECD. The mission of the Public Governance and Territorial Development Directorate is to help governments at all levels design and implement strategic, evidence-based and innovative policies to strengthen public governance, respond effectively to diverse and disruptive economic, social and environmental challenges and deliver on government's commitments to citizens.

This *Open Government Data Review of Mexico* was produced under the supervision of Barbara-Chiara Ubaldi, in charge of the Public Governance and Territorial Development's work on digital government, open government data and data-driven public sector. Strategic directions were provided by Edwin Lau, Head of the Public Sector Reform Division, and Luiz de Mello, Deputy Director of the Public Governance and Territorial Development Directorate.

Chapter 1 on open government in Mexico was written by Alessandro Bellantoni, Senior Policy Analyst and Project Manager, Open Government and David Michael Goessmann, Policy Analyst, Governance Reviews and Partnerships Division. Chapters 2, 3, 4 and 5 were written by Jacob Arturo Rivera Perez, Open Data Policy Analyst, with contributions to Chapter 3 on data-driven public sector from Charlotte van Ooijen, Policy Researcher and Adviser, Public Sector Reform Division. Chapters 2-5 benefited from contributions and revisions provided by Barbara-Chiara Ubaldi.

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Table of contents

Tables

Figures

Boxes

Acronyms and abbreviations

CDO	Chief Data Officer (General Direction of Open Data) *Dirección General de Datos Abiertos*
CEDN	Coordination of the National Digital Strategy *Coordinación de la Estrategia Digital Nacional*
CONAGO	National Conference of Governors *Conferencia Nacional de Gobernadores*
CSO	Civil society organisation
G2G	Government-to-government
ICDO	Institutional chief data officer
ICT	Information and communications technology
IEDA	Strategic Open Data Infrastructure *Infraestructura Estratégica de Datos Abiertos*
INAI	National Institute for Transparency, Access to Information and Personal Data Protection *Instituto Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales*
INEGI	National Institute of Statistics and Geography *Instituto Nacional de Estadística y Geografía*
IRM	Independent Reporting Mechanism
LAC	Latin America and Caribbean
M&E	Monitoring and evaluation
MENA	Middle East and North Africa
ODC	International Open Data Charter
ODSs	Open Data Squads *Escuadrones de Datos Abiertos*
OGD	Open government data
OGP	Open Government Partnership
OMN	Open Mexico Network *Red Mexico Abierto*
PGR	Office of the Attorney-General *Procuraduría General de la República*
PSI	Public sector information

SAI	Supreme Audit Institution
SCT	Ministry of Communications and Transport *Secretaría de Comunicaciones y Transportes*
SDGs	Sustainable Development Goals
SEP	Ministry of Public Education *Secretaría de Educación Pública*
SFP	Ministry of Public Administration *Secretaría de la Función Pública*
SME	Small and medium-sized enterprise
SNF	National Auditing System *Sistema Nacional de Fiscalización*
TTS	Tripartite Technical Secretariat

Executive summary

Open government data (OGD) can be a powerful lever for social and economic development. It can also be used to improve public governance by enhancing transparency, openness, integrity and public participation at the central and local levels of government. By ensuring open government data availability, accessibility and reuse by public, private and civic stakeholders, governments can design more evidence-based and inclusive policies, stimulate innovation inside and outside the public sector, and empower citizens to take better-informed personal decisions.

Mexico's open data policy goals aim to fight corruption, improve public service delivery and public sector efficiency, increase public engagement, and create an innovative climate that delivers new economic opportunities for the private sector. In a short period of time, Mexico has developed and implemented an ambitious National Open Data Policy that sets a broad vision for open data and paved the way for significant accomplishments at the federal level. Mexico has issued an Open Data Executive Decree, deployed a fully functional central open government data portal, established regulatory and technical support bodies and guidelines, and implemented initiatives to make public institutions and data users collaborate to find solutions to public issues. These federal initiatives have been complemented by activities at the local level. Nonetheless, open government data has yet to make a sustainable domestic impact on the Mexican economy and society.

This Review proposes strategic actions for achieving tangible and sustainable benefits with open government data for the Mexican public administration, businesses and citizens. It assesses the efforts made by the government to date to establish the policy and governance framework for open government and open government data, and examines initiatives implemented at the central and local levels. The Review reveals a number of opportunities to fully capture the potential benefits of OGD in Mexico. In particular, it highlights the need to improve the co-ordination between its open government data and open government agendas, increase the reuse of OGD, and to foster the creation of public value through collaboration and partnerships with stakeholders from within and outside the public sector. Mexico needs to develop a dynamic open government data "ecosystem" in which data are produced, enriched and reused by multiple actors from the public, private and social sectors. This involves strengthening the connections with and among these actors, as their engagement in the creation and reuse of open data can help generate products and services that benefit ordinary citizens.

The policy recommendations in this Review should assist Mexico in setting the conditions required to increase the uptake of the federal OGD policy by central and local government institutions and to strengthen the reuse of OGD by a broad set of actors across the country. Changes are required in the strategy and governance of OGD, in public institutions' culture and capacities, and in the way the government connects with OGD stakeholders. There is a need to ensure that public institutions are data literate, that they fully understand and reap the benefits of OGD, and that they support the implementation of OGD initiatives as engaged actors. Opportunities to engage and collaborate

with the OGD ecosystem at the central and local levels of government are not always fully exploited. More long-term policy objectives, such as using open data to support the digital economy, inform policy making and improve organisational efficiency, depend on collaborative action with actors from both within and outside government. While multi-stakeholder collaboration initiatives have been put in place by the centre of government, the proactive involvement of public institutions does not happen regularly. In Mexico, the centre of government faces the challenge of institutionalising open data across the public sector in order to disseminate open data initiatives with the support and proactive leadership of line ministries and key public bodies.

Coherent open data initiatives developed in collaboration with local governments are key to creating value from open data; they would also contribute to Mexico's achievement of the 17 Sustainable Development Goals (SDGs) by enabling the creation of impact in a collaborative fashion with the participation of local stakeholders.

The Review's key policy recommendations for the Mexican government are to:

- **Ensure that policies for open government data are integrated with those for open government.** The integration between OGD and open government policies could contribute to better achieving cross-cutting policy goals, such as greater public sector integrity and citizen engagement.
- **Reinforce the policy framework for open government** by developing a comprehensive National Open Government Policy, which would help Mexico move from open government to an "open state" strategy (involving the judiciary and the legislative branches of power in the open government initiatives of the executive, along with the other public sector bodies at central and local levels and independent institutions) and by better connecting open government to national development.
- **Sustaining the current institutional governance structure to ensure the continuity of high-level political support and regular funding for the open data policy** would contribute to policy continuity in the short and medium term. This would also contribute to increasing the institutionalisation of open data across public institutions by ensuring the continuity of regulatory, technical and legal support from the centre of government to public institutions.
- **Develop a National Open Data Strategy** to create a visionary institutional environment that supports open data, a structured demand-driven approach to open data, a clear and comprehensive data and privacy protection regulatory framework, and to provide continuous technical assistance to public institutions.
- **Foster a demand- and value-driven prioritisation of data disclosure.** This entails aligning public institutions with the federal government's vision for open data; consulting users regularly; enabling data requests and co-creation of data, services and products via the central OGD portal; and developing segmented open data marketing and communication strategies.
- **Activate and engage different communities of open data "prosumers",** i.e. actors who are at the same time potential data producers and users, by strengthening general data skills across society and within specific social groups, and by facilitating stakeholder collaboration that contributes to open data co-creation.

- **Support business-oriented data disclosure and the development of skilled and innovative open data business communities** to unleash the potential of open data as an enabler of the data-driven economy and civic innovation.
- **Respond to and address specific public institutions' needs to enhance institutional capacities beyond data management and disclosure** (i.e. data analysis, data science). The long-term goal should be to foster a data-driven public sector in which the production, use and reuse of data by public institutions are part of everyday government business.
- **Make use of the Open Mexico Network** not only to develop open data initiatives at the local level but to enable horizontal collaboration between local governments, to further connect local governments with the international open data ecosystem, to get closer to local stakeholders, and to help achieve the SDGs drawing upon impact co-creation.

Assessment and recommendations

The *Open Government Data Review of Mexico* was undertaken by the OECD to analyse the achievements, opportunities and challenges of open government data in the Mexican context. At request of the Mexican government, this Review includes a specific chapter on open government, which is based on the analytical framework of the OECD Open Government Reviews.[1] The analysis on open data policies and initiatives is based on the OECD methodology laid out in the working paper "Open government data: Towards empirical analysis of open government data initiatives". OECD country-specific reviews recommend proposals for action that help countries to improve their open government data (OGD) efforts in order to achieve greater impact on their economies, societies and public sectors.

The policy recommendations provided by this Review take into account Mexico's context relevant to open government and open government data. They focus on specific priority areas where the central government should centre its attention to secure the delivery of the desired benefits. The overall priorities for Mexico are the need to leverage on the investments made by the government over the recent years in order to stand up to the commitments undertaken at the international level to achieve national policy goals and produce value in the domestic context, and achieve continuity of the OGD policy in the long run. These include, for instance, improving public service delivery, enhancing citizen engagement in policy making, increasing public sector efficiency, and creating economic value through a higher and more democratic reuse of open government data. It also includes contributing to greater public sector openness and transparency through greater multi-stakeholder collaboration and monitoring of government's activities.

Together with open government data, open government has been one of the top political priorities of the current administration (2012-18) as testified by its inclusion in the President's ten policy priorities for the remaining years of his mandate.

Mexico is a leader on open government both regionally and globally, and participates actively within the international open data community. Between 2014 and 2015, the country was Chair of the Open Government Partnership (OGP) and a member of the OGP steering committee, pushing for an ambitious global open government agenda in this capacity. The country hosted the 3rd OGP Global Summit in Mexico City in October 2015 and, as a testimony of its commitment to open government, has become Co-Chair, together with Costa Rica, of the OECD Network on Open and Innovative Government in Latin America and the Caribbean.

Additionally, Mexico was involved in the development of international policy instruments such as the International Open Data Charter (ODC), where as a founding member it became a Lead Steward of this global initiative. It is also a founding member of the Global Partnership for Sustainable Development Data, which aims to spur the use of open data as a mechanism contributing to the achievement of the United Nations' Sustainable Development Goals (SDGs).

At the same time, the location of the Coordination of the National Digital Strategy (Coordinación de la Estrategia Digital Nacional, CEDN) within the Office of the President (Presidencia de la República) has provided open government and open government data with high-level policy support. Both the Chief Data Officer (Dirección General de Datos Abiertos, CDO) and the Office of the General-Director for Innovation and Citizen Participation (in charge of the implementation of the open government agenda) are internal bodies within the CEDN, thus paving the way to further linking the open government and the open government data agendas in the country.

In this context, the first policy recommendation of this Review is that:

- **The government of Mexico should focus on achieving greater integration between the open government data and open government strategies.** At times, relevant initiatives appear to run in parallel, with the risk of diffusing efforts and investments, and missing out on opportunities for important synergies and for the creation of broader impact for the communities across the country.

Open government in Mexico: Moving ahead towards an open state

The creation of the Tripartite Technical Secretariat, which co-ordinates the country's OGP process and includes actors from government and civil society as well as the National Institute for Access to Information (Instituto Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales, INAI), was an important step towards a more inclusive open government process. In order to ensure the sustainability of these improvements in the medium and long run, Mexico's open government co-ordination structure could be further institutionalised to protect it from the electoral cycles and potentially changing political priorities.

Mexico has elaborated ambitious OGP actions plans, which include transformative commitments with great potential impact. The methodology used for designing the 2nd OGP Action Plan gave an important role to the civil society, the private sector and academia. Innovative and inclusive co-ordination mechanisms were created to draft the plan in a highly participatory way. Working tables on nine key open government topics – facilitated by independent experts – were created to help translate pre-identified key themes into concrete commitments. The country's resulting OGP action plan included 26 commitments aimed to achieve relevant national open government priorities. According to the Mexican government, they have been fully implemented, thereby making it the first OGP country to accomplish 100% of its commitments. However, as in all OGP countries, the two-year cycle and the nature of the commitments of the OGP Action Plan do not favour a wider reflection on the capacity of open government reforms to achieve broader national development outcomes. The country could overcome this challenge by designing a comprehensive whole-of-government National Open Government Policy, which would make Mexico one of the first OECD and OGP countries to make this important step in the direction of a greater institutionalisation and integration of its national open government agenda.

Mexico's second OGP Action Plan, the implementation of which is monitored in a transparent way through the Open Government Dashboard, has a stronger focus on outcomes than previous plans. However, there are further opportunities to reinforce the monitoring and evaluation of the plan and to take greater advantage of stakeholders' feedback to better tailor the plan to their needs. This would contribute to improving the evaluation of the impact of open government policies, a challenge Mexico shares with other OECD and OGP countries.

The Mexican government could consider implementing the following policy recommendations:

1. **Consider moving beyond the OGP action plans and elaborating a full-fledged National Open Government Policy** in order to make open government a cross-cutting instrument to address the core challenges Mexico is facing. This National Policy would constitute the backdrop to the OGP action plans and provide the entire Mexican state with the strategic impetus needed for open government policies to be successfully linked to the overall socio-economic development objectives, including the National Development Plan and the SDGs.
2. **Pursue existing efforts to connect the open government agenda with the national development agenda** to make sure that the implementation of the country's OGP action plans is contributing to the achievement of the goals of the national development agenda. This should include linking their respective monitoring and evaluation mechanisms, in order to fully exploit the potential of open government reforms to directly contribute to national development outcomes.
   - In this context, Mexico should pursue the stated intention to connect its open government and open data initiatives to the achievement of the SDGs.
3. **Pursue the move from an open government to an open state** by including the legislative and judiciary branches, as well as the National Human Rights Commission (the Mexican Ombudsman) in the national open government agenda. In particular:
   - **Continue the promising Open Legislature Initiative** and communicate its results widely to citizens and internationally to other OECD and OGP members.
   - **Consider designing an Open Judiciary Initiative** as done in other Latin American countries such as Colombia and Costa Rica, and pursue efforts to involve the judicial branch in all steps of the third OGP Action Plan, including by designing a high-level commitment on transparency in the judiciary.
   - **More actively engage the National Human Rights Commission (Comisión Nacional de Derechos Humanos) in the open government process.** The office of the Ombudsman plays a crucial role in monitoring the implementation of open government reforms in many Latin American countries, with a specific focus on monitoring the implementation of the laws on access to information and freedom of speech and in favouring social dialogue, like in the example of Peru.
4. **Consolidate the Office of the Presidency's role in the field of open government** with a formal act that would provide the necessary institutional stability and could be used by future governments as precedent.
5. **Enhance the inclusiveness and representativeness of the OGP process** by increasing the number of civil society organisations that actually participate in the development and implementation of the OGP Plan, within and beyond the formal membership in the Tripartite Secretariat, and by adding representatives from sub-national levels (i.e. states and municipalities).
6. **Consider engaging more actively with the Ministry of Finance** by, for example, including it in the centre-of-government co-ordination committee. Similar experience in OECD countries shows that this could potentially have the

double impact of promoting the principles and practices of open government in the activities of the Ministry of Finance (i.e. open budget) and help in ensuring a more stable flow of resources to the overall national open government agenda.

7. **Continue improving the monitoring and evaluation framework of the OGP action plans** (and eventually of the National Open Government Policy), with a specific focus on evaluating its impacts by using a transparent and participatory methodology.

8. **Consider including a commitment to foster open government communication in the third OGP Action Plan** in order to provide the necessary impetus for improved open government communication. This commitment could target the sub-national level in particular.

From an international open data agenda to domestic impact

Mexico's active involvement at the international level – within the International Open Data Charter, the OGP and the broader open data community – in combination with the high-level support provided by the Office of the President, has been instrumental to setting and achievement of policy goals in a relatively short period of time. This has helped to build a strong national basis to implement international open data principles, such as the ODC. Important results at the domestic level include evolving the 2014 beta-version of the national OGD portal datos.gob.mx into a fully functional open data online platform by 2015, and the publication in 2015 of the General Law on Transparency and Access to Public Information, which embeds the concept of open data for the first time.

During the same year, the President of Mexico published the Open Data Executive Decree which spurred open data initiatives across central public institutions, enabling greater open government data disclosure through the central portal. The decree, which acts as a legal and policy backbone for open data in the country, set a shared policy co-ordination framework between the Ministry of Public Administration (Secretaría de la Función Pública, SFP) and the CEDN.

The CDO has played a key role in defining a forward-looking vision for open data in the country that goes beyond public sector transparency. Open data is acknowledged as a potential enabler of the digital economy in Mexico, and as an instrument that could contribute to greater public engagement and more efficient public service delivery. The Mexican government aims to spur data reuse by public institutions towards a more evidence-based policy making and data-driven public sector. These ambitious policy goals are clearly stated in the National Digital Strategy, which is directly linked to the development agenda of the President of Mexico for 2012-18 (National Development Plan). Since 2013, the CDO has implemented open data initiatives aiming to deliver policy results in compliance with the responsibilities set by the Open Data Executive Decree and with the ambitions embedded in the National Open Data Policy:

- In 2015, a public consultation process was launched to inform the prioritisation of data disclosure by public institutions at the central level. This exercise was useful to create the Strategic Open Data Infrastructure (*Infraestructura Estratégica de Datos Abiertos*, IEDA). The definition of the infrastructure (i.e. a group of datasets that have been prioritised by the central government for release due to its potential contribution to national development goals) has been crucial to guide open data disclosure by public institutions.

- Using open data as an enabler of key national objectives, such as improving maternal health, fighting climate change, increasing the transparency of public procurement, as well as to strengthen the government's capacity to deal with emergency situations (i.e. to manage disaster response and resilience during Hurricane Patricia in 2015 or monitoring of air quality), has been instrumental to showcase the value of open data to create a direct impact on the Mexican population.
- The Open Data Squads (*Escuadrones de Datos Abiertos*, ODSs) were created to provide technical and regulatory guidance and support from the centre of government to central and local public institutions. The work of the ODSs has been instrumental to build capacities for data management (i.e. production, exchange, publication and use) towards greater OGD disclosure on the central portal. Their work goes hand in hand with the technical expertise offered by the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI), which has been in charge of developing and publishing technical guidelines and norms for open data disclosure. All these efforts help public institutions to follow the guidelines included in the Implementation Guide of the Open Data Policy (*Guía de Implementación de la Política de Datos Abiertos*), which aims to assist them in developing and implementing their own institutional open data plans and to disclose open data based on a demand-driven approach.
- *Retos Públicos* – an initiative providing incentives for apps development – has been useful to connect developers and public institutions in order to foster collaboration around specific policy issues and sectors. As a result, web- and mobile-based platforms and apps have been developed by private sector organisations to improve public service delivery or to tackle citizens' information access asymmetry. Other resulting tools are good examples of the use of digital technologies and open data for risk management, hence linking open data initiatives with the achievement of the SDGs.
- Mexico's efforts on open data are not limited to the central level. The CEDN and the SFP designed and implemented the Open Mexico Network (Red Mexico Abierto, OMN) to bring local governments closer to the National Open Data Policy. The OMN has been useful not only to enable greater local OGD disclosure on the central portal and to spur open data initiatives at the local level, but also to ensure that the development of local open data initiatives is coherent with the national policy. The network has been equally useful in bringing local governments in Mexico closer to international open data instruments, such as the International Open Data Charter, thereby drawing a direct link between the international open data community and local governments, and enhancing multi-level policy coherence around open data.
- Open Data 100 (the Mexican Chapter of Open Data 500) aims to map the use of open government data by social and, more importantly, by private sector organisations. This initiative (developed in collaboration with the GovLab of the University of New York) has enabled the Mexican government to identify business-oriented user communities within the OGD ecosystem using OGD, thus paving the way to strengthening the capacities for measuring the economic value created through OGD reuse by private sector organisations.

All of these achievements are the result of a fast-paced policy development and implementation in the country that started in 2013. It has been constantly nourished by Mexico's active participation at the international level and was made possible by the strong commitment and support at the highest political level. Such a scenario has led to the relative maturity of the policy context for open government data in Mexico. Nonetheless, some challenges remain at the governance, legal, policy and institutional levels that still need to be addressed.

Building a pro-open data institutional environment

Privacy and data protection regulations might require further development, particularly those related to the protection of personal data managed by public officials. Disclosing open government data entails risks related to privacy and security. As a consequence, in parallel to the existence of institutions responsible of ensuring legal compliance and law enforcement, it is equally relevant to set clear guidelines and regulations concerning data management, and to foresee sanctions for unauthorised, unethical and illegal use of personal data. Evidence from the survey conducted by the OECD as part of this Review, points to some confusion among public officials caused by a fragmentation of privacy and data protection regulations. The 2015 Freedom of Information Law, and other complementary legal instruments,[2] set public officials' responsibilities related to the management of citizens' data. However, the legal framework on data protection could be strengthened and streamlined. In the long term, the availability of a specific law on open data could be also beneficial to provide stronger legal support to open data in the country.

The only policy levers available to the Office of the Chief Data Officer to spur the development of institutional open data initiatives at the central level are based on the mandates set by the Open Data Executive Decree (2015), coupled by the instrumental support provided by the Ministry of Public Administration. The National Open Data Policy is the result of a trust granted by the Ministry of Communications and Transport (Secretaría de Comunicaciones y Transportes, SCT) for the development of ICT capacities in the country. Nonetheless, additional funding (which could be used as a financial lever to further spur institutional open data initiatives) is not provided to public institutions. Most public institutions, facing the challenge of implementing open data programmes in compliance with the National Open Data Policy, report using their original institutional budget for this purpose (78 out of 92 institutions).[3] They have mostly followed a law-compliant and reactive approach which has been useful for increasing the availability of OGD through the central portal but has not stimulated an "open-by-default culture" across all institutions driven by the broad vision embraced by the CEDN and SFP.

Despite the efforts of the Open Data Squads and of the CDO to build a data-literate public sector capable of increasing the benefits of OGD reuse across the country from the economic, social and improved governance perspectives, evidence from the survey shows that most institutional open data initiatives are still driven by transparency. Such a scenario is more complex as the understanding about open data among public officials is also primarily driven by public sector transparency. This seems to point to a lack of synchronisation between the vision set by the National Open Data Policy and the one prevailing across institutions.

Few public institutions have prioritised bringing in data-literate and visionary leaders to act as institutional chief data officers *de facto*. Most rely on public officials' capacity to self-adapt and react to change in order to perform as data managers and technicians.

There is a need to create a more cohesive institutional environment, which at the moment consists of officials in charge of policy co-ordination and regulatory guidance within the centre of government and more technical civil servants within public institutions. Technical support and regulatory guidance provided by policy co-ordination bodies is a necessary, yet insufficient, condition for effective and sustainable policy implementation. In addition to data managers able to comply with centrally provided guidelines, public institutions need to bring in visionary data leaders and champions or invest further resources to train innovation-oriented public officials in order to empower them to act as data champions. For such a purpose, increased self-awareness of public institutions as partners and actors within the national open data ecosystem, and not only as data producers, will play a key role in the medium and long term to sustain value creation with a more collaborative approach.

Sustaining capacity and data-literacy building activities will remain a crucial component towards a more data-literate public sector. The government of Mexico focused on developing an institutional framework for policy co-ordination that centres on the Office of the Executive (through the CEDN) and the Ministry of Public Administration. This shared co-ordination and support scheme has been fruitful to achieve incremental data disclosure from public institutions building on the efforts, guidance and support provided by the Open Data Squads. The absence of the right leadership and capacities inside public institutions for data management remains one of the main challenges for effective policy implementation and sustainable results, thereby underpinning the relevance of the work of the squads, and demanding actions to give more long-term sustainability to some of the existing mechanisms. For example, the Open Data Squads, which have so far been a critical instrument to create a culture of data openness, lack the legal certainty to have an impact on the effective implementation of the National Open Data Policy in Mexico.

While the current legal framework for open data in Mexico is the result of the evolution of public sector transparency in the country, the National Open Data Policy has moved away from the narrower transparency-driven scope that open data policies have in other countries. Such evolution enabled ambitious overarching policy objectives to be set centred not only on "improved governance value", but on a broader vision aiming to also deliver economic and social benefits. The legal certainty provided by acts issued by the top political level has been pivotal to establishing the necessary context and ensuring the leadership's support. The active involvement of the country at the international level has contributed to Mexico's awareness and willingness to use open data as a mechanism to accomplish broad policy objectives, such as fighting corruption (i.e. based on the G20 Anti-Corruption Open Data Principles), accomplishing the Sustainable Development Goals, and further exploring the synergies between open data and global actions to fight climate change.

Yet, ensuring sustainable, stable and measurable results in the long run requires maintaining a high level of co-ordination from the Office of the President and grounding the overall vision and goals on a more structured and self-standing strategy for open government data. There is a need to move from having a business case for open data supported by the political level to developing a business plan providing a clear road map for achieving the internationally set policy goals and commitments. This implies engaging the whole OGD ecosystem in valuable data reuse, including public institutions that should be recognised as key actors of such an ecosystem.

In order to address these challenges, the Mexican government could consider implementing the following recommendations:

1. **Sustain the co-ordination of the OGD policy implementation between the Office of the President and other relevant institutions (e.g. the SFP)** in the medium (three years) and long term (five years), which would contribute to ensuring the continuity of high-level political support for policy development and more effective policy implementation.
2. **Ensure the availability and continuity of federal funding for the open data policy** to ensure the development and implementation of open data initiatives by the centre of government. This would also contribute to building data literacy and capacities in order to institutionalise open data across public institutions, drawing upon open data's potential for the creation of overarching and sector-specific values.
3. **Develop a structured National Open Data Strategy driven by the needs of the Mexican ecosystem, the national context, and with the active involvement of line ministries and other key public institutions (such as those in charge of sectorial policy co-ordination).** The development of a national open data strategy would contribute to grounding policy directives, vision and goals building on the needs of the national open data ecosystem, the assessment of the national context and the role of public institutions as partners within the national open data ecosystem. This could also help ensure stability in the long term of the OGD governance framework.
4. **Support the definition and publication of one single legal instrument covering all available regulations and guidelines related to the protection of personal data managed by public officials.** It would be useful to define a comprehensive regulatory framework for data protection and more efficient oversight mechanisms and sanction procedures. This would help reduce the fragmentation of the privacy and data security legislation, which creates a state of confusion among public officials and data users about their obligations and rights.
5. **Ensure the continuity of technical support bodies that provide guidance to public institutions in line with the vision and objectives of the National Open Data Policy.** The absence of such bodies would represent a risk for policy continuity in the mid and long run, particularly due to changes in the administration and a still inadequate level of data literacy across the public sector. Such bodies should be acknowledged as crucial actors for policy implementation at the national and local levels. The work of the Open Data Squads (and the technical guidance provided by INEGI) will remain critical to further develop technical knowledge, as well as civil servants' capacities for data management and data analytics, and to synchronise the vision for open data at the central and local level, and among public institutions.
6. **Highlight the relevance, and support the availability, of chief data officers within public institutions, particularly in line ministries in charge of sectorial policy co-ordination (i.e. Health, Energy, Social Development).** This could help synchronise the vision for an open dataset – which is embraced by the central policy co-ordination bodies – with the visions emerging across public institutions, so as to exploit the value of open data to achieve sectorial policy objectives as well as broader policy goals.

7. **Foster more government-to-government collaboration between public institutions.** This would be useful to increase the sharing of open data experience and practices across the public sector, and to enable synergies. It would create a more open-by-default prone culture; contribute to data-sharing and production of greater sector-specific values in co-operation with different stakeholders. Data communities should be built not only outside the government apparatus, but also within the government.

Paving the way for greater data reuse: Towards a demand- and value-driven data disclosure

Creating value through OGD is not the exclusive responsibility of central policy co-ordinating agencies. A data-literate public sector should be able not only to disclose open data, but also to effectively communicate and collaborate with all actors in the open data ecosystem, and to reuse OGD.

In 2015, the *Implementation Guide of the Open Data Policy* established that, on top of the data taxonomy included in the Strategic Open Data Infrastructure, public institutions should contemplate prioritising OGD disclosure based on their analysis of citizens' requests to access public sector information. Yet, members of civil society organisations expressed during the OECD peer review mission to Mexico that the data currently available on the central portal has not been of great value for the users. There is a need to go beyond one-time consultation exercises, in order to increase data availability and prioritise data release based on a demand-driven approach which informs the identification of high-value datasets for the community of reusers. Public institutions should be increasingly involved in consultation exercises and use these to identify opportunities for future collaborations with actors of the OGD ecosystem.

Great efforts have been invested to make the open data portal fully functional over a short period of time. Links to OGD-based apps, news, blogs, data rankings and policy implementation guidelines are available for public access. The portal is the result of the intensive work of the CEDN and the SFP, and of the co-operation between these two institutions and other line ministries and public bodies from the central and local levels of government. Yet, the mechanisms available to data users to request open government data are limited only to those instruments foreseen by the 2015 Freedom of Information Law (i.e. requests to access public sector information through online transparency platforms such as INFOMEX)[4]. This can limit open data crowdsourcing and co-creation in Mexico, and the understanding of data users' needs. In addition, Mexico's willingness to use open data as a mechanism to fight corruption, to contribute to social and economic development and public transparency requires going beyond building an online data catalogue and increasing data disclosure. Data producers and data consumers should collaborate more. In order to contribute to the growing maturity of the national open data ecosystem, data producers and consumers should be linked through efficient two-way communication strategies centred on specific data needs and potential values that can be derived from reuse.

The CEDN, the office of the CDO and the SFP should further collaborate with key public institutions in order to support value-oriented and sector-specific open data activities towards a user-driven data disclosure. This could be achieved by taking actions aiming to:

1. **Run regular consultation exercises with different user groups to foster the intrinsic value of the central OGD portal, in collaboration with line ministries and other relevant public institutions.** Diversified consultation

exercises on data needs would contribute to enriching the overarching value of the portal with demand-driven content, and would provide opportunities to strengthen collaboration for reusing open data within policy-specific areas of work. These exercises could contribute to updating the Strategic Open Data Infrastructure with a user-driven approach.

2. **Upgrade the central OGD portal into a data request and data co-creation platform.** The portal could be used as a two-way collaborative platform that could further contribute to fostering a demand- and value-oriented approach for data disclosure, driven by users and the overall data ecosystem. As an infomediary mechanism, the portal could also incorporate tools to allow open data and metadata provision by non-governmental stakeholders. Embedding data-request mechanisms in the portal could be equally relevant, not only to enhance user-driven data disclosure, but also to collect information to measure the expected economic impact of opening up government data *ex ante*, as done through online data request formats in leading countries such as the United Kingdom.
3. **Support line ministries to connect with the users of their data through segment-oriented open data marketing and communication strategies.** This approach would make the open data communication strategy more effective, and would support the creation of sector-specific value creation (i.e. open data for education, anti-corruption, climate change). Nonetheless, the strategy would require going beyond information dissemination. It would imply implementing an effective marketing strategy that takes into account the actual needs of the different segments of the community of data reusers. Data producers and data consumers should collaborate and, in order to contribute to the growing maturity of the national open data ecosystem, they should be linked through efficient two-way communication strategies centred on specific data needs and data values.

Building skills of user communities and engaging the open data ecosystem

Data socialisation means making open data valuable for all user communities – skilled or not. Socialisation is not only about "skilling" citizens, but also about making open data relevant for the common, average citizen who may lack the technical skills required to understand and produce data reuse.

The Mexican government has taken initial steps in this regard by providing indirect access to web-based and mobile-based data visualisation tools on the central portal. Initiatives such as "*Retos Públicos*" and hackathons have been useful to engage data-savvy stakeholders towards the creation of economic, social and good governance value (i.e. democratic control, improved public service delivery). However, while technically trained groups such as the "geek" community, app developers and academics are key partners of the open data ecosystem to create value, their technical capacities and skills might not be shared by the broader society.

Further areas of action could include providing training and capacity-building activities for the general society and to specific social groups, such as students, journalists and members of civil society organisations, or introducing data literacy into educational curricula. This would help a broader group of actors familiarise themselves with basic concepts and enhance their awareness, increase a critical mass of data users and empower a future generation of data innovators.

Yet, while some data users may act only as passive consumers (e.g. those mainly driven by public sector transparency and accountability motivations), others may have an interest in being active and proactive participants and collaborators as value co-creators. OGD-based products such as web-based and mobile applications should also be perceived as mechanisms useful to bring citizen-produced data into public institutions. This would make these tools instruments for using citizens' demands and feedback as inputs for more evidenced-based decision making and greater public accountability.

Retos Públicos has been useful to bring social entrepreneurs and innovators closer to the government, towards the creation of innovative solutions for public policy issues. In general terms, the objectives of this government-to-citizen (G2C) co-operation have been centred on improving public service delivery and increasing information provision to citizens. Currently, 15 "public challenges" are listed on the *Retos Públicos*' dedicated website,[5] including (fully implemented or under development) applications that aim to: 1) empower citizens by helping them take more informed decisions (i.e. eat healthier or measure and reduce their CO_2 production as a result of electricity consumption); and 2) improve public service delivery (e.g. simplify formalities related to the certification studies or file and follow up on complaints related to corruption in the public sector). But the Mexican government could also consider supporting the development of mobile applications that enable a two-way data exchange between public institutions and citizens in order to support greater open data co-creation and crowdsourcing.

There is also the challenge to further strengthen multi-stakeholder collaboration between public institutions and non-governmental stakeholders, beyond demand identification and consultation. There is a need to further engage and collaborate with the ecosystem. Results from the OECD survey conducted across public institutions as part of this Review indicate that horizontal and vertical collaboration between public institutions and between them and non-governmental stakeholders is low: only 16 out of 92 institutions report regular collaboration with other stakeholders (including other public institutions). Data-centred collaboration activities should focus on the creation of sector-specific values with active collaboration between public institutions, civil society organisations and other communities.

In order to address the challenges above, the Mexican government could consider implementing the following recommendations:

1. **Provide training and capacity-building activities for the broader society and for specific social groups such as students, journalists and members of civil society organisations.** Further technical co-operation between the Open Data Squads and other members of the society could contribute to reinvigorating the open data ecosystem in the country, and to foster the development of data-centred economies of scale. The overall goal of increasing awareness and skills across the broader society should be seen as complementary to the public sector's transformation efforts and in line with other public sector reforms implemented by the Presidency of Mexico (i.e. anti-corruption, education, innovation).
2. **Use *Retos Públicos* to develop two-way data exchange platforms with the society in a broad sense (i.e. mobile or web-based applications).** Such an approach would be useful to increase data crowdsourcing through real-time data, e.g. data uploading by citizens and other user communities, to further bring citizens' voice into public decision making, to foster citizen-driven public services design and delivery, and to increase public accountability

3. **Leverage *Retos Públicos* to reinforce the capacities of public institutions to connect with open data communities outside the government.** In the medium and long term, public institutions should be able to implement sector-specific multi-stakeholder collaboration on their own, drawing upon the benefits of open data for external users as well as for their own institutional and sectorial goals. Open data communities, within and outside the government, should be leveraged and inter-connected. Multi-stakeholder collaboration should aim to create greater sector-specific value by engaging all internal and external stakeholders working in specific sectors (e.g. environment, transport, education etc.).

The challenge of creating economic value: Using open data as an enabler of the data-driven economy

The contribution of open data as an enabler of the data-driven economy is one of the most ambitious goals of the National Open Data Policy. Achieving these ambitious policy goals requires a stronger focus on the establishment of the necessary conditions for OGD reuse for economic value creation and for the delivery of the expected economic benefits. So far, the Mexican government's approach has been limited to providing funding for the development of applications through *Retos Públicos*, and running exercises aimed at mapping the current use of OGD by private organisations (Open Data 100). Providing support to small and medium-sized enterprises (SMEs) using open data, disclosing economically relevant data for businesses, and building a business community around open data (as is expected to be done through the Open Data Start-up Hub project designed by the Mexican government in collaboration with the United Kingdom during 2016) should be key objectives for the current administration in order to contribute to a more dynamic data-driven economy.

While there is evidence of the use of open government data by private organisations, more needs to be done to make the ecosystem capable of internalising and reusing open data to sustain the data-driven economy. The supply-demand ratio concerning the availability of data professionals (e.g. data analysts, data scientists) has maintained an increasing slope during the last years in trend-setting OECD countries such as the United Kingdom. Korea has identified the creation of economic value as the top priority (if not the only) of its national open data policy and has taken actions to develop skills and train users in order to achieve this goal.

In order to attain its objective to use open data as an enabler of the data-driven economy, the Mexican government will need to invest in the development of relevant skills of specific data users to support the creation of more data-driven businesses in the country, more data-driven innovation, and, as a result, a stronger data-driven economy. The government should acknowledge the fact that supporting skills development activities, and the creation of OGD-centred business communities, would provide an opportunity to spur economic value creation building on the ideas of Mexican innovators.

The Mexican government could consider implementing the following recommendations:

1. **Perform more exercises aimed at identifying business-oriented data demand.** They could be centred on the potential economic value that could be created for the broad economy in collaboration with key line ministries such as the Ministry of Economy, and other public bodies producing relevant data for the creation of economic value. These consultation exercises would help to establish a business case for the Mexican public sector, thereby convincing the various parts of the administration of the relevance of populating the portal with economically valuable data.

2. **Use the current co-operation established with the Ministry of Economy and other bodies, such as the National Institute for Entrepreneurs, to develop a data-driven business community.** The Mexican government could consider following the example of Korea and the European Union (EU), which have taken actions to support the development of a data-oriented business community. Developing practices such as the EU's Open Data Incubator for Europe (ODINE) or Korea's "Open Square D" Centre (OSD) could be useful to build a business community around open data and to provide support to OGD-based start-ups.
3. **Develop partnerships with academic institutions to stimulate data-driven entrepreneurship.** This collaboration should aim to invigorate data-driven innovation through the development of skills from the earlier stages of academic and professional development (e.g. with the development of targeted curricula). As a result, the overall open data ecosystem would be enriched and strengthened by the availability of a critical mass of knowledgeable and skilled stakeholders capable of internalising, exploiting and reusing open (government) data, innovating and self-creating economic value in a long-term sustainable fashion.

Looking forward and within: Towards a data-driven public sector

Mexican OGD policies and practices predominantly focus on the supply side, therefore missing out on the multiple potential benefits of internal OGD reuse for public value creation. Still, evidence from the OECD mission shows that public institutions are interested in strengthening their capacities for better government-to-government (G2G) data-sharing practices (i.e. more efficient data interoperability and exchange), and are aware of the benefits of data reuse. Some, such as the group of public institutions working in the energy sector (e.g. energy, oil, electricity) acknowledged that reusing data (open, not open or big data) should be one of the priorities to increase their competitiveness in the context of the 2013 Energetic Reform. This is an ideal scenario for the Mexican government to use open data as a mechanism to foster the engagement of, and create intrinsic motivation across, public institutions, building on the idea of open data as contributor to organisational efficiency and performance.

Open data, public sector efficiency and data-driven public institutions are interrelated. The challenge is that, on the one hand, the Mexican government set ambitious innovative policy objectives including using open data for improved policy making; on the other hand, it has overlooked the development of the culture, capacities and skills needed to implement such activities. The availability of the skills required to enable data reuse is still low across public institutions. This is not a negative scenario but an opportunity for the Mexican government to better respond to the needs of its government apparatus and provide support to modernise the capacities of public institutions. Indeed, results of the survey show that, after the creation of good governance values (i.e. public sector transparency, openness and accountability), public institutions identify the improvement of internal operations and evidenced-based policy making as the main objectives of institutional open data strategies.

Mexican public institutions could use OGD to innovate public services; inform public policies; boost internal transparency, accountability and performance; and fight corruption (good governance value). They could unlock the social value of open data by better detecting and understanding societal needs, crowdsourcing policy solutions and developing more inclusive services. Economic value for the public sector could be

realised through enhanced operational efficiency, reducing fraud and error, and bridging the tax gap.

While public institutions are key contributors of the open data ecosystem, their role as data consumers should be further developed to capture open data's benefits for government performance. So far the work of the Open Data Squads mainly builds on the data-producing role of public institutions, underestimating the need to run capacity-building activities for data reuse. Public institutions have not been able to develop such a culture, understanding and capacities. There is an opportunity to foster the value created through open data reuse from a public governance perspective (i.e. greater organisational efficiency and more evidenced-based policy making), which would equally create solid conditions for managing greater challenges that public institutions will face in the long term, such as effectively navigating the big data world.

In order to pave the way towards a data-driven public sector, the Mexican government could consider implementing the following recommendations:

1. **Drawing upon public institutions' interest, utilise open data reuse and its potential contribution to organisational efficiency – e.g. through more efficient G2G data-sharing –** to help move from extrinsic to intrinsic motivation, thereby further engaging public institutions on open data policies, building on their role as data prosumers, as done by other OECD countries (i.e. Denmark's Basic Registries Programme).

2. **Involve public officials in the design and implementation of OGD policies, acknowledging their role as data consumers.** This should aim not only to increase OGD awareness and enthusiasm, but also to take into account their needs in terms of datasets, software, data quality, skills and organisational support, in order to design policies and programmes that could contribute to more effective G2G data-sharing practices and data inter-operability within the framework of open data policies.

3. **Respond to public institutions' needs and use the Open Data Squads to implement programmes aimed at enhancing the institutional capacities for and co-ordination of data analytics throughout the Mexican public administration.** There is a need for more civil servants dedicated to data analytics along with a central governing body headed by Mexico's Chief Data Officer. This would help align and co-ordinate the so far dispersed activities. Furthermore, using a larger number of data, from more diverse data sources, and implementing more sophisticated methods of analysis, would allow further developing more innovative policies and services.

   - **In the short term, prioritise key policy sectors for capacity building.** Capacity-building activities could initially be oriented towards increasing the capacities of public institutions working on policy areas or sectors of priority for the Mexican government. For instance, developing in-house data analytics capacities across those public institutions working in the energy sector would be useful to place Mexico at the level of international trends in this domain, demanding, for instance, greater use of open and big data to improve sectorial efficiency. Building these capacities should be included as a strategic component of public sector reforms (thereby contributing to the modernisation and transformation of the energy sector in Mexico) but also as an action line of a more structured open data strategy for the country.

- **In the long term, aim to fill existing gaps of core skills and job positions relevant for a sustained development of the data-driven public sector (DDPS). This could include foreseeing a skills development programme across the public sector and creating an inter-sectorial committee in charge of the implementation of overarching actions (i.e. inter-institutional data inter-operability and standardisation).** The government should assess available data-related knowledge and skills and offer a programme accordingly, with the aim to develop the required skills depending on the civil servant's position in the organisation. Besides ensuring a basic data literacy level for all public servants, efforts should focus on guaranteeing the presence of experts in specific areas, such as data encryption and data quality management. Without such experts, the Mexican government risks losing instead of gaining public trust, e.g. as a result of security breaches of confidential information or poor data quality on the OGD portal.

Open data at the local level

The Open Data Executive Decree mandates the CEDN and the SFP to promote the implementation of collaboration agreements with the states and municipalities. Yet, the development of open government data policies and initiatives by local governments remains a matter of willingness due to Mexico's federalist model of government. The **Open Mexico Network**[6] aims to create a link between local governments and the National Open Data Policy. The objective is to increase local governments' enthusiasm to embark on open government data by exchanging knowledge and sharing resources, and, as a result, to increase not only the availability of local OGD on the central portal, but to foster the development of OGD-centred practices at the local level with the support of the CEDN and the SFP. This can contribute to greater policy coherence between central and local open data policies and initiatives, which, as a result, pave the way to co-create impact towards the achievement of supranational objectives such as the Sustainable Development Goals.

Political co-ordination forums such as the National Conference of Governors (Conferencia Nacional de Gobernadores, CONAGO) have been useful to build political consensus around open data at the local level and to further engage state governments as members of the Open Mexico Network. Yet, these political agreements mainly draw on the contribution of open data for transparency. As a result, the role of the CEDN and the SFP will remain crucial to ensure that local open data initiatives don't evolve into transparency-centred open data agendas.

As done at the central level, the Open Data Squads provide technical support and guidance for those local governments and public institutions involved in the OMN. Open Data Squads' collaboration with local governments centres on four different policy areas: mobility, resilience, crime prevention and education. The work of the Open Data Squads at the local level is and will remain decisive to increase open data literacy across local public institutions; and to maintain coherence between central and local policy goals based on the priorities defined by the central government (through the OMN) and at the international level (i.e. through the Global Partnership for Sustainable Development Data, the G20).

Further engaging local governments in developing and implementing open government data policies will depend on the capacity to develop a business case showing the potential benefits of open data for local stakeholders. Open government data provide a valuable opportunity for local governments to find solutions to address policy issues

specific to their own context (e.g. open data for local tourism) or shared with other local governments (e.g. improving the quality of and access to public services in areas such as transport or urban waste collection). Local governments, therefore, should identify the potential benefits of open data (its relevance) for their own reality and needs in order to effectively and meaningfully invest in human and financial resources for open data initiatives.

In addition, Mexico's participation within the international open data community has enabled it to connect local governments with international open data instruments. Two states and five municipalities have adopted the International Open Data Charter and its principles. Yet, one of the challenges that local governments face in Mexico (as does the central government) is to invigorate the local open data ecosystem and to connect and collaborate with non-governmental open data stakeholders in order to leverage their activities and scale them up to contribute to the achievement of national and international goals. It is crucial to continue setting up and connecting local open data initiatives that could contribute to the advancement, measurement and achievement of the SDGs in the long run, in line with international open data instruments such as the ODC.

In order to keep developing open data initiatives at the local level in collaboration with local governments, the Mexican government could implement the following policy recommendations:

1. **Expand the areas of work of the Open Mexico Network, drawing upon the business case for open data at the local level in order to increase its relevance for local communities.** The OMN should be equally useful to support local governments to develop and implement open data initiatives contributing to addressing specific local needs, thereby expanding OGD value to various policy areas (e.g. tourism, energy consumption, pollution).
2. **Sustain multi-level collaboration within the framework of the Open Mexico Network in order to keep building a broader vision for open data at the local level in line with the central government's policy goals to balance it with local objectives.** The work of the OMN will remain of key importance not only to ensure policy coherence, but also to further transfer the open data vision from the centre of government to the local level.
3. **The Open Mexico Network could be used as a platform to:**
   - **Strengthen horizontal collaboration between local governments in Mexico at the policy implementation level.** The OMN could be further leveraged as a platform for horizontal collaboration and support between local governments focusing its activities on open data matters.
   - **Further connect local governments with the international open data ecosystem.** There is an opportunity to further connect local actions with initiatives at the international level. Just as the Global Partnership for Sustainable Development Data highlights the need of spurring data management capacities at the local level, it would be equally relevant to connect cities and local governments working on open data across the globe; the Mexican government could act as a catalyst for this purpose.
4. **Co-ordinate with local governments in order to further reach stakeholders at the local level for greater value co-creation.** The active involvement of local stakeholders as enablers of value creation will be strategic to translate Mexico's

international commitments on open data into local impact. For this purpose, local governments will have to further identify open data champions across local stakeholders and co-ordinate and collaborate with them on a regular and well-structured basis. Sector-specific open data initiatives implemented by social and private organisations at the local level should also contribute in a co-ordinated and collaborative fashion to the achievement of the SDGs and the ODC.

Notes

1. www.oecd.org/gov/open-government-reviews.htm.
2. For instance, the 1982 Federal Law of the Responsibilities of Public Servants, the 2005 Guidelines on Personal Data Protection and the 2015 *Implementation Guide of the Open Data Policy*.
3. Twelve institutions did not provide a response.
4. www.infomex.org.mx.
5. http://retos.datos.gob.mx.
6. www.mxabierto.org.

Chapter 1.

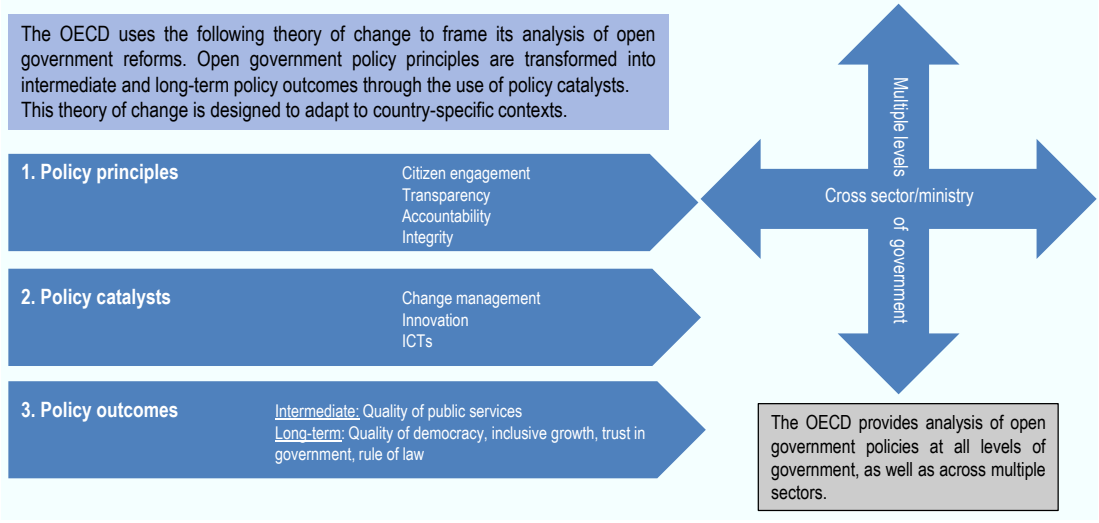
Open government policy implementation in Mexico

This chapter assesses the implementation of open government policies in Mexico, with a specific focus on their steering and co-ordination from the centre of government (CoG). The creation of the Tripartite Technical Secretariat, which oversees the country's Open Government Partnership process, was an important step towards the design and implementation of a whole-of-government approach to open government. Under its leadership, Mexico has elaborated an ambitious second Open Government Partnership Action Plan which includes transformative commitments with great potential impact and which was monitored in a transparent way through the Open Government Dashboard. This chapter provides a preliminary assessment of the way open government policy and practices are co-ordinated by Mexico's centre of government, in collaboration with civil society organisations, their link with the Action Plans of the Open Government Partnership, and their alignment with and contribution to the major national development policies. It describes and analyses the open government context in which open government data initiatives are implemented in Mexico.

Introduction

The OECD defines open government as "the transparency of government actions, the accessibility of government services and information, and the responsiveness of governments to new ideas, demands and needs" (OECD, 2005). Hence, a government is open when it is transparent, accountable, engaging and operates with integrity, which – through specific policy instruments and practices driving change and innovation processes – is likely to lead to better services and policies, higher trust in government, social well-being, quality of democracy (ibid.). As it is clear in Figure 1.1, which summarises the OECD analytical framework for open government reforms, information and communication technologies (ICTs) and open data are key enablers of a national open government agenda, as they allow the transformation of the policy principles into public sector practices and therefore generate concrete impacts for citizens and for the society as a whole.

Figure 1.1. **OECD open government theory of change**



Source: OECD (2015c), "The OECD: A partner in open government".

Mexico's national open government agenda

As illustrated in this chapter, Mexico has become one of the countries that have focused the most on the area of open government, nationally, regionally and globally. From an international perspective, it stands out that over the past years Mexico has been elected chair of the Open Government Partnership (OGP) and, as member of the OGP Steering Committee, has pushed for an ambitious global open government agenda. Moreover, it hosted the 3rd OGP Global Summit in Mexico City in October 2015 and, as a testimony of its commitment to open government, has become co-chair of the OECD Network on Open and Innovative Government in Latin America and the Caribbean.

From a national point of view, transparency, participation and accountability have been among the top political priorities of the administration of President Peña Nieto (2012-18), who described open government as a new paradigm, which constitutes "the new frontier of our democracy" (Government of Mexico, 2015a) and "a new collaborative model which is transforming the way in which they interact with citizens

and authorities" (ibid.). Additionally, the National Digital Strategy, led by the Office of the Presidency, states the importance of government transformation to promote a more open and transparent government as one of its main objectives.

The country has elaborated ambitious OGP action plans that include transformative commitments with great potential impact. In particular, Mexico's second OGP Action Plan has a stronger focus on outcomes than processes, a characteristic that is not as common as expected in most OGP plans. While Mexico's first OGP Action Plan had low rates of implementation, the government reports that it has managed to boost the implementation rate[1] of the second Action Plan to 100%. According to interviews held during the OECD peer review mission, two factors contributed to the achievement of this success more than others: 1) the Open Government Dashboard, created for monitoring the implementation of the second OGP Action Plan; and 2) the management arrangements put in place for each commitment that foresaw the identification of a public official and a representative of civil society respectively in charge of implementing the commitment and monitoring its implementation.

Institutionally, the responsibility for open government is now situated in the centre of government[2] (CoG), namely in the General Directorate for Innovation and Citizen Participation in the Coordination of the National Digital Strategy (Coordinación de la Estrategia Nacional Digital) which is part of the Office of the Presidency of the Republic. The Presidency works closely with other CoG actors including the Ministry of Foreign Affairs and the Ministry of Public Administration (Secretaría de la Función Pública, SFP). To guarantee the efficient and effective co-ordination of the country's participation in the OGP and an inclusive process to draft and implement the related action plans, the government has created the Tripartite Secretariat, which includes representatives from government and civil society, as well as the National Institute for Access to Information, Access to Information and the Protection of Personal Data (Instituto Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales, INAI).

The OECD approach to open government

The OECD's work on open government builds on the vast experience of its 34 member countries and beyond for the past 15 years. In close co-operation with its member and partner countries, the OECD provides a forum for the exchange of best practices to effectively implement open government reforms worldwide. OECD work on open government consists of different components, including peer reviews, data collection and surveys, and networks to foster policy dialogue.

The OECD has carried out Open Government Reviews for Costa Rica, Indonesia, Lithuania, Morocco, Myanmar and Tunisia. In 2013/14, the OECD produced the first regional stocktaking exercise of open government policies and practices in 11 countries from Latin America and the Caribbean (LAC). The OECD report *Open Government in Latin America* (OECD, 2014b), which focused on the topics of open government strategies, access to information and open data, also included case studies of Colombia, Costa Rica and Peru. Furthermore, the OECD is currently working on a global Survey on Open Government and Citizen Participation in the Policy Cycle (the "OECD survey") to which Mexico has already contributed. This Review will make reference to the preliminary findings of the OECD survey in order to benchmark Mexico's practices against practices from OECD and other Latin American countries.

In order to facilitate policy dialogue and the sharing of good practices, the OECD has also established networks on open and innovative government across the world. These networks, which have similar working mechanisms as official OECD committees, are platforms to provide countries from different regions with the opportunity to engage in knowledge transfer and exchange of good practices, with OECD countries at the nexus of the areas of good governance, open government, public sector innovation and digital governance.

The OECD Network on Open and Innovative Government in the Middle East and North Africa (MENA) has been working successfully for more than ten years. In 2015, the first two meetings of the Network on Open and Innovative Government in Southeast Asia took place. In joint efforts, Mexico and Costa Rica share the co-presidency of the OECD Network on Open and Innovative Government in Latin America and the Caribbean. Both countries have committed their national policies towards disseminating open government principles and practices across the region. The regional network was launched at the Global Summit on Open Government in October 2015 in Mexico City.

The space for open government in Mexico

The cultural, historical, political and socio-economic context of a country has a profound impact on the design, implementation and evaluation of open government policies (OECD, 2016b). As discussed in the OECD Open Government Reviews,[3] factors like trust in government, voter turnout in elections or the existence of a significant digital divide have a direct influence on how to successfully foster the open government's principles of transparency, participation, accountability and integrity. This section provides an overview of the general context in which open government reforms are implemented in Mexico.

Over the past decade, Mexico has been fighting high crime rates and the equally highly diffused perception of the generalised impunity of perpetrators. President Peña Nieto, his administration, as well as Mexican citizens and CSOs are well aware of these challenges and recognise the importance of citizen participation, accountability and transparency in addressing them. This was clearly stated by the President himself in his speech on 27 November 2014, when he stressed that to react to the so-called "Tragedy of Iguala" the administration will "continue promoting the principles of transparency, accountability, citizen participation and innovation, which are essential in an open government, as Mexico is committed to be".[4] However, the government has been criticised by several CSOs for the alleged lack of capacity or willingness to define an authentic and effective open government policy that helps address the crisis affecting the rule of law in the country (Langner, 2015; René, 2015). Nonetheless, over the past years, the Office of the Presidency has also managed to build up well-functioning working relationships with a number of key CSOs. For instance, more than 300 CSOs participated and commented during the process of drafting the General Law on Transparency (Fundar, 2015).

In general, levels of trust in the Mexican government remain relatively low. Findings from the Gallup World Poll presented in *Government at a Glance* (OECD, 2015a) indicate that the levels of satisfaction and confidence in public services in the Mexican government are below the OECD average: only one-third (33%) of the citizens polled indicated being satisfied with and confident in the national government, which is 9 percentage points below the OECD average.

Box 1.1. OECD Network on Open and Innovative Government in Latin America and the Caribbean

The Network on Open and Innovative Government in Latin America and the Caribbean brings together open government representatives from governments, civil society and the private sector. In regular meetings, participants discuss regional and national trends, compare challenges and identify common solutions.

The network seeks to:

- connect reformers around the region from government (central and local), civil society, business associations and other relevant multilateral institutions to exchange ideas, experiences and knowledge on how to build better and stronger public institutions
- identify good practices of open and innovative governments and create a space conducive to their dissemination, through data collection and analyses, policy assessments and peer review processes
- provide examples and recommendations to its members on how to sequence open government reforms within the regional and country-specific context and support their implementation to promote socio-economic development and regional integration.

Activities of the network

Policy dialogue and assistance to implementation

The OECD, through the activities of the Network on Open Government in Latin America, will assist Latin American and Caribbean countries and other relevant countries in the design and implementation of public sector reforms in the areas of open government by:

- disseminating principles, instruments and standards from OECD member countries, the OECD Secretariat and other relevant countries/organisations
- promoting policy dialogue by establishing a permanent forum in which participants can discuss regional and national trends, compare challenges, and identify common solutions
- facilitating knowledge sharing based on the dissemination of good practices and success stories, as well as common mistakes to be avoided
- offering tailored policy recommendations and advice based on the renown OECD Peer Review methodology
- providing technical assistance and capacity-building seminars to improve governance and the quality of public institutions in the region.

Supporting national and regional policy priorities

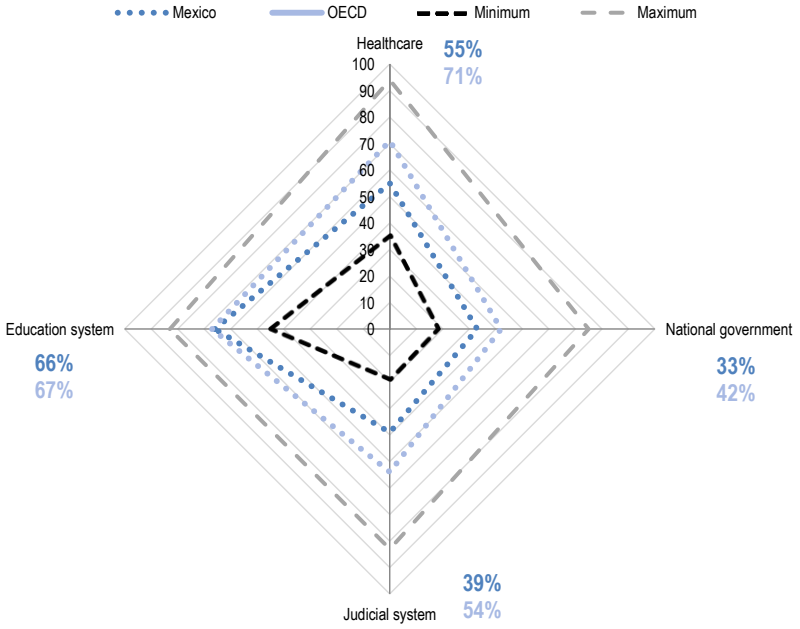
Each meeting will have a specific focus on one or more issues selected because of their national and/or regional relevance.

Collecting data and producing analyses for better decision making

In order to ground national and regional policies and OECD technical assistance on real and updated information, the OECD will systematically collect a fixed set of data and will produce a coherent series of indicators that will provide actionable analyses on governance evolution and trends in Latin American countries. This permanent collection of data and analyses will build on the methodology of the OECD flagship publication *Government at a Glance* and will be focused on jointly selected categories.

Source: OECD (n.d. *a*), "Open governance", www.oecd.org/mena/governance/open-governments.htm.

Figure 1.2. **Citizens expressing satisfaction and confidence across public services, 2014**



Source: Gallup World Poll in OECD (2015a), *Government at a Glance 2015*, Country fact sheet Mexico, www.oecd.org/gov/Mexico.pdf.

Findings of the 2015 *Latinobarómetro* also indicate perceived low levels of transparency of the state. Most respondents stated that they perceive the state to be little (40%) or not (34%) transparent, as illustrated in Table 1.1. According to Transparency International, Mexico occupies the 95th place out of 168 countries in the Perceptions of Corruption Index (Transparency International, 2015), the lowest rank across the OECD.

Table 1.1. **How would you rate the transparency of the state?**

How would you rate the transparency of the state?	2015
A lot	4
Some	19
Little	40
None	34
No response	1
I do not know	3

Source: Corporación Latinobarómetro (2015), *Transparencia en el Estado*, www.latinobarometro.org/latOnline.jsp.

The rate of voter turnout is a measure for citizen participation in the political processes in a country. For the last presidential elections in 2012, voter turnout in Mexico was significantly lower than the average in OECD countries (68%) for the most recent elections for which data were available (OECD, n.d. *b*) (Table 1.2). Although voting is compulsory in Mexico, it has the 11th lowest (out of 36 countries measured)[5] turnout in national elections (ibid.). The OECD's Better Life Index moreover assesses the level of consultation on rule making, which comprises the level of government transparency when

drafting regulations. In 2015 (or the latest year for which data were available), Mexico occupied 10th position out of 36 countries polled (ibid.).[6]

Table 1.2. **Participation rates in national presidential elections in Mexico, 1982-2012**

Year	1982	1988	1994	2000	2006	2012
Participation	75%	50%	79%	64%	59%	63%

Note: In Mexico, like other countries in Latin America, voting is compulsory.

Source: International Institute for Democracy and Electoral Assistance (n.d.), "Voter turnout data for Mexico", www.idea.int/vt/countryview.cfm?id=157.

It is in this complex and challenging context that Mexico has initiated its ambitious open government process. The country's leadership in the OGP and the elaboration of innovative OGP action plans are testimony of the government's commitment to a fundamental change in the relationship between citizens and the state and in addressing the core challenges mentioned above. Mexico's centre of government is leading the country's efforts to become more open and transparent.

From policy to implementation: The role of the centre of government

According to "Centre stage: Driving better policies from the centre of government" (OECD, 2014a), the CoG in OECD countries generally has the following core responsibilities: 1) co-ordinating the preparation of Cabinet meetings; 2) policy co-ordination across government; 3) strategic planning for the whole of government; 4) preparation of the government programme; 5) monitoring the implementation of government policy.

Given these responsibilities, good practices in OECD countries show that identifying an institution or an office within the centre of government that is in charge of open government policy co-ordination contributes to the successful implementation of open government policies. In Mexico, these functions are the responsibility of the Office of the Presidency. Further key CoG institutions in Mexico involved in the open government agenda include: the Ministry of Finance, the Ministry of Public Administration and the Ministry of Foreign Affairs.

Situating the responsibility for open government within the centre of government can be considered a good practice for several reasons. On the one hand, open government policies and practices are both a strategic objective in themselves and a cluster of essential values and instruments that can effectively help the CoG to better advance its various national policy objectives and achieve better results thanks to the ensuing collaboration with citizens, civil society and the business community. In addition to the specific policy actions, open government principles apply to the very functioning of the public sector as a whole. The implementation of reforms aimed at promoting more open and participatory policy making and service design and delivery have the potential to deeply transform the way public officials perform their duties in all the domains of the state.

On the other hand, being multi-sector and multi-stakeholder by definition, open government policies need a whole-of-government/whole-of-society approach to be effective and achieve the desired impact. Open government policies are considered by OECD countries as critical for a number of different policy outcomes, in various areas of the public sector administration (e.g. transparency, accountability, integrity, fight against corruption, public service delivery). This requires coherent steering and co-ordination of the various phases of the policy cycle, from design to implementation, monitoring and

evaluation. CoG institutions are well placed to provide the leadership required for this kind of approach. Open government agendas benefit from an effective, dynamic and implementation-oriented centre of government that ensures their overall internal coherence and their full alignment with national public sector reform objectives.

Box 1.2. A comprehensive constitutional and legal framework for open government in Mexico

On paper, Mexico's constitutional and legal framework for open government is solid and comprehensive, and is based on the principles of transparency, access to information and citizen participation. Like in most OECD countries and other Latin American countries, in Mexico these principles are enshrined at the highest legal level:

- The **Mexican Constitution from 1917** includes a wide range of articles which build the constitutional basis and set the ground for an open government. The 1917 Political Constitution of Mexico includes all open government principles: according to Article 6 of the Constitution, "the state shall guarantee the right to information". According to Article 35 of the Constitution, citizens have the right to vote and "initiate laws in the terms and with the requirements appointed by the Constitution and the Law of the Congress (…)" (Article 35) and "to vote in the referendum on topics of national importance (…)" as included by a decree published on 9 August 2012 (Tribunal Electoral, 2013).
- The 2002 **Federal Law on Transparency and Access to Public Government Information** (Ley Federal de Transparencia y Accesso a la Informacion Pública Gubernamental), is based on the premise of disclosure, which laid down that all government information shall be public (Article 2), valuing "the principle of maximum disclosure of information" (Article 6). The law dictates the publication of daily functions, budgets, operations, staff, salaries, internal reports, and the awarding of contracts and concessions (Article 7). It grants citizens the right to seek the release of information that is not already public through a simple request for information process (Article 40), and includes the right to appeal to an agency's decision to deny information (Article 49). It was introduced based on pressure from civil society organisations for greater accountability and was welcomed by Human Rights Watch (2006) as "(…) a potentially decisive blow to the longstanding culture of secrecy in government affairs". The law also established the Federal Institute for Access to Information (IFAI, which was later renamed the INAI), which is discussed in more detail later in this chapter. Currently, Congress is discussing a new Federal Law on Transparency (Government of Mexico, 2016).
- The **General Law of Transparency** (Ley General de Transparencia) approved in May 2015. The law obliges authorities of the legislative, judiciary and executive branch, autonomous organs, trade unions and any other person dealing with public funds to make the information they generate completely public. Approving this law has generated a spill over effect by which: 1) trade unions, receiving public funds, are required to make information public on the Internet; 2) legislators at all levels, national and local, need to make their public spending transparent; 3) justification is required in case an entity withholds information (for example, in the case of national security); 4) sanctions for lack of transparency can be imposed (including 15 different mechanisms of sanctioning); 5) any citizen can denounce institutions.
- Another relevant law is the **Law to Make Mexico City a More Open City** (Ley Para Hacer la Ciudad de México una Ciudad más Abierta) from April 2015. The law reinforced the country's open government efforts at the local level by including the capital among the cities involved in the national open government agenda. Noteworthy is the portal of procedures and services (Portal Único de Trámites s y Servicios) that the city created in the context of the implementation of this new law.

Source: Own elaboration.

As discussed in the OECD *Open Government Review of Costa Rica* (OECD, 2016a), OECD experience shows that three elements are crucial for an efficient and effective CoG-led implementation of national open government agendas:

1. In order for implementation to be successful and sustainable in the long term, the CoG has to have the necessary institutions and mechanisms to ensure that its qualities and functions are properly operationalised.
2. The CoG institution(s) in charge of open government policies must have strong leadership and vision-setting capacities. This includes having the capacity to ensure the elaboration of a country's distinctive vision of open government and its translation into policies and practices that are horizontally and vertically coherent, integrated and mutually supportive; being able to activate high-level political support; and having the capacity to mobilise the necessary human and financial resources.
3. CoG institutions must further have the ability, and be recognised as having the related function, of successfully co-ordinating whole-of-government (or whole-of-state) open government efforts, horizontally and vertically (across levels of government), as well as outside of government (i.e. with civil society, academia and the private sector). Open government policies and initiatives require and promote institutional collaboration, one of the core functions of centres of government across the OECD.

Institutions and mechanisms for successful implementation of open government policies

In order to strengthen and focus their open government efforts, all governments across the OECD have adopted specific policies and/or plans aimed at better co-ordinating the multiplicity of stakeholders involved in designing and implementing the various existing open government initiatives (OECD, 2016b). The implementation of these policies and initiatives requires having in place the right institutions and appropriate co-ordination mechanisms. According to the successful experiences of OECD countries, these include: 1) an open government steering committee with all relevant stakeholders from government, civil society, academia, the private sector; 2) a government institution in charge of the national open government agenda; and 3) adequate mechanisms to monitor and evaluate its implementation.

The Office of the Presidency of the Republic

Before the election of President Peña Nieto (2012), the Ministry of Public Administration was Mexico's open government leader and the government representative in the Tripartite Secretariat, the country's Open Government Steering Committee (next section). This function has been shifted to the Office of the Presidency, which is the main CoG institution responsible for horizontal policy co-ordination. In particular, as mentioned above, the responsibility for open government has been given to the General-Director for Innovation and Citizen Participation within the Coordination of the National Digital Strategy (OECD, 2016a).

The Presidency's main functions in the area of open government are:

- develop the open government strategy
- co-ordinate the implementation of open government initiatives

- monitor implementation
- evaluate impact
- communicate the reforms (OECD,2016a).

Despite having a small staff focusing on open government, the Office of the Presidency has managed – in only few years – to greatly advance the national open government agenda. In addition, on the international front, it has taken on a proactive role in the OGP Steering Committee, organised and hosted the Global Summit of the Open Government Partnership (Mexico City, October 2015) and, most recently, took over the first co-presidency of the newly created OECD Network on Open and Innovative Government in Latin America and the Caribbean, together with Costa Rica. Finally, it has successfully co-ordinated and led the design of the second OGP Action Plan and is currently preparing the third Action Plan.

Despite its crucial role in the country's open government agenda, this responsibility was assigned to the Coordination of the National Digital Strategy directly by President Peña Nieto, without a formal act (i.e. decree or circular). Due to the nature of this office, which was originally created by decree to manage Mexico's digital government and open data agendas, it seems important to consolidate the new role in the field of open government with a formal act that would provide the necessary institutional stability and could be used by the future government to ensure long-term sustainability.

The Tripartite Technical Secretariat

The co-ordination ignition of Mexico's open government agenda is the Tripartite Technical Secretariat (TTS), the country's open government steering committee. The TTS is composed of one representative from the government, one from the INAI and one organisation chosen by the Civil Society Coordination Committee (Comité Coordinador de la Sociedad Civil) on a rotating basis among its eight CSO members. The key functions of the secretariat are:

- to co-ordinate the development of Mexico's action plans
- to follow up on the commitments included in the action plans, through the establishment of a methodology for this purpose and the co-ordination of activities to be determined for this purpose
- to develop a self-assessment report at the end of the action plan period
- to spread the values of the Open Government Partnership in society and between branches and levels of government
- to create the working groups needed to comply with the action plan's commitments and to implement the actions that the TTS foresees
- to keep track of the members of the working groups, their representatives and their links.

While there is only one CSO representative, who is auto-selected by the Civil Society Coordination Committee, at the table, the government reports that the TTS is open to all other organisations that want to participate. The TTS meets approximately every two weeks and minutes of all meetings are available online.

Box 1.3. The National Institute for Transparency, Access to Information and the Protection of Personal Data

The National Institute for Transparency, Access to Information and the Protection of Personal Data (Instituto Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales, INAI), was established by the 2002 Federal Law on Transparency and Access to Public Information (Ley Federal de Transparencia y Acceso a la información Pública Gubernamental, Articles 33-39). The institute is composed of a Commissioner President and six commissioners, who are appointed by the federal executive for six years, without the possibility of renewal.

The institute works in full independence as laid down in its founding law. Its main tasks can be summarised as the (de-)classification of information relevant to the public. It reports annually to the Congress. In addition, the institute aims at:

- assisting in the organisation of the national archives
- promoting a culture of transparency in public expenditures
- fostering accountability within the government to raise trust among its citizens
- contributing to the processes of analysis, deliberation, design and issuance of judicial norms of relevance to the archives and personal data
- enhancing the legislative processes targeted to improve and strengthen the normative and institutional framework for transparency and access to public information.

Source: INAI (n.d.), "Misión visión y objetivos", http://inicio.inai.org.mx/SitePages/misionViosionObjetivos.aspx.

While the TTS is certainly a good practice in terms of effective multi-stakeholder co-ordination, its inclusiveness and the representativeness of its members could be increased. For example, it seems that compared to similar practices in OECD countries, more CSOs, with a diverse background and institutional focus, and especially from the local level, could provide beneficial inputs and higher representativeness. Mexico could further consider extending the committee to sub-national governments as well as the judiciary and legislative branches in order to continue the move towards an open state, as discussed later in this chapter.

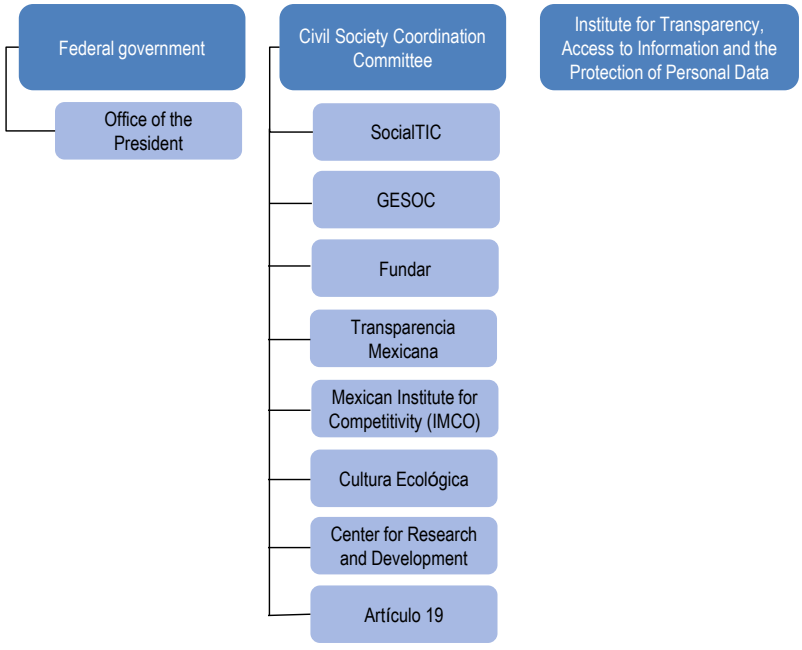
The role of civil society organisations and of citizens in Mexico's open government process

Open government involves a new relationship between governments and stakeholders, inspired by the principle of collaboration and on the co-creation of public value. Governments have the responsibility of providing adequate mechanisms to guarantee the adequate involvement of all relevant parties, while citizens and civil society commit to engage in a constructive way. The Mexican government has managed to create a good working relationship with civil society organisations, especially with those involved in the Civil Society Coordination Committee that forms part of the TTS.

However, some civil society stakeholders, interviewed during the fact-finding mission for this Review, raised concerns about the lack of inclusiveness mentioned above and on the limited extent to which the involvement of CSOs and citizens is representative of all relevant instances of Mexican society and allows them to really influence the national

open government agenda. More specifically, in relation to the Open Government Partnership process, many stressed that it would benefit from the presence of representatives from the sub-national level. In reaction to this, a call was made by the TTS in 2015 to include more CSOs and citizens in the open government process, with a particular focus on the sub-national level (Government of Mexico, 2015c). The list of interested parties has been the basis for the organisation of the participatory sessions for the construction of the third OGP Action Plan (Government of Mexico, 2015b). The first sessions took place in Sonora with the participation of local actors from the Northern Region.

Figure 1.3. **Composition of the Tripartite Technical Secretariat**



Source: Government of Mexico (n.d. *a*), "Alianza México", http://gobabiertomx.org/alianza-mexico.

Potential remains to further increase civil society participation in the OGP process and the country's open government agenda in general, particularly at the local level. The government should, for instance, consider including more CSOs from outside of Mexico City in the open government process. For this purpose, the Collective for Transparency (Colectivo por la Transparencia), which does not formally take part in the country's OGP process, could be useful. It was formed in late 2004 by six key civil society organisations and has grown over the years. Being a group of CSOs with regional and national influence, the Collective works mainly in the areas of transparency, access to information and accountability, and aims to be a "social counterweight to the government which facilitates the empowerment of citizens" (Colectivo por la Transparencia, n.d.). The network has great potential to spread the values of an open and transparent government in every part of the country. The CSOs "Fundar", "GESOC" and "Cultura Ecológica", which are members of the network, are also founding CSOs of the TTS. Other organisations such as "Alianza Civica" and "Sonora Ciudadana" are part of the interested parties that have signed up to join the TTS in the next action plan cycle.

The Dashboard for Monitoring and Evaluating Open Government Policies

Monitoring and evaluation (M&E) is a key component of any policy cycle. M&E provides for constant feedback loops that allow adjusting policies and their objectives to the real conditions of their implementation. The OECD Open Government Survey (2015b) shows that few countries have elaborated systematic monitoring and evaluation systems for their open government agenda, beyond the specific OGP-related action plans and the OGP independent reporting mechanism, or have integrated them with existing M&E systems, for instance those of national development plans.

In its report on Mexico's first OGP Action Plan, the Independent Reporting Mechanism (IRM) stated that Mexico should aim at strengthening the monitoring and evaluation of the commitments included in its action plan. In response, Mexico developed its own methodology to monitor its OGP commitments. This methodology is advanced in many regards. In particular, it identifies specific actions, deadlines and clear responsibilities, both for civil servants and for civil society; and the data are public and include a control board powered by real-time information on the progress of each commitment, the "Open Government Dashboard".[7]

The Open Government Dashboard, which was designed for the second OGP Action Plan, can be seen as an international good practice. It visualises the advances or remaining challenges of each of the commitments, allows citizens to track the progress made so far on each open government commitment, and offers links to the government bodies in charge of the implementation to obtain further information and points of contact. While it is still too early to evaluate the contribution of the dashboard beyond the monitoring of the implementation process (i.e. in relation to the impacts of the commitment), in any case, it seems clear that the decision taken by the government to provide information at any stage of the implementation process creates pressure on the institutions in charge to ensure the timely realisation and completion of the commitments. Even though the dashboard is an effective tool to verify whether or not the OGP action plan commitments are met, it cannot help the government of Mexico determine the concrete impact that these measures are generating in the short and long term. Therefore, as also recommended in the second IRM report, the government of Mexico should put in place a monitoring and evaluation system with specific mechanisms to guarantee a better link between other national strategies and the open government agenda.

The Mexican government informed the OECD team that it will further refine the dashboard. The new version will be aligned to some of the United Nations' Sustainable Development Goals (SDGs) in its monitoring and evaluation framework. The third OGP Action Plan for 2016-18 will consider some of the SDGs and will follow a two-phase process in order to increase its impact. Firstly, the third Action Plan will establish a long-term policy outcome for the 2030 period. This policy outcome will then be unfolded into specific actions. The first actions will have a two-year time period and will become the commitments of the third Action Plan. This work is aligned with open data initiatives that the central government has implemented towards the achievement of the SDGs (see Chapters 3 and 4).

Box 1.4. Civil society organisations in Mexico: Key players in defining open government policies

- SocialTIC: organisation for social groups (including indigenous communities), http://socialtic.org
- GESOC: controls government social initiatives and promotes transparency and human rights, www.gesoc.org.mx/site/?page_id=2
- Fundar: research and analyses centre in issues related to civil society, transparency, access to justice, budget auditing, http://fundar.org.mx/quienes-somos and www.fundar.org.mx/mexico/pdf/alianzagobierno.pdf
- Transparencia Mexicana: the local branch of Transparency International, works on social ethics regarding transparency and anti-corruption policies, www.tm.org.mx
- Mexican Institute for Competitivity (IMCO): evidence-based centre, consultancy for Mexican people for public policies, collects information on competition, economic development, provides indicators and also works on all issues of public interest, http://imco.org.mx/conoce-imco
- Cultura Ecológica: is a non-governmental organisation with the purpose of raising awareness and consciousness on environmental issues; it is also involved in social participation and transparency, www.culturaecologica.org.mx/nosotros.html
- Centro de Investigación para el Desarrollo: independent think tank on public policies on issues related to equality, fighting poverty and national economy, http://cidac.org/acerca-de
- Artículo 19: independent organisation that focuses on human rights and liberty of expression, www.article19.org/pages/es/resource-language.html

Additionally, there are other influential institutions, which deal with topics of open government. A selection of these include:

- The Colectivo por la Transparencia, which includes more than 16 other civil society organisations working on issues related to transparency and access to information. The CSOs below are all part of it:
  - Alianza Civica has been fighting for democracy since 1994 and is currently implementing a project on transparency and accountability for a more result- and citizen-oriented democracy, www.alianzacivica.org.mx/somos.php
  - Equipo Pueblo, founded in 1977, promotes an inclusive society, aims at initiatives directed to reduce poverty and promote democracy, www.equipopueblo.org.mx/descargas/Presentacion%20PUEBLO%202015.pdf
  - Contraloría Ciudadana, promotes monitoring and evaluation of institutional processes of public interest, www.contraloriaciudadana.org.mx/mision-y-vision
  - Sonora Ciudadana aims at generating integral and inclusive democracy that fully respects human rights, transparency, accountability and access to information, www.sonoraciudadana.org.mx

Source: Own elaboration.

During Mexico's chairmanship of the OGP, it led the drafting of a Joint Declaration in which countries pledged to use the OGP and national action plans as tools for effective national SDG implementation. So far the Declaration has been signed by 50 countries and more than 90 CSOs. The first results of this global commitment will be presented in September 2016 during the United Nations General Assembly. The Mexican efforts to both use the SDGs as an evaluation framework for its open government initiatives and to use the OGP action plans to achieve some of the SDGs should be sustained. It could provide an example for other countries to follow. Next steps could include further linking the monitoring and evaluation of the OGP Action Plan (and the link to the SDGs) to the M&E of the National Development Plan in order to ensure that all efforts go in the same direction. Together, open government and open government data policies could better contribute to the achievement of the SGDs in the long term. This would contribute to enhancing the implementation of open government policies, a challenge Mexico shares with other OECD countries.

Box 1.5. **United Nations' Sustainable Development Goals and open government**

The Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development send a strong signal that public governance has to play a key role in fostering inclusive growth and that, in order to achieve ambitious global development targets, inclusive institutions are indispensable. A number of SDGs are closely interrelated with the open government principles of transparency, accountability and citizen participation. SDG 16 calls for the development of "effective, accountable and transparent institutions at all levels" (Goal 16.6.) and to "ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements." (Goal 16.10) (UN, 2015). Hence, the international community acknowledges the need for and is committed to good public governance and open government policies and practices. Table 1.3 highlights other open government principles and how they are mirrored in the SDGs.

Table 1.3. **Open government principles included in the Sustainable Development Goals**

Goal	Sustainable Development Goals
10.2	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.
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.
16.6	Develop effective, accountable and transparent institutions at all levels.
16.7	Ensure responsive, inclusive, participatory and representative decision making at all levels.
16.10	Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements.

Source: UN (2015), "Sustainable Development Goals", https://sustainabledevelopment.un.org.

Open government leadership

Open government leadership involves the capacity to communicate the benefits of open government in an effective and efficient manner as well as the capacity to design a whole-of-government/whole-of-society open government vision that can guide the implementation of policies in the medium and long term. OGP action plans have proven to be an effective tool to provide a country with visible high-impact initiatives, but they have limitations in terms of their vision-setting capacity and in streamlining open government principles across different policy areas and across government institutions.

The former is due to the required action-oriented commitments, while the latter is linked with the fact that the two-year cycle of the OGP plans in many cases is not aligned with the government's policy cycles. Hence, OGP action plans are useful and valuable instruments to achieve national open government priorities, but their very nature impedes a wider reflection on the contribution of open government to broader national development objectives.

In order to compensate, several countries are starting to elaborate comprehensive national open government policies that constitute the backdrop to the OGP action plans and provide the entire state apparatus with the strategic impetus needed for open government policies to be successfully linked to the overall socio-economic development objectives.

The national development agenda and open government

Mexico has shown its capacity for vision setting in the process that led to the design of its "Mexico's Vision for the Chairmanship of the Open Government Partnership, 2014-2015". This document, which is the result of the discussions with the Tripartite Technical Secretariat, identifies active citizen participation as the main challenge of the Open Government Partnership.[8] While the vision has only been designed for the country's OGP chairmanship, it shows that the TTS is capable of taking a strong leadership role and linking the open government agenda to wider policy objectives.

Both the first and the second OGP Action Plans also show that the government believes in the importance of open government for the achievement of the country's development objectives. The second plan recognises that "Open government is based on a culture of transparency, collaboration, participation and accountability that allows the creation of new ventures and generates solutions to public challenges to contribute to the development of the country" (Government of Mexico, 2013).

In Mexico, the national development agenda, the public reform agenda and the open government agenda are fully linked. The National Development Plan 2013-2018 makes direct reference to open government and includes it as one of its transversal axes as part of the Programme for a Close and Modern Government (Programa para un Gobierno Cercano y Moderno). This programme is the framework within the National Development Plan (Plan Nacional de Desarrollo, PND) that is the basis of the commitment of the government to work with civil society on promoting an open government. Line of action 1.1.3 states: "Promote a joint implementation between the government and CSO of projects that impact society in the framework of the OGP". The government should pursue these efforts and make sure that the third OGP Action Plan is fully linked to the next National Development Plan.

Open government communication

A successful open government agenda cannot be implemented without important efforts to disseminate the benefits of open government to all key stakeholders, inside and outside of government (see Chapter 3). Clear, simple, timely and efficient communication raises policy awareness among public officials, citizens and the private sector; can help foster the feeling of shared goals among the parties involved; and should be conceived as a permanent component of the policy cycle (OECD, 2016b). Being a relatively new topic on the global agenda, many stakeholders – including public servants, civil society organisations, companies and the media – remain unaware of the great potential of open

government initiatives (OECD, 2014a). Communication of a country's open government agenda and the benefits it bears should therefore be given an important role in any strategy.

The Mexican government, and the Office of the Presidency in particular, have made great efforts in communicating the benefits of open government reforms over the past years. The fact that the country hosted the Global Summit of the OGP is testimony to these efforts, not only at the national level but also regionally and in the world. The event was opened by the President of Mexico and counted on the presence of numerous high-level government representatives, including ministers and governors, who had the opportunity to inform themselves about their government's commitment to openness, transparency and participation. It also actively involved a great number of local and international civil society organisations, which actively participated in the different sessions.

In order to provide the necessary impetus for improved open government communication, Mexico could consider including a commitment to foster open government communication in its third OGP Action Plan. This commitment could be targeted at the sub-national level in particular.

From open government to open state

In most OECD countries open government initiatives are implemented by the executive branch as well as the legislative and judiciary branches, which play an equally important role in the move towards increased openness, transparency and accountability of the whole state. Countries across the OGP community are starting to move from an open government towards an open state approach, increasingly involving other branches and independent institutions in their open government processes by designing open judiciary and open legislature initiatives.

An excellent example is provided by Costa Rica, which is leading the way towards an open state. The heads of the four supreme powers of the country signed a Declaration towards the Construction of an Open State (Box 1.6).

Policy co-ordination with other branches of power

Mexico has taken some first steps towards an open state. In September 2014 the Alliance for an Open Parliament in Mexico (Alianza para el Parlamento Abierto) was founded. An agreement was signed between the lower and upper chambers, the INAI (IFAI at that point), and representatives of 12 Mexican civil society organisations.

The aim of the co-operation is to promote transparency in the 32 local legislative bodies and the 2 chambers of Congress. The main objective of having open parliaments in Mexico is to ensure that information is publicly available and that the principles of transparency and accountability permeate the legislative branch. At the same time, the alliance aims at creating mechanisms for more effective citizen participation and at using new technologies in order to foster more receptive and innovative parliaments that work for their citizens.

Box 1.6. **The Costa Rican approach towards an open state**

On 25 November 2015, the President of the Republic and the presidents of the supreme powers of the Republic of Costa Rica (Legislative Assembly, Supreme Court and Supreme Electoral Tribunal) signed a joint declaration committing Costa Rica to move towards an open state, which makes Costa Rica one of the first countries in the world to have signed such a promising declaration bringing together all the powers of the state. This declaration has the significant potential to guide the country's open state agenda and a whole-of-government open government policy.

The declaration states that each branch will build a plan of priority actions to "promote a policy of openness, transparency, accountability, participation and innovation in favour of the citizens", which will be included in the institutional strategic plans and will be evaluated annually. Under the declaration, the powers also agree to strengthen and develop the mechanisms of citizen participation in order to contribute to strengthening the relationship between civil society and the leaders and to provide access to public information through the use of new technologies. Under this commitment the three branches have already built their own plans to enhance the principles of open government and build the path towards an open state.

At the same time and in line with the priority of becoming an open state, Costa Rica also introduced an ambitious second OGP Action Plan for the period 2015-17 and, as one of the first countries worldwide, issued a National Strategy for Open Government in December 2015. One of the challenges faced by Costa Rica on its road to becoming an open state is to involve other stakeholders such as the control entities, local governments, autonomous institutions, the business sector, media, academia and civil society organisations into specific open government actions.

Source: OECD (2016a), *Open Government in Costa Rica: Towards an Open State*.

The alliance includes a set of ten principles and concrete actions that will become mandatory to the 34 legislative institutions that are part of it. Under the principles, legislative institutions are committed to:

1. guarantee the right to information
2. promote citizen participation and accountability
3. publish parliamentary information
4. announce budget and administrative information
5. publish legislators and public servants information
6. develop historic information of the legislative activities
7. present information in an open data format
8. ensure accessibility and diffusion of legislative sessions and meetings
9. regulate possible conflict of interest
10. promote legislation in favour of open government.

More concretely, by signing the Declaration for an Open Parliament in Mexico, the signatories agree and commit to adopt five concrete actions:

1. establish internal rules for the participation of its members and the inner workings of the alliance

2. agree to a communication policy and identity of the Alliance for an Open Parliament
3. generate the methodology for the preparation of corresponding action plans with the progressive implementation of commitments framed in the ten Principles of Open Parliament mentioned above and ensuring the inclusion of civil society organisations in those future plans
4. establish between the parties a work schedule for the fulfilment of the objectives of the alliance
5. participate in the Alliance for Open Parliament in the context of the Open Government Partnership in Mexico and internationally.

If implemented successfully, this initiative has the potential to be an important step towards an open state in Mexico. The country should pursue it and widely communicate its results to its citizens and internationally to other OECD and OGP members.

For the time being, the judiciary does not seem to be involved in any open government activities, nor has it designed its own open judiciary initiative as done by other Latin American countries such as Colombia and Costa Rica. The same is true for the National Human Rights Commission (Comisión Nacional de Derechos Humanos), the Mexican Ombudsman that is not yet involved in the open government process. In interviews for this Review, the government declared that it aims to involve the judicial branch in all steps of the third OGP Action Plan and wants to include a high-level commitment on transparency in the judiciary in the action plan. The country could consider doing the same for the National Human Rights Commission.

Horizontal policy co-ordination

The key CoG institution in charge of open government has to ensure co-ordination with other government actors from the CoG and beyond in order for open government policies to be implemented successfully. In Mexico, the Office of the Presidency has created well-functioning relationships and working mechanisms with key central government ministries. The Presidency works closely with the Ministry of Public Administration, the key actor for the implementation of most commitments included in the Action Plan, as well as with the Ministry of Foreign Affairs when it comes to the promotion of the country's efforts on a global scale. The government has further created an informal working committee integrated by the key CoG actors. The committee is composed of representatives from:

- the Presidency
- the Ministry of Foreign Affairs
- the Ministry of Public Administration
- the departments and agencies responsible for open government commitments as part of the OGP Action Plan.

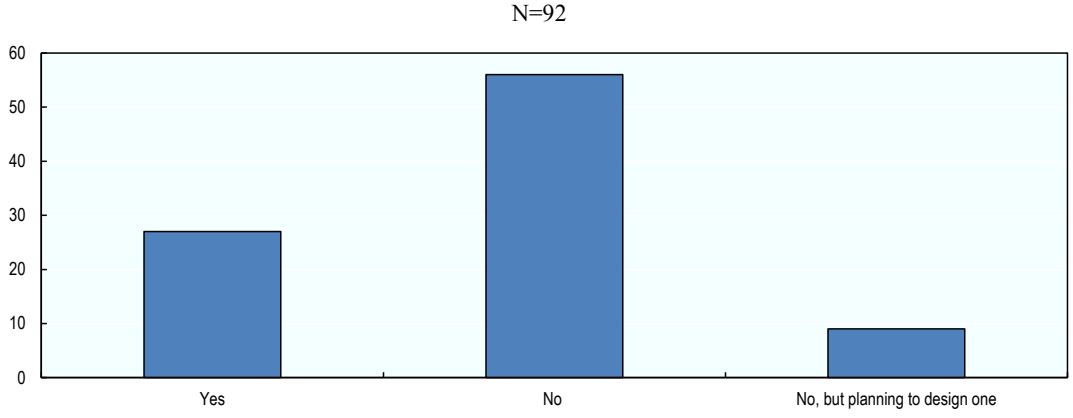
This working committee is chaired by the Office of the President and supported by the Ministry of Foreign Affairs to boost the international agenda of the OGP, and the Ministry of Public Administration to promote the national agenda (OECD, 2016a). It holds regular meetings and guarantees constant communication between the officials involved. The creation of this government committee is a great step forward in terms of horizontal co-ordination. In order to make sure that the implementation of open

government initiatives is supported by adequate funding, the government should consider including the Ministry of Finance in the committee as well.

Horizontal co-ordination is crucial to align institutional open government strategies with the Mexican OGP Action Plan and other federal open government-related strategies, such as the National Development Plan. Evidence from the OECD survey, which was administered for the purpose of this Review, shows that 27% of public sector institutions have an institutional open government strategy in place.

Yet, 56% of those who responded that they had an institutional open government strategy in place reported that their strategy was not elaborated in collaboration with open government policy co-ordination bodies within the CoG, i.e. the Office of the Presidency (Figure 1.4). It seems that great potential remains for the CoG to co-ordinate the country's open government strategy with the various existing institutional strategies in order to exploit synergies and avoid duplications. While this evidence could also reflect the fact that public officials answering the OECD survey are in charge of the open data agenda rather than the open government agenda, the government of Mexico should focus on achieving greater integration between the two.

Figure 1.4. **Does your institution have an institutional open government strategy in place? (in parallel to the central/federal open government strategy)**

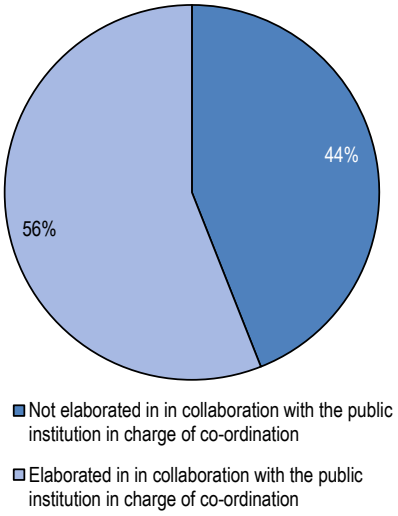


Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Vertical co-ordination of open government policies in Mexico

Sub-national governments are closest to citizens and, while the range of services they deliver varies, they are typically the political and institutional place where people and policy meet. Both open government and open government data policies and initiatives call for the active involvement of local government and stakeholders (see Chapter 5). Achieving an open government and an open state is possible only via the active involvement of governments at all levels: open government principles and practices have to become part of all public servants' and peoples' DNA (OECD, 2016b). This involves providing the needed capacities and a complete rethinking of the interaction between governments and citizens at all levels of government. This is particularly challenging in federal governments in which a consensus-based approach is essential due to the limited capacity of the central government to influence sub-national policies – in areas that are not of federal competence – and similarly to contribute to their successful implementation.

Figure 1.5. **Was the institutional open government strategy elaborated in collaboration with the public institution in charge of co-ordination?**



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Increasing the involvement of the local level in the OGP process has been one of the main priorities of the current administration and, in the framework of its OGP chairmanship, the Mexican government has made citizen participation at the sub-national level one of its top priorities.

In its 2012 report, the IRM stated that "one area requiring growth is that a significant amount of the participation in OGP centred mainly around the capital". In response, on 24 February 2015, the government launched a call for actors to express interest in participating in the OGP process (OECD, 2016a). According to data provided by the government in the OECD survey, more than 350 actors have expressed their interest in participating, including from local governments.

Moreover, the INAI project "Open Government, Co-creation from the Local" (Gobierno Abierto, Cocreación desde lo Local) is targeted at states and municipalities for them to adopt the principles of open government (OECD, 2016a). Most recently, governors signed up to promote open local governments and open government data in the National Conference of Governors (Comisión Nacional de Gobernadores, CONAGO) via the *Red México Abierto*. Furthermore, a new Commission on Open Government, Transparency and Public Accountability was recently created within CONAGO (see Chapter 5). This commission will be accompanied by a multidisciplinary technical group, consisting of the Coordination of the National Digital Strategy, the Ministry of Public Administration, the INAI and the CSO Transparencia Mexicana.

As chair of the OGP, one of Mexico's objectives was to promote the implementation of the principles of open government at the sub-national level in order for its benefits to reach more people. Therefore, the government promoted the creation of a sub-national pilot project within the context of the OGP. This pilot was announced at the OGP Global Summit in Mexico. The pilot features a pioneer and a leader's phase in which sub-national governments will develop independent commitments in partnership with CSOs and contribute to peer learning with other sub-national governments. The OGP

announced 15 sub-national governments from around the world that were chosen to participate in the pioneer pilot. Jalisco, Mexico is among the chosen winners (Open Government Partnership, 2016).

The government should pursue these efforts to include the local level in the open state process by co-ordinating them in a more coherent and structured manner. This could be achieved by giving representatives from the local level a seat in the Tripartite Technical Secretariat. The government is taking first steps in this direction: a formal agreement with CONAGO to increase the participation of local governments in the development of the third OGP Action Plan and its implementation has been signed. Moreover, the first session for the construction of the third Action Plan was hosted by the local government of Sonora, the chair of CONAGO.

Notes

1. See, for instance: www.gob.mx/presidencia/articulos/mexico-cumple-con-los-26-compromisos-de-la-alianza-para-el-gobierno-abierto, http://inicio.ifai.org.mx/Comunicados/Comunicado%20INAI-098-15.pdf, http://conlosojosabiertos.org.mx/index.php/component/zoo/item/cumple-mexico-100-de-compromisos-de-gobierno-abierto-inai.
2. The OECD defines the centre of government as the institutions that provide direct support and advice to the head of government and the Council of Ministers (OECD, 2015a).
3. www.oecd.org/gov/open-government-reviews.htm.
4. www.gob.mx/presidencia/prensa/mensaje-a-la-nacion-del-presidente-enrique-pena-nieto-por-un-mexico-en-paz-con-justicia-y-desarrollo.
5. Which comprises the 34 member countries of the OECD as well as Brazil and the Russian Federation.
6. Which comprises the 34 member countries of the OECD as well as Brazil and the Russian Federation.
7. http://tablero.gobabiertomx.org.
8. https://docs.google.com/document/d/1JQktQ6BEV8LsewpDL7C9vRfTs1dN0isH7l_qlUAKvHs/edit.

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Chapter 2.

Governance and policy framework for open data in Mexico

This chapter discusses the policy, legal and governance framework for open government data in Mexico. It provides evidence on the ability shown by the institutions responsible for policy co-ordination to align high-level policy directives to overarching central policies such as the National Development Plan and the National Digital Strategy; and to use its international commitments to set an evolving road map for open data informed by best international practices.

Introduction

Mexico's manifest advancements on open government data are recent. Early legal instruments such as the 2002 Freedom of Information Law (FOI) (abrogated and superseded in 2015) paved the road towards the disclosure of public sector information in open formats. In 2015, the publication of the General Law on Transparency and Access to Public Information included for the first time the concept of "open data", in coherence with the Open Data Executive Decree. The new transparency law, together with high-level political support provided by the Office of the Executive (Presidencia de la República), have been key drivers of the open data policy in the country.

The central open government data portal[1] evolved from being a beta version in 2014 to a fully functional open data online platform in 2015. This and other achievements have been attained thanks to the efforts of the Coordination of the National Digital Strategy (Coordinación de la Estrategia Digital Nacional, CEDN), the Chief Data Officer (Dirección General de Datos Abiertos, CDO) and the instrumental support provided by the Ministry of Public Administration (Secretaría de la Función Pública, SFP).

Mexico has achieved high levels of international exposure as a result of its leading role as a co-chair and chair of the Open Government Partnership (OGP) in 2014 and 2015; its role as host of the Latin America and the Caribbean Open Data Conference (ConDatos) in 2014; its involvement in the development, launch and adoption of policy instruments such as the International Open Data Charter (ODC); its contributions to the development of the G20 Anti-Corruption Open Data Principles; and its leadership in the Latin American and the Caribbean Electronic Government Network Open Data Working Group. Mexico has also been closely involved on the discussions around the use of open government data for the achievement of the United Nations' Sustainable Development Goals (SDGs), both at the national level and through the Global Partnership of Sustainable Development Data.

Mexico's active participation within the international open data community has been influential to set an evolving road map for open data in the country. The Mexican OGP Action Plans have produced outputs such as the Open Data Council (Consejo Consultivo de Datos Abiertos) while building on the opportunities to share good practices and exchange experiences that multinational fora, such as the OGP and the International Open Data Conference, provide. Nevertheless, creating impact domestically depends on the need to deliver tangible results at the national and local level and, moreover, to create value for, and connecting with, national stakeholders. Open data goes beyond data disclosure and (one-time) consultation exercises.

In Mexico, a fast-paced policy development has contributed to prepare ground for greater reuse of open data by all stakeholders towards greater value co-creation. Nonetheless, whereas high-level policy support and regulatory instruments act as valuable preconditions for value creation, their effective implementation requires a data-literate, technically capable and technologically oriented public sector, plus the availability of a clear open data strategy that considers the national context and identifies public institutions' key role as partners within the open data ecosystem.

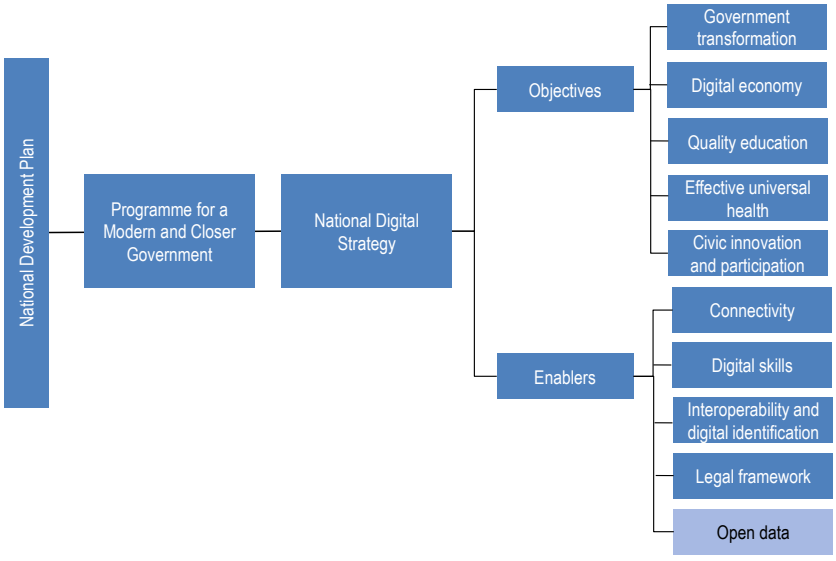
The Mexican government faces challenges such as ensuring policy continuity in the mid and long run, building on the availability of leadership and vision inside public institutions, and translating policy and regulatory instruments into the availability of open data strategies and resources across public institutions and into the necessary reuse. The institutionalisation and understanding of "open data by default" – and not the exception –

and of the relevance of disclosing key public sector information based on a demand-driven and value-oriented approach still faces a long road in Mexico. Whereas central policy co-ordination is a mandatory requirement for successful policy implementation, the active role of data-literate institutional chief data officers in ministries and other government institutions and technically capable public agencies will be crucial to deliver public value, achieve policy impact and position Mexico as one of the leading countries in open data at the international level.

Enabling sustainable governance for the continuity and streamlining of policies

Open data is identified by the Mexican government as a cross-cutting enabler to achieve the objectives of the National Digital Strategy (Estrategia Digital Nacional). The National Digital Strategy is a direct result of the 2013-18 Programme for a Modern and Closer Government (Programa para un Gobierno Cercano y Moderno) (Figure 2.1), which aims to foster digitalisation and the use of information and communication technologies (ICTs) within public institutions in order to increase government efficiency and support national development. Both policies are framed within the executive's agenda for 2013-18, reflected on the National Development Plan (Plan Nacional de Desarrollo, PND).

Figure 2.1. **Policy framework of Mexico's open data policy: Objectives and enablers**



Source: Based on information from the Mexican National Digital Strategy, www.gob.mx/cms/uploads/attachment/file/17083/Estrategia_Digital_Nacional.pdf.

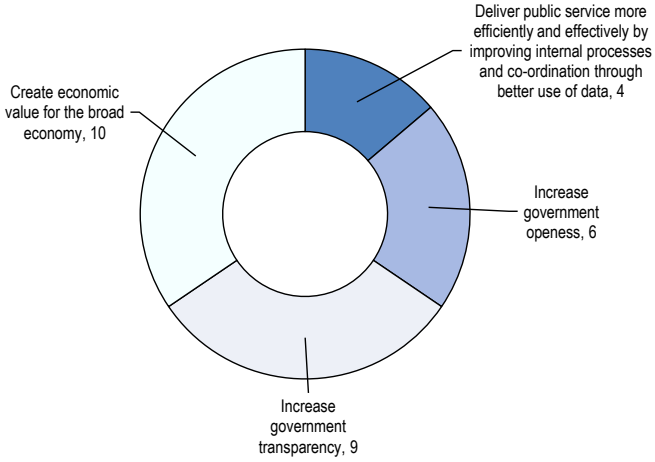
From a policy definition perspective, the relevance provided to open data by the central administration is not limited to government transparency. According to the Mexican Chief Data Officer's office (a body within the CEDN), increasing government transparency is, indeed, only one of the top five priorities of the Mexican open data policy. In order of relevance, the central open data policy aims to (OECD, 2014a):[2]

1. create economic value for the broad economy
2. improve policy making and public service delivery by improving internal processes and co-ordination through better use of data

3. improve public service delivery by enabling the delivery from non-public sector through data reuse
4. increase government transparency and anti-corruption
5. increase government openness.

The priorities of Mexico's open data policy are aligned with those of OECD countries. Most OECD countries acknowledge the overarching potential benefits of open data for the creation of economic, governance and social value. Indeed, the creation of economic value is the top policy priority for 10 out of 29 OECD countries (including Mexico), whereas increasing government transparency is the top priority for 9 of them.[3] This, according to the results showed in the OECD Open Government Data Survey 2.0 (2014-15) (Figure 2.2). Still, 27 out of 29 OECD countries identify the creation of economic value as one of their top five open data policy objectives.

Figure 2.2. **Main objective of open data policies across OECD countries**



Source: OECD (2014), "OECD Survey on Open Government Data 2.0". Based on data for 29 out of 34 OECD countries. Data not available for the Czech Republic, Hungary, Iceland, Israel and Luxembourg.

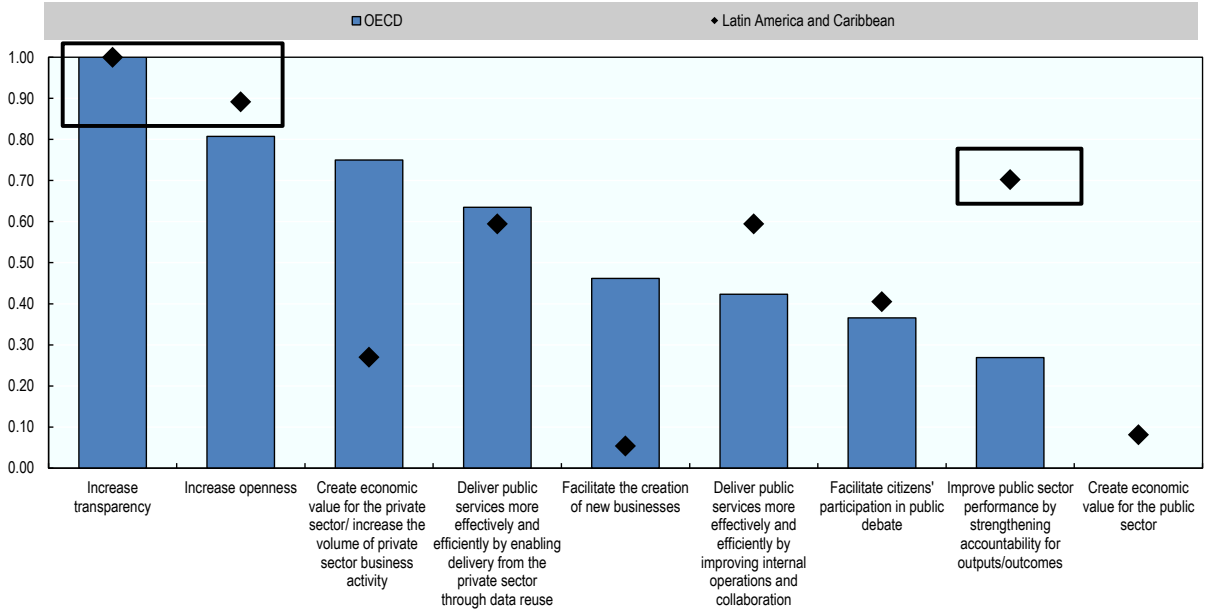
While country-specific policy objectives highly depend on a country's national agenda, in general terms, the understanding that OECD countries have about open data goes beyond the contribution of such a mechanism to greater transparency and public openness. In Mexico, the Office of the Executive has succeeded to place open data as a stand-alone policy, even though it is co-ordinated with other central strategies (such as open government and digital government). Thus, avoiding the subordination of open data to an agenda strictly focused on transparency, therefore moving away from the narrower scope that open data policies may show in other countries or regions (i.e. Latin America), where open data has also been the result of the evolution of transparency policies or open government strategies (i.e. transparency, access to public sector information, public openness, accountability, etc.) (Figure 2.3).

Such availability of policy instruments is strengthened by: 1) a dedicated institutional governance in charge of policy co-ordination in the country (see the next section); and 2) a single dedicated line of financing for the national open data policy, result of a trust granted by the Ministry of Communications and Transport (Secretaría de Comunicaciones y Transportes, SCT) for the development of ICT capacities in Mexico (OECD, 2014a).[4] Still, while this financial trust has been useful to trigger open data

initiatives under the leadership of the centre of government, the national open data policy would benefit from regular funding (i.e. a specific budget line for open data or as a line of financing of digital government strategies) in order to ensure its continuity as done in other OECD countries (Table 2.1). For instance, in **Canada** the budget dedicated to the open government data strategy at the federal level is provided through the departmental budget of the Treasury Board of Canada Secretariat. This budget is identified on a year-to-year basis as part of the line budget for the Information Management Division within the Chief Information Officer Branch (OECD, 2014a).

Figure 2.3. **Open government data policy objectives by level of relevance: Latin American and Caribbean countries (LACs) and OECD countries**

Index: 1.0: Highest relevance, 0.0: Lowest relevance



Notes: Based on information from the 2013 OECD Questionnaire on the Implementation of Open Government Policies in Latin America, and the 2013 OECD Survey on Open Government Data. Index based on information provided by 10 Latin American and Caribbean countries and 24 OECD countries. See Chapter 3 for further information on the evolution of open data policy objectives across OECD countries between 2013 and 2015.

Source: Adapted from OECD (2014b), *Open Government in Latin America*, http://dx.doi.org/10.1787/9789264223639-en.

Open data's potential for delivering economic, governance and social value is clear for policy co-ordinating agencies. Such values are reflected in the objectives of the National Digital Strategy (for instance, open data as an enabler for the digital economy). Open government data disclosure and its reuse by non-governmental stakeholders are clearly stated as an objective of the National Digital Strategy. This follows the rationale that such disclosure and reuse will contribute to more efficient public service delivery, citizen empowerment and economic development. Such clarity has made it possible to deliver tangible results (i.e. the central open data portal, and increasing the publication of data by public institutions) over a relatively short period of time (2012-15). However, short-term wins should be translated into the possibility of creating long-term impact, mainly through the institutionalisation of open data across public institutions and central and local administrations, and an invigorated open data ecosystem where public institutions act as partners.

Table 2.1. **Central open data policy/strategy funding across OECD countries**

	Central/federal government has identified funding to finance open government data	Each central/federal data producing ministry/agency contributes to the funding	Grants from the private sector	Grants from civil society	EU funds
Australia	●	x	x	x	x
Austria	x	●	x	x	x
Belgium	x	●	x	x	●
Canada	●	●	x	x	x
Chile	●	●	x	x	x
Denmark	●	●	x	x	x
Estonia	●	●	x	x	●
Finland	●	●	x	x	●
France	●	x	x	x	x
Germany	●	x	x	x	x
Greece	x	●	x	x	●
Italy	●	●	x	x	●
Japan	●	●	●	●	x
Korea	●	●	x	x	x
Mexico	●	x	x	x	x
Netherlands	x	●	x	x	x
New Zealand	●	●	●	●	x
Norway	●	x	x	x	x
Poland	●	x	x	x	●
Portugal	●	x	x	x	●
Slovak Republic	x	●	x	x	●
Slovenia	x	●	x	●	●
Spain	●	●	x	x	●
Sweden	●	●	x	x	x
Switzerland	●	●	x	x	x
Turkey	●	●	x	x	x
United Kingdom	x	●	x	x	x
United States	●	x	x	x	x

Note: x: not applicable.

Source: OECD (2014), "OECD Survey on Open Government Data 2.0".

The support provided by the Office of the Executive is and will remain crucial to trigger open government data institutional practices and, more importantly, to set clear responsibilities from the highest level of government. In 2015, President Peña Nieto published the Open Data Executive Decree (ExD), placing Mexico at the level of other OECD countries such as France and the United States which have also ensured the availability of high-level political support for open data (Box 2.1). Briefly, the 2015 Open Data Executive Decree:[5]

- provides a clear definition of open data that is aligned with international principles, such as those included in the International Open Data Charter and the G20 Anti-Corruption Open Data Principles
- establishes a policy co-ordination model that sets shared responsibilities between the CEDN (a body within the Office of the President) and the Ministry of Public Administration (SFP) (see the following section)

- sets a clear mandate for all federal public institutions to manage, open up and update government data
- defines the shared obligation of the CEDN and the SFP to set up and manage the central OGD portal, and their obligation to set multi-level co-operation agreements with local governments (see Chapter 5) and other autonomous public bodies of the Mexican central administration, such as the National Institute of Statistics and Geography and the legislative and judiciary.

Box 2.1. **High-level political support and open government data policy governance across OECD countries**

France

Following the example of an increasing number of companies and big cities, with the adoption of the Prime Minister's official Decree No. 2014-1050 on 16 September 2014, the French government created the position of chief data officer (CDO or in French, *administrateur général des données*, AGD) at the national level. The CDO works under the authority of the Prime Minister, as part of the General Secretariat for the Modernisation of Public Action (Secrétariat général pour la modernisation de l'action publique, SGMAP). She/he is in charge of working on the accessibility and interoperability of data, of ushering government into data-driven strategies, and of disseminating the culture of data and data sciences with the administration. This governance and institutional framework is a critical enabler of the French open government data core strategy where all elements are seen as connected and data is conceived as a cornerstone of government's digital transformation.

The governance structure for open government data in France includes the Etalab, established in 2011, and which since 2012 is under the Prime Minister's Office within the SGMAP. The French government considers openness and data to be two critical levers of the public sector modernisation agenda, and of its digital transformation. In alignment with this approach, Etalab has a mandate covering open government and data science in order to integrate open government, open government data and a data-driven public sector agenda.

United States

The United States has set a vision (embodied in a policy), created the conditions (e.g. adoption of an executive order) and established a governance framework to support the execution for open government data. The Open Data Executive Order signed by President Obama in May 2013 is accompanied by the Open Data Policy released by the Office of Management and Budget and the Office of Science and Technology Policy that implements the order. They require that, going forward, newly generated government data shall be made freely available in open, machine-readable formats, while appropriately safeguarding privacy, confidentiality and security.

These actions have been important manifestations of the leadership and of the Obama administration's long-standing commitment to releasing and leveraging data in support of enhanced transparency and accountability, improved government services and a stronger economy. They build on actions such as the Open Government Directive, the Digital Government Strategy and the Open Data Initiatives project, which is bringing the benefits of open data to a wide range of domains including health, energy, education, public safety, finance and global development.

Source: From OECD (2015), *Open Government Data Review of Poland: Unlocking the Value of Government Data*, http://dx.doi.org/10.1787/9789264241787-en.

The relevance for policy continuity of the Open Data Executive Order is that of providing a legal backbone and a directive for open data from the highest level of government. Its contribution as both a driver of the open data policy and as support for policy continuity with changes of the central administration was highlighted by public stakeholders during the OECD peer review mission to Mexico (November 2015). Nonetheless, a political success such as the Executive Decree, and the mandates it created for public institutions, imply greater challenges for public institutions, particularly regarding their capacities and readiness to make public sector information (PSI) available in open formats in a proactive fashion.

In parallel to the availability of a national open data policy, well-aligned international and national objectives, a pro-open data central government, and the recent public reforms implemented by the Mexican government contribute to an ideal policy environment for open government data-based value creation. Three public sector reforms have been key to paving the road towards the creation of greater data-driven public value in Mexico and further using open data to address specific objectives:

- **2013 Energetic Reform (ER):** Mexico's historical background made the ER one of the most publicly discussed reforms of those proposed or implemented by the current central administration. The Energetic Reform aims to increase private participation in the traditionally state-owned and monopolistic Mexican energetic sector, particularly the oil industry (managed by the state-owned oil company, PEMEX) and the production of electricity. As stated by public institutions part of the energy sector during the OECD fact-finding mission, the ER brought to light a new sectorial discussion around open data related to:

  1. The protection of the commercial interests of state-owned companies (the market is now "open" for private participation) following the rationale that – as a result of the ER – state-owned companies now face "competition" from the private sector. Thereby, as expressed by some public institutions during the OECD mission, disclosing open data could have a negative impact on their possibilities to compete with private providers on equal terms; which "increases" the need to protect their own data.
  2. The urgency of building greater institutional capacities for government-to-government (G2G) data sharing, and for data and big data analytics within state-owned companies in order to trigger sectorial modernisation and competitiveness.

- **2014 Transparency Reform (TR):** Defined the evolution of the National Institute for Access to Public Information and Data Protection (INAI, formerly known as the IFAI), providing it with autonomy from the central government, greater law enforcement capacities and new regulated entities. The reform was equally successful in setting the basis for the publication of the 2015 General Law on Transparency and Access to Public Information (hereinafter, 2015 FOI). The 2015 FOI reflected on the ongoing efforts of the central government for open data since 2013, thus setting a legal mandate for public institutions to disclose PSI in open formats.

- **2015 Anti-corruption Reform (ACR):** Published in May 2015, the ACR provided greater audit faculties to the Mexican Supreme Audit Institution (Auditoría Superior de la Federación, ASF). It also established the National Anticorruption System (*Sistema Nacional Anticorrupción*), a cross-agency

mechanism with the objective to facilitate institutional co-ordination to fight corruption inside public institutions. While aligned with Mexico's international agenda on open data – particularly with Mexico's active participation in the development of the G20 Anti-Corruption Open Data Principles – the ACR has provided an ideal policy framework for the implementation of open data practices for anti-corruption in the country (Boxes 2.2 and 2.3).

Box 2.2. **Open data for anti-corruption in Mexico: Promoting transparent public procurement processes for public infrastructure: The case of the New International Airport of Mexico City**

The 2015 International Anti-Corruption Day celebrated on 9 December 2015 framed the announcement by the Mexican central administration of the implementation of the Open Contracting Data Standard for those contracting processes related to the construction of the new airport in Mexico City, following an executive order.

President Peña Nieto's announcement took place during the Open Government Partnership's Global Summit held in Mexico City in November 2015, and it contributes to Mexico's efforts to implement structural public sector reforms in key areas such as energy, education and anti-corruption. The implementation of the Open Data Contracting Standard (developed by the Open Contracting Partnership) aims to foster public sector transparency and to fight corruption and nepotism in public procurement processes by following an open-by-default approach during the entire contracting process.

With this effort, the Mexican government not only sets ground towards greater social oversight and civic audit of the government's activities and public expenditure, it also aims to enable a more transparent and egalitarian competitive climate in the country, thus building a basis for the creation of open data values such as civic engagement, public accountability and economic development.

Legal instruments such as the Open Data Executive Order and the 2015 FOI are key drivers of the open data policy, providing a legal backbone and a clear policy directive for open data. The objectives for open data in Mexico are set in the National Digital Strategy; as a result they are linked to cross-cutting policy objectives such as those embedded in the Program for a Modern and Closer Government, and in the executive's agenda defined in the National Development Plan. The set of public reforms implemented by the Office of the President (Presidencia de la Républica) contribute to the creation of an ideal environment that can be used to foster value creation.

Mexico's active involvement at the international level complements the domestic policy scenario described above. It contributes to the broadening of the Mexican government's vision for open data, and its potential for creating sector-specific value (i.e. open data for anti-corruption, climate change, maternal health, sustainable development) (see Chapter 3).

Yet, even though the legal certainty provided by acts issued by the top political level has been essential to the establishment of the necessary context and to ensure the leadership's support, in order to ensure sustainable, continuous and measurable results in the long run, it would be important to ground the policy directives, vision and goals in a more structured and self-standing strategy. This could be defined based on an assessment of the national context and could be built around the needs of the national open data ecosystem. Such a strategy could help define a Mexican business case for open data (the what for?), identifying the set of actions required to deliver the expected results (the

how?) and calling upon the key actors of the ecosystem to be held accountable for having taken or not the required steps.

Box 2.3. **Open data for anti-corruption: The role of supreme audit institutions**

The 2015 reforms demonstrate that strengthening these core areas of governance relies on a whole-of-government approach, and is the responsibility of a system of actors at national and sub-national levels. The measures, which in some cases involved reforms to the country's Constitution, redrew the national institutional map to advance the principles of accountability, integrity and transparency through the creation of the National Anti-Corruption System and the National Transparency System. In addition, as part of the National Anti-Corruption System, the reform provides momentum for a new legislative foundation for the National Auditing System (SNF), which has existed since 2010 as a voluntary co-ordination mechanism between internal and external audit institutions across levels of government.

With constitutional reforms now complete, and the main implementing legislation planned for 2016, the Mexican government faces high expectations to produce results for citizens. The new reforms place Mexico's supreme audit institution at the forefront, particularly through its leadership role in both the National Anti-Corruption System and the SNF. This is a pivotal moment for the mandate of the Mexican supreme audit institutions (SAIs), which brings both opportunities for strengthening governance and audit functions, as well as heightened responsibilities to meet the demands of all three systems.

Within this framework, open data provides some context to inform the strategic thinking of SNF stakeholders on their potential role and activities in this area. Key strategic considerations for SNF stakeholders, particularly the Supreme Audit Institution (Auditoría Superior de la Federación, ASF) given its broad mandate and role in external auditing, include:

- What are the opportunities, challenges and solutions for audit institutions to be consumers of open data, incorporating them as inputs into audit processes?
- What are the opportunities, challenges and solutions for audit institutions to be contributors to the open data ecosystem?
- How might the current legal framework create limitations on audit institutions as contributors to open data initiatives from the perspective of data ownership (they may not "own" the data they use)? Are there ways to overcome these limitations?
- How can audit institutions contribute to improving the design and implementation of open data policies through their traditional audit programming?

Increasingly sophisticated data analytics provide great opportunities for the SAI. Automated and real-time data collection from traditional and non-traditional sources and advanced data analytic tools and skills (i.e. text mining tools for the analysis of administrative documents) allow SAIs to monitor regulatory compliance and prevent and detect fraud in real time, thereby reducing the risks of corruption and other forms of illicit and illegal behaviour.

Supreme audit institutions' technology-enabled oversight activities can also maximise the value of data as a key tool to better monitor public sector performance and track efficiency, and to conduct predictive analytics, drawing upon timely and proactive real-time data disclosure by public sector bodies. Data-driven audits are examples of the role of supreme audit institutions as key actors within the data ecosystem (both as data producers and consumers), therefore contributing to the production of overarching open data values such as public sector integrity and citizens' empowerment. Data-driven SAIs may have to deal with potential implications, such as managing risks related to data certification (i.e. to reduce the risks of using inaccurate data from non-traditional sources) and tackling challenges related to SAIs' capacities to reuse open data (technical, literacy, etc.).

Box 2.3. **Open data for anti-corruption: The role of supreme audit institutions** (*continued*)

For the ASF, compared to other SNF stakeholders, how open data might contribute to transparency through its external audit function is an important strategic consideration. The promotion of accountability through oversight remains a core activity of supreme audit institutions' work. However, as an unpublished OECD survey of 12 SAIs shows, they are increasingly using their expertise to provide insight and foresight to drive improvements across government related to open government data. For instance, SAIs are conducting audits and evaluations in a range of areas that focus on the effective use of data in government, such as those that focus on accessibility and reliability of data systems for collecting, storing and using performance information.

Internal control bodies also conduct work in similar areas that advance open government data principles. For example, internal control standards incorporate a number of open data principles into their audits that are meant to ensure the quality of information. In line with international standards, internal control bodies review the infrastructure for processing data, assess the reliability of data sources and determine whether processes for converting data into quality information are effective, among other things.

The answers to the strategic questions above will vary by SNF stakeholder, since differences in mandates, mission and expertise influence strategic actions. For instance, the ASF is in the best position to conduct government-wide reviews of the transparency agenda, including any open data initiatives, given its role and authority as Mexico's SAI (see the next section for a discussion on the ASF). Moreover, the legal framework creates certain parameters for audit institutions to take specific actions to strengthen transparency.

In addition, audit institutions can have legal and operational limitations for how they access and use data from other entities. This can limit their contributions to an open data ecosystem, as they may not be the "owners" of the data they use, and therefore much of the financial and non-financial information they might contribute to an ecosystem is derivative of the original sources.

While limitations may exist, strategic consideration of SNF stakeholders of their contributions to transparency through other open data initiatives is an avenue that builds on other approaches, like clear and timely reporting on audit results and maintaining an effective online presence. Audit institutions' transparency initiatives could consider a strategy that not only defines the what (right data), when (right time) and how (design) of the data, but also the monitoring of and improvements to its actual use. In doing so, the strategy goes beyond ensuring accessibility to data to sustain participation in government and advance the goals of transparency and accountability.

Source: OECD (forthcoming), *Mexico's National Auditing System: Contributing to Greater Accountability, Integrity and Transparency*.

The availability of a self-standing policy document on open data, e.g. an Open Data Strategy, would support the implementation of the ambitious open data agenda in Mexico. It would indeed complement the value of the Executive Decree and the availability of the policy objectives for open data embedded in the framework of the digital and modernisation strategies. It could, for instance, include a road map to support Mexico's willingness to exploit government data, and particularly open data's full potential for value creation (including the fostering of data reuse by public institutions for more evidence-based policy making and for the modernisation of the public sector). Such a strategy could:

- provide a clear road map for open data in the country specifying how policy goals could be achieved
- maintain a soft approach to adjust to open data's evolution and capture its potential for innovation (i.e. its use for sector-specific values)
- acknowledge the role of public institutions as active partners within the open data ecosystem whose responsibility goes beyond data disclosure
- provide a set of qualitative and quantitative indicators to hold the various actors accountable and monitor impact.

For instance, **Ireland** developed a Foundation Document for the National Open Data Strategy that sets a vision for all stakeholders (i.e. public institutions' direct collaboration with other stakeholders of the ecosystem towards demand-driven data disclosure), and national principles for open data (i.e. placing the needs of social and private actors as the core of the national approach to open data). **Japan** published its National Open Government Strategy in 2012, including basic and specific measures to be taken by public institutions beyond their responsibility to disclose open government data. Such measures include, for instance, the identification of data demand, and the responsibility of those institutions producing and managing data that may be of interest for the private sector (i.e. topological, land-use, public facilities) to enable full co-operation to foster the development of open government data-based private sector services.

In **Korea**, the availability of a specific law on open data provides a clear distinction of the roles inside public institutions (institutional chief data officers and data managers) and sets a legal foundation for technical support bodies. Other OECD countries are also taking steps to provide greater legal support to open data by discussing open data-specific laws. In April 2016, a bipartisan bill was introduced to the Congress of the United States. The **United States** Open, Public, Electronic and Necessary (OPEN) Government Data Act (to be enacted) aims to set open data as a standard practice by public institutions in the United States by making public sector information open-by-default, and to set a legal framework for policy continuity to open data in the country (US Congress, 2016; Kilmer, 2016).

In **Belgium,** the Council of Ministers introduced a bill to adapt the Belgian legislation to the 2013 European Union Directive on the reuse of public sector information (EU, 2013), which seeks to spread open data across EU countries. The bill is part of the efforts of the Belgian government to pave the way for open data in the country. These efforts also include a formal strategy for open data with a vision for 2020. In **Korea**, the open data law mandates the Korean government to develop a Basic Plan for the Promotion of the Provision and Promotion of Public Data every three years (Master Open Data Plan; see Box 2.3). While the Korean Master Open Data Plan is linked to the Korean Action Plan for the OGP, the former sets a strategy for open data at the national level in order to achieve Korea's objectives at the international and national level.

Altogether, these examples illustrate the relevance of bringing together the vision, objectives and sector-specific initiatives of open data (the business case) into one clear and self-standing policy document (a business plan for open data), which can guide the overall set of vision, goals and actions related to open data at the national and local levels, and the work of central and local public institutions beyond data disclosure. The objective of the Mexican government to use open data for the creation of sector-specific values would therefore benefit from the definition of clear lines of action to be taken by public institutions (i.e. direct consultation exercises, focalised communication by user group,

value-specific hackathons, prioritisation of data release as open data). The availability of a formal open data strategy would be useful to complement the current provision of technical and regulatory guidance by co-ordinating agencies (see the next section), thereby centering on public institutions' role as partners within the open data ecosystem.

Box 2.4. **Korea: Act on the Promotion, Provision and Use of Public Data**

Korea enacted the Act on the Promotion, Provision and Use of Public Data in June 2013, which entered into force at the end of October 2013. The law mandates the opening of public data and provides the legal basis for commercial usage of open data.

The Korean Open Data Law:

- Creates the Open Data Strategy Council (ODSC), providing specific guidelines for the OSDC's work. The council is co-chaired by the Korean Prime Minister and one individual (designated by the Prime Minister) with sufficient literacy on open data disclosure and consumption. The ODSC is integrated by members (35 maximum) from heads of public institutions, administrative agencies and local governments plus open data experts from non-governmental organisations.
- Defines the responsibility of the Korean government to create a periodic three-year Master Open Data Plan that, among other components, should include action lines to promote the reuse of open government data by the private sector. The Master Plan is a multi-agency effort lead by the Minister of Security and Public Administration in consultation with the Minister of Science, ICT and Future Planning and it should integrate specific areas of work for the national government and for local governments.
- Establishes that, in line with the Master Plan, central administrative agencies and the heads of local governments should publish an Open Data Implementation Plan on a yearly basis. Implementation plans should include performance assessments related to open data disclosure and use, and one-year budget allocation planning.
- While consultation is not mandatory, the law highlights the importance of running consultation exercises to identify data demand, and to obtain and receive policy feedback and complaints from citizens and private sector organisations towards a more efficient policy implementation and data provision.
- Makes a distinction between the Institutional Chief Data Officer ("officer responsible for the provision of public data") and data managers ("working-level employees), therefore contributing to the definition of and distinction between managerial/strategic roles and administrative/technical roles. Strategic activities include the overall co-ordination of, and support for, open government data policies, and the co-ordination and alignment of central open government data policies with institutional policies, plans, etc. Administrative/technical responsibilities are related to open data management, disclosure, use, quality, etc.
- Creates the National Open Data Centre, which provides policy and technical advice for the implementation of open data initiatives. The Centre is in charge of the management of the national open data portal,[1] assists the public sector in opening its data and facilitates the private sector's use of open data.
- Highlights institutional independence related to: 1) the promotion of the reuse of open data among individuals, businesses, non-profit organisations, etc.; and 2) international co-operation to support the exchange of technologies related to, and human resources working on, open government data; the adoption of international standards; research; and the use of open government data by the private sector.

Box 2.4. **Korea: Act on the Promotion, Provision and Use of Public Data** (*continued*)

- Establishes that the list of institutional datasets should be registered with the Ministry of the Interior (MOI, formerly MOGAHA) – the lead ministry on open data initiatives – in order to make open data available for public access within the limits of privacy and other regulations.
- Provides immunity for public sector staff from civil and criminal liability for damages incurred to users or third parties due to quality of data (except in cases of intent or serious negligence), etc. The Korean government took this approach to facilitate the disclosure of open government data.
- Creates the Open Data Mediation Committee (ODMC) as a dispute resolution mechanism between citizens and public sector organisations.
- Provides general clauses on the foundations for open data, including data quality management, standardisation, training, etc.

Note: 1. www.data.go.kr.

Source: Based on information provided by the Korean government to the OECD; fact-finding mission to Mexico, November 2015.

Privacy and data protection regulations might require further development as well, particularly those related to the protection of personal and private data managed by public institutions.

Disclosing open government data entails risks related to privacy and data mismanagement (i.e. unauthorised sharing of databases, illegal use and sharing of citizens' information for political propaganda, etc.). The unauthorised and unrestricted online disclosure of the Mexican National Electoral Institute's voters registration database in April 2016 (which contains personal information on more than 96 million citizens in Mexico) highlights the relevance of protecting personal and private data with a risk-management approach, and for setting stronger regulatory and law enforcement mechanisms in the country. In parallel to the availability of law enforcement institutions (such as the INAI), it is equally relevant to set clear guidelines and regulations concerning data management, and foresee sanctions for the unauthorised, unethical and illegal use of private data.

In Mexico, most institutions from the central administration are aware of their responsibilities regarding PSI disclosure and open data. But public institutions are also aware of the need for strengthening the legal framework related to the protection of sensitive and personal data.

The 2015 FOI and other instruments (i.e. the 1982 Federal Law of the Responsibilities of Public Servants, the 2005 Guidelines on Personal Data Protection and the 2015 Implementation Guide of the Open Data Policy) provide mandates on the responsibilities of public officials related to the management of citizens' private data. But such a legal framework on data protection could be strengthened and streamlined. Evidence from the OECD survey points to confusion among public officials caused by a fragmentation of privacy and data protection regulations, and, in some cases, as observed during the OECD visit to Mexico, there is even some lack of knowledge about the FOI's mandates on open data. Public officials expressed the importance of developing a specific

federal law to regulate public officials' management and use of citizens' data (such as the one already available for private individuals).[6]

The availability of one single legal instrument that centralises all available regulations and guidelines related to the protection of personal data managed by public officials could be useful to define a clearer regulatory framework for data protection and more efficient oversight and sanction procedures. This would contribute to reducing the fragmentation of privacy and data security legislation that create a state of confusion among public officials and data users about their obligations and rights.

Such a legal instrument could also bring clarity and balance between the use of privacy and data protection as a valid argument to protect sensitive, commercial and private information; and the use of such regulations as an excuse to avoid disclosing public sector information (including open government data).

From an "entrepreneurial" approach to a structured slant to value creation

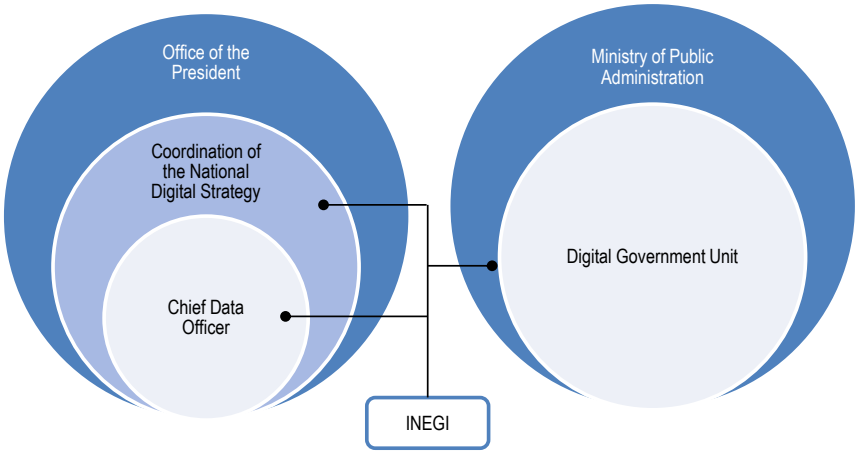
In Mexico, short-term challenges are not strictly a matter of political leadership or clear policy goals. The Mexican government has developed a policy framework for open data with strong support from the Executive Office. In parallel, the Chief Data Officer has been successful in aligning the national open data policy with international instruments, thus taking advantage of such international instruments.

In the short and medium term, Mexico faces challenges related to capacity building for data management, data literacy and leadership inside public institutions, as well as the institutionalisation of an open-by-default approach for public sector information disclosure. More importantly, greater awareness and understanding across public institutions regarding the contribution of open government data to the creation of public value would contribute to the achievement of policy goals.

As observed in other OECD countries (i.e. France, the United Kingdom and the United States), Mexico has located the OGD co-ordination functions within the centre of government (OECD, 2015). In 2013, the Mexican central administration created the Coordination of the National Digital Strategy (CEDN) as a body within the Office of the President. The strategic location of the CEDN (and the CDO's office) within the centre of government reinforced the high-level political support granted to open data as a result of the publication of the Open Data Executive Decree. In addition, the Open Data Executive Decree and the shared co-ordination responsibilities that it established for the CEDN and the SFP have made it possible to move from a policy definition stage to the early institutional implementation of open data practices. Together with the SFP, the CEDN and the Chief Data Officer have succeeded in translating policy goals and executive directives into actions that have produced policy outputs (such as the open data portal) between 2012 and 2015 (Figure 2.4).

This co-ordination model has been useful to maximise the specific capabilities of each institution (for instance, the high-level political support from the Office of the Executive and the instrumental capacities for policy co-ordination of the SFP). It has also enabled an alignment between the National Digital Strategy (thus of the Open Data Policy) lead by the CEDN and the work on digital government lead by the Digital Government Unit of the SFP. The support provided by the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI) complements this institutional framework, thus bringing in technical knowledge on data science, which is at the core of open data policies.

Figure 2.4. **Shared open government data policy co-ordination framework in Mexico**



Source: Own elaboration.

The institutional governance model for policy co-ordination has enabled the growing availability of data management capacities across public institutions in a co-ordinated and standardised fashion based on the development of instruments such as:

- The *Implementation Guide of the Open Data Policy* (*Guía de Implementación de la Política de Datos Abiertos*): developed by the CEDN, it aims to provide a step-by-step guide to help public institutions develop their institutional open data plans (*planes de apertura institutional*). The guide also highlights the responsibility of public institutions to disclose data with a demand-driven approach, and of promoting the reuse of open government data.
- The Open Data Technical Norm for National Interest Information and its implementation guide: developed by INEGI, it provides technical guidelines on how to manage and open up government data (i.e. metadata standards, data formats, etc.)

As a result, 82 out of 92[7] central public institutions report the use of the *Implementation Guide* to disclose open data, and 52 institutions report using the Data Catalog Vocabulary (DCAT standard) for metadata provision.

Through an effective policy co-ordination model, Mexico's open data authorities have succeeded in setting a vision for open data in the country, and in developing technical and regulatory instruments for policy implementation. But this fast-paced policy development underpins the need to provide inter-institutional technical support and regulatory guidance from the centre of government to public institutions that might not be technologically capable and data-literate enough to translate policy guidelines into concrete actions. As a consequence, increasing public institutions' data literacy and technical capacities will remain crucial to spur the development of institutional open government data practices towards greater data disclosure, leverage a pro-open data culture across the public sector, and, more importantly, create greater of public value through increased reuse of open government data.

For such purpose, the CDO created the Open Data Squads (*Escuadrones de Datos Abiertos*, ODS), which are in charge of providing technical support, and regulatory and policy guidance to public institutions in order to help them effectively use instruments

such as the *Implementation Guide*. The work of the squads (a group of external consultants under the supervision of the CDO) is crucial to guide public institutions through the data management process (i.e. data cleaning, preparation, disclosure, etc.). Yet, the Open Data Squads lack legal certainty, which may have an impact on the effective implementation of the Open Data Policy in Mexico.

While keeping a feasibility approach for data disclosure – the "lowest hanging fruit" – the work of the ODS centres on the priorities for data disclosure that were defined by the central administration through the Strategic Open Data Infrastructure (*Infraestructura Estratégica de Datos Abiertos*).

In 2013, an online public consultation process (that was named Datatrón) was launched by the central government through the central open data portal in order to assess the demand for government data. This assessment was centred on nine data categories including crime and justice, democracy and accountability, economy and public finance, education, energy and environment, geography, social mobility, health, and transport and infrastructure (CEDN, 2013). In 2015, the results of the Datatrón were cross-matched with a second open-ended online public consultation to continue identifying priority datasets to be included in the Strategic Open Data Infrastructure.

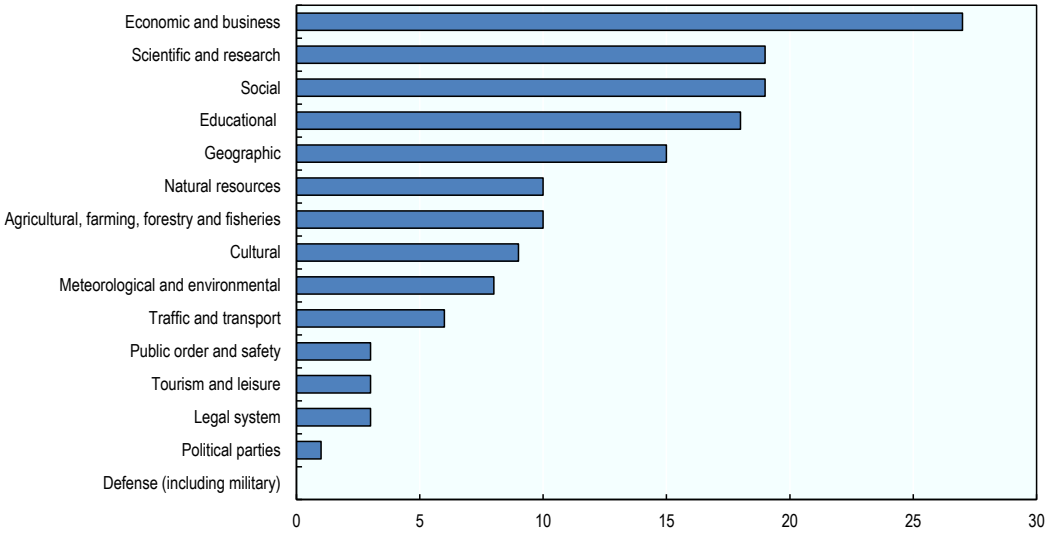
From March to May 2015, the central government opened for public discussion a preliminary list of datasets (Mexican Government, 2015e) resulting from the above exercises. Based on this proposal, users' inputs were useful to prioritise data disclosure from central institutions. As a result of this consultation process, the CDO set the final list of strategic datasets (the data infrastructure) to be open for public access on the central portal. However, data disclosure is not (should not be) limited to the data taxonomy defined by the Strategic Open Data Infrastructure. As specified in the *Implementation Guide of the Open Data Policy* and the Open Data Executive Decree, public institutions should also contemplate prioritising the publication of open government data based on citizens' requests to access public sector information.

The Strategic Open Data Infrastructure has been useful to better prioritise the allocation of technical, human and financial resources to release government data and, more specifically, to guide the activities of the Open Data Squads. However, while the exercise of establishing the Strategic Open Data Infrastructure was successful to set the path towards open data disclosure (aiming to mesh data demand and policy goals), the pre-defined data scope established by the CDO prior to the Datatrón limited the potential of using such a valuable consultation mechanism to identify a wider range of key datasets valuable for the users. In addition, a data-demand identification approach that centres on requests to access public sector information would require public institutions to actively monitor such requests. For such a purpose, the law-enforcing role of the INAI within the framework of public information access policies could be useful to inform the central government and line ministries about the most frequently requested information so as to better inform and prioritise open government data disclosure. Still, the identification of data demand based on the results of sectorial or institutional consultation exercises remain absent from the current approach to open data in Mexico. As previously mentioned, OECD countries such as Ireland, Japan and Korea acknowledge the benefits of direct consultation between public institutions and data users for data reuse.

By October 2015, 135 public bodies had made open data available on the central open government data portal (generally though direct provision[8]), disclosing a total of 1 243 tabular datasets for public access (Mexican Government, 2015c). The data taxonomy currently available on the portal comprises economic, social and educational

data (Figure 2.5) and is mainly available in machine-readable formats such as CSV and KML. Nonetheless, evidence from the OECD mission indicates that the current datasets which are available on the central open government data portal are not of great public interest and data are not being reused as expected. In addition, whereas the level of response obtained for the OECD Survey on Open Government Data in Mexico on its version for non-government stakeholders was low, its results show that non-governmental actors are either not able to find all of the datasets they are interested in, or, in some cases, such datasets are not available on the central portal at all.

Figure 2.5. **Datos.gob.mx: General data taxonomy by number of public institutions disclosing open government data**



Source: OECD (2016b), "OECD Survey on Open Government Data in Mexico: Public sector". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Implementing open data policies in Mexico requires effective inter-institutional co-ordination at the policy and technical level. To achieve co-ordinated data disclosure, the SFP (through the Digital Government Unit) maintains regular contact with data managers inside public institutions, while the Open Data Squads provide technical support and regulatory and policy guidance.

One of the main goals of the Executive Decree is, indeed, to ensure that public institutions will set units in charge of data management to enable inter-institutional co-ordination and ease a gradual data disclosure. Nonetheless, there is a need for further work on developing institutional data management capacities as only 44% of institutions report the availability of a specific internal unit in charge of such activities.

Public institutions face the challenge of doing better with limited technical or human resources and with limited internal institutional budgets (the main funding source for institutional open data strategies). The vast majority of central public agencies had to adapt public officials' responsibilities to integrate those set by the Executive Order. As a consequence, public institutions remain reactive and compliant to the central policy instead of proactive and self-lead, which is a symptom of a public sector that has not yet reached open data maturity.

Table 2.2. **Datos.gob.mx: Top ten datasets and data resources by public institution**

	Datasets		Data resources (i.e. metadata)
PEMEX (state-owned oil company)	121	National Institute of Statistics and Geography (INEGI)	1 679
Ministry of Social Development (SEDESOL)	116	Office of the Executive (Presidencia de la República)	1 660
National Institute of Statistics and Geography (INEGI)	68	Ministry of Social Development (SEDESOL)	577
Mathematics Research Center (CIMAT)	45	National Agrarian Registry (RAN)	224
Office of the Attorney-General (PGR)	42	PEMEX (stated-owned oil company)	177
Ministry of Energy (SENER)	36	Mexican Institute of Social Security (IMSS)	159
Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA)	36	Ministry of Economy (SE)	136
Ministry of Economy (SE)	34	Ministry of Energy (SENER)	116
Office of the Executive (Presidencia de la República)	31	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA)	108
Instituto Mora (educational centre)	24	Ministry of Education (SEP)	63

Source: Mexican Government (2015c), *Informe de Actividades del 15 de Julio al 27 de Octubre de 2015: Implementación de la Política de Datos Abiertos*.

Developing data management capacities and leadership as well as increased data literacy across more than 200 central level institutions remains one of the key challenges for Mexico. The development of institutional capacities will be of major relevance in the long term, particularly if the Mexican government contemplates further developing data analytics capacities inside public institutions towards a more evidenced-based policy making and a data-driven public sector. Interestingly, public institutions in Mexico (as also stated during the OECD fact-finding mission) show a particular interest of the possibilities that open data can provide for government-to-government data-sharing practices, which could increase public sector efficiency.

In the short and medium term, policy continuity would require building and maintaining institutional capacities, data literacy and skills for policy implementation across public institutions, and ensuring the continuity of support bodies in charge of providing support to achieve such capacities.

The current entrepreneurial approach taken by the CEDN relies on the expertise brought into the public administration from the private sector and through external consultants. This soft governance approach has been useful to attract further talent from outside the government, and to spur innovation and experimentation inside the CDO's office.

Bodies such as the Open Data Squads or the group of data analysts and developers working inside the CEDN integrate a group of valuable and technically skilled human resources that support the work of the CEDN, the CDO and the SFP. The group of public officials working within the CDO's office have been skilled to bring international knowledge on open data with the objective of implementing innovative practices that could contribute to creating value in the country. Yet, whereas this soft approach has been useful to kick-off efforts and start achieving policy milestones in the short and medium term, it also increases the risks of losing knowledgeable and highly trained human capital inside key institutions in the long run, which, as a consequence, may have an impact on the development of institutional capacities and data-literate public officials.

Technical support bodies like the Open Data Squads should be formalised to ensure the availability of technical expertise and data literacy inside the CoG, and a greater development of those capacities across public institutions. On the one hand, the Mexican Open Data Policy has succeeded in reaching a relative maturity over a short period of time, but regular technical and regulatory support from the centre will be required to institutionalise open data and keep building capacities across the public sector. Nonetheless, the formalisation of such bodies should be flexible enough to avoid the bureaucratisation of open data inside central co-ordinating agencies, which could create a negative impact on the ability of such bodies to innovate and adapt to change more efficiently.

On the other hand, the increased availability of data-literate managers inside public institutions would be beneficial to support the work of public institutions, and, more specifically, the work of institutional chief data officers (ICDOs). While there are some examples of public institutions that have managed to integrate data-literate officials that act as ICDOs (Box 2.4) – i.e. the Ministry of Public Transport (SCT), the Office of the Attorney-General (PGR) and the Ministry of Social Development (SEDESOL) – complying with an ambitious open data agenda would require further bringing ICDOs inside public institutions to act as "data champions" inside Mexican institutions. ICDOs that support policy implementation at the institutional level, aware of open data's potential for value creation, with managerial and strategic skills to cope with institutional resistance to change, and who are taking steps to embed open data inside their institutions and create greater value.

Box 2.5. **The role of institutional chief data officers**

While national chief data officers (CDO) are in charge of translating international and national open data policy goals into strategic policy guidelines and actions, and co-ordinating central bodies towards a synchronised and well-structured policy implementation, institutional chief data officers (ICDOs) are in charge of translating those policy goals, guidelines and standards into well-structured public management processes and strategies.

ICDOs act as change drivers and open data evangelists inside public institutions. Their role is key to move from centralised government-user co-operation (lead by central co-ordinating agencies) to a more proactive and direct approach that enables closer and more direct collaboration with stakeholders, aligned to sectorial and policy-/value-specific goals.

In general, the ICDO should:

- be involved in, and in many cases responsible for, any activities along the data management value chain.
- connect their work to organisational governance, from delivering services and institutional results to protecting the public or public interest
- identify and exploit the potential and value of open government data disclosure for sectorial, policy and institutional objectives
- focus on helping the organisation get more value and insight from the data it collects and on helping people accomplish their goals by aligning them with the process and technology components that are critical to organisational strategic goals

Box 2.5. **The role of institutional chief data officers** (*continued*)

- be an evangelist for the increased use of data in many contexts (e.g. elevating the awareness and discussion internally regarding the importance of well-run data operations, supporting organisational culture change, and championing and evangelising a data-driven culture)
- provide data governance and data management services to the organisation (e.g. spanning divisional silos, setting and implementing central standards and guidelines in the process)
- collaborate with other institutions to set common sectorial goals and standards for data internally and externally, to ensure interoperability and so that users, suppliers and the whole ecosystem can understand them
- engage on a regular basis with developers and data users of their data needs and to obtain feedback on the institutional open data strategy.

Source: Adapted from OECD (2015), *Open Government Data Review of Poland: Unlocking the Value of Government Data*, http://dx.doi.org/10.1787/9789264241787-en.

Conclusion

The Mexican government has been successful in developing a self-standing open data policy for the central government that aims to foster open government data disclosure to contribute to social and economic progress and development. Economic development and growth, improved public service delivery and greater public transparency and openness are all objectives targeted by the government of Mexico. More ambitious policy goals include the use of data – open or not – by public institutions for more evidence-based policy making and for the transformation of the public sector.

Mexico's central administration has taken advantage of international fora, and of its active participation in the development of international open data instruments – such as the International Open Data Charter and the G20 Anti-Corruption Open Data Principles – to enrich the vision and goals that the Office of the President has set for the National Open Data Policy. Yet, there is a need for grounding vision, policy objectives and open data initiatives into an open data strategy driven by the needs of the ecosystem, the national context, and with the active participation and leadership of public institutions.

Together with high-level political support, ensured by the leading role of the Office of the President in designing the open government data policy, the clear institutional governance for policy co-ordination shared between the CEDN and the SFP is a catalyser for coherent action across the central government. Technical support bodies like the Open Data Squads and data-literate institutions such as INEGI have played a key role in supporting public institutions towards greater data disclosure, thus guiding them during the entire data management process. This was done either by developing policy guidelines or through direct support and training.

The continuity of the open data policy in Mexico will depend on continued high-level political support from the Office of the President, institutional stability and financing in the long run, and on the ability of the central government to ensure that technical support bodies will remain active across changes of government administrations. The Mexican government was forward-looking and skillful in developing an ambitious open data

policy over a short period of time and in developing technical and regulatory support instruments to guide public institutions and to ease policy implementation. Such a scenario was also the result of the entrepreneurial and soft approach adopted by the central government that has enabled innovative attitudes inside policy co-ordination agencies (particularly the CEDN), and which was taken due to the urgency of delivering results at the national level and the need to comply with its commitments at the international level.

However, the institutionalisation of open data and the creation of a data-literate public sector remain long-term achievements. Building data-literate public institutions which are independent enough to deliver results and perform as active members of the open data ecosystem requires bringing open data leaders inside public institutions, i.e. leaders who will be able to act as data champions, and with a clear forward-looking strategic vision about open data and the value that it can produce, and to vest them with support from the heads of these institutions. Additionally, it is necessary to ensure the constant provision of technical support to continue forming adequately skilled civil servants, whereas at the moment there is a risk of losing highly needed technical support bodies (i.e. the Open Data Squads) due to their lack of legal support.

Together, data-literate public officials, data managers and technicians, and visionary institutional open data officers will be key players for the sustainability of the open data policy, and for value creation, in the long run. Their active role as partners within the open data ecosystem will contribute to defining an effective value-based open data disclosure in the country that builds on the specific value that each policy sector, or public institution, is aiming to create.

Notes

1. www.datos.gob.mx.
2. Information for Mexico.
3. A more detailed analysis on the evolution of the objectives of open data policies across OECD countries is presented in Chapter 3.
4. Information for Mexico.
5. Open Data Executive Order, see: www.dof.gob.mx/nota_detalle.php?codigo=5382838&fecha=20/02/2015.
6. 2010 Federal Law on the Protection of Personal Data held by Private Individuals.
7. 92 is the total number of central level public institutions which provided a response to the OECD Survey on Open Government Data in Mexico (OECD, 2016b).
8. Data belonging to public agencies are published on the central portal.

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Chapter 3.

Fostering an organisational culture and ecosystem for open government data in Mexico

This chapter underlines how the Mexican government has taken important steps to set an ambitious open data policy and to develop institutional capacities for data disclosure. It also underscores that the sustainability of open data in Mexico will require synchronising public institutions' policies with the vision for open data set by the centre of government. A more dynamic involvement of key ministries in Mexico, drawing upon their role as actors within the national open data ecosystem, is necessary to reach user communities and to spur a demand-driven data disclosure.

Introduction

Mexico's central government has succeeded in developing a policy framework for open government data (OGD) that is aligned with best practices at the international level. The Mexican National Open Data Policy is ambitious. In addition to greater public sector transparency and accountability, it has placed the creation of economic value through businesses' reuse of open government data, social participation in public decision making, and more evidence-based policy making as key policy objectives.

The leadership provided by the authorities in charge of central co-ordination (the Coordination of the National Digital Strategy and the Ministry of Public Administration), and the support for policy implementation given by the Open Data Squads and the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI) are catalysers towards the construction of a data-literate Mexican public sector.

Public institutions at the central government level have managed to adapt their institutional arrangements to comply with the mandates on open data set by the Open Data Executive Decree. Public officials are finding new ways of disclosing public sector information that call for an open-by-default[1] approach. The Strategic Open Data Infrastructure (Chapter 2) sets the framework for open data disclosure, and public institutions are finding ways to address institutional challenges such as limited financial and human resources to make open data available on the central portal.

Yet, greater open government data-based value co-creation is to come. A law-compliant approach towards greater open government data disclosure is not enough. Value creation through open government data is an evolving dynamic process that calls for the proactive participation of public institutions as partners within the whole open data ecosystem. To achieve this, Mexico faces the challenge of translating its ambitious policy goals into effective institutional open data strategies driven by users' needs, and that are managed by data-literate officials who acknowledge the full intrinsic value of open data and the potential it offers as a mechanism to achieve the government's, as well as their own, institutional objectives.

A data-literate public sector should be able not only to disclose and use open data, but to effectively communicate and collaborate with all actors in the open data ecosystem. In Mexico, this effective collaboration will require a number of actions. First, it will require synchronising the current understanding of open data between policy co-ordinating agencies and public institutions. Second, it will demand enriching the overall intrinsic value of the central open data portal through regular direct OGD producer-consumer consultations. Third, it will imply effectively communicating and engaging with data users not only to increase their awareness on the availability of open government data, but to identify and reach out to data champions across the broader society in order to build and invigorate the Mexican open data ecosystem. These efforts include the self-acknowledgement of public institutions as both data producers and consumers, which will be crucial in the long term to foster the reuse of data by public bodies for enhanced data-driven insight, oversight and foresight activities.

International best practices show how value can be created through the reuse of OGD within the public sector. Even though good governance, social and economic values are very much intertwined, they deserve individual attention in open government data policies, because this is key to stimulating the reuse of OGD among the stakeholders involved. While for some stakeholders (e.g. the Ministry of Finance), economic value may provide the incentive to support OGD reuse, for others this may be the governance

value (e.g. the natural disasters co-ordinator) or social value (e.g. the Secretariat of Social Development). As data prosumers, public institutions can create public value by using internal and external open data in insight, oversight and foresight activities: 1) fostering more evidence-based and efficient policy making (insight); 2) monitoring policy performance and compliance (oversight); and 3) identifying social and economic trends in the medium and long run (foresight).

The government's role as data prosumer

In order to unlock the value of OGD, it is important for the Mexican government to develop an appropriate open data organisational culture throughout its institutions. In line with Principle 3 of the OECD *Recommendation of the Council on Digital Government Strategies*,[2] further efforts should prepare the Mexican public sector to become increasingly data driven. This involves the appreciation of open government data as a strategic asset for the whole of government.

Realising the strategic value of OGD requires for public institutions to, first, acknowledge themselves as key players within a dynamic open data ecosystem, which calls for active and regular interaction with and between stakeholders; and second, the self-acknowledgement of the government as both a producer and consumer of open data. This double role should be further incorporated into the overall national open data strategy in order to fully unlock the value of open government data in Mexico, and its contribution to the whole open data ecosystem.

OGD initiatives, particularly as they are supported by Web 2.0 and social media applications, are creating an architecture for participation that enables users to not only be passive consumers of content and services, but also active contributors and designers in their own right (Ubaldi, 2013). As such, all actors in the open data ecosystem – including public entities – are data prosumers, who produce and reuse data (i.e. by producing, evaluating, correcting and mashing-up data) in order to create value for the system as a whole. An example is the Blue Button Initiative in the United States, which first gave veterans complete control of their personal health record held by the public sector and is now expanding its services to the wider public. Users are invited to check the information in the system, such as medical history, list of medications and test results, in order to identify errors or missing information.

Data prosumption not only points to a new way of guaranteeing the quality of data, but it completely redefines the relationship between all actors involved. This means that stakeholders are invited more openly into a participative and empowering relationship with the government in relation to a number of matters which are part of the overall democratic process, such as service design community building. Public institutions too, are prosumers in the open data ecosystem. Not only do they produce OGD for civil society organisations (CSOs), citizens and businesses to reuse, but they should equally themselves use open data produced by other actors and/or reuse OGD that other public stakeholders have either produced or modified.

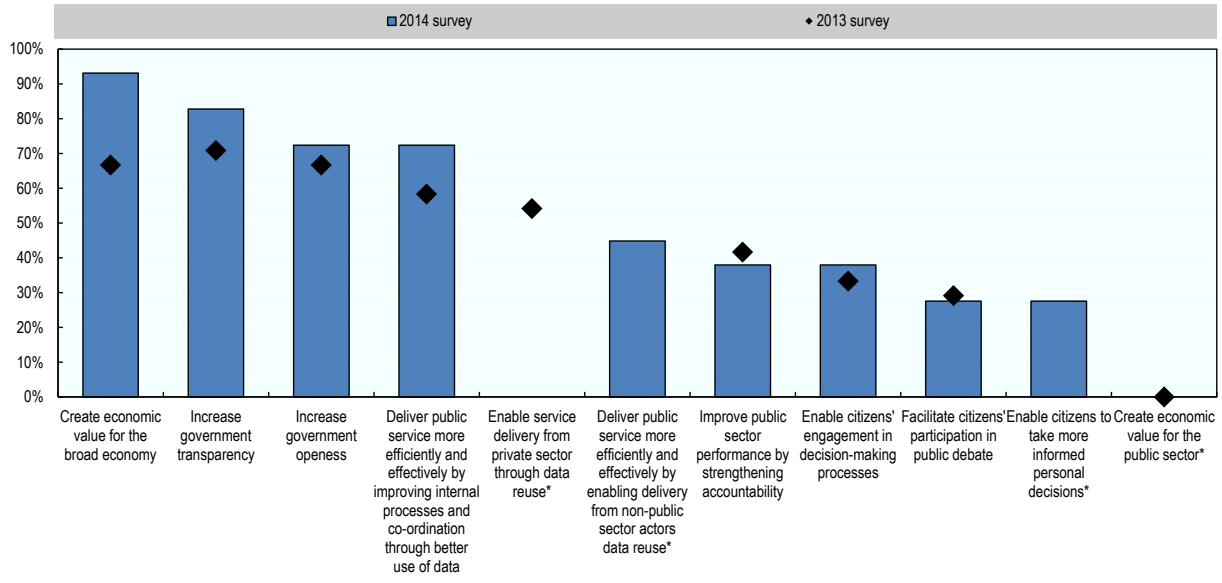
Broadening the understanding of the potential value of open government data across the public sector

The intrinsic value of open government data is comprehensive and not limited to public sector transparency and openness (i.e. making public sector information available for public access). Open data's values potentially range from greater public participation

and citizen engagement (social value) to contributing to business innovation and expansion (economic value), to improved service delivery and public sector efficiency, accountability and transparency (good governance value) (Figure 3.1).

In recent years, there has been an evolution in the approach taken by OECD governments regarding open data. On the one hand, the creation of economic value for the broad economy (i.e. creation of new businesses, job opportunities) has become the main objective of open data policies across OECD countries (including Mexico), as demonstrated by the results of the 2013 and 2014 editions of the OECD Open Government Data Survey (Figure 3.1). This development illustrates broader and more ambitious policy objectives across central governments.

Figure 3.1. **Top open data policy objectives across OECD countries**



Notes: The 2013 survey includes information for 24 OECD countries; the 2014 survey for 29 OECD countries.

* Category included only for year shown. Data as a percentage of the total number of OECD countries that provided a response for each year.

Source: OECD (2013), "OECD Survey on Open Government Data 1.0"; OECD (2014a), "OECD Survey on Open Government Data 2.0".

On the other hand, while the open data movement started with a main focus on transparency, it has increasingly expanded its attention to include other types of values and create sector-specific benefits in areas such as transport, crime, and economic opportunities for citizens and businesses (OECD, 2015a). The evolution of the open government data movement is increasingly strengthening its relevance in sector-specific policy domains that can help governments leverage OGD to address specific issues beyond targeting the generic objective of creating social, economic and governance values.

As shown in Chapter 2, Mexico's central government has aligned its OGD policy to the trend above. For instance, the Mexican government has been able to link its commitment towards the achievement of the United Nations' 2030 Agenda for Sustainable Development with the national open data policy agenda in order to achieve policy-specific goals in areas such as climate change and well-being.

During the 2015 United Nations Conference on Climate Change (COP21), Mexican officials participated in a roundtable session focused on utilising open data to fight climate change, thereby setting the ground towards greater international co-operation in this policy area. This exchange set the basis to further discuss the development of a cross-country climate-related open data taxonomy that could foster further opening of key datasets in areas such as waste management and air quality. Furthermore, at the 2015 United Nations General Assembly, the Mexican government took the lead in globally launching a Social Inclusion Indicators for Sustainable Development Goals (SDGs) Platform, which shows the value and potential impact of open data in measuring and actively achieving the SGDs worldwide.

At the national level, the Office of the President has given a particular impetus to use open data as a collaborative mechanism towards priority development goals, such as the reduction of maternal mortality, the measurement and visualisation of national economic complexity, and resilience to natural disasters. For instance, thanks to the gradual implementation by Mexican public institutions of key open data principles, such as openness and reusability, civil society organisations in Mexico are now empowered to access, visualise, download and reuse data on maternal mortality, enabling them to better focalise their efforts on specific regions through a more informed approach. Indeed, the disclosure of maternal mortality datasets are a clear example of the use of open data to create value for the national ecosystem (CSOs expressed the relevance of such datasets during the OECD mission to Mexico), while aligning the national open data agenda to international commitments such as the United Nations' SDGs.

The Atlas of Economic Complexity is another example of how open data is empowering different user communities (i.e. entrepreneurs, workers and public sector institutions) to take more informed decisions. The Atlas[3] was developed by the Center for International Development at Harvard University in the United States with the sponsorship of the Ministry of Finance and the Center for Research and Teaching of Economics (CIDE). Through an online platform, the Atlas of Economic Complexity allows users to search, visualise and download open data related to the national and local economy in Mexico. The Atlas analyses economic activity in the country in order to help users take informed decisions, for instance, on those industries that could represent an investment opportunity at the national and local levels.

The cases above (together with the objective of using open data as an instrument to fight corruption as mentioned in Chapter 2) are examples that show the willingness of the central government to fully exploit the intrinsic value of open data, thus going beyond data disclosure, in order to create sector-specific open government data value. Yet, a broader understanding of the value of open data at the policy co-ordination level is not enough if such efforts and vision are not fully echoed across the public sector.

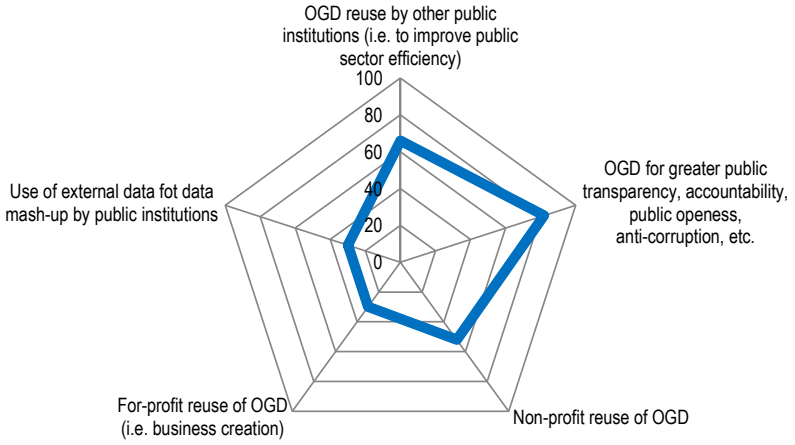
Aligning the central government vision for open data with institutional goals

Effective policy implementation calls for alignment between overarching policy goals and ambitions and the objectives of institutional open data strategies. In Mexico, evidence shows a slow institutional adaptation to change (typical of bureaucracies) *vis-à-vis* fast-paced policy development and ambitious policy goals. Currently, the understanding about open data between Mexican central co-ordinating institutions and the vast majority of central level bodies is unbalanced. Findings from the OECD peer review mission and the results of the OECD survey indicate that most public institutions still have a rather

limited conception of open data as a mechanism that mainly contributes to public sector transparency and accountability.

While the above scenario does not necessarily indicate a complete lack of open data literacy across institutions (and without underestimating the contribution of open data for public sector transparency), other objectives, such as the creation of economic value through open data reuse by businesses or the use of government data and external data by public institutions to spot opportunities to increase efficiency and improve service delivery, are generally ignored as potential benefits of open data (Figure 3.2).

Figure 3.2. **The understanding of open government data across central public institutions in Mexico**



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

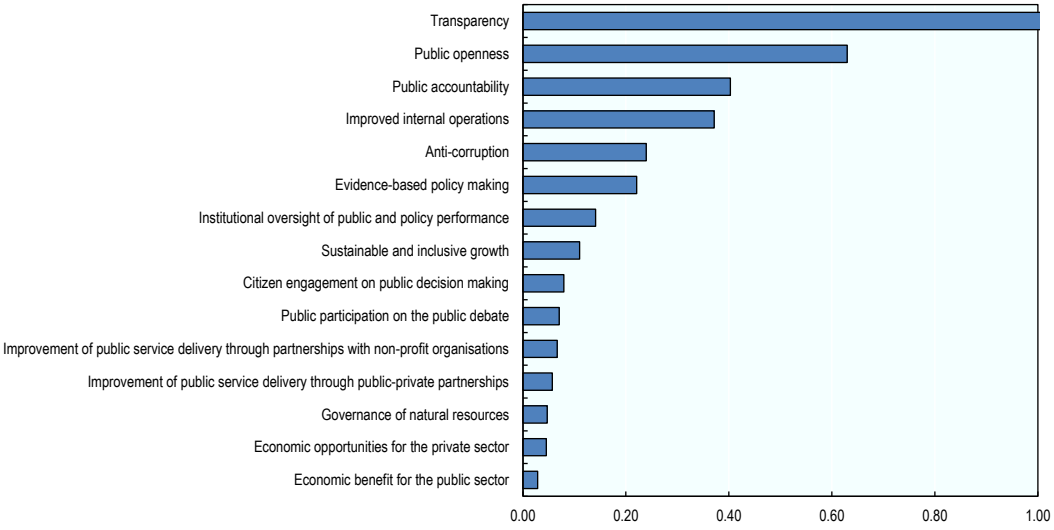
This limited awareness and understanding of the potential benefits of OGD are likely to have a direct impact on the objectives and priorities set by institutional open data strategies, which are mainly focused on making open data available on the central portal, rather than on taking the necessary actions to create value. Results from the OECD Survey on Open Government Data in Mexico indicate that, currently, 84 public institutions of the Mexican central administration (Figure 3.3) show a lack of synchronisation between the objectives of the national open data policy and those of institutional open data strategies. For instance, while the creation of economic value is one of the main priorities of the central open data policy, creating economic value for the broad economy is, simply, not a priority for public institutions

This lack of policy alignment poses a challenge for creating synergies to achieve strategic central policy goals in the mid and long run (i.e. using open government data as an enabler of a data-driven economy – one of the four key objectives of the open data policy in Mexico), particularly if public institutions maintain a reactive and compliant attitude driven by a top-down approach, instead of a proactive and more participative approach in the open data ecosystem that centres on the needs of national data users. Building a stronger basis for the creation of greater economic and social value will require broadening public officials' understanding of open data through sustained data literacy and capacity-building exercises (i.e. workshops, seminars, etc.) in order to build a vision at the institutional level regarding the value they are aiming to create, in line with the overall government objectives.

Whereas the alignment between the objectives of central policies and those of institutional strategies requires further work, from the operational perspective there are examples of open data initiatives across public institutions that go beyond transparency-centred data disclosure. For instance, the initiative *Retos Públicos* (Box 3.1), led by the Chief Data Officer (CDO), created a direct link between app developers and public institutions, aiming to improve public service delivery and enhance citizen participation through the reuse of open data.

Figure 3.3. **Main objectives of institutional open data strategies in Mexico**

Index: 1.0: Highest importance; 0.0: Lowest importance



Note: Answers for 84 public institutions at the central level.

Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Capacity building and training activities should keep improving public institutions' understanding of the potential of open data to create economic, governance and social value. Making open data publicly available contributes to public transparency and public scrutiny. But broader open data values such as citizen engagement, public participation and business development are not achieved *de facto* by simply increasing data availability and accessibility.

Fostering the use of open data for social engagement and collaboration, and its potential for economic growth, should be embedded as a component of institutional open data strategies, particularly if Mexico aims to use open data to further address specific issues across different policy areas (anti-corruption, climate change, education, social development, etc.).

Such policy-/sector-specific specialisation requires, on the one hand, the availability of data-literate officials, capable not only of disclosing open data but of actively participating as partners in the open data ecosystem, with a clear idea of the value they aim to create, the issues they seek to address, the actors they need to engage and providing highly valuable sector-specific knowledge to the ecosystem. On the other hand, the challenge is to effectively spread such practices across the whole public sector in a co-ordinated and visionary fashion, which requires greater vision for open data at the institutional level under the leadership (and the increased availability) of institutional chief data officers.

Transforming open government data into "business as usual" across the Mexican public sector

The development of an open-by-default culture still has a long road ahead in Mexico. Open data is still the result of extrinsic motivation (i.e. regulations and enforcement) and not a matter of intrinsic drives inside public institutions (i.e. the result of a pro- open-by-default culture). Achieving an open-by-default culture would mean that open data has been embedded within the organisational ethos of the Mexican government's apparatus.

Box 3.1. *Retos Públicos*: Promoting the reuse of open government data in Mexico

The initiative *Retos Públicos*[1] has been useful to produce outcomes at the policy and institutional level beyond transparency. Through public calls published online on the central open data portal, the Chief Data Officer (CDO), in co-operation with a number of ministries, calls for project proposals from non-governmental actors. The overall goal is to collaborate with the ecosystem to develop mobile/Internet open government data-based solutions (applications) to "*retos públicos*" (Spanish for public challenges). Such challenges are defined by public institutions, and winners are granted public funding for project development.

Ministries such as Transport (SCT), Education (SEP) and Environment (SEMARNAT) and public bodies such as the National Council for Culture and Arts (CONACULTA) and the Consumer Protection Agency (PROFECO) participated in this initiative. Mobile and web-based applications have been developed as a result of *Retos Públicos* and they are showcased on the open data portal, and available for free download.

The value of such an initiative is that it:

- has effectively acted as a mechanism for public-private-social co-operation
- contributes to foster innovation in the country while aiming to improve public sector efficiency
- illustrates the relevance of data-literate institutions and visionary leaders for value co-creation
- helps public institutions have a clear vision about the issue (value) they are aiming to address in collaboration with stakeholders.

This initiative is aligned with the efforts of OECD countries to increase the reuse of open government data towards the creation of greater public value. According to the OECD Open Government Data Survey 2.0 (2014), the organisation of co-creation type events (e.g. hackathons, code sprints, apps challenges) and software development contests (e.g. for apps, widgets, etc.) are among the most frequently used practices by OECD countries to spur open government data reuse (i.e. Canada, Finland, France, Greece, Korea and Norway).

The relevance of such initiatives as co-operation and collaboration mechanisms between governments and non-governmental stakeholders is acknowledged in the *OECD OURdata Index* (see Chapter 4). The index – which is focused on benchmarking open government data policies based on three key composites: data availability, accessibility and reuse – includes the above practices as key sub-indicators that illustrate governments' compromise to support the reuse of open government data and stakeholders' engagement.

Note: 1. http://retos.datos.gob.mx.

While the Mexican open data policy evolves from top-down to a proactive model, incentives such as open data awards could contribute to building officials' intrinsic motivation to participate and develop open data practices. This would enhance their role to act as partners within the open data ecosystem. Rewards, indeed, could be based on

reputation (for instance, public recognition of top innovators inside institutions and best open data practices), therefore contributing to increasing the number of motivated public officials.

Visionary institutional chief data officers (see Chapter 2) and proactive public officials could be identified as open data champions inside public institutions. Their role could be useful to "evangelise" other institutions at the central and local levels, and to enable greater best practices exchange (Box 3.2). The recent experience of the Etalab and Dataconnexions in France has proven that champions and innovators are not only outside public institutions but also inside the public sector.

Box 3.2. "Evangelising" about open data: The United States as a trend-setter

The importance of open data evangelists is particularly relevant during the early stages of policy implementation. Communication skills, leadership and deep knowledge on open data are required not only to "spread the word", but to increase public officials' engagement on open data policies. On 13 August 2010 a position was posted by the United States' government for "Evangelist for Data.gov Open Government". Candidates were asked to show four very different capabilities:

1. extensive outreach and communications skills and experience
2. extensive experience in designing and implementing open government systems
3. a proven research record for identifying and developing new technologies
4. experience managing a complex data and information environment that encompasses both public and classified data.

The job description also indicated that the Evangelist was to work with multiple parts of the government, thus underlining the importance of understanding the myriad policy issues inherent in the release of information key to Data.gov. The role was established also with the intention to spur knowledge dissemination and evangelisation in relation to the development and use of Data.gov to gain greater involvement of agencies and other stakeholders, such as the open government community and the mash-up programmer communities. The Evangelist was expected to create excitement and drive around the programme to facilitate practical field application of leading-edge technology issues with important stakeholders.

Source: Based on OECD (2015a), *Open Government Data Review of Poland: Unlocking the Value of Government Data*, http://dx.doi.org/10.1787/9789264241787-en.

DataConnexions awards have been organised since 2012 by Etalab, a policy co-ordinating body under the French Prime Minister's Office, with the objective of fostering innovation around the reuse of open government data, by engaging with the key stakeholders of the French innovation ecosystem to help support the development of data-driven start-ups and projects. The contest is open to all citizens, start-ups and public administrations providing examples of innovative reuse of government data available on the open government data portal of the French government[4] (OECD, 2015a).

During the 6th Dataconnexions' award ceremony (February 2016), Rdv.Passeport.fr received a special mention, and not only for its contribution to a more efficient public sector. The application, which uses open government data to facilitate booking passport meetings in specific French cities, was developed by two French public officials, not by external stakeholders.[5] Such use of OGD highlights not only the benefits of disclosing open government data but those of motivating and engaging all stakeholders within the ecosystem – including public officials.

On the opposite side, open data "rankings" showing institutional performance could be useful not only to reward top performers, but also to motivate others to improve in order to avoid the risk of damaging their reputation. This would help the creation of a *de facto* constructive competition environment between institutions. These tools could be included among the current efforts of the CEDN to develop an open data dashboard; therefore, enabling it not only as a policy monitoring mechanism but also as a motivation platform.

Strengthening a bottom-up approach: Consulting and engaging national actors

During the OECD mission to Mexico, the OECD Secretariat had the opportunity to meet with a number of businesses currently using OGD. These private organisations expressed their concerns regarding the real value for economic activity that those datasets currently available in the central OGD portal have. In addition, they also raised their concerns on how the current channels to request open data from public institutions hinder a more efficient and faster access to undisclosed datasets (see Chapter 4).

Clear examples of the use of open government data to create economic value are still limited. Open Data 100[6] (the Mexican chapter of Open Data 500) provides a good example of the willingness of the Mexican government to "map" post-disclosure open data causality (from publication on the central portal to its reuse by private organisations, and the creation of value for the broad economy). The mapping exercise was useful to identify 100 private companies currently using open government data for business purposes. However, the extent to which OGD is being used by private organisations, or the economic value that is being created as a result of the reuse of OGD, is unknown to the Mexican government.

Still, businesses (together with CSOs) acknowledged that the Mexican open data policy is quite recent, highlighting that the institutional maturity and capacities required to translate ambitious policy goals into an effective institutional implementation are yet to come.

CSOs were also highly critical during the OECD mission about the relevance of the data available on the central portal. At the same time, the meeting with members of the Open Data Council (a multi-stakeholder body created in 2013 as a result of the 2nd OGP Action Plan) showed that regular communication and co-operation between council members is yet to come.

Inputs gathered during the OECD's mission to Mexico may point to the need to reinforce mutual trust between the central government and the society at large. Yet, such a scenario is not endemic of Mexico. Deteriorating economic circumstances provide a starting point for explaining this, but are not enough (Mickoleit, 2014). Political and societal issues such as corruption scandals, nepotism, poverty and unemployment are only a few of the vast array of factors that may have an impact on public trust in government.

Regular communication channels between the Mexican central government and social/civic users appear to be broken, and the possibilities of fostering OGD-based social values such as citizen engagement and public participation, undermined. As a result, the possibilities of using open data as a trust-building mechanism are damaged by weak collaboration. At the same time, CSOs' lack of trust is supplemented by a lack of clarity and knowledge about their own specific data needs, accentuated by a dubious attitude towards the efforts being carryied out by the central government, and their reluctance to collaborate with the government, except in some specific cases, beyond demands or public expressions calling for change.

There is a need for all stakeholders to identify themselves as collaborative partners that can work together for the achievement of common goals and, moreover, mutual benefits.

At the moment, it seems that the national open data agenda has been mainly driven by a top-down approach instead of a collaborative one that would require more than a one-time consultation exercise such as the Datatron (see Chapter 2). For instance, a draft of the Open Data Policy was open for public consultation in 2014, receiving, according to data provided by the Mexican government, more than 300 comments and 800 text edits from citizens. The draft was discussed with students and academics, and revised by members of the Open Data Council. While this consultation exercise was successful during the policy drafting stage, regular and effective communication, co-ordination, and collaboration channels that contribute to a demand-driven data disclosure and greater value co-creation and collaboration (such as *Retos Públicos*) requires further development. There is an urgent need to balance efforts in order to co-create value. On the one hand, the centre of government and public institutions should further reach and engage the national open data ecosystem, but, on the other hand, the open data ecosystem should be willing to participate on an active, collaborative and co-responsible fashion in order to contribute to the maturity of open data in Mexico.

Diversified consultation exercises for demand-driven data disclosure

As mentioned earlier, the active participation of the Mexican government within the international open data community has been beneficial to bring world-class knowledge on open data and international best practices to the country. But, in Mexico, the level of influence that the country's international agenda on open data exerts on targeted policy goals appears greater than the one exerted by national stakeholders. It would be equally beneficial to establish regular bottom-up consultation exercises between public institutions and national stakeholders in order to nourish the open data policy with the needs and inputs of the national open data ecosystem.

Yet, achieving this will prove complicated if it is conceived only as a direct result of initiatives undertaken and managed by the co-ordinating institution, due to their limited human and financial capacities (i.e. currently six consultants work on the ODS and two as managers of the central portal; the open data policy has been granted a budget of USD 5 million for 2014-16; OECD, 2014a[7]). The current scenario increases the need of diversifying consultation mechanisms and collaboration activities with the support and active participation of public institutions.

Consultation exercises can build on specific sectorial and policy know-how that individual institutions have acquired as a result of their own institutional and policy objectives; and, even more, be aligned with the goals of their own institutional open data strategies and embedded as part of broader OGD initiatives and the National Open Data Policy.

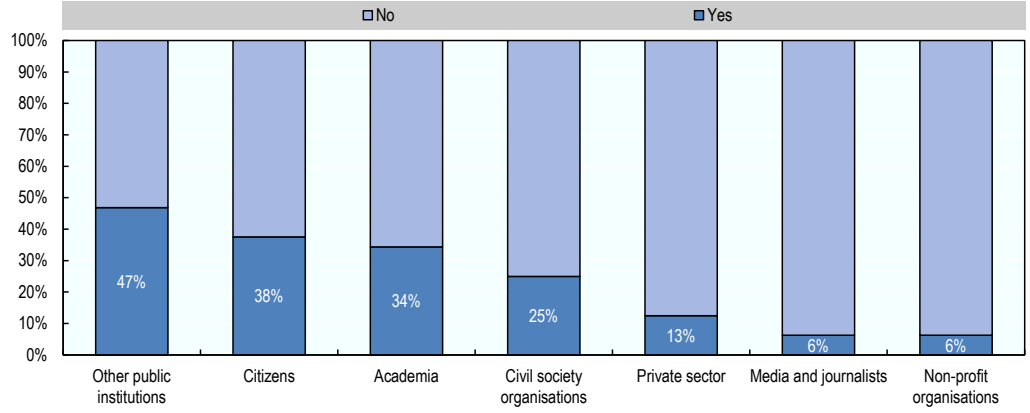
In the short and medium term, the Strategic Open Data Infrastructure (Chapter 2) would need to be complemented with a reinforced demand-driven approach; thus incorporating a broader data scope based on the needs of regular consultation and policy feedback exercises. It is important to align the open data portal with national development goals, but it would be equally relevant to consult the ecosystem on a regular basis to align the former with the actual needs of the latter. Datasets available on the central portal should be of value to potential and current data users.

In the long term, moving from a partially "centrally defined" data disclosure (top-down) (as done with the Strategic Open Data Infrastructure) to a demand-driven approach (bottom-up) led by the public institutions in charge of policy implementation may contribute to increasing the reuse of data and build stronger collaboration and enhance trust between the Mexican government, public institutions and data users.

Greater responsibilities could be "decentralised", thus transferred to policy implementers (central line ministries in charge of health, education, transport, etc.). The results of the OECD Survey on Open Government Data in Mexico show that 65% of public institutions have not run any consultation exercise to assess the demand of specific government datasets (60 out of 92). Of those which report having run some type of consultation (32), 25% indicate having consulted CSOs and 13% private organisations. Figures are even lower for specific user groups such as media and journalists (Figure 3.4). Yet, data collected through the survey indicate that such "consultation" exercises are mostly based on the analysis of requests for access to public sector information rather than on demand-identification results from actual consultation exercises (i.e. online surveys, focus groups, etc.).

Figure 3.4. **Consultations by user group as a percentage of the total number of public institutions reporting consultation exercises to identify users' data demand**

x=32



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Consultation should be diversified. Formal institutional open data strategies (IODS) should include consultation as a crucial component to identify demand and prioritise data disclosure. While the questions included in the OECD survey for public institutions in Mexico did not perform an in-depth analysis of institutional open data strategies, it seems that most institutional strategies are driven by compliance with the national open data policy. In other words, they are mostly focused on disclosing OGD based on the guidelines provided by the central government and the Strategic Open Data Infrastructure, which leaves public institutions as passive players of the open data ecosystem.

For instance, the Open Data Strategy of the **United Kingdom's** Department for Education (DfE) published in 2012, clearly stated how consultation exercises ran by the DfE had the objective of building a "children's safeguarding national performance information dataset", and to help the DfE's decision making on "the most helpful way to publish [such] data" (DfE, 2012). In **Spain,** the Ministry of Health, Social Services and

Equality published in 2014 its institutional Plan to Support the Reuse of Public Information. The institutional plan, which draws on a technical norm published by the Spanish central government, includes users' demand as a decision-making element to prioritise OGD disclosure.

In Mexico, some public institutions are already working on their own consultation initiatives. The Office of the Attorney-General (PGR) ran working groups with CSOs and other stakeholders to identify datasets that were of interest to them. The PGR approached private sector organisations which provided support to improve the PGR's internal processes of data management and open data disclosure. The National Institute of Cancerology (INCAN) ran an anonymous online consultation to explore data demand. Others, such as the Mathematics Research Center (CIMAT) and the Institute for Electricity Research (IIE), have built on previous transparency and anti-corruption public programmes that provided a demand-driven and focalised disclosure of PSI (*Transparencia Focalizada*), thus using such demand information as a basis to disclose open data.

Further direct consultation, co-ordination, collaboration and feedback between public bodies and national data users are needed to foster policy-specific and value-oriented open data practices. There is a need to connect the data producer with the data consumer. The success of *Retos Públicos* is that, indeed, it created a direct collaboration link between public institutions (not only the main OGD policy co-ordinating bodies) and data users. *Retos Públicos* is an example of value co-creation and collaboration between public institutions and data users that goes beyond open data disclosure.

Inter-institutional sectorial collaboration within different policy areas (e.g. social and economic development, environment, transport, security) would be equally beneficial to foster the usefulness of the data disclosed on the central portal in line with demand-driven and value-specific approaches towards greater reuse.

For instance, in 2015, the Association of Audit Courts of Brazil (Associação dos Membros dos Tribunais de Contas do Brasil) directly ran a hackathon inviting app developers, CSOs and members of Brazil's local supreme audit institutions (SAIs) to discuss how open data could specifically contribute to the work of the SAIs, in order to develop more efficient institutional open data strategies that build on the identification of a critical mass of users and demand-driven data disclosure based on users' needs and the context of the national open data ecosystem. A similar exercise was run at the regional level in Europe the same year when the European Organisation of Supreme Audit Institutions (EUROSAI) met in Amsterdam (Netherlands) to discuss how open data could contribute to the audit work of the SAIs across European countries. Interestingly, the discussion around open data in both cases centred not only on open data disclosure as the ultimate objective, but on the use of open data by such institutions to improve their audit capacities.

Currently, the international open data movement focuses not only on sector-specific areas of work, the movement is also calling for the active (rather than passive or compliant) involvement of public institutions and policy sectors in a co-ordinated fashion. Institutional participation should go beyond open data disclosure. By getting actively involved as partners within the ecosystem, public institutions (in co-ordination with policy co-ordinating agencies) can contribute to the creation of sector-specific data values. The work of the SAIs in Brazil and Europe is an example of how the institutional involvement of specific public institutions is key to foster the contribution of open data to specific policy areas of work; in both cases, open data for public accountability and

public sector performance, and in the Brazilian case, how open data could contribute to fighting corruption.

The role of the CEDN (through the CDO), the SFP and the Open Data Squads will remain crucial to keep the Mexican open data policy moving forward in a co-ordinated fashion. But public institutions should be more actively involved in the open data ecosystem in order to enable greater value-based and demand-driven data disclosure that builds on regular consultation and a dynamic multi-stakeholder collaboration and partnership.

Raising awareness and increasing communication to reach out to users and engage communities

The use of digital technologies such as social media as cost-efficient information provision tools has been widely discussed. It is old news that the arrival of major tech companies such as Facebook, Twitter, YouTube and Google in the late 1990s and during the 2000s opened an innovative way of establishing contact with and between social groups.

In more recent years, the evolution of the data-driven economy increased the relevance of such mechanisms as data-collection platforms that, then, paved the way for the big data era. It also led to the mixed use of complementary innovative policy-making instruments such as data analytics and behavioural insights. The potential value of social media and the possibilities it offers for information provision, communication, online marketing, digital activism, data analytics, etc. is, simply, out of discussion. Yet, what is still debated is the actual use that governments have given to social media as a two-way communication and engagement tool beyond its use as a mere information provision platform, and, the ability to mesh Internet-based social platforms and the use of traditional marketing, or communication strategies, which are complementary and not mutually exclusive.

Where the primary objective of governments is to use social media for one-way communication, no specific tactics or methods are necessary. But the question is increasingly being raised whether the public sector can and should leverage social media for more than just broadcasting its messages (Mickoleit, 2014).

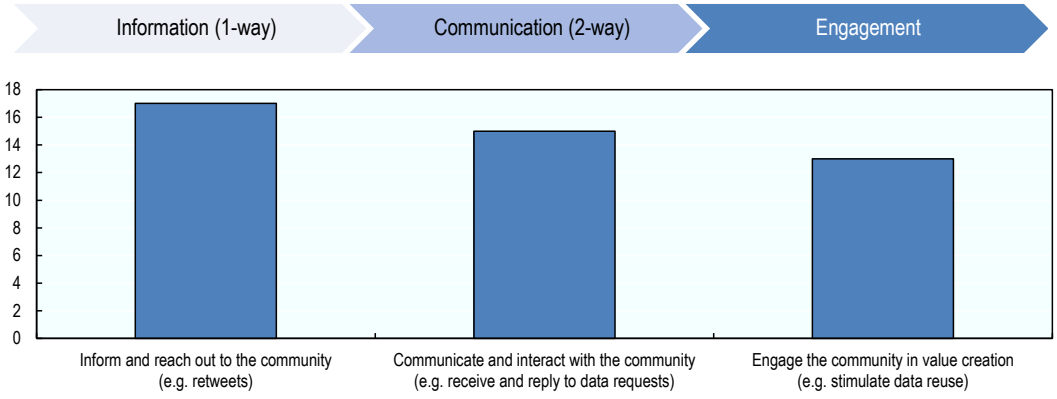
The use of social media within the framework of open data policies is diverse and the impact such tools have to reach data users and invigorate the ecosystem requires deeper analysis. Eighteen OECD countries (including Mexico) report the use of social media channels as a component of their national open data strategies (Figure 3.5). Among those, the main objective is to inform and reach out the community, while two-way communication and users' engagement remain secondary purposes (OECD, 2014a). Nonetheless, the questions to be answered are how to effectively communicate and engage the data ecosystem, and how to reach user communities? How do you motivate and involve the civil society that might be reluctant to participate due to a lack of trust in public institutions? How do you efficiently market a government-created intermediate good – such as open government data – that requires being consumed (reused) by broader society (data users) in order to create value? What are the most effective methods to reach potential user communities and convince them of the benefits that OGD can bring?

The Mexican government (through the Chief Data Officer and the Open Data Squads) has used online platforms to communicate with and reach out to a greater number of public institutions for training and policy guidance purposes. YouTube has been used by the Open Data Squads and the CDO to carry-out webinars[8] to guide public officials

before and during the implementation of the open data policy. This platform has also been used to promote the National Open Data Policy[9] and the work done by the Office of the President to reach out to and co-operate with local governments through the Open Mexico Network (*Red Mexico Abierto*)[10] (see Chapter 5).

Twitter is another social media platform used by Mexican public institutions to promote and spread information on the government's activities. The Office of the President and the Office of the Chief Data Officer manage individual Twitter accounts. The former sums 1.92 million followers, and the latter a total of 2 725 followers.[11]

Figure 3.5. **Open data policies: What is the purpose of the use of social media channels?**



Notes: Based on information provided by Australia, Canada, Chile, Denmark, Finland, France, Ireland, Italy, Japan, Korea, Mexico, New Zealand, Norway, Portugal, Spain, Switzerland, the United Kingdom and the United States. Platform-specific information is not available.

Source: OECD (2014a), "OECD Survey on Open Government Data 2.0".

Personal accounts such as the one of the President of Mexico and the Head of the Coordination of the National Digital Strategy have 5.02 million and 43 000 followers respectively.[12] It is not surprising that the number of followers of personal accounts is higher than those attained by institutional accounts. The OECD working paper "Social media use by governments: A policy primer to discuss trends, identify policy opportunities and guide decision makers", found evidence on the overall impact (based on followership) that institutional accounts have *vis-à-vis* those of political leaders, thus raising a question on the difference that acquiring higher popularity levels on social media may have on institutions' ability to effectively communicate and interact with the general – digital – society (Mickoleit, 2014).

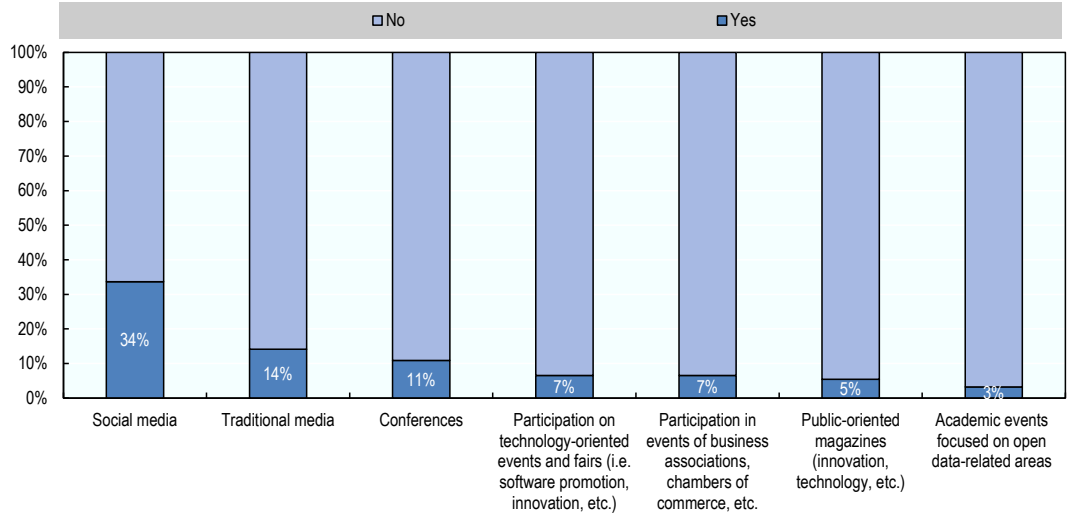
Across the Mexican public sector, social media is the most widely used information and communication tool to promote and foster the reuse of open government data (Figure 3.6). In addition, results from the OECD survey for non-governmental stakeholders show that Twitter is the most used tool by stakeholders to follow government activities. Yet, only 28% of public institutions report some level of awareness about who their data users are; therefore posing a challenge for effectively migrating from a generic information provision to an effective two-way communication and regular collaboration and engagement that build on focalised user-oriented communication strategies.

Fostering greater willingness among national stakeholders to co-operate and collaborate may require going beyond providing economic incentives and rewards for app developers – as successfully done through *Retos Públicos* (see Chapter 4). But achieving stakeholders' engagement will require, first, better communication with stakeholders and making stakeholders aware of the benefits and value that open data can have for their organisational and/or personal activities and objectives (particularly among those that are not in regular contact with the central government).

Moreover, it could be beneficial to increase stakeholders' awareness on the work being done by the central government on open government data to increase traffic to the central portal, increase data reuse and improve data based on greater feedback. Such communication should transcend the current co-operation silos that have been established with major tech companies, with specific data-driven consultancy firms, with young social entrepreneurs, and with long-established and recognised civil society organisations.

Figure 3.6. **Promoting the reuse of open government data: Communication channels used by public institutions**

Percentage of public institutions by communication channel (x=92)



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Open Data 100 (500) and *Retos Públicos* are good examples of the willingness of the Mexican government to reach stakeholders. While social media represents a valuable cost-benefit communication tool to reach a broader range of users, the overall communication strategy should also aim to further reach out to specific user community clusters around open data (i.e. environmental groups, CSOs working on anti-corruption, data-driven businesses).

It would be beneficial to focalise communication strategies by user group under the leadership of public institutions working on specific policy areas. By doing so, face-to-face collaboration events such as hackathons could better contribute to value co-creation around specific policy areas by linking policy experts (the institutions) with data users. For instance, in France, Etalab has taken a "one hackathon at a time" approach, which means organising events around specific datasets to show the

responsible administration the concrete uses that can derive from open data, and how collaborating with the open data ecosystem can be useful for specific policy areas.

There are examples of stakeholders working with and on open data (i.e. Open Data 100) but in the Mexican context, aiming to create public value would require further hunting data champions across the general society and strengthening user communities. This strategy would be useful to connect specialised policy areas of work with stakeholders active in such areas. This could be triggered through focalised user-specific communication strategies.

Box 3.3. **Marketing open (government) data: Where to begin? Moving from one-way information provision to effective two-way communication**

The OECD approach to open data (including open government data) aims to go further than its traditional technical conceptualisation (data that is reusable, accessible, cost-free, interoperable, etc.). The importance of this traditional definition is at the core of open government data (OGD) policies. Open data's opportunity costs are high when its intrinsic potential to create general and specialised values is not mined and data cannot be reused as a result of technical (or legal) limitations. Nonetheless, the OECD's approach goes beyond seeking to build a value-driven and dynamic conceptualisation of open data.

Open data:

- **Is an intermediate good.** Building on the traditional technical definition of open data, the OECD aims to change the mindset around open data to make it understandable for everyone. Ergo, the OECD's own understanding about open data, beyond its technical characteristics, centres on its dynamics. Open data is a good that is not final. Hence, it goes beyond open data disclosure.
- **Contributes to the creation of social, governance and economic value.** As an intermediate good, open data should be reused and incorporated within stakeholders' value chains as a valuable input for the creation of a final product. Once open data has been reused, a final product is created in the form of public value.
- **Requires knowing your clients (data users) and meet their needs.** The creation of public value varies based on the specific nature of the datasets and on the goal (value) being pursued. The latter approach is of utter importance when open data aims to contribute to specialised policy values (sustainability, risk management, social development, etc.) For this reason, an effective value creation requires public institutions to know who their data users and their data needs are with a segmented approach. Open data should be reused by the right people, and public institutions should be aligned with the needs of the data users towards the creation of greater public value.
- **Requires focalising your communication strategy to your clients.** User segmentation by value and area of work is what enables linking policy sectors (data producers) with the right data users (consumers). Focalised communication strategies should aim to build such a bridge in order to contribute to the co-creation of specialised public values. The support of policy co-ordinating agencies is crucial to foster the construction of communication channels between policy sectors and value-segmented users, but public institutions should actively communicate and promote their work on open data among their specific stakeholders.
- **Is regularly improved based on clients' feedback.** Knowing the open data market means knowing your clients, and their needs may change. The best measure of the value of the data being disclosed is its reuse. Permanent two-way communication and feedback channels should be available in order to ensure the regular improvement of open government data and its permanent contribution to the overall open data ecosystem.

Use of specialised tech-centred publications and magazines, and participation in technological and innovation business-development events, could help foster stakeholders' awareness about Mexico's open government data policy. In addition, networks of less-known and local civil society organisations could be equally useful to communicate with a broader range of social actors, to reach civic and policy clusters (i.e. groups of CSOs working on environmental or urban development policy), and to avoid establishing an oligarchy for public-private collaboration where the latter is limited to well-known and long-time established CSOs.

In this section, it has been established that unlocking the value of OGD stimulating the reuse of OGD by all stakeholders should be an integral part of the government's OGD strategy. The next section focuses on a specific category of OGD users: government institutions themselves.

The long-term goal: Towards a data-driven public sector

Mexican public institutions as data users in the data ecosystem

In addition to opening up government data for CSOs, businesses and citizens to reuse data in order to create public value, public institutions can reuse these data themselves to improve organisational efficiency, provide better services, realise more informed policy making and foster citizen engagement. Especially when combined with the wealth of data that is increasingly produced by CSOs, businesses and citizens, OGD can be of great value to the public sector. The reuse of OGD by public institutions in insight, oversight and foresight activities not only has the potential to create good governance value, but can contribute to fostering economic and social value as well.

Several OECD countries are making efforts to integrate OGD policies into wider digitalisation strategies and spur a data-driven public sector. Finland announced its open data policy for 2015-20, which focuses on "open data as a basis for the digital economy, public services and decision making", thereby becoming an integral part of the Finnish digitalisation strategy.[13] In 2014, France appointed the first Chief Data Officer in Europe, who is responsible for data governance, including stimulating the reuse of OGD throughout the whole administration.[14] In the United Kingdom, the CDO is spearheading the government's approach to open data access and use, in conjunction with the use of data to better inform decisions across the public sector.[15] Another relevant example is Denmark, where OGD is under the responsibility of the Agency for Digitisation within the Ministry of Finance, which is responsible for the definition and co-ordination of the implementation of the overall public sector digitisation strategy. This development indicates that there's a shift in focus of OGD policies from mere availability and accessibility of government data to the reuse of open government data, both outside and within government. In appointing a state CDO, Mexico has made an important step towards further aligning its National Open Data Policy and the National Digital Strategy. The mentioned international best practices give an indication of the significance of this key co-ordinating position to enable data-driven value creation for the public sector.

Incorporating internal reuse in Mexican open government data policies

In order for Mexico to reap the potential benefits from the reuse of OGD and other data by public institutions, action should be taken to spur a data-driven culture across the whole of government. Mexico has already taken an important step at the strategic level by adopting the *OECD Recommendation of the Council on Digital Government Strategies*,

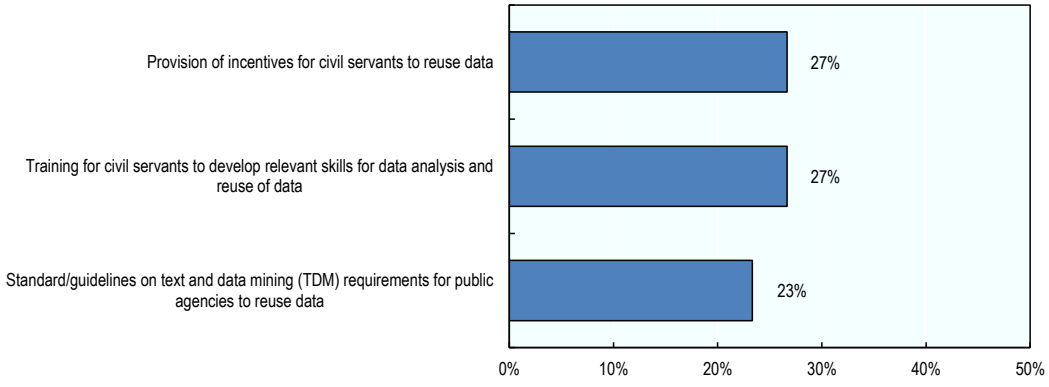
in which the development of a data-driven culture has been identified as an essential principle for public sector reform. Consequently, Mexico has asserted the importance of recognising data as a key asset for the public sector as a whole, and not only for individual departments.[16] A national mandate for better internal use of data can be found at the federal policy level in the National Digital Strategy. Among the strategy's action lines for government transformation, it is stated that in order to enable the use of data by public sector institutions for the development and improvement of public policy, the Mexican government should:

- build tools for using data as empirical support to the process of designing public policies
- ensure privacy and protection of personal data, classified and confidential information when using open data
- encourage the private sector to contribute data for projects of public interest.

Mexico finds itself among the minority of OECD countries which report having developed elements in the central OGD policy concerning the internal reuse of OGD (Figure 3.7). These elements concern the provision of incentives for civil servants to reuse data, training for civil servants to develop the required data analytical skills, and a standard or guidelines on text and data mining requirements for public agencies to reuse data.

Figure 3.7. **Elements in central open government data policies aimed at public sector reuse of open government data**

Percentage of OECD countries reporting the inclusion of the mentioned elements as part of their central/federal open government data strategy or policy



Source: OECD (2014a), "OECD Survey on Open Government Data 2.0".

In line with these three reported elements in the central government policy on OGD, in the OECD Survey on Open Government Data in Mexico, a vast majority (90%) of institutions stated having an official strategy or policy to foster better reuse by internal stakeholders of the data their institution has collected or produced. As for the seven principal objectives of these institutional OGD policies, several Mexican institutions mentioned objectives related to value creation for the public sector itself. Sixty-seven per cent of respondents acknowledged "improving internal institutional operations and collaboration" as being among its top priorities, followed by 53% for "contribute to more evidence-based policy making", and 42% for "monitoring performance and impact in order to adapt and redesign public policies and foster policy efficiency". These numbers

show that there is some awareness and commitment among Mexican institutions to stimulate internal OGD reuse for public sector value creation, but it's clearly not a priority for all institutions. Moreover, despite the good intentions at both the federal and institutional levels of government, the actual internal data demand and reuse as well as the institutional implementation of activities to strengthen data skills and capacities in Mexico are quite limited.

Public sector value creation through capacity building for the internal reuse of open data

Data reuse within the Mexican administration

When looking at the data needs and data usage as expressed by Mexican public institutions in the OECD Survey on Open Government Data, it can be concluded that the value of internal reuse of (open) government data is insufficiently recognised throughout the Mexican government. Only one-third of public institutions state that they require data from other public institutions on a regular basis. PEMEX, the state-owned petroleum company, is one of the most active OGD prosumers in Mexico, whose data are used by multiple users within government and which has the most varied data needs itself, regularly requiring no less than 15 different types of data, ranging from economic and business information to cultural information and content.

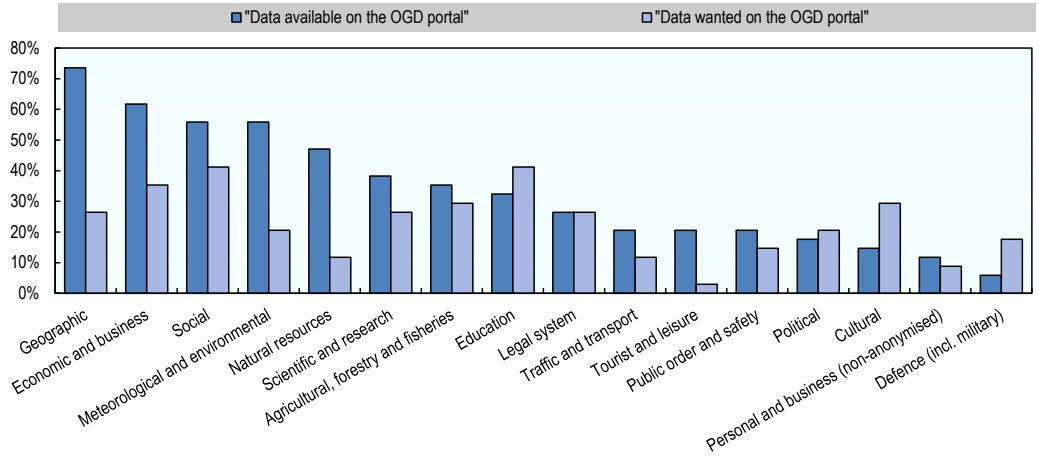
Social, geographic and economic data are the most wanted types of data, whereas tourist, defence and personal data are hardly ever needed. For almost all data categories, the required information can be accessed on the OGD portal, but the OECD Survey on Open Government Data in Mexico equally reveals that there is also a demand for more availability through the portal (Figure 3.8). For example, INEGI and the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) are both popular data sources on the OGD portal, but several Mexican institutions indicate that they would like to have more data from these two sources available through the portal. Especially for educational, political, defence and cultural data, the demand, even though limited, is higher than the supply.

Data-sharing between Mexican government institutions, either through the OGD portal or through G2G sharing agreements, is not yet common practice. In the OECD Survey on Open Government Data in Mexico, only 18 Mexican institutions indicated having a G2G data-sharing agreement with other Mexican institutions beyond the scope of the OGD portal. Furthermore, no more than 12 institutions obtain OGD through the central portal for internal management purposes or to inform policy making.

In the 2014 OECD Survey on Open Government Data 2.0, Mexico already mentioned insufficient awareness and preparedness among civil servants as part of the top five cultural challenges hindering further development of OGD policies in Mexico. This challenge is reflected in the limited expressed data needs and even lower level of actual data usage by Mexican public institutions, pointing to a lack of insight on how internal OGD reuse can leverage value for the public sector. A data-driven culture, including organisational willingness and the development of the required skills (human, technical and legal), is not something that can be forced on government employees, managers and departments. It needs to be stimulated by making a connection to the actual needs of the public institutions and those of civil servants. A good example is the way in which the Danish Basic Data Registries has come into existence (Box 3.4).

Figure 3.8. **Availability and demand of required data on the OGD portal**

As a percentage of Mexican public institutions which regularly need data from other public institutions



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Box 3.4. **Implementation process of the Danish Basic Data Registries**

In order to create a sense of collective commitment across the administration to increasing openness and reuse of government data, Denmark has been focusing on the development of a "Government data and information management policy". In accordance with one of the recommendations in an OECD e-government study of Denmark (OECD, 2010), the point of departure was recognition of the key relevance for efficient public sectors of high-quality basic data registries used by all actors. In the digitisation age, these registries are seen as being at the core of public sector efficiency.

The Digitisation Agency within the Ministry of Finance, responsible for setting and co-ordinating the implementation of the open government data agenda, realised that the basic registries were not catering to the needs of all parts of the administration and they were not up to par with the need of a digitised public sector. Registries had been developed as mandatory by law but not based on users' needs.

To move from adherence to the law to adherence to users' needs, the Danish government launched a "Basic data registries implementation programme" (2013-16), which has the purpose to revisit the governance system of data management within the public sector – including changing laws to clarify responsibilities and improve data quality and use. Great emphasis is on data modelling to ensure that data can fit semantics. Partnerships were established with the financial sector (e.g. board representing land companies, financial entities) and will be expanded to other utilities sectors to capture views, advice and feedback on data architecture in order to secure that the data respond to the users' needs. A board was created for the programme that mirrors the governance model for digital government.

The focus on data as a strategic asset for public sector efficiency and modernisation is helping the Danish government create a common agenda around the ideas of data governance and data (quality, use and sharing) being at the core of public sector reforms (e.g. employment, taxation, environment). Hence, by providing a clear value proposition (business case) for joining the Basic Data Programme as key to broad reforms, the government stimulates actors' participation in the programme as a result of the recognition of the high value of the data and not because it is mandatory. The goal is to increase the number of datasets (e.g. social demographic data) in the Basic Data Registries Programme that also help create a business case linked to societal value and not only to the economic benefits.

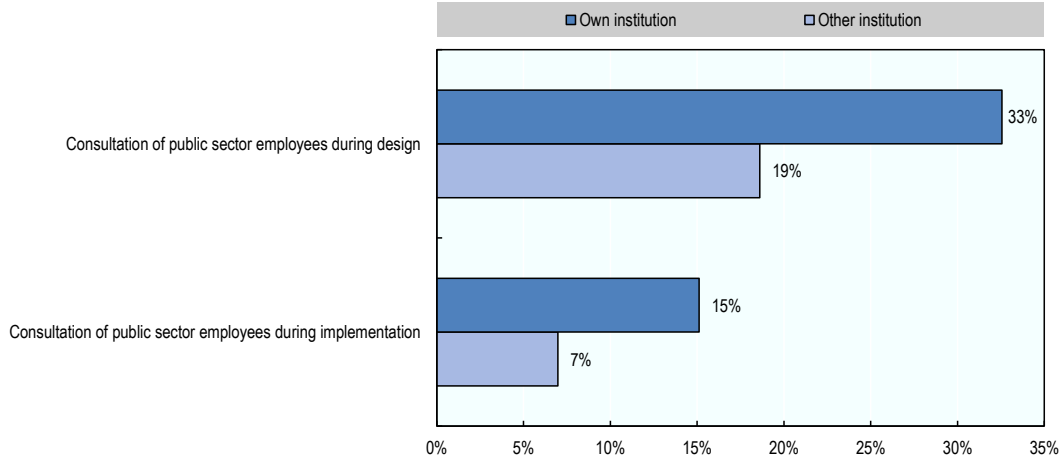
Source: OECD (2010), *Denmark: Efficient e-Government for Smarter Service Delivery*, http://dx.doi.org/10.1787/9789264087118-en.

The results of the OECD Survey on Open Government Data in Mexico show that two-thirds of Mexican public institutions were consulted during the definition of the national OGD policy. However, only 30% of the consulted institutions report having been asked about their actual data needs and sharing practices from and with other public institutions. Consultations predominantly focused on the supply side of OGD, asking institutions about data production capacities and practices as well as technical capacities and needs for data sharing. The federal government's focus on the supply side of OGD is also reflected in the use of the central OGD portal by Mexican institutions. According to the results of the OECD Survey on Open Government Data in Mexico, no less than 90% of the 80 institutions who visit the portal mostly do so in order to publish data.

Despite the good intentions at the policy co-ordination level to consult stakeholders (i.e. the Datatron, see Chapter 2), the extent to which Mexican public servants are actually involved in OGD policies and practices is rather limited. They are barely consulted during the initial design and even less during the implementation of institutional OGD policies aimed at internal reuse (Figure 3.9). In addition, only 15 out of 92 public institutions reported consulting other public bodies to assess their data demand. The weak involvement of civil servants hinders the potential of using OGD as a mechanism to improve government-to-government data-sharing practices and leverage value for the public sector.

Figure 3.9. **Consultation of public sector employees on institutional policies to stimulate open government data reuse**

Percentage of Mexican public institutions with a policy aimed at internal reuse of open government data



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

The key mechanism through which data can provide value for the public sector is by enhancing the availability of relevant information for advisors and decision makers at all levels of government, ranging from ministers, policy designers, tax inspectors and street-level bureaucrats to budget and human resource managers. This happens when analytical methods are used to turn data into knowledge (gaining insight, oversight and foresight), which provides the basis for decision making (taking action) (OECD, 2015b). Consequently, data-informed decisions on topics such as how to improve social services, which group of citizens to engage on what issues, and how to assign the available human resources in the public administration can create good governance, social and economic value.

Using open data to create good governance value

OGD and other data, in combination with data analytics, have the potential to design and deliver both policies and services of higher quality as well as foster co-operation within government and between government and external stakeholders.

Decision making at all levels of government, from the strategic to the operational level, can be improved by increasing the availability of relevant information to decision makers. Data are a critical tool to help governments solve complex challenges, generate and crowdsource innovative ideas, and design policies based on actual users' needs. For instance, the South African Department of Science and Technology considers data on R&D activities in the country as strategic information for the development of research policies (Box 3.5). At the same time, the acquired information helps the South African government improve its accountability by processing detailed data on R&D performance together with information on the allocation of government budgets. The results of the OECD Survey of Open Government Data in Mexico show some examples of data-driven policy making. One such case is the Mexican Petroleum Institute (IMP), where data analysis lies at the heart of its activities of basic and applied scientific research, in order to develop technologies applicable to the petroleum industry. Amongst other tasks, the data analytics unit of the IMP co-ordinates prospective analysis of economic factors and technological innovations to integrate planning scenarios.

Box 3.5. **South Africa: Research Information Management System**

The South African Research Information Management System[1] (RIMS) was launched in 2008 to become a strategic tool for research development and support at institutional and national levels. RIMS is a web-based tool that consists of a number of InfoEd modules (InfoEd being a commercially available research management tool) and a business intelligence warehouse. It collects and collates statistical information on R&D activities undertaken by higher education institutions, science councils and other government R&D funding agencies that make up the National System of Innovation. The system provides the government with the following information:

- Who is funding/conducting which R&D?
- Where the R&D is being performed and what R&D is being undertaken?
- How much is spent by the government on the R&D?
- What is the output of the R&D?

The provided data allow for the development of indicators on science, technology and innovation and enhance the national information base for monitoring public investment in science and research and its impact. Once fully implemented, RIMS is envisaged to be a central repository for research data on human resources for science, engineering and technology; R&D; capacity and technology improvement; and innovation for all institutions. The Department of Science and Technology and its sister governmental departments will make use of the intelligence to better understand the National System of Innovation and so make informed policy interventions. Once all higher education institutions and science councils are contributing data, either through InfoEd into the business intelligence warehouse or directly into the warehouse, RIMS will also provide government with the necessary tools to obtain a detailed and a holistic understanding of where its R&D funds are invested and how much it is spending on each area of science and technology within the bounds of the participating institutions.

Note: 1. http://info.rims.ac.za/index.html.

Source: European Commission/OECD (2014), *International Survey and Database on Science, Technology and Innovation Policies*, http://qdd.oecd.org/subject.aspx?Subject=a2ebc2a0-b8dc-4d1a-82be-3fea780b86a6.

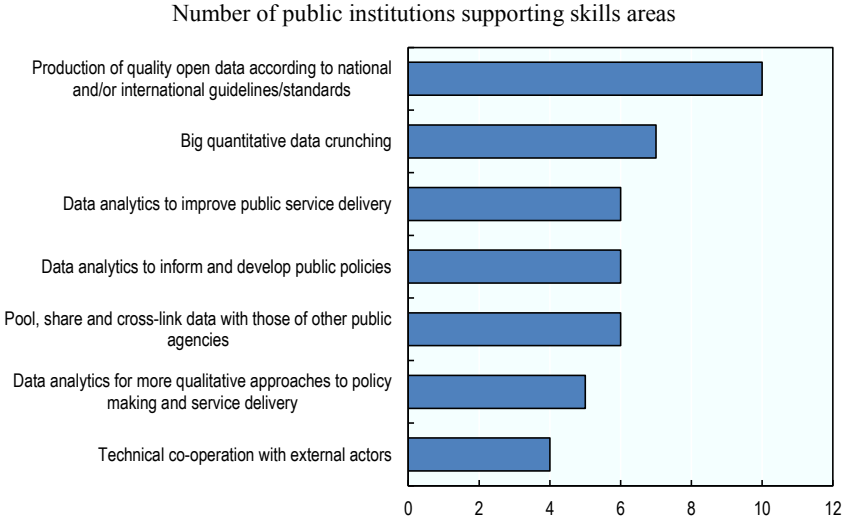
At the operational level, decision making and consecutive actions can be speeded up when fed by real-time data coupled with more static context data. An example is the compilation of a list of suspects for home burglaries in the Netherlands, which the police based on the analysis of information regarding the times and locations of burglaries in conjunction with data on the movement patterns of known burglars (van Ooijen and Bokhorst, 2012). Data-driven operational decision making is not only faster and more efficient, but also more proactive than traditional methods, since data feeds can trigger alerts for possibly risky situations which may require preventive action. Unwanted occurrences such as health hazards, road safety and security threats may be put to a halt before they arrive (foresight). However, caution is warranted when interpreting the data. Users of portable electro cardiogram (ECG) equipment have reported an increase in anxiety as a result of calls from carers resulting from anomalous readings, possibly caused by a user moving out of range, compounded by an inability to distinguish between an emergency call and a service call (OECD, 2015c).[17]

As mentioned earlier, innovators can also come from within the public sector. By opening up government data, front-line professionals are empowered to improve the real-time performance and impact of services, not only by taking into account more information in face-to-face contacts with citizens, but also by developing new services based on the needs they detect among citizens and the possibilities that datasets offer. For example, in Finland, the government actively encourages and facilitates public institutions to develop new OGD-enabled services in co-operation with other societal actors.[18] As such, OGD is becoming an integral part of digital government strategies.

Empowering civil servants with OGD requires strategies and programmes to build the next generation of civil servants, who will enable a data-driven organisational culture. New skills are needed, which are not only strictly IT related. They should include: data science; predictive analytics to identify patterns and create models; better knowledge on how to use Web 2.0 technologies for social engagement and to negotiate and connect to people; and a finer understanding of emerging problems and of the use of IT to solve them (e.g. cybercrime investigation). As an example, the Dutch police force, in collaboration with Deloitte and a forensic consultant (ForensicPlaza), co-produced a programme known as "Awareness & Digitalization". This programme is intended to provide a flexible and innovative way to raise the police force's awareness of risks and opportunities in the cyber environment and to develop its skills in dealing with the emerging challenges of an increasingly digitalised society.

Skills development for public servants is a weak spot for Mexican public institutions. In response to the OECD Survey on Open Government Data in Mexico, only 16 Mexican public institutions (17%) reported having a strategy or initiative to develop in-house data-related literacy and skills among public officials. Moreover, most skills development activities focus on the area of open data production, illustrating again the supply-side focus on OGD in Mexico. Only a handful of public institutions pay attention to developing public officials' literacy and skills in data analytics. Insights into how data analytics work are essential in order to create trust within the public administration in the results it renders. These can only inform decision making if public officials are confident that the data insights are valuable and trustworthy. This point also relates to the importance of a data quality control system. Quality of data, however, is not the only issue. Quality of the data analytics is too. If decision makers have trouble using the analytics-based tools and are reluctant to trust the results, they are likely to fall back on previous knowledge and working habits, rules of thumb.[19]

Figure 3.10. **Data literacy and skills development of public officials in Mexico**



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Furthermore, combining OGD, such as spatial datasets with data from other information sources, may spur innovative government services. Communication and aid provision during crisis situations may be vastly improved when data flows on social media are analysed in conjunction with geographical information related to people's actual location. For example, in Japan, in the aftermath of the March 2011 earthquake and tsunami, Georepublic Japan and OpenStreetMap Foundation Japan launched a crisis map that provided and visualised real-time information on news and official reports as well as information provided by the crisis-affected community (via SMS/text and Internet platforms) on evacuation centres, damages and requests for help (Wendling, Radisch and Jacobzone, 2013). In Mexico, open data (including OGD) was equally useful to better inform on natural risks in October 2015 when Hurricane Patricia hit the Pacific coast of the country. Organisations such as the Humanitarian OpenStreetMap Team and the United Nation's Office for the Coordination of Humanitarian Affairs released datasets containing real-time emergency information, with the aim to contribute to a more efficient emergency response by the Mexican authorities (CEDN, 2015).

Using open data to create social value

The legitimacy of and trust in the public sector can be enhanced through more inclusive policies in which the needs of all groups in society, including minorities, are taken into account. The iterative reuse of data between government and citizens as prosumers, including the coupling of OGD with data produced by citizens, businesses and civil society, can help realise a more guiding role for societal needs in the design and implementation of policies and services.

Analysis of citizen-produced data, available through networks such as social media and the Internet of Things (IoT), may function as a pulse for government to know what societal problems are on the rise. In addition, the understanding of the causes of the problems and the development of possible solutions may be enhanced by analysing citizen-produced data in conjunction with open government data. For example, location-based

services that citizens may use on their mobile phones coupled with open infrastructural data can give city planners new insights into the actual usage of the public road infrastructure and the locations and times where bottlenecks might arise (OECD, 2015c). Data extracted from social media offer new opportunities to reduce political exclusion, e.g. by allowing *ad hoc* and diffuse interest groups to place items on the political agenda (Mickoleit, 2014). Especially when combined with petitions, empirical evidence and on-the-ground actions, social media has proven their potential to "escalate" issues and alter original decisions taken by established actors in the political system (so-called digital activism). Governments can leverage this potential to design public policies and services in more iterative, collaborative and responsive ways. It does, however, require dedicating resources to participative development and establishing credible follow-up procedures to integrate feedback received via new channels and platforms (Chapter 4).

Additionally, the analysis of citizen-produced data can provide decision makers with not only more insight to the emerging needs in society, but also with innovative ideas and solutions. Social media allows governments to "crowdsource" ideas, suggestions and critical remarks (Mickoleit, 2014). Public institutions increasingly create or participate in collaborative platforms. One such example is GitHub, an open source collaboration platform that holds reusable source codes for www.data.gov (United States), www.gov.uk (United Kingdom) and many other projects. The "government" category of the platform's repository has seen rapid growth since 2011.

Since governments are dealing with increasingly larger quantities and varieties of data, they will need data analytics as well as software to analyse, process, use and present the acquired information in a comprehensible way. Data analytics refers to the set of techniques and tools used to extract information from data by revealing the context in which the data are embedded, their organisation and their structure. In the case of visual analytics, the emphasis lies on data visualization, including (interactive) data exploration (OECD, 2015b). The enhanced ability to combine different datasets can help develop additional, more innovative and better products and services. Mixing public data with commercial, civil society and citizen input data, and pooling and sharing with those produced by other public agencies and/or levels of government – i.e. data sharing for developing shared content, services and policies between cities or countries – holds considerable potential for public value creation.

Authorities point to the need in the future not just for "big data" drawing on citizen inputs and facilitating data analytics, for example to develop and simulate public policies and better target services, but also for a more qualitative approach, including ethnographic surveys. A need is thus foreseen for both big quantitative (automated) data crunching to provide explicit codified evidence for public sector activities, on the one hand, as well as more qualitative survey data to contextualise "big data" to provide the necessary implicit and uncodified evidence. Public sectors are still struggling with the development of the skills the public sector needs to conduct data analytics and make the best use of data analysis, as well as to cross link data and sources. This is essential to spur open government data use by the public sector that drives better decisions, informs policies, supports the development of data-driven processes and services, and delivers more innovative services (Ubaldi, 2013).

There are also, of course, considerable risks in governments' use of data analytics, in particular with regard to the privacy of citizens. Advances in analytics make it possible to infer sensitive personal information that citizens may not even have shared with governments. This is especially the case when data from different sources are linked across public sector bodies, or with personal data available on the Internet. Misuse of

these insights can affect core values and principles, such as individual autonomy, equality and free speech, and may have a broader impact on citizens' trust in government and the functioning of democratic societies as a whole. For example, while personalisation enabled by data analytics may result in greater efficiencies for public service delivery as highlighted earlier, it may also lead to discrimination that limits citizens' ability to escape the impact of pre-existing socio-economic indicators. Governments should therefore lead by example by seriously addressing the privacy and security challenges when using data analytics for the benefits presented in this chapter. Possible responses include improving transparency, better access and empowerment of citizens, promoting responsible usage of personal data by organisations, and the use of technologies in the service of privacy protection (OECD, 2015b). Finally, application of risk management to privacy protection may effectively protect privacy in the data-driven public sector.

In the OECD Survey of Open Government Data in Mexico, only a little over a quarter (27%) of Mexican public institutions reported having a dedicated department for data analytics, of which the vast majority (73%) is also in charge of data management. These data analytics departments predominantly process data produced by their own institution, followed by data coming from other public institutions that are part of the same policy sector. Data from other sources, such as public institutions outside of their own policy sector, citizens, journalists and companies are used to a much lesser extent. An exceptional case is CONALEP, the National College of Technical Professional Education, which has put in place an information system that allows for the integration of relevant data from public, private, scientific and journalistic sources for decision making. Furthermore, the system enables evaluations and self-evaluation, thereby creating good governance value on top of social value by contributing to CONALEP's accountability towards the governing body. In most cases, the data analytics department analyses data from its own institution for internal management purposes or to monitor, evaluate and sometimes adjust the policies of its own institution. Processing data in order to open them up as OGD is also an important task for many of these departments.

The hidden opportunity: Using open data to create economic value

When thinking about creating economic value out of OGD, this is usually in terms of creating new business opportunities for firms, by enabling for example the development of innovative (mobile) OGD-based applications that deliver new services and products (see Chapter 4). Nonetheless, OGD also provides the scope for new ways of conducting government business, taking decisions and allocating resources, in order to improve the overall efficiency of government operations (e.g. accelerate efforts to reduce fraud and error, make further inroads into the tax gaps), and more effectively and efficiently deliver smarter, innovative and more personalised public services, while creating good governance value by improving the quality of interactions between governments and other stakeholders (Ubaldi, 2013).

Estimates for the European public sector suggest that administrative costs could be reduced by 15-20% as a result of better sharing and smarter reuse of data (McKinsey Global Institute, 2011).[20] This economic impact could be achieved in three areas: operational efficiency, a reduction in the cost of errors and fraud in benefit administration, and an increase in tax receipts by narrowing the tax gap.

The economic value of OGD for the public sector is something that governments do not perceive as an essential goal of OGD policies. As shown in Figure 3.1, none of the responding countries to the 2013 OECD Survey on Open Government Data ranked this

among the top five goals of the national open data policy, whereas the economic value for the private sector is acknowledged as a key objective of OGD policies. The fact that creating economic value for the public sector is not identified as a key objective for OGD policies reflects a weak focus on public sector efficiency in general. One of the central conclusions of the 2015 OECD Public Governance Ministerial Meeting was that a change is required in the culture of the public sector, going beyond technical efficiency to the creation of public value where the civil service aims to deliver better services to all and strengthen the legitimacy of, and confidence in, public sector institutions in the eyes of the public (OECD, 2015d). Technical efficiency would thus become instrumental to accomplishing broader public values through liberating public resources. Creating economic value for the public sector may not often be a primary goal of OGD strategies, but it is thus a desirable secondary effect of open government data reuse within the public sector. On top of the advantages for citizens in terms of the speed, quality and ease of service provision, governments may benefit from reduced expenditures on human and material resources. The response of OECD countries may also point to a lack of knowledge on how OGD could create economic value within administrations.

According to the OECD Survey on Open Government Data in Mexico, 3 of 96 Mexican institutions confirmed having included a cost-benefit estimation in their overall OGD policy, of which only two looked at the costs and not the potential benefits. The three main reasons that institutions give for not doing so are: 1) this was not required according to the implementation guide for open data; 2) institutions use existing resources to implement the federal open data policy; 3) institutions do not have any resources available for the implementation. A small number of institutions express the desire to develop a cost-benefit analysis as well as a system to monitor the use and impact of their open data activities.

A number of international examples of data sharing and reuse within public administrations provide ideas of the potential economic gains of OGD and suggest that practices such as increased intra- and inter-institutional sharing and use of data analytics result in operational efficiency gains in terms of time, money and human resources spent on performing public tasks. For example, when introducing prefilled tax forms, processing time can be saved, on the re-input of data and the detection of errors. One European tax authority was able to redeploy 15% of its staff assigned to the processing of submissions (McKinsey Global Institute, 2011). Another tax agency was able to redeploy 20% of its full-time employees by gaining online access to a housing transfer deed database rather than collecting the data from another government agency on physical media (CDs) and manually searching through the data (ibid.).

The free-of-charge release of address data from the Building and Dwelling Register of Denmark in 2005, a pioneering project for the previously mentioned Danish Basic Data Registries (see Box 3.4), has resulted in considerable financial benefits for both the private and the public sectors. Already in the first five years of the programme's implementation (2005-09), financial benefits of USD 66 million PPP were created for all stakeholders (public and private sectors), of which approximately USD 19.5 million PPP for public institutions (McMurren, Verhulst and Young, 2016) *vis-à-vis* a total investment of USD 2 million PPP by the Danish government over the same time period. Investment costs included costs for data distribution of USD 0.7-0.9 million PPP and a three-year compensation package for the municipalities amounting to USD 1.4 million PPP, while municipalities were obligated to update data annually (Danish Enterprise and Construction Authority, 2010). This positive return of investment for the Danish government can be attributed to the economic value of the received data and savings in resources of about USD 5 million PPP, thanks to not having to negotiate purchase

agreements, manage rights and deliver data on an *ad hoc* basis (Danish Government/Local Government Denmark, 2012).

Another example is the transformed social security system in Slovenia as a result of increased accessibility of data among public institutions.[21] In the Interoperable Data Gathering System for e-Social Security, data is gathered from 15 institutions with 29 data sources (population register; households register; tax administration; ownership of vehicles, ships and boats; ownership of land; companies; dematerialised securities; data on enrolment in education programmes; data on health insurance; pension insurance; employment/unemployment status) plus 21 banks and 10 investment funds. The gathered data enable the Slovenian social work centres to make efficient and transparent decisions on social rights such as child benefits, income support and exemption of payment of social security services. Besides the gains in terms of a higher quality of social services, due to better-informed and more evidence-based decision making, efficiency gains can be identified too, on both the supply and demand side of data usage. The social workers as data users no longer have to go through individual data request procedures with each institution they need to acquire data from in a particular case. The institutions providing the data, in turn, no longer have to look up and provide tailor-made answers for each case, but instead regularly update all of their data in the system.

According to the OECD Survey on Open Government Data in Mexico, the majority of more incidental data requests takes over ten business days to be realised. If the data could be acquired directly through the OGD portal, significant efficiency gains could be achieved. Operational efficiency gains may also be accomplished through a redistribution of human resources and budgets across government units and institutions upon analysis of performance data or the use of data analytics on a combination of (government) data sources (Box 3.6). Among the most innovative applications of data analysis that was reported in the OGD Survey of Mexico is the use of data by CENSIDA, the national centre for the prevention and control of HIV/AIDS, which accesses seven different sources to generate information for budget allocations and decision making as well as risk assessment for the implementation of public policies. Another interesting case study has revealed the potential of electricity consumption and price data generated by the Mexican Federal Electricity Commission (CFE) to estimate gross domestic product (GDP). In the research project, CFE data over the period 2009-14 were used to develop a national/state-level quarterly GDP nowcasting model (GDPNow model)[22] which is also applicable to the municipality level, The analysis resulted in models capable of predicting GDP growth with 92.3% accuracy and with much shorter time delays than those of traditional GDP estimation methods.[23]

Tax revenues may be increased by implementing data-driven measures on both the preventive and enforcement side of tax evasion. By applying data analytics on the characteristics of tax payers, such as compliance history, demographics, geography and income level, information on the risk of non-compliance can be deduced. Consequently, tax officials may target interventions on those groups that are more likely than others to not pay their taxes, such as proactive information provision to well-willing yet incapable citizens and insistent reminders to potential tax evaders. On the enforcement side, it will be easier for tax agencies to identify the cases that require further examination or auditing by checking the data on tax return forms against multiple public sector databases.

Fraud and error detection is another area in which economic value for the public sector can be generated. For instance, in the United Kingdom, the use of data analytics is estimated to save GBP 2 billion by improving the scope and accuracy of fraud detection

(Cebr, 2012). In the field of social benefits, savings can be realised by detecting erroneous receivers of benefits based on a cross-analysis of multiple government databases.

Box 3.6. **Data analytics in New York City**

In New York City, data analytics promise to better target fire, safety and health inspections. New York City receives over 20 000 complaints per year for "illegal conversion", i.e. properties that house more people than is considered safe. Historically, inspectors at the Department of Buildings (numbering around 200) would find serious high-risk conditions at 13% of inspections. Recently, the department embarked on co-operation with around 20 other New York City agencies. They cross-tabulated enormous amounts of additional data on the individual properties, and used the results to guide inspections.

The result is that currently, between 70% and 80% of inspections discover high-risk properties, for which action can be taken. Moreover, the New York City mayor's office used advanced analytics and combined data from several of the city's departments to boost predictive capacity and help save lives and taxpayers' money. Results include: a fivefold return on the time building inspectors spend looking for illegal apartments, an increase in the rate of detection of dangerous buildings that are highly likely to result in firefighter and tenant injury or death, more than a doubling of the hit rate for discovering stores selling bootlegged cigarettes, a fivefold increase in the detection of business licences being flipped, fighting the prescription drug epidemic through detection of the 21 pharmacies (out of an estimated total of 2 150 in New York City) that accounted for more than 60% of total illegal Medicaid reimbursements for oxycodone in the city.

Source: OECD (2015b), *Data-Driven Innovation: Big Data for Growth and Well-Being*, http://dx.doi.org/10.1787/9789264229358-en.

Table 3.1. **Value creation through open government data reuse within the public sector**

Good governance value	Social value	Economic value
– Better informed public policies – Innovating public service delivery – Increasing internal transparency, accountability and fighting corruption – Improving performance	– Better detecting and understanding societal needs – Crowdsourcing policy solutions – More inclusive services – Public engagement – Individuals' empowerment	– Operational efficiency – Higher productivity – Reallocating human resources and budgets – Reduced expenditures on human and material resources – Reduced transaction costs – Reducing fraud and error – Bridging the tax gap

Mexico is still far away from having a data-driven organisational culture with a whole-of-government approach to using data as a strategic resource. In order to create more OGD value, the Mexican government should enhance its capacities for data analytics in several ways. There is a need for more dedicated departments for data analytics along with a central governing body headed by Mexico's CDO to align and co-ordinate the thus far dispersed activities. For example, in France, a formal team of data scientists has been formed to produce data-driven public policy and ensure data governance (dataset identification, circulation and security). In addition, their work provides public servants and the general public with examples of how to reuse open data.[24] Furthermore, using a larger number of data and more diverse data sources as well as implementing more sophisticated methods of analysis would allow for the development of

more innovative policies and services, which cannot be realised in the current situation. Strengthening the data literacy and skills of public officials in the field of data analytics is another key enabler for added value creation within the Mexican public sector.

Conclusion

In Mexico, the national open data policy is ambitious. The creation of economic value for the broad economy, public sector efficiency, social and economic well-being are among the strategic goals the central government seeks to achieve as a result of policy implementation. A fresh vision at the policy co-ordinating level contributes to further setting highly demanding policy objectives for open data. Anti-corruption, climate change, economic complexity and the reduction of maternal mortality are clear examples of how the Mexican government is framing and specialising open data's goals.

The development of relevant capacities among civil servants is mandatory for timely and effective data disclosure. Ambitious policy goals and a fast-paced policy development require the availability of a data-literate public sector, synchronised policy and institutional goals, and motivated public officials. Open data goes beyond making data available for public access and meeting international standards. The vision and goals of central policy co-ordinating agencies and those of public institutions should be synchronised for an effective policy implementation towards the achievement of national policy objectives. In parallel, innovation can come from within the public sector, and public officials can further contribute to creating change inside public institutions.

Mexico's willingness to further use open data for policy-specific objectives would require data-literate institutions that are able to actively collaborate and participate as partners within the open data ecosystem. *Retos Públicos* has set a precedent, thus showing the benefits of strengthening collaboration between public institutions and data users, and giving voice to the ecosystem. Bottom-up consultation and collaboration exercises should be strengthened in order to underpin the intrinsic value of the open data portal as a whole and contribute to the creation of public value. Public institutions should be active players during this process.

Sector-specific value creation would require further connecting data producers with data users through efficient communication strategies and the segmentation of user communities. Inter-institutional and sectorial co-operation should aim to share institutional know-how on open data in specific policy areas and build awareness among user communities on the data such activities produce, the publication of such data in open formats, and the value of this data for them. . User communities should be reached, effectively informed and empowered to efficiently communicate with public institutions.

In the long term, in order to seize the opportunities of value creation through OGD, the Mexican government should address a number of essential issues which are currently inhibiting the further development of OGD usage within government institutions. To capture the social, economic and good governance value of open government data, the Mexican government should step up its efforts to create a data-driven organisational culture in which the production, use and reuse of data becomes a part of everyday government business. This data-driven culture will allow the Mexican government to function as a data prosumer within the larger ecosystem of Mexican data prosumers, including citizens, businesses and the civil society. As such, it is essential for the Mexican government to pay equal attention to enabling its roles of data producer and consumer, as

currently the emphasis lies on the supply side of OGD, leaving many opportunities for value creation through internal reuse of OGD unseized.

As a data producer, the Mexican government has a role to play to stimulate the reuse of OGD by all actors in the Mexican data ecosystem, including public institutions. Only if citizens, businesses and government entities are actively facilitated and encouraged to reuse OGD, can its social, economic and governance value be unlocked.

As data consumers, government departments have the potential to directly create social, economic and good governance value by incorporating the use of data throughout the policy cycle. Mexico can stimulate the reuse of OGD by adopting an approach which is based on the actual data and information needs of users, both within and outside of government. Potential data users within public institutions should be more involved in the design and implementation of OGD policies, not only to increase OGD awareness and enthusiasm among this important group of users, but also to take into account their needs in terms of datasets, data quality, skills and organisational support. For example, public servants who provide services in direct contact with citizens could be asked about their information needs, especially when it comes down to acquiring data from other public institutions. In addition, OGD initiatives should be better aligned with existing policies and practices. In order to make the potential value of OGD more visible to public servants, it is advisable to develop business cases.

Furthermore, the technical and human capacities for handling and analysing data within the administration should be enhanced in order to match the data needs, both in terms of content and format. This involves both the development of a technical infrastructure as well as building the strategic, operational and ethical knowledge and skills of public managers and employees. Secondly, an appropriate legal framework and policies addressing issues such as data ownership, conditions for exchange, and security and privacy should be developed. Thirdly, policies for data quality should be aligned with the data needs within the Mexican public institutions.

Notes

1. Disclosure of public sector information as open and machine readable and cost-free data, under licenses that allow data reuse with no legal and technical limitations.
2. Adopted by Mexico in July 2014 (OECD, 2014b).
3. http://complejidad.datos.gob.mx.
4. www.data.gouv.fr.
5. For more information see: www.rdvpasseport.fr.
6. www.opendata500.com/mx.
7. Information provided by the Mexican government.
8. www.youtube.com/watch?v=4tSBxjkVwbg.

9. www.youtube.com/watch?v=SXlW5ShXh8o.

10. www.youtube.com/watch?v=rqVfiNl_Ho8.

11. Twitter accounts: Office of the President (Presidencia de la República) @PresidenciaMX; Office of the CDO: @DatosGobMx (consulted on 26 February 2016).

12. Consulted on 26 February 2016.

13. For more information see: http://vm.fi/documents/10623/360816/Avoimen+tiedon+tavoitteet+2015-2020/c7e9c09c-c492-4f04-ac52-2449b0c4973b.

14. For more information see: www.modernisation.gouv.fr/laction-publique-se-transforme/en-ouvrant-les-donnees-publiques/administrateur-general-des-donnees-chief-data-officer-interview-henri-verdier.

15. For more information see: www.cio.co.uk/news/data-management/mike-bracken-made-government-chief-data-officer-3605381.

16. For more information see: www.oecd.org/governance/eleaders/statement-2015.htm.

17. Online posts regarding such concerns can be found at: www.medhelp.org/posts/Heart-Rhythm/Why-does-cardionet-event-monitor-record-when-nothing-is-wrong/show/1393291 and www.medhelp.org/posts/Heart-Rhythm/30--day-Cardionet-Monitor-going-off-by-itself/show/1089961.

18. For more information see: http://julkictlab.fi/en.

19. For more information see: www.mckinsey.com/business-functions/business-technology/our-insights/getting-big-impact-from-big-data.

20. It is necessary to exercise caution when interpreting these results, as the methodologies used for these estimates are unknown.

21. For more information see the following OECD digital policy toolkit entry: www.oecd.org/gov/slovenia-SS-interoperable-data-gathering.pdf.

22. For more information on the GDP nowcasting model (GDPNow) visit the Federal Reserve Bank of Atlanta webpage at: www.frbatlanta.org.

23. For more information see the following project report: https://s3.amazonaws.com/hwkwotmna/Final+Report_Mexico+Electricity+and+GDP.pdf.

24. For more information see: https://agd.data.gouv.fr.

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Chapter 4.

Creating a more dynamic open data ecosystem in Mexico for greater value co-creation

This chapter discusses the challenges and opportunities faced by the Mexican government outside its government apparatus to fully reap the potential of open data as a mechanism to create public value. It discusses the potential of the central open data portal as a value co-creation platform that could contribute to building user communities around open government data while fostering user-driven data disclosure. The chapter highlights the need to further engage specific user communities – such as journalists and students – as a requisite to invigorate the national open data ecosystem, the relevance of building skills across government, civic and business communities to empower the ecosystem to reuse data. It also underscores the necessity to strengthen multi-stakeholder collaboration and engagement to contribute to data-driven innovation and foster the digital economy in a sustainable fashion.

Introduction

In Mexico, the ground has been prepared to further create open government data-based value and impact. The Mexican government has shown impetus to develop an adequate legal, policy and institutional environment for open data. High-level political support from the Office of the Executive, and a pro-open data legal framework (see Chapter 2) have made it possible to invest public resources in building institutional capacities to make open government data (OGD) available on the central portal. Such efforts aim to attain the ambitious objectives of the National Open Data Policy, and to meet the centre of government's vision for open data.

Policy co-ordination agencies (the Coordination of the National Digital Strategy, CEDN) and the Ministry of Public Administration (Secretaría de la Función Pública, SFP) have put in place technical support bodies and guidelines in order to help public institutions translate policy goals into institutional open data practices. This support has been useful to nourish the central portal with more datasets, and to spur the development of data management capacities across the public sector to spur the disclosure of open government data. The Mexican portal should evolve from being an open government data portal to becoming a platform to crowdsource open data, thus enabling data co-creation, and user collaboration and interaction. Nonetheless, data disclosure is only one of the necessary steps to be taken within the open data process to create value.

Consultation exercises to assess data demand led by public institutions, and focalised communication strategies that go beyond one-way information provision, are basic elements of open data strategies that focus on creating greater impact. But a more dynamic open data environment needs to be established through regular collaboration with national stakeholders, capacity-building activities and greater public awareness on the value of open data. Public institutions need to be further involved as equals and partners who are willing to collaborate with and within the open data ecosystem.

Open data crowdsourcing (which is achieved, for instance, through greater collaboration and two-way data exchange) would require moving beyond the creation of open data visualisation tools and enforcing OGD disclosure. While the latter elements are needed to contribute to the socialisation of open data (making data valuable for all users), it is equally necessary to develop instruments that contribute to a user-driven data disclosure, and web and mobile platforms that enable a two-way data exchange between stakeholders.

Some public institutions at the central level of government have begun to increase their active participation within the open data ecosystem. Initiatives such as *Retos Públicos* ("public challenges") have been useful to bring together public institutions and data users towards greater inter-stakeholder collaboration aiming to create social and governance value through an enhanced public-private partnership. Open data mapping exercises such as Open Data 100 (500) have shown that private companies based in Mexico are, indeed, using open government data. Yet, the Mexican government faces the challenge of further reaching, supporting, engaging and collaborating with user communities for the creation of OGD-based impact and the sustainability of the open data policy.

Open data is an innovation-related policy by definition. It provides an opportunity for public institutions to find new ways to make policy and deliver services building on technology, mobile platforms and skills. For this reason, a pro-open data environment (which requires a supportive regulatory, policy and institutional framework) is useful to set conditions that enable innovation and digital entrepreneurship within public institutions

and among stakeholders. Creating such a context is useful as it sets the conditions that facilitate the creation of public value. Yet, for this environment to deliver the desired value, an innovative and dynamic open data ecosystem, where skilled public, social and private stakeholders actively collaborate, should exist. In Mexico, long-time systemic failures related to low investment in innovation (OECD, 2009) or the discrepancy between the "relatively high level of excellence" of Mexican academic institutions *vis-à-vis* "their capacity to generate knowledge with commercial potential" (OECD, 2013) could affect the possibilities of spurring OGD-based value creation. This scenario underpins the need of socialising open data in order to make it valuable for everyone. Such socialisation would require developing skills within the public sector that go beyond those related to data management, and across the broad society drawing on the identification of different user communities.

Reaching and engaging national stakeholders, and establishing regular collaboration with data users (i.e. civil society organisations, citizens, private organisations and specific user communities) remain some of the key challenges for the creation of social and economic value in Mexico. This collaboration should be strengthened to better identify the data demand, to prioritise data disclosure and to foster data reuse. In Mexico, leveraging a dynamic open data ecosystem will require engaging and collaborating with user communities beyond those already active or easy to engage such as businesses, social entrepreneurs and students – and connecting these communities with those inside the government in order to attain sector-specific value co-creation relevant to specific policy goals.

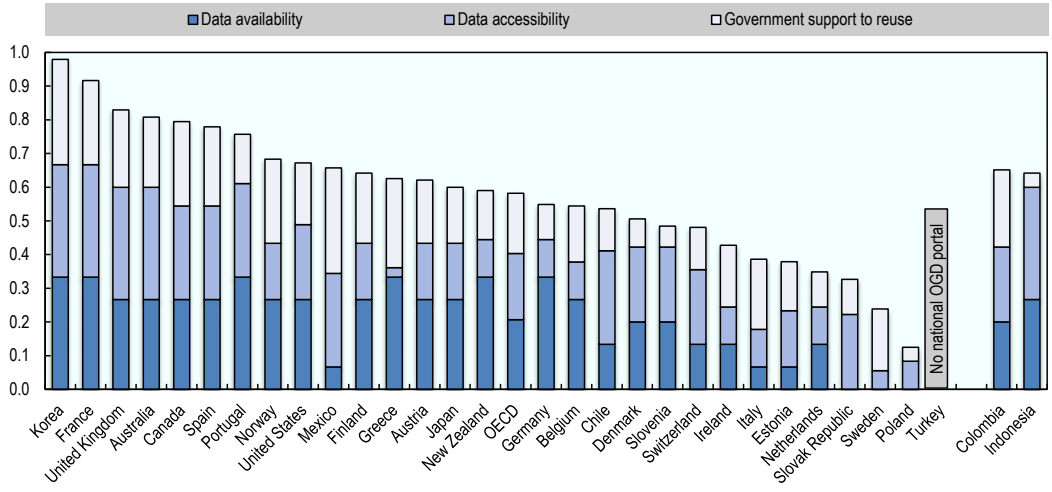
The central open data portal: Strengthening collaboration, engagement and data co-creation

In 2015, the OECD launched the **O**pen, **U**seful and **R**e-Usable Government Data Index (*OURdata Index*[1]) (Figure 4.1) which aims to benchmark governments' efforts to implement open government data to deliver value to the society. The current pilot version of the index centres on three key composites:

1. the availability of open government data (the data taxonomy available on the central portal)
2. the accessibility of such data (i.e. data formats, metadata, the portal's functionalities)
3. the support and actions that countries take to spur the reuse of open government data.

In the long run the *OURData Index* aims to strengthen the international community's capacity to deliver and measure OGD impact. All three composites – availability, accessibility and reuse – are directly interrelated; and greater data availability might not be strictly translated into greater data reuse (or real impact) if such data is, simply, not of value for stakeholders. While the pilot version of the index was based on the only international policy instrument on open data available at the time (the G8 Open Data Charter), the new index will evolve in line with new international open data policy instruments, i.e. the 2015 International Open Data Charter (ODC) and the 2015 G20 Anti-Corruption Open Data Principles (G20 ODPs). This wider scope calls for the availability of a greater number of datasets on the portals, focusing on those datasets' contribution to open data's impact in general and to sector-specific values (open data for anti-corruption, climate change, innovation, procurement, risk management, etc.).

Figure 4.1. **OECD OURdata Index: Open, Useful, Reusable Government Data**



Note: Data for the Czech Republic, Hungary, Iceland, Israel and Luxembourg are not available. Information for Indonesia collected in 2015 based on the responses provided by the Indonesian government to the 2014 OECD Open Government Data Survey.

Source: Based on OECD (2015b), *Government at a Glance 2015*, http://dx.doi.org/10.1787/gov_glance-2015-en.

In Mexico, the lack of open government data on national election results and local public expenditures in the central portal brought to light challenges and areas of opportunity for the Mexican government to work on (i.e. further collaboration with the National Electoral Institute and local governments, which are autonomous in terms of their data disclosure, towards co-operation for the publication of OGD). Yet, the Mexican government, and OECD countries in general, should further work on meshing open data's international principles (i.e. the ODC and the G20 ODPs; and any proposed data taxonomy that might arise as a result of such standards) with national policy goals and the needs of national users in order to create local impact.

When released in 2015, one of the main findings of the index highlighted that while most countries have made significant efforts to make data available and easily accessible, the extent to which governments actively support the reuse of public data varies greatly – especially with regard to the reuse of open data inside public administrations. For this reason, the Mexican government and public institutions (as key players within the open data ecosystem) should also support and collaborate with data communities (including those inside government) in order to spur data reuse, therefore enhancing the coherence between expected values, ambitious policy goals and the actions taken to achieve them.

User-driven data availability

In Mexico, the support provided by the Open Data Squads and the increasing availability of data management capacities[2] across public institutions have enabled disclosing open government data on the central OGD portal.[3]

The CEDN has made advances to move away from the conceptualisation of the portal as a mere data catalogue. Links to open government data-based apps, news, blogs, data rankings and policy implementation guidelines are available for public access. The portal is the result of the intensive work of the CEDN and the SFP, and of the co-operation

between these two institutions and other line ministries and public bodies from the central and local levels of government.

Whereas further work is needed to foster a demand-driven OGD disclosure (with the active participation of public institutions) and to implement focalised communication strategies to promote and foster data reuse (see Chapter 3), the use of the central portal as a dynamic mechanism of engagement, data co-creation and collaboration is not to be missed. There is a window of opportunity to use it as a two-way collaborative platform that could further contribute to fostering a demand- and value-oriented approach for data disclosure, driven by the users and the overall data ecosystem.

Early legal instruments such as the 2002 Freedom of Information (FOI) Law (abrogated in 2015) put in place valuable tools to ensure public access to public sector information (PSI). This legal framework for public sector transparency and government openness, and the inclusion of the concept of "open data" for the first time in the 2015 General Law on Transparency and Access to Public Information, paved the way for greater access to open government data (see Chapter 2).

Also in 2015, the *Implementation Guide of the Open Data Policy* established that, on top of the data taxonomy included in the Strategic Open Data Infrastructure, public institutions should contemplate prioritising OGD disclosure based on an analysis of citizens' requests to access public sector information. The overall goal of such action lines is to feed the central portal with government data that are useful and of value for data users.

Yet, the possibilities of reaching a mature user-driven approach are hindered by a mix of conditions, such as:

- The absence of diversified consultation exercises run by public institutions and effective institutional communication strategies that connect policy sectors with sector-specific user groups (Chapter 3).
- The top-down approach to data disclosure adopted during the early definition of the Strategic Open Data Infrastructure, which included a pre-defined list of datasets open for public consultation.
- The obligation of public institutions to monitor and analyse PSI access requests in order to prioritise data disclosure. Yet, only 44% of central public institutions in Mexico report having an internal process in place to assess data demand based on PSI access requests.

Such conditions have limited the mechanisms that data users have at hand to request open government data which are limited only to those instruments provided by the 2015 FOI (i.e. requests to access PSI through online transparency platforms such as INFOMEX[4]), which, as a result, has a direct impact on the possibilities to crowdsource open data in Mexico and gathering knowledge on users' data needs. This scenario was highlighted during the OECD mission to Mexico by non-governmental stakeholders, and by the comments that public institutions provided to the OECD Survey on Open Government Data in Mexico.

While some advances have been made to use PSI access requests as a basis for a greater demand-driven data disclosure (i.e. INFOMEX provides statistics on PSI access requests in open formats such as CSV, SQL, JASON and XML[5]), it would be equally necessary to implement bottom-up mechanisms that empower data users to directly request government data in parallel with proactive data disclosure (in line with the

principle of open-by-default, and the provisions for proactive PSI disclosure set by the 2015 FOI). Building on PSI as a basis to strengthen the understanding of OGD demand is a good starting point. Nonetheless, better handling of PSI access requests does not imply a stronger commitment to OGD (OECD, 2015a), and building on such requests to assess data demand would require public institutions to actively monitor and analyse such statistics. For such purpose, built-in data-request tools could be incorporated into the central open data portal.

Box 4.1. **Open data crowdsourcing**

Open data is dynamic. As such, it calls for the active collaboration between all stakeholders. The open data ecosystem is an amalgam of user communities with different needs who work towards the creation of different values. As players within this ecosystem and one of the most important contributors of data to the ecosystem, governments are required to actively participate as partners within the ecosystem, willing to listen to and understand stakeholders' needs. Yet, collaborative platforms should not only aim to improve public service delivery and create benefits for non-governmental stakeholders. As prosumers, governments should also fully exploit the advantages that data produced from non-institutional actors have for their own objectives. For such a reason, collaborative platforms should also be designed as two-way communication channels that facilitate data exchange between governments and external stakeholders.

Open data crowdsourcing implies:

- listening to users and understanding their needs towards a user-driven data disclosure
- communicating with the ecosystem not only to prioritise data disclosure but to obtain policy feedback and to solicit data requests (data co-creation)
- understanding and collecting information on how open (government) data are being used and the impact that is being created
- collaborating with the ecosystem towards greater value co-creation and the dissemination of best practices
- developing collaborative platforms that enable data exchange between governments and stakeholders
- making open (government) data valuable for all stakeholders through data socialisation, skills development and the engagement of user communities.

Source: OECD with information from Berryhill, J. (2015), "Open data and crowdsourcing".

Australia, the United Kingdom and Korea provide good examples of national open data portals as data request platforms. **Australia** has followed a "voting" approach for data requests through its national open data portals.[6] Data requests are publicly available in order to ensure that when a data request is filed through the portal it will get a minimum of five votes from other users in order to be sent and processed by Australian government agencies.

Data.gov.uk (the **United Kingdom**'s central open data portal) allows users to request open data that are not yet available for public access. Users must register on the portal in order to be able to fill out and submit an online open data access request concerning data that might be held by central government agencies. The system was launched as a joint effort between the Open Data User Group (an independent body set up by the UK Cabinet

Office that operated between 2012 and 2015) and the Cabinet Office's Transparency Team. Prior to the existence of this demand-driven data request mechanism, users were only able to request open government data through freedom of information access requests (such as INFOMEX in Mexico). When filed, data requests are sent by the Cabinet Office to the relevant department in charge of collecting and managing such data.

The online data request format above is useful not only for data users to request government datasets, it also helps the British government to collect information on the potential use and users (i.e. for research, commercial, personal use, etc.), and the general benefits users expect as a result of data access and reuse. More importantly, online requests are used as first-hand information collection tools by the British government to assess the economic or financial benefits expected as a result of having access to such datasets (expected new jobs and revenues, etc.). Collecting such information is useful to strengthen the business case for open data in the United Kingdom as it is users who provide information on data reuse and, more importantly, on the potential impact of disclosing open government data. The creation of this specific data request mechanism by the British government (and the work of the Open Data User Group) helped public institutions and users to differentiate between PSI and OGD and the different purposes of their respective access mechanisms.

The **Korean** central open data portal www.data.go.kr also offers data users the possibility to request open data online. As in Australia and the United Kingdom, data access requests are transferred to the relevant institutions in charge of collecting such data. Korean public sector institutions have the obligation to provide a decision on the request within a maximum period of 20 working days. If the data are suitable for disclosure (i.e. not a subject of data protection regulations), the requester is informed by the public institution about data disclosure, which commonly takes place through the Korean open data portal. If the data request is denied (i.e. under the arguments of privacy or commercial protection), the requester is equally notified.

Data co-creation and collaboration

While open government data refers strictly to open data produced by governments, the concept of "open data" comprises OGD plus the open data that is produced by non-governmental stakeholders. This non-governmental data production is useful to enrich the overall open data ecosystem, allowing a regular exchange of information, and the creation of new open data-based knowledge.

The value of open data portals is that of the datasets they contain, and value can be co-created and crowdsourced. The CEDN and the SFP would benefit from further developing the central portal in order to transform it from an open government data portal to a collaborative open data portal that enables data crowdsourcing. As a result, this would contribute to enriching the overall value that the former represents to users. Finland and France are examples of OECD countries that have enabled their national open data portals as platforms for collaboration and data co-creation (Box 4.2).

The production of open data is not exclusive of governments. Civil society organisations (CSOs) and other stakeholders are also prosumers that potentially produce and consume open data. For instance, in Mexico, the Centre for Research and Teaching in Economics (Centro de Investigación y Docencia Económicas, CIDE, which has closely co-operated with the CEDN on open data matters) created an online open data repository containing datasets related to a variety of social and economic issues in Mexico. Biodiversidad (a CSO member of the Open Data Council) has also created an open data

portal with the support of international and national organisations. Biodiversidad's open data portal[7] (as highlighted by the CSO during the OECD mission to Mexico) seeks to strengthen horizontal collaboration between CSOs and other organisations working on environmental conservation in the Gulf of California in Mexico. This CSO is currently working on enabling the portal as a data co-creation platform which will allow other organisations to upload data to the portal in order to enrich its content.

Box 4.2. **Enabling central open data portals as collaboration and data co-creation platforms: The cases of France and Finland**

France

The French national open data portal[1] enables data prosumers to directly contribute new datasets to the portal. In order to publish open data (datasets, APIs, etc.), data contributors are requested to fill out an online form which collects information related to data licensing, granularity, a description of the overall data content, etc. The French open data portal also enables data prosumers to publish and showcase examples of open data reuse (OGD or not) and to monitor the use of the datasets they publish. In addition, the French government used the portal to launch the Base Adresse Nationale project, which is a multi-stakeholder collaboration initiative aiming to crowdsource a unique national address database fed by the data contributions from private, public and non-profit organisations.

Finland

In Finland, the national open data portal[2] has been enabled as a platform where citizens can publish open data and interoperability tools (i.e. guidelines to ease the interaction between users' datasets and other data formats or platforms). Users are required to register on the portal in order to publish datasets. As in France, uploading open data on the Finnish portal requires filling in an online form where users can provide a detailed description on the data. This description includes, for instance, information on the data's licensing model (i.e. Creative Commons), data validity timeframe, etc. Users also have the possibility to browse the profiles of other users using the portal, to explore their activity and the datasets that other users have published. The portal also provides users with the possibility of subscribing to specific organisations in order to receive updates on new datasets, comments, etc.

Notes: 1. www.data.gouv.fr/fr. 2. www.avoindata.fi.

Datos.gob.mx could be further conceived as a collaborative platform and as an enabler for data and value co-creation. As an infomediary mechanism, the portal could also incorporate tools to allow open data and metadata provision by non-governmental stakeholders. Again, this new approach would require deeper collaboration between the central government and non-governmental stakeholders, which could help foster key governance values such as civic engagement, public participation and co-creation of public value. Enabling the central OGD portal as a data co-creation platform would also contribute to value creation by public institutions through the reuse of open data from non-governmental actors (e.g. more evidenced-based policy making).

Focusing on domestic outreach: Building skills among user communities

In 2009, the OECD published the *OECD Review of Innovation Policy in Mexico*. Among other key findings, the review (which was published just after the 2008 economic crisis) highlighted that, at the time, the Mexican government had been slow to realise the benefits of investing in innovation as a stimulus for growth and competitiveness (OECD, 2009). In order to tackle such investment deficit, the review recommended boosting

investment in education and supporting innovation in the business sector in order to stimulate "collective creativity and innovation" (idem.). A follow-up of the review, which was mostly focused on assessing the national environment around knowledge-based start-ups, found that while investment on innovation from the public sector increased and "administrative barriers to entrepreneurship decreased', by the end of the 2000s, Mexico was still lagging behind on setting a favourable environment for the creation of knowledge-based start-ups *vis-à-vis* other Latin American countries (OECD, 2013).

Earlier OECD publications such as the OECD report "The knowledge-based economy" (OECD, 1996) already stated that "knowledge workers" (meaning those employees who do not engage in the production of tangible products) were – are – the employees in "most demand in a wide range of activities" (i.e. computer technicians, data scientists), a trend that, at the least, has remained the same. Within the data domain, in 2015, *Data-Driven Innovation: Big Data for Growth and Well-Being* (OECD, 2015a) confirmed the latter argument stating that the low availability of professionals with data-related skills (i.e. skills to manage databases, data analysis, statisticians, mathematicians, etc.) hinders the possibilities of fostering data-driven innovation, which could be not only a "barrier to the adoption of [data-driven innovation], but also [a] missed opportunity for job creation" (OECD, 2015a).

Open data is, on the one hand, a knowledge-based activity that requires the development and availability of core data knowledge and technical skills, and, on the other hand, an activity that contributes to the creation of new knowledge-based activities. When skills in this domain are developed, human capital is created, as skilled users are able to translate data into knowledge and value (i.e. to monetise open data and create new businesses, or analyse it to understand social contexts). Open data thus constitutes a knowledge cycle on its own.

For such reasons, the dynamics of open data require an innovative and forward-looking ecosystem which is technologically capable and skilled enough to internalise and socialise open data within its own dynamics and processes, thereby exploiting the raw value of data, making it useful as a source of value. Therefore, the question centres on how to foster open government data-based value creation in Mexico if the data ecosystem (including social, private and public stakeholders) is not able to fully exploit its intrinsic value as a consequence of a skills deficit?

Mapping, observing and listening to the national open data community

The need to develop technical capabilities and skills for data production and reuse (i.e. data analytics, data co-creation) is at the core of open data policies. Data literacy and related skills are needed among both public officials and non-governmental stakeholders to move from an approach which focuses mainly on facilitating open data consultation and visualisation tools to a dynamic ecosystem where OGD is reused by data-literate and empowered actors from all sectors to produce value.

Public institutions

The Open Data Squads (ODSs) have been successful in providing technical support and guidance mainly to public institutions at the central level, and to some (willing) governments at the local level. By following a "teach and *laissez-faire*" approach, the work of the ODSs contributes to in-house capacity building across public institutions for data disclosure. Nonetheless, while public institutions are key contributors of open data,

their role as data prosumers should be further developed to capture open data's benefits for value creation within the public sector.

Evidence from the OECD mission shows that public institutions are interested in strengthening their capacities for better government-to-government (G2G) data-sharing practices, and are aware of the benefits of data reuse. Others, such as the group of public institutions working in the energy sector, acknowledged that reusing data (open, not open or big data) should be one of the priorities to increase their competitiveness. Yet, the availability of the skills needed to enable data reuse is still low across public institutions. The open data "novelty" in Mexico as an innovation-related policy, understandably, has required, first, the development of data management capacities for data disclosure.

The challenge on this point is that, on the one hand, the Mexican government was ambitious to set innovative policy objectives such as "the use of data for development and public policy improvement", comprising the use of data for policy making (Mexican Government, 2013); on the other hand, it has overlooked the development of the capacities and skills needed to implement such activities, which might be the result of a policy and organisational isomorphism result of peer pressure and (open) data trends at the international level, and the active participation of the Mexican government in the international open data community. This is not a negative scenario but a call for the Mexican government to do better in order to support and modernise its government apparatus, thus making possible to mesh institutional capacities with innovative policy objectives.

So far the work of the Open Data Squads mainly builds on the data-producer role of public institutions, thereby overlooking capacity-building activities for data reuse (i.e. public institutions as data consumers). Public institutions have not been able to meet the development of such capacities and skills on their own. While some line ministries such as the Ministry of Health and the Mexican Institute of Social Security (IMSS) have established public-private partnerships with major tech companies (i.e. Google) for the development of data analytics capacities, currently only 17% of central level public institutions have an institutional strategy or initiative in place focused on developing public officials' skills for data management and/or analytics. Understandably, when available, such strategies or initiatives are mostly focused on disclosing open data based on international and national standards and guidelines (data management).

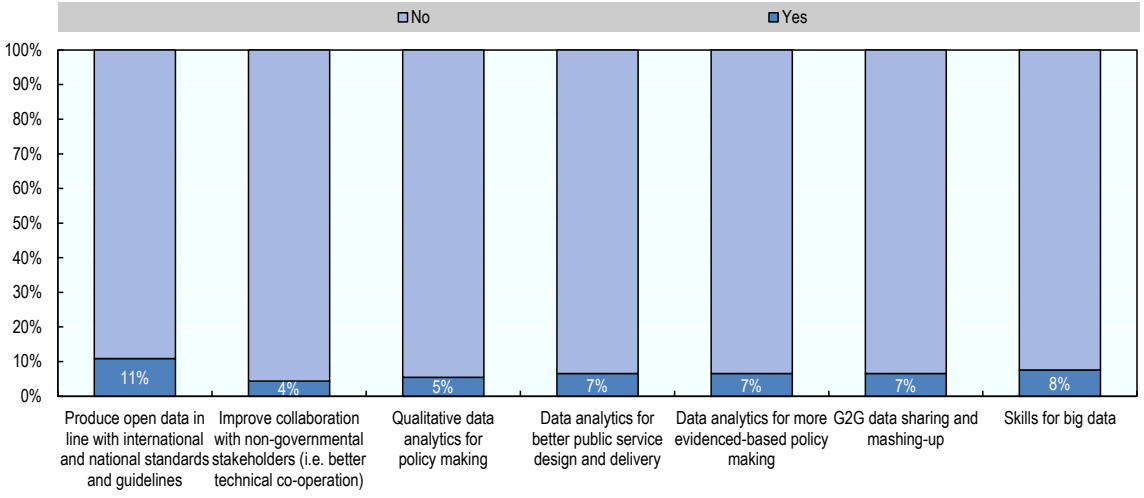
While maintaining the ODSs' role as "builders" of data management capacities across public institutions is key for greater data disclosure, their role could further contemplate implementing training activities focused on leveraging the capacities of public officials for data reuse. This would contribute to fostering the value created through open data reuse from a public governance perspective (i.e. greater organisational efficiency and more evidenced-based policy making), and would equally create solid conditions for managing greater challenges in the long term, such as the use of big data by public institutions. This effort could initially be oriented towards increasing the capacities of public institutions working on policy areas or sectors of priority for the Mexican government.

The limited financial and human resources of the Open Data Squads would require prioritising these capacity-building activities particularly during early implementation stages. For instance, while the new institutional arrangements created by the energetic reform will equally require deeper collaboration between central institutions such as the CEDN, the SFP, the National Institute for Access to Information (INAI) and those institutions in charge of the energy sector such as the Ministry of Energy, the Federal

Electricity Commission and PEMEX (the state-owned petroleum company), the development of in-house data analytics capacities across those public institutions should be promoted and included as a strategic component of institutional OGD strategies. This would be useful to place the Mexican energetic sector at the level of international trends that call, for instance, for greater use of open and big data to improve sectorial efficiency.

Figure 4.2. **Percentage of public institutions with an institutional strategy/initiative for skills development**

Results shown by the strategy's objective and as a percentage of the total number of respondent institutions; x=92



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico: Public sector". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Building skills for open data is included, for instance, as one of the key goals of the Finnish Open Data Strategy for 2015-2020 (Finish Ministry of Finance, 2015). Within the public sector, the Finnish government has set the promotion of "enhanced data analysis and processing expertise in ministries, agencies and local authorities" as one of its key action lines to achieve a more data-skilled society (including both citizens and public authorities). For such purpose, the Finnish government has set three strategic action lines to be implemented under the leadership of the Finnish Ministry of Education and Culture and the Ministry of Finance (Finnish Ministry of Finance, 2015):

1. survey the state and needs of public sector institutions and officials related to public data and information skills and set measurable targets
2. promote enhanced data analysis and processing expertise in ministries, agencies and local authorities
3. launch a national open data skills programme based on the above-mentioned survey work.

In Mexico, building these capacities should be included as a strategic component of public sector reforms (thereby contributing to the modernisation and transformation of the energy sector in Mexico as well as an action line of a more structured open data strategy for the country (see Chapter 2).

External user communities: Socialising and making open (government) data relevant for community clusters

Moving from a value creation proposition (i.e. the economic or social value that might be created through OGD disclosure) to actual value co-creation requires going beyond targeting the enhancement of open data access and the provision of data visualisation tools (i.e. open data repositories or OGD-based apps that provide information on the location of public services).

Leading countries in open data such as France and Korea both have a clear vision of the heterogeneous mix of open data's community clusters. **Korea** has been able to clearly state the objective of its national open data policy which centres mainly on the creation of economic value for the private sector. For such purposes, its action lines are focused on reaching this community cluster (the private sector) in order to make it aware of the availability of government data and support the creation of economic value. Indeed, the approach of the Korean government centres on supporting business-oriented communities (students, entrepreneurs, etc.) to help them reap the economic benefits of open data. **France** has followed a more overarching approach to open data, therefore centring its activities on values such as a more efficient public service delivery and multi-stakeholder and multi-level collaboration (see Chapter 5).

This vision allows these countries, for instance, to distinguish citizens looking to access, visualise and "play with data" from more skilled users that are capable and willing to create added value (app developers, businesses, CSOs, data producers, etc.). This user group makes it possible to interconnect and link the targeted user with the value that an open data initiative might look to create. They socialise open data and make it relevant for everyone.

Citizens: Socialising open (government) data

Data socialisation means reducing the complexity that innovation-related initiatives such as open data imply, in order to make open data valuable for all user communities – skilled or not. Socialisation is not only about "skilling" citizens but also about making open data relevant for the common, average citizen.

The Mexican government has taken initial steps in this regard by providing indirect access to web-based and mobile-based data visualisation tools on the portal. For instance, the government website *Transparencia Presupuestaria – Obra Pública Abierta*[8] (Spanish for "Budget Transparency – Open Public Works") allows users to visualise geo-located public investment for infrastructure through an OGD-based map. Users can filter public works by area (state, zip code) and by sector-specific investment (health, tourism, communications, etc.), which empower citizens to follow federal investment on infrastructure on their own cities or regions, and to report incongruences between the data shown on the map and the real state or advancements of public works. Citizens can fill out an online form reporting issues such as abandoned infrastructure projects or incorrect map locations. The platform also dedicates a specific section on open data, targeting more skilled users as it provides the possibility to download open government data on federal investment on public infrastructure. A similar example is that of www.opencoesione.gov.it, a data visualisation website put in place by the Italian government to ease citizen's access to, and monitoring of, European Union and national Cohesion Policy investments across the Italian territory.

A related question in this regard is who are the targeted and current users of the Mexican OGD portal?

To understand this question, between January and February 2016, the CEDN implemented a user-mapping and feedback exercise aimed to assess the current architecture and functionalities of the portal. Of a total of 168 responses received, 42% were provided by public officials, 22% by researchers and academics, and 12% by entrepreneurs. According to this assessment, 45% of users access the portal to generate data-based visualisations and the same percentage access the portal to conduct research. Most respondents (43%) consider having an intermediate knowledge of open data matters (CEDN, 2016).

While these results should be treated cautiously to avoid drawing fast conclusions, they provide some evidence about the value that is created for research and academia, a sector that is most likely data literate and skilled enough to exploit open government data. In addition, practices such as *Retos Públicos* and hackathons have been useful to engage data-savvy stakeholders into contributing to public-private collaboration tools towards the creation of economic, social and good governance value (i.e. social monitoring, improved public service delivery). However, while technically trained groups such as the "geek" community, app developers and academics are valuable members of the open data ecosystem, their technical capacities and skills might not be shared by the broader society.

Areas of action could include providing training and capacity-building activities for the general society and to specific social groups such as students, journalists and members of civil society organisations. This would help them familiarise themselves with the matters and enhance their awareness, increasing the critical mass of data users. Further technical co-operation between the CEDN and user communities could contribute to reinvigorating the open data ecosystem in the country, and fostering the development of data-centred economies of scale.

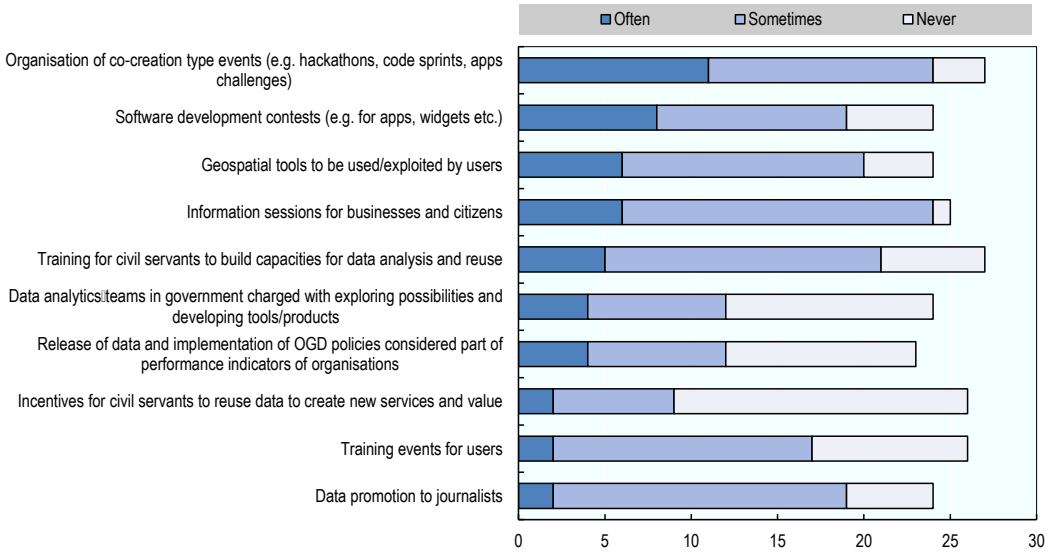
Mexico faces the challenge of broadening engagement activities beyond hackathons and app development contests. This challenge is shared, indeed, with OECD and Latin American and Caribbean countries (LAC). Training events for users and data promotion events for journalists are reported to be implemented on a regular basis only by two OECD countries, whereas the vast majority report carrying out such activities on a casual fashion (Figure 4.3). Results for nine LAC countries show a similar trend (Figure 4.4).

The provision of online data analytical tools and guidelines for users could also be beneficial to foster a more data-literate open data community where passive data visualisers evolve into trained data infomediaries. The institutional open data portal of the Ministry of Transport and Communications (Secretaría de Comunicaciones y Transportes, SCT) is an example of such an initiative. The SCT's portal[9] provides access to open government data while also providing links to online tutorials (in English) on subjects such as the creation of point maps and data publishing.

The SCT's portal also distinguishes between two user groups – consumers and publishers – in order to target the provision of tools with users' skills. Such user segmentation is also observed on the French open data portal, which explains the basics of open data with four different approaches: for citizens, data producers, data reusers and developers. This user segmentation allows for different user communities (for instance, the average citizen, app developer, data analysts) to better understand the potential of the portal for different user groups.

Figure 4.3. **Initiatives to promote the reuse of open government data in OECD countries**

Number of countries by frequency



Source: OECD (2014a), "Open Government Data Survey 2.0".

The Mexican government could also consider promoting data reuse with an "open" approach, meaning promoting the use of open source software for data analytics. Mexico's use of CKAN (open source software for data management) as the back-end of the central open data portal shows that the "open" approach is already embedded at the policy co-ordination level in Mexico but could be enhanced to promote such an approach across the broad public sector at all levels of government.

Figure 4.4. **Government-led initiatives to promote the reuse of open government data in Latin American and Caribbean countries**

Number of countries

Note: Information for Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay and Uruguay.

Source: OECD (2014b), *Open Government in Latin America*, http://dx.doi.org/10.1787/9789264223639-en.

The overall goal of increasing skills relevant to OGD across the society should be seen as complementary to the objectives of public sector transformation and in line with the public reforms implemented by the current central administration (2012-18). The business case for open data as a tool that could contribute to the success of the structural public sector reforms implemented by the current administration (i.e. education, anti-corruption) should not end with data disclosure but target data reuse, capacity building and citizens' and stakeholders' participation and engagement.

For instance, the executive announcement in December 2015 of Mexico's compromise to implement the Open Contracting Data Standard (OCDS) for all procurement activities related to Mexico City's new airport shows the willingness to use OGD as a mechanism to fight corruption and nepotism in the country[10] (see Chapter 2). The project, which is being implemented in co-operation with other public sector institutions, CSOs and international organisations, aims to move from a static transparency approach focused on increasing open data availability to a dynamic one building on active social engagement, collaboration and monitoring of government's activities. Indeed, such a collaborative approach has been taken in other policy sectors in Mexico. For instance, the SCT, in co-operation with the CEDN, the INAI and the CSO Transparencia Mexicana have implemented the Open Contracting Data Standard for the development of the Mexican Telecommunication Shared Network,[11] a public-private partnership that represents the largest telecommunication investment in the country.

Furthermore, at the Global Anti-Corruption Summit (12 May 2016), the Mexican government announced its commitment to explore the implementation of the OCDS during the first tender round for oil exploration and extraction in Mexico, and open contracting practices in health and pharmaceutical procurement. During the same event, Mexico also expressed its willingness to carry out reforms to the federal regulatory framework related to public procurement aiming to promote the principles of open contracting to include the planning and execution stages (UK Cabinet Office and Prime Minister's Office, 2016). Mexico also led the development of the Contracting 5 (C5) initiative (along with Colombia, France, Ukraine and the United Kingdom), which is thought of as a peer learning network to ensure that country-level learning on the implementation of open contracting is well shared and available to other nations embarking on this approach.

Another area of opportunity is related to the use of open data for education in Mexico. In March 2016, the National Institute of Educational Infrastructure (Instituto Nacional de la Infraestructura Física Educativa, INIFED) announced the disclosure of open government data within the framework of the educational reform in Mexico, and the "*Escuelas al 100*" programme[12] of the Ministry of Public Education (Secretaría de Educación Pública, SEP). The SEP's programme aims to improve the overall physical conditions of public schools in the country. INIFED's disclosure of geo-referenced data on public investments in schools will contribute to greater transparency and accountability of public expenditure, while empowering citizens to monitor public investment at the local level and to assess the development and improvement of public schools.

Yet, for all of the cases above to create value for the Mexican society, it would be necessary to empower Mexican citizens as auditors, and further engage civil society organisations to increase their awareness on such practices; thereby enabling them to monitor public procurement processes and public investment in Mexico. The overall objective should be to build greater public trust in Mexican public institutions.

Data disclosure does not create value by its own; in order to achieve this, stakeholders should be knowledgeable to be proactive prosumers of data, i.e. capable of (re)using and producing open data (citizen-produced data) that could then be integrated in the whole procurement monitoring process and reused by other stakeholders, thus creating a positive virtuous cycle. This is what an open data ecosystem is about.

Infomediaries: Diverse and complementary roles to generate types of value and impact

While some data users may act only as passive consumers (e.g. those mainly driven by public sector transparency and accountability motivations), others may have an interest in being active and proactive participants and collaborators as value co-creators. Open government data-based products such as web-based and mobile applications should be also perceived as useful mechanisms for bringing citizen-produced data into public institutions. This would make these tools instruments to use citizens' demands and feedback as input for more evidenced-based decision making and greater public accountability.

Good practices have been put in place toward more interactive open data activities. Key players such as infomediaries have been brought in to develop open government data-centred business models. The initiative *Retos Públicos* has been useful for bringing social entrepreneurs and innovators closer to the government towards the creation of innovative solutions for public policy issues. In general terms, the objectives of this government-society co-operation have been centred on improving public service delivery and increasing the provision of information to citizens.

Currently, 15 "public challenges" are listed on the *Retos Públicos*' dedicated website,[13] including (fully working or under-development) applications that aim to:

- empower citizens by helping them take more informed decisions (i.e. to eat healthier or to measure and reduce their CO_2 production as a result of electricity consumption)
- improve public service delivery (e.g. to simplify formalities related to studies' certification or to file and follow up on complaints related to corruption in the public sector).

The development of these and other applications have contributed to the use of open data as an instrument to achieve specific goals of the National Digital Strategy. These include, for instance, the development of multi-platform tools for citizen complaints and the prevention and impact mitigation of natural disasters (Box 4.3).

The CEDN has successfully co-operated with entrepreneurs, infomediaries and public institutions to improve the delivery of policy results by tackling citizens' information asymmetry and enabling better public service delivery through the development of mobile government tools. Nonetheless, the Mexican government could also consider supporting the development of mobile applications that enable two-way communication and data exchange between public institutions and citizens in order to support greater open data crowdsourcing.

While based on open government data, in general terms the current efforts still build on the traditional one-way approach, thereby missing the opportunities created by a two-way data exchange that goes beyond filling mobile-based formats for public formalities. The new open data-enhanced mobile government calls for data prosumerism, where all of the actors involved in the ecosystem participate in the production, reuse and exchange of data. Widely known privately developed applications such as Waze (owned by Google)

have enabled data-based collaborative platforms which are used by citizens to crowdsource updates on traffic accidents or any other geo-referenced incidents. Indeed, the CEDN has collaborated with Waze in order to allow citizens to visualise open data on transport and traffic during major social events in the country, thereby empowering citizens to take better decisions and, as a result, improving urban mobility. Whereas these kinds of applications have also been used by citizens for other purposes (for instance, to report and avoid police locations), they show how open data crowdsourcing can contribute to value co-creation when data crowdsourcing collaborative platforms are put in place.

Box 4.3. **Open government data for natural risk management in Mexico**

Cities' resilience and risk management are only a few of the targets included in the vast array of objectives defined by the United Nations' Sustainable Development Goals (SDGs). Among those, Goal 11 seeks to "make cities inclusive, safe, resilient and sustainable", setting specific targets such as reducing the number of deaths and economic losses caused by natural disasters (UN, 2015). In line with the SDGs and the objectives of the National Digital Strategy, the Mexican government has developed online and mobile platforms based on open government data that not only contribute to the achievement of national policy goals, but are directly related to its commitment to the SDGs.

AlertaMX: A mobile application for risk management

In 2014, the Mexican government launched an open call through the initiative *Retos Publicos* in co-operation with the General Coordination of Civil Protection (a body within the Ministry of the Interior) and the National Institute for Entrepreneurs (a body within the Ministry of Economy). The National Centre for Disaster Prevention (Centro Nacional para la Prevención de Desastres, CENAPRED) provided databases related to risk-prone areas in Mexico including to flooding, landslides and earthquakes.

The objective of the call was to provide financial support to digital entrepreneurs and social innovators for the development of a mobile application that could contribute to reduce disaster impact by improving citizens' risk awareness. A final mobile application named "AlertaMX' was developed as a result of this app development contest. The winner (an SME located in the state of Jalisco) received compensation of around USD 20 000 (MXN 350 000) for developing the application.

AlertaMX is available for free download. It provides general information to citizens on risk-prone areas based on CENAPRED's databases and enables the user to decide which notifications to receive by applying filters related to geographic location (by state), risk urgency (immediate, expected, future) and expected impact (low, moderate, severe, etc.). The application provides automatic updates by default on hydro-meteorological hazards and on the activity of the Popocatepetl Volcano (located in central Mexico), following the open data format Common Alerting Protocol (CAP).

While the application does not allow a two-way data exchange (i.e. crowdsourcing citizens' reports which could contribute to a faster emergency response), one of its key functionalities is the possibility for users to register personal contacts in case of emergency, allowing them to send "emergency" notifications to their selected contacts if needed.

Sources: Based on information from http://retos.datos.gob.mx; the Mexican Itunes Store; and UN (2015), "Sustainable Development Goals", https://sustainabledevelopment.un.org.

For instance, in Rome (Italy), the Rome Mobility Agency (RMA) is working to update the official public transport mobile application for the city (called *Muoversi a Roma*[14]) by following a citizen-driven approach for public service delivery. While the

current version of this web-based and mobile application provides real-time transport information to users (times and bus routes, journey times, dynamic routing for public transport) (Morosi and Mussio, 2015), the RMA is working to update the platform from an open data-based information provision application for public transport to an open data crowdsourcing application. The new version of the application is being developed within the framework of the Personal Transport Advisor (PETRA) project, which is funded by the European Union's Seventh Framework Programme (EU FP7), and aims to develop transport services "adaptive to the travel demand of the citizens" through the fusion of data "from various city sources, travel operators and citizens", predictive analytics, and detection of real-time events based on data analytics and real-time data (PETRA Project, 2016).

Connecting user communities and engaging data prosumers towards greater value co-creation

Open data communities should be linked through effective co-ordination and collaboration mechanisms facilitated by the central bodies such as the CEDN and the SFP. The overall objective should be to revitalise, bind and inter-connect all stakeholders that are part of the open data ecosystem. The CEDN's role as a catalyst, and as an amalgam of the open data ecosystem, would be crucial in order to achieve policy impact and results. The challenge is to continue moving away from a policy that centres on open government data disclosure to one focusing on understanding and optimising open data reuse to foster value co-creation.

Creating economic value for the broad economy

Partnerships with entrepreneurs have been instrumental to support government's delivery of results. The Mexican government has devoted resources to creating open government data-based governance and social values. But for-profit oriented infomediaries should also be seen as key actors in the initiatives implemented by the CEDN. The CEDN should also denote adequate attention to public-private collaboration towards the creation of greater economic value.

Disclosing open government data has several potential benefits for businesses and data-driven innovation:

- More efficient business processes and greater productivity: proactive OGD disclosure and efficient channels for data requests enable faster access to key data, therefore reducing data access times, thus enabling more efficient organisational processes.
- Improved decision making: access to open government data enables better decision making. Activities such as data analytics make it possible, for instance, to improve businesses' foresight and predict trends.
- Data-driven business models: open data is incorporated as an input of businesses' value chains. New products and services are created as a result of the reuse of open data. Growth of for-profit activities based on data-related activities (app development, provision of data analytics services, data aggregators, etc.).

Yet, for economic value to be created:

- Open data crowdsourcing should include consultation exercises specifically designed to assess the demand for those datasets of great value for businesses. Business-oriented consultation should be used as an instrument to assess and

collect information *ex ante* on the potential economic value that will be created as a result of having access to open data (as done by the United Kingdom through online open data request formats).

- Skills should be developed and available across the ecosystem towards greater data-driven innovation. The creation of data-driven economic value would depend highly on the ability (and interest) of businesses to use open government data.
- Where needed, support and training should be provided to data-driven small and medium-sized enterprises (SMEs) and to entrepreneurs to help them to start-up data-oriented business models. While open data supply paves the way for the creation of economic value, data demand is the result of the availability of data-driven innovative businesses and start-ups across the ecosystem.
- Regular communication channels should be established with data-driven businesses in order to obtain feedback on government data (its value, quality, etc.) and to further collect information on the use and value resulting from the reuse of open government data. Further collaboration should also aim to obtain access to non-sensitive business-produced data in order to inform policy making and to make these available through the open data portal in the long term.

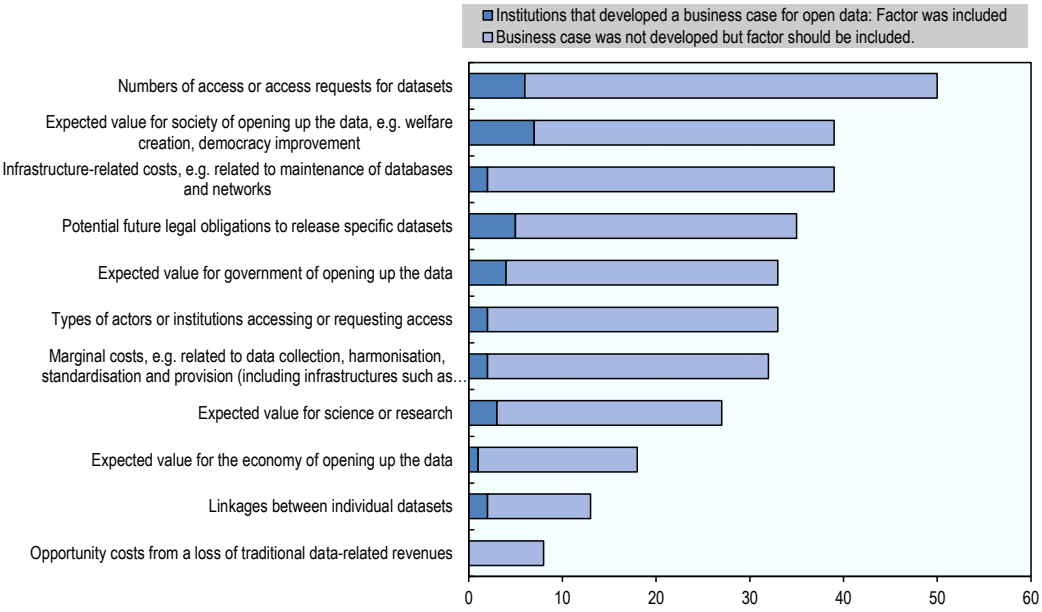
In Mexico, there is a growing need of performing data demand-identification exercises that centre on the potential economic value that could be created for the broad economy and for the public sector (see Chapter 3). This sums up to the current lack of synchronisation between the vision for open data within the centre of government (which aims to use open data as an enabler of the digital economy) and that of most public institutions (which is mainly focused on the value of open government data for public transparency) (see Chapter 3).

Data disclosure prioritisation mainly builds on the data taxonomy defined by the Strategic Open Data Infrastructure (see Chapter 3), and, as mentioned earlier, on the analysis of PSI access requests (if done). This approach leaves behind the incorporation of valuable decision-making elements for data disclosure (i.e. the expected value of open data for science or for the creation of economic value). The results of the survey for the public sector show that the expected value for the economy as a result of opening up government data is not identified as a high-priority component to be included within the business case for data disclosure (Figure 4.5).

Business-oriented consultation exercises, aimed to understand specific data needs, should contribute to the business case for open data in Mexico. Additionally, they should include elements focused on collecting information to measure the expected economic impact of opening up government data *ex ante*. The exercise of Open Data 100 (500) has been useful to collect information on the use of open government data by businesses (Figure 4.6). Yet, understanding and assessing the potential of the economic value of open data should begin before data disclosure and continue after OGD has already been disclosed.

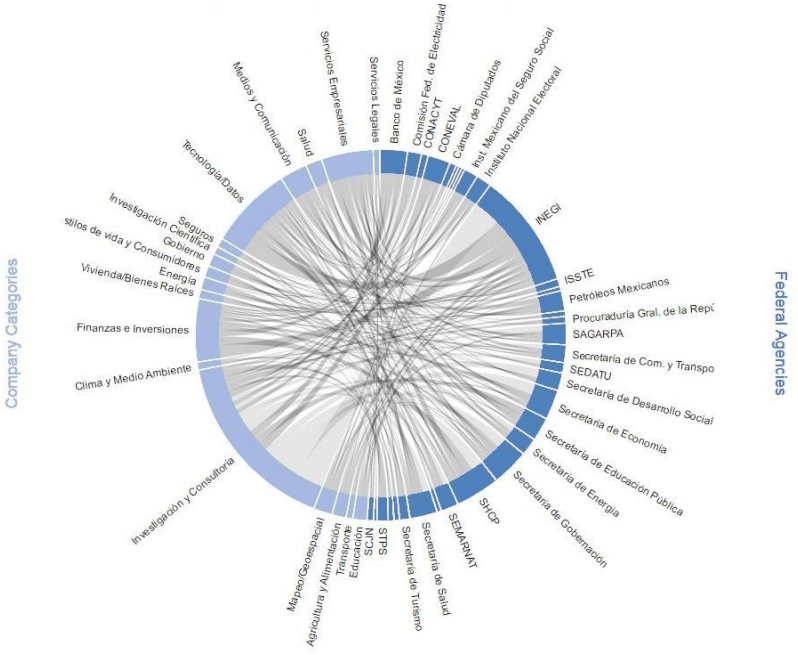
Different OECD countries and other independent studies have carried out assessments aiming to measure the impact of open government data disclosure on economic activity. Still, while "how-to" guidelines, and academic literature discussing the potential benefits for economic activity are available (see Pollock, 2010; and Houghton, 2011), the development of a one-size-fits-all method or measurement framework has proven difficult (Rivera Perez, 2014).

Figure 4.5. **Business cases for open data at the institutional level: Cost and benefit factors that were or should be considered in the business case when prioritising datasets for opening up according to respondent public institutions**



Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

Figure 4.6. **Open Data 100 (500) Mexico: Stakeholders' use of open government data (left) by public sector institutional source (right)**



Source: Open Data 500 (n.d.), "Open Data 100 Mexico", www.opendata500.com/mx.

Examples of economic impact assessments are available across OECD countries. In the **United Kingdom**, a report prepared in 2010 for the UK Department of Business, Innovation & Skills measured the potential economic impact of open data disclosure by the Ordnance Survey – the national mapping agency for Great Britain. The report estimated that the "OS Open Data initiative [would] deliver a net £13.0 million - £28.5 million increase in GDP [by] 2016" in the United Kingdom. For such economic assessment to be valid, the report assumed a sustained funding from the British government to the Ordnance Survey thereby ensuring "that it can meet its responsibilities" related to open data in order "to ensure it continues to have value for the users" (Carpenter and Watts, 2013).

In **Denmark**, financial benefits of USD 66 million PPP were created between 2005 and 2009 as a result of the open address data programme implemented by the Building and Dwelling Register of Denmark (public and private sector) (see Chapter 3).

In **Finland**, a report commissioned by the Finnish Ministry of Finance highlighted the focus on the value of spatial and geographical data that has been given by contemporary academic literature, highlighting how open data surveys administered for the purpose of these independent assessments shed "light on the ways of using, importance and benefits of geographic data for users". In addition, the report highlights how those surveys were useful to reveal "that open spatial data brings financial benefits to companies by enabling the development of new services and products, making operations more efficient and providing companies with a competitive edge both in Finland and abroad" (Koski, 2015).

For the purpose of this Review, the analytical framework carried out by the OECD included a survey on open data policies that was administered across private, social and academic stakeholders. This survey was developed at the direct request of the Mexican government and was developed and implemented in parallel to the survey that was administered across public sector institutions. The survey aimed to gather information on the potential value of open government data for the broad economy, and the current use that data-driven businesses in Mexico are giving to it. The survey followed a cost-benefit approach including market-oriented components (understandable for businesses and respondents), which aimed to measure the benefits of open data for Mexican businesses and entrepreneurs. Among others, such factors included the assessment of:

- Data-demand price elasticity. How increasing or decreasing (hypothetical) fees would affect the demand for specific datasets by private and social organisations.
- Consumer surplus based on businesses' stated preference. The assessment of the (hypothetical) willingness-to-pay for specific datasets *vis-a-vis* the actual access cost (zero) in order to measure the consumer surplus result of disclosing open government data (the benefit for businesses of getting free-of-cost access to business-relevant datasets).
- Data monetisation. Potential direct benefits for businesses from the development of new open government data-based products and business models and the improvement of existing products.
- Open government data-based access time-cost reductions for businesses (e.g. how a faster and more efficient public access to OGD will have an impact on business productivity?

While the response rate for the survey was not as expected, the information provided by private sector organisations was useful for gathering data and shedding some light on the potential and current use of open government data by private sector stakeholders in Mexico. These results show that:

- While the number of employees working in businesses using open government data ranks between 1 and 30, businesses report annual net sales between USD 28 000 and USD 1.4 million each,[15] suggesting – and highlighting – the importance of providing support to SMEs for the data-driven economy in Mexico (see the following section).
- For business purposes, the most used data (or that to which business expressed their interest to have access to) are related to:
  1. cartographic information
  2. land-use information (cadastral data)
  3. spatial data/geographical co-ordinates
  4. economy and statistics
  5. crime/conviction data.
- The information provided suggests that, from a market-oriented point of view, the most valuable datasets for business purposes (based on businesses' stated preference and willingness-to-pay), are those related to energy resource/consumption information, education and labour statistics. As a result, these datasets may represent the highest consumer surplus for businesses in Mexico.

The findings above are in line with work the OECD has been doing to study the value that public sector information has for the digital economy. In 2006, the Working Party on the Information Economy of the OECD Directorate for Science, Technology and Industry released a report assessing the potential commercial applications of public sector information (the concepts of "open data" and "open government data" were not widespread at the time). The report included a (non-exhaustive) list of public sector information categories listed from their potential contribution to business activities (their potential to be monetised) to their value improve citizens' information.

Since then, the open data movement has grown exponentially. Still, the discourse about the potential contribution of specific data taxonomies (open PSI) for social, governance and economic value has remained (in general terms) constant. Table 4.1 is based on the 2006 OECD report and illustrates this contribution. The last column on the right provides the number of Mexican public institutions reporting data disclosure by data category (of the total number of responses received from public institutions to the OECD survey). Together with the results of the OECD survey discussed above, the data taxonomy included in Table 4.1 could be used by the Mexican government to guide business-specific consultation exercises and to enforce greater data disclosure from those public institutions producing such data.

Business communities, skills, open data and data-driven innovation

As discussed above, the results of the OECD survey administered across non-governmental stakeholders sheds light on the importance of SMEs for the data-driven economy in Mexico. Yet, the current approach of the central government and central institutions around the economic value of OGD mainly focuses on providing economic funding to SMEs for the development of applications that can contribute to improving service delivery, the public sector's accountability and citizens' decision making (*Retos Públicos*). Nonetheless, while this approach has been beneficial to spur open data initiatives towards the creation of governance and social value (the objectives of app

Table 4.1. **Data categorisation and taxonomy by contribution to public value**

Number of public institutions disclosing open government data by data category in Mexico[1] (x=92 institutions[2])

	Data category	Data taxonomy	
Open data's economic value (data for commercial reuse)	Geographic data	Cartographic information Land-use information (cadastral data) Spatial data/geographical co-ordinates Administrative and political boundaries Topographical information Elevation data	15
	Environmental and meteorological data	Oceanographic data Hydrographic data Environmental (quality) data Atmospheric data Meteorological (weather) data Natural risk-prone areas (flood, seismic activity, etc.)	8
	Economic and business data[3]	Financial information Company information Economic and statistics Industry and trade information	27
	Social data	Demographic information Attitude surveys Data on health/illness Education and labour statistics	19
	Traffic and transport data	Transport network information Traffic information Transport statistics Car registration data	6
Governance value of open data[4]	Tourism and leisure data	Hotel information Tourism statistics Entertainment (local and national)	3
	Agricultural, farming, forestry, and fisheries and extractive industries data	Rural land use (cropping/land-use data) Rural incomes/use of resources Fish farming/harvest information Livestock data Mining Oil and gas	10
	Natural resources data	Biologic and ecologic information Energy resource/consumption information Geological and geophysical information	10
	Public order and safety	Crime/conviction data	3
	Political parties	Expenditure and federal budget allocation	1
	Legal system data	Laws Information on rights and duties Information on legislation Information on judicial decisions Patent and trademark information	3
	Scientific information and research data	University research Publicly funded research institutes Governmental research	19
	Educational content data	Academic papers and studies Lecture material	18
	Policy and procedural content data	Governmental press releases Local and national proceedings of governments Green papers	0
	Cultural content data	Museum/gallery material (location, listings, area of work, etc.) Archaeological sites Library resources Public service broadcast archives Other public archives	9
Social value of open data			

Notes: 1. Not indicative of the total number of datasets by data taxonomy available on the Mexican central OGD portal. 2. Total number of public institutions that provided a response to the OECD survey for public stakeholders. 3. Not disaggregated to include data for public procurement and public budgeting. 4. The governance value of OGD is cross-cutting as values such as transparency, accountability, greater public efficiency and a more efficient public service delivery could be created as a result of disclosing any data taxonomy.

Source: Data for public institutions: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review. Data categories and taxonomy: based on OECD (2006), "Digital broadband content: Public sector information and content", http://dx.doi.org/10.1787/231534841283.

development competitions are indeed defined by public institutions), the sustainability of open government data in Mexico and its contribution to economic development would require providing support to entrepreneurs and SMEs using open data. To achieve this goal, Mexico, in collaboration with the United Kingdom and other expert institutions, will launch an Open Data Startup Hub, a project aimed at building a business community around open data in order to contribute to a more dynamic data-driven economy.

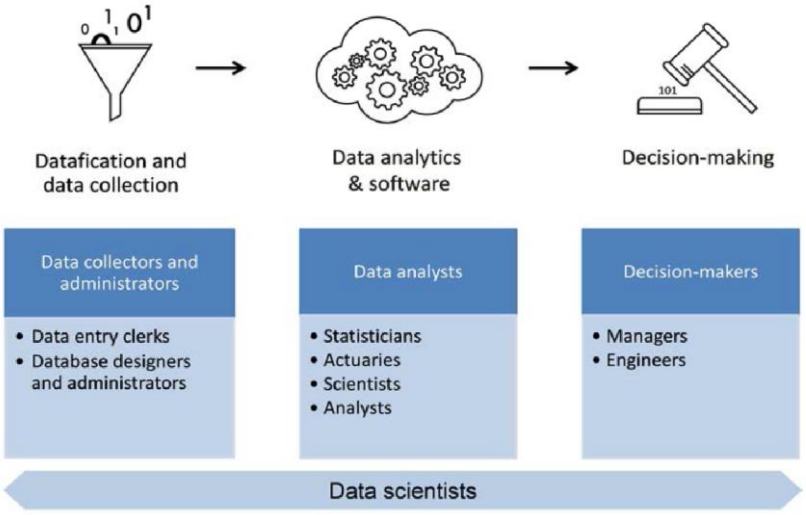
Such a business-oriented collaborative approach has been implemented by different OECD countries. For instance, since 2013, the **Spanish** government has been organising a yearly forum with the participation of public institutions and business and social organisations. The forum is framed within the actions of the APORTA Project – a government initiative implemented by the Spanish Ministry of Industry, Energy and Tourism and the Ministry of Finance, which aims to create a pro-open data government environment, invigorate the national open data ecosystem and increase data reuse by users. The forum (known as Foro CPP-RISP) aims to increase collaboration between business and social user communities and the Spanish government in order to keep building conditions that can contribute to the creation of economic and social value through open data reuse in Spain.

The **European Union** created the Open Data Incubator for Europe (ODINE) with the objectives of creating a "commercial open data community" in Europe and supporting the development of open data-based businesses. ODINE provides economic funding for entrepreneurs during a six-month period plus "mentoring, business and data training, high-quality media, visibility at international events and introductions to investors" (ODINE, 2016).

Countries with a strong focus on economic value creation such as **Korea** are also taking steps in this regard. In March 2016, the Korean government opened the "Open Square D" Centre (OSD) with the objective of providing support to open government data-based start-ups. The OSD is located in Seoul within the Business Incubator Centre of the Sookmyung Women's University. It provides an open space for data entrepreneurs to learn and exchange knowledge on open data in order to move from a business concept to real data monetisation. Beside the potential of the OSD as an open government data-based business community cluster and a business incubator, the centre will equally contribute to the development of skills as a result of public-private partnerships with more established data-driven companies, and the provision of free-of-charge training on open data for students.

Developing open data skills is one of the key challenges for sustaining the data-driven economy (Figure 4.7). The demand-offer relationship for data professionals (data analysts, data scientists, etc.) has maintained an increasing slope during the last years. For instance, e-Skills UK released a report in 2013 highlighting that in the United Kingdom the job title "data scientist" was practically inexistent in job openings before 2011, and it reported an estimated demand growth of 673% per annum for big data developers between 2007 and 2012 in the United Kingdom (eSkills UK, 2013). As shown in Figure 4.8, the share of data specialists as a percentage of total employment has increased significantly over the past years, suggesting not only that demand for data specialists has increased faster than demand for other types of jobs, but also that these economies have become more data-intensive over time (OECD, 2015a).

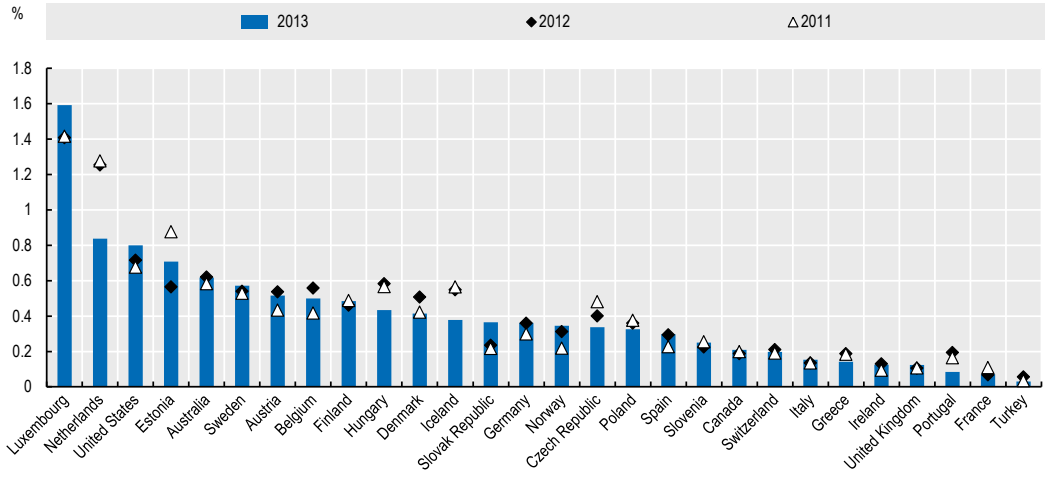
Figure 4.7. **Main phases of the data value cycle with their key types of data specialist occupations**



Source: OECD (2015a), *Data-Driven Innovation: Big Data for Growth and Well-Being*, http://dx.doi.org/10.1787/9789264229358-en.

Figure 4.8. **Data specialists in selected OECD countries, 2011-13**

As a share of total employment



Note: Data for Ireland and the United Kingdom only include ISCO-08 code 212 "mathematicians, actuaries and statisticians" as data for code 252, "database and network professionals", are not available. Data for Canada include the equivalent of ISCO-08 codes 212 and 252. Data for the United States are overestimated since parts of other ISCO-08 codes (3514 and 2519) are included.

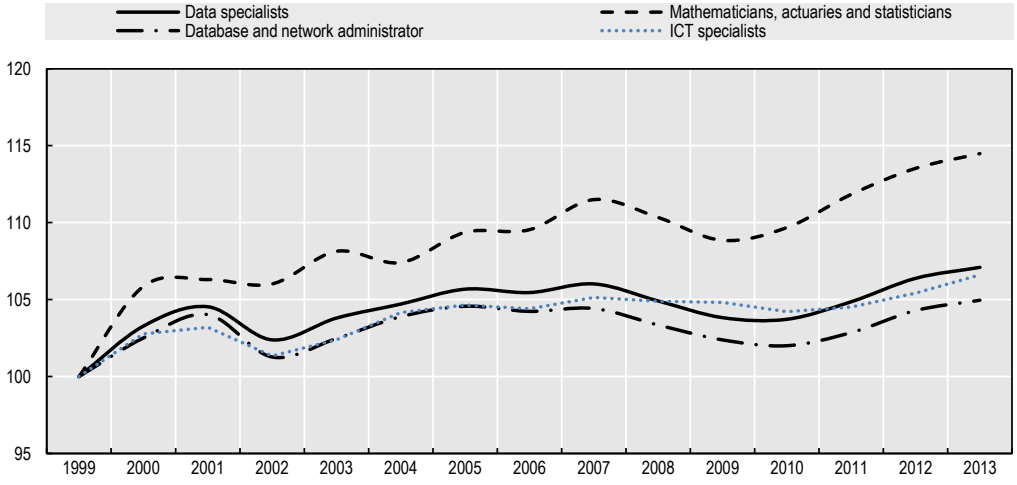
Source: OECD (2015a), *Data-Driven Innovation: Big Data for Growth and Well-Being*, http://dx.doi.org/10.1787/9789264229358-en; based on data from Eurostat, Statistics Canada, Australian Bureau of Statistics Labour Force Surveys and US Current Population Survey, March Supplement, February 2015.

Evidence presented in the *Data-Driven Innovation: Big Data for Growth and Well-Being* (OECD, 2015a) suggests that the increasing demand for data specialists also contributes to higher wages, particularly if the market has a shortage related to the availability of such skills. For instance, while in the United States the ratio of average

annual wages of data specialists to that of all occupations has remained relatively stable over the last decade, the estimates of the US Bureau of Labor Statistics show that demand for data specialist jobs are, however, expected to grow to 17% in the United States between 2012 and 2022. Statisticians, actuaries and mathematicians are expected to have the fastest growth between 2012 and 2022 (26%). As a result, these occupations have also seen the fastest growth in relative wages since 1999, compared to data specialists and ICT specialists for which relative wages have grown more modestly (Figure 4.9). However, it is also observable that the share of statisticians, actuaries and mathematicians has been decreasing since 2012, suggesting – along with the further growing relative wages for that group – that the United States could be facing a shortage (OECD, 2015a).

Figure 4.9. **Trends in relative average wage of data specialists in the United States, 1999-2013**

Index, 100=1999



Source: OECD (2015a), *Data-Driven Innovation: Big Data for Growth and Well-Being*, http://dx.doi.org/10.1787/9789264229358-en; based on data from the Bureau of Labor Statistics, Occupational Employment Statistics (OES), www.bls.gov/oes/home.htm.

In order to build on open data as an enabler of the data-driven economy, the Mexican government will face the need of investing greater public resources on developing data skills in order to support the development of data-driven businesses in the country, data-driven innovation, and, as a result, the data-driven economy.

Demand for data professionals can come either from SMEs, well-established IT-oriented companies or other companies that have realised the value of open and big data. While in all cases this could create job opportunities, there is an opportunity of using open government data as an instrument to foster innovation in Mexico based on the ideas of national entrepreneurs. Supporting skill development activities and the creation of open government data-centred business communities should be acknowledged as an opportunity to spur economic value building on the ideas of Mexican innovators.

For such purpose, partnerships between the public sector and academia should be further developed beyond the participation of academic institutions as open data prosumers. The inclusion of university-based business incubators, academics and students would further contribute to the creation of a sustainable data-driven economy. This collaboration should aim to invigorate data-driven innovation through the development of skills from the earlier stages of academic and professional development (e.g. with the

development of targeted curricula). As a result, the overall open data ecosystem would be enriched and strengthened by the availability of skilled stakeholders capable of internalising, exploiting and reusing open (government) data, innovating and self-creating economic value in a long-term sustainable fashion.

Multi-stakeholder collaboration: Towards greater sector-specific value co-creation

There is also the challenge of further strengthening collaboration between public institutions and non-governmental stakeholders focusing on sector-specific values. This collaboration should go beyond the existing co-operation that has been established with some widely-known and well-established CSOs (members of the Open Data Council). Results from the survey for public institutions show some trends for multi-stakeholder collaboration in Mexico (Figure 4.10):

- Horizontal and vertical collaboration between public institutions and between those and non-governmental stakeholders is low. Only 16 out of 92 institutions report regular collaboration with other stakeholders (including other public institutions).
- When implemented (x=16 institutions), collaboration activities are centred on data management activities. Public institutions collaborate mostly with each other. Such government-to-government collaboration is indeed positive for data management and data disclosure (i.e. production, collection and sharing), but activities focused on data co-creation (and as a result, value co-creation) are less frequent.
- Academia is the only non-governmental stakeholder "actively" collaborating with public institutions, yet, such collaboration focuses on data interpretation (helping public institutions understand data or vice versa). Data co-creation activities in co-operation with academia are virtually non-existent after this stage.
- No institutions report the implementation of data co-creation activities (data mash-up) in co-operation with other CSOs, the private sector or journalists. Only one institution reported implementing data mash-up activities in collaboration with academic institutions. Data-centred collaboration activities should focus on the creation of sector-specific values with an active collaboration between public institutions, CSOs and other communities.

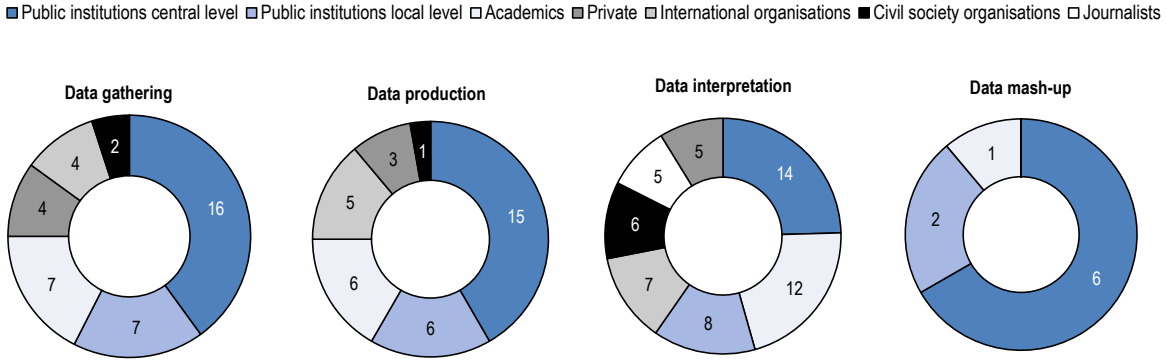
Deeper G2G collaboration would be useful to ease the sharing of open data practices across the public sector towards a more proactive open-by-default culture and to contribute to data-sharing and to the creation of greater sector-specific values in co-operation with other stakeholders. For such purpose, sector-specific data communities should be built not only outside the government apparatus, but within the government. This sector-specific public-public collaboration should aim to build ground towards greater sector-specific values in collaboration with those stakeholders working in such sectors (environment, transport, education, etc.) while also contributing to cross-cutting values such as anti-corruption.

Open data communities within and outside the government should be leveraged and inter-connected. Mechanisms such as the recently created Open Data Council (ODC) would need to be strengthened for this purpose. The ODC's members should be clear about their roles as "bridges" between the government and other non-governmental stakeholders. The

results of the OECD mission point out the need to improve co-operation and communication between the members of the ODC and those of the CEDN. Regular meetings should be scheduled and held between government officials and the ODC for this purpose.

Figure 4.10. **Data-centred collaboration between public institutions and other stakeholders**

Number of central public institutions reporting collaboration activities by stakeholder group and by activity (x=16)



Note: One institution can report collaboration with different stakeholders.

Source: OECD (2016), "OECD Survey on Open Government Data in Mexico". Survey administered across the Mexican central level public sector between 2015 and 2016 as part of this Review.

The ODC should evolve from being seen as a mere milestone (part of Mexico's 2nd OGP Action Plan) to being perceived as part of the mechanism that enables efficient and timely peer-to-peer collaboration (e.g. CSO to CSO, private-private, public-public). For example, the ODC's contribution should focus not only on commenting on draft policies but on building stakeholder networks around open data, having the CEDN and the SFP as equal and supportive "partners" in developing relations for non-public stakeholders. By doing so, the ODC could further contribute to a more collaborative OGD ecosystem in the country.

The "one-hackaton at the time" approach taken by the Etalab in **France** (see Chapter 3) is a good example of how focusing on a circumscribed sector and on a value-specific policy implementation matter, and how connecting sector-specific goals and institutions with those data communities working on such areas could further contribute to value co-creation. In **Korea**, a National Open Data Forum was launched in 2013 with the objective of better assessing users' data demand. Among others, the forum was useful to highlight the importance of creating institutional data-sharing task forces in charge of collaborating with private organisations around 16 strategic policy areas (i.e. transport, weather, science and technology) in order to obtain first-hand information on how open government data could support their work. As a result, 42 "promising companies" were selected (including pre-startups, one-person businesses and SMEs) to obtain support from public institutions, including promoting them with potential investors or the provision of technical support to help these companies launch their business around specific policy areas (Korean Government, 2014).

Retos Públicos has set a basis for such value-specific activities, but this collaboration should go beyond one-time initiatives and awards. Using open government data as a mechanism to tackle climate change, for instance, would require the Mexican government to closely collaborate with CSOs working in this area, and to further reach out to and engage with data users and data champions across the Mexican open data ecosystem.

Conclusion

Fostering OGD collaboration and value co-creation are key challenges for the Mexican government. While the central OGD portal is an important milestone of the National Open Data Policy, there is a growing need of further exploiting its potential as a platform for data and value co-creation where stakeholders can actively and directly collaborate and share their data and experiences with the rest of the open data ecosystem. The Mexican government should establish collaborative platforms that enable a two-way data exchange between public institutions and non-governmental stakeholders towards greater open data crowdsourcing.

Public resources have been invested in developing data management capacities for data disclosure across public institutions. Such support has made it possible to increase the availability of open government data on the central portal. However, as data prosumers, public institutions will face the challenge of gradually developing data-related capacities beyond data management in order to exploit the opportunities that external data offers for organisational efficiency and improved policy making. The role of the central government will remain crucial to develop such capacities, particularly during the early policy implementation stages.

Data skill development outside the public sector will also play a key role to build on the opportunities that open government data provides for structural reforms and the creation of economic value. Building skills among the user communities (i.e. citizens, civil society organisations and entrepreneurs) will be crucial to foster value creation, particularly if the Mexican government aims to use open government data as a tool for greater innovation in the country towards a more dynamic data-driven economy.

In Mexico, there is a growing need of invigorating the open data ecosystem, building on the initiatives on open data that non-governmental stakeholders have implemented. Multi-stakeholder collaboration under the leadership of the CEDN and the SFP could contribute to creating sustainable open government data-based impact. Prosumer communities within and outside the government should be connected around sector-specific values in order to move from the business case for open government data to long-term value co-creation and impact.

Notes

1. The index was built based on the data collected through the OECD Open Government Data Survey 2.0 in 2014 and 2015. The OECD is currently working on a new version of the survey (2016) which will be used to update the *OURdata Index*, and to align the data it collects to the ever-evolving open data context around the globe. For more information see: www.oecd.org/gov/digital-government/open-government-data.htm.
2. For instance, data collection, cleaning, disclosure, standardisation, etc.
3. www.datos.gob.mx.

4. www.infomex.org.mx.
5. www.infomex.org.mx/gobiernofederal/homeOpenData.action.
6. http://data.gov.au.
7. www.datamares.ucsd.edu/eng.
8. http://datos.gob.mx/herramientas/web/obraabierta.html.
9. www.datossct.gob.mx.
10. http://busca.datos.gob.mx/#!/instituciones/gacm.
11. http://datos.gob.mx/redcompartida.
12. http://busca.datos.gob.mx/#!/conjuntos/escuelas-al-cien.
13. http://retos.datos.gob.mx.
14. http://muovi.roma.it.
15. MXN 500 000-MXN 25 million, 2015.

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Chapter 5.

Open data at the local level in Mexico: Scaling up initiatives within and across levels of government

This chapter presents and discusses the Mexican government's efforts aimed to transfer the vision for open data set by the centre of government to the local level, and to spur the development of open data initiatives across states and municipalities. It draws upon the work of the OECD on multi-level policy coherence, highlighting its importance for the achievement of national and supranational policy objectives, such as the Sustainable Development Goals. The chapter discusses multi-level stakeholder collaboration as an instrument of value co-creation and data crowdsourcing from local population; underlining the relevance of co-operation, collaboration and policy transfer between the central and local levels of government, and among local governments in Mexico.

Introduction

As a federal republic, Mexico's central government faces the challenge of stimulating the development of open data policies at the local level while respecting the autonomy of state and municipal governments. Whereas the evolution of the Mexican Freedom of Information Act from the 2002 federal law to the 2015 general law was useful to strengthen the open data regulatory framework (i.e. it included the concept of open data for the first time), embarking on developing and implementing open data policies and strategies remains a matter of willingness by local governments.

The Coordination of the National Digital Strategy (Coordinación de la Estrategia Digital Nacional, CEDN), the Ministry of Public Administration (Secretaría de la Función Pública, SFP) and the National Institute for Access to Public Information and Data Protection (Instituto Nacional de Transparencia, Acceso a la Información y Protección de Datos Personales, INAI) have implemented efforts to foster open government and open government data (OGD) practices at the local level. These efforts (that in most cases are based on collaboration agreements) are guided by the mandates of the Open Data Executive Decree, which set shared co-ordination responsibilities between the CEDN and the SFP (see Chapter 2). Among others, these mandates aim to spur local open data initiatives, and, as a consequence, to increase the availability of local open government data on the central OGD portal.[1]

Multi-level co-operation mechanisms such as *Red México Abierto* (Spanish for Open Mexico Network, OMN) paved the way for greater co-operation between the central and local governments, and the social and private sectors. The OMN (led by the CEDN and the SFP) enables an exchange of best practices and policy guidelines among members, and the implementation of capacity-building activities centring on five key policy areas (sustainable development, urban mobility, resilience, land management and crime prevention). Within this collaboration schema, the role of the CEDN and the SFP will remain as a crucial lever of open data initiatives at the local level and to aligning these to national and international policy goals such as the Sustainable Development Goals and the International Open Data Charter.

The Open Mexico Network builds on local governments' interest and willingness to get involved. And this willingness might depend on local governments' policy priorities and the perception *a priori* about the potential benefits that embarking on open data may create in the short and mid term.

In Mexico, leveraging open data strategies at the local level will greatly depend on achieving high-level political support from local heads of government, and on the bottom-up influence that active and engaged local stakeholders (i.e. civil society, private sector and universities), through an invigorated local open data ecosystem, may put on state and municipal institutions to pressure on them to increase open government data disclosure. In addition, leadership should not only come from the central level. Trend-setter local governments should act as catalysts for the development of open data practices at the local level, and horizontal co-ordination and collaboration fora that enable and facilitate the exchange of best practices should be made available for this purpose.

Multi-level policy coherence: From international commitments to local impact

While unitary governments could have a more centralised approach to policy implementation, federal governments may leave part of the decisions on implementation and rulemaking in the hands of local governments (OECD, 2014). Mexico is a federal

republic integrated by 31 federated states plus Mexico City (the capital and the seat of all branches of the Mexican government),[2] and by more than 2 400 municipalities. As a federation, the states and municipalities (hereafter "local governments") share their autonomy with the Mexican central government while maintaining a level of self-determination.

The evolution (on content and applicability) of the Mexican Freedom of Information Law (FOI) from the now abrogated 2002 federal law to the 2015 general Law on Transparency and Access to Public Information created responsibilities on transparency for public officials and institutions at the local level (i.e. the obligation of guaranteeing citizens' access to public sector information), aligned with those for central institutions. Both the 2015 FOI and the INAI were created as a result of the 2014 transparency reform in Mexico.

In Mexico, the publication of the 2015 Open Data Executive Decree set a milestone for open data by providing high-level political support to the National Open Data Policy (see Chapter 2). In addition to the shared policy co-ordination responsibilities that the Executive Decree established for the CEDN and the SFP (i.e. the development and management of the central OGD portal), the decree also mandates both institutions to promote the implementation of collaboration agreements with states, municipalities, autonomous institutions, and the legislative and judicial powers in order to increase the availability of local OGD on the central OGD portal.

Yet, while the Executive Decree acts as a hard policy lever for central institutions, the development of open government data policies and initiatives by local governments remains as a matter of willingness due to Mexico's federalist model of government. As a result, the CEDN and the SFP should draw on soft policy levers to spur open data initiatives at the local level (i.e. providing support for policy or business case development, incentives, etc.).

In addition, local governments might be challenged not only to implement central mandates (result of the feneral 2015 FOI) but to adapt and amend their own legal frameworks in order to better co-ordinate with the central government and to fulfil their responsibilities (OECD, 2014). Still, while the INAI has been actively enforcing the standardisation of local FOIs, it is the decision of local governments to "invest" in open government data. And, as an investment, the business case for open data at the local level should clearly state the benefits for the local population, businesses and local governments.

Further engaging local governments in developing and implementing open government data policies will depend on the benefits that open data could create for local stakeholders. Transparency, public accountability and anti-corruption are overarching values that (should) permeate all policy areas and government activities. But open government data also provide a valuable opportunity for local governments to find solutions for policy issues that might be specific for their own context (i.e. open data for local tourism) or shared with other local governments (i.e. the improvement of public service delivery in areas such as transport or urban waste collection). Local governments, therefore, should identify the potential benefits of open data (its relevance) for their own context and needs in order to invest human and financial resources in open data initiatives.

It is widely known that local institutions (particularly at the municipality level) play a key role in government-citizen relations due to their closeness to the local population. This relationship places local governments as intermediaries between local stakeholders

and the centre of government. Within the framework of open data policies, the involvement of local governments remains of key importance not only to foster local open data practices and the creation of value for local stakeholders, but also to align central and local OGD policies towards the achievement of supranational objectives like the United Nation's Sustainable Development Goals (SDGs), the International Open Data Charter (ODC) and the G20 Anti-Corruption Open Data Principles.

In addition to the common challenges that developing and implementing open government data policies represent for of all levels of government (technical, political, cultural, legal, etc.), multi-level governance efforts imply overcoming co-ordination and collaboration challenges between the centre of government and local governments. For instance:

- Coherent multi-level policies: the alignment of central open data policies with those of local governments. Policy coherence plays a crucial role in delivering impact on a multi-level, co-ordinated and collaborative fashion. Multi-level policy coherence is not limited to national borders. Its importance for the achievement of international multinational agreements such as the SDGs calls for the alignment of policies and strategic actions at the national and local levels. This coherence builds a strong basis to add up local achievements and multi-stakeholder collaboration towards the achievement of major goals (Box 5.1).
- Different open data policy objectives: while the objective of using OGD for sector-specific policy goals (i.e. education, anti-corruption, etc.) might be of relevance for the central government, local governments' interest in open data may centre on additional goals specific to their own local context. Therefore, the interest of local governments to join the OMN could be hindered or leveraged by the added value they perceive as a result of becoming a network member, drawing on their own policy priorities. For such purpose, multi-level co-ordination efforts should not only aim to align open data efforts at the local level, but to provide a benefit for local governments and stakeholders drawing upon open data business case.
- Open data politisation: in countries with a multi-party political system, multi-level collaboration between the centre of government and local governments (or between state and municipal governments) could be negatively or positively influenced by political interests (i.e. different political parties holding power at different levels). As a result, open data policies could be politicised, meaning that policy development and multi-level co-operation, co-ordination and collaboration could be conditioned by the political environment.
- Crowdsourcing open data initiatives for multi-level impact: crowdsourcing impact refers to adding up the results of open data initiatives at the local level (specifically those implemented by non-governmental organisations) to the efforts implemented at the central level in a co-ordinated and collaborative fashion towards the achievement of national and international goals. Open data initiatives that are implemented by non-governmental local stakeholders (i.e. CSOs, private organisations, etc.) might create impact, for instance, at the community or city level. Yet, a weak link between local governments and non-governmental open data initiatives (and, as a result, between the latter and the central open data policy) diminishes the valuable contribution of such initiatives to the achievement of national open data policy goals. Multi-stakeholder and multi-level collaboration is crucial to crowdsource stakeholders' efforts on open data at the local level in a co-ordinated fashion.

As a result, stimulating the development of open data policies and initiatives at the local level in Mexico would require using soft policy levers to:

- design coherent policy objectives and actions at all levels of government
- build further consensus around open data at the political level, drawing upon the business case for open data
- collaborate with stakeholders at the local level in order to align open data initiatives with international open data instruments
- involve local governments in the development, implementation and monitoring of the national open data policy
- enable horizontal policy transfer mechanisms at the local level to facilitate communication and collaboration between local governments.

Box 5.1. **Policy coherence for sustainable development beyond 2015: Involving all actors at all levels**

The implementation of the Post-2015 Development Agenda demands policy coherence at multiple levels. Countries need to be able to work across policy domains to respond to the more complex and interrelated challenges addressed by the Sustainable Development Goals (SDGs). The OECD Strategy on Development (OECD, 2012) launched by OECD ministers in 2012 has emphasised the critical function that policy coherence for development can play as a whole-of-government tool to consider increasingly complex challenges and to address their interconnectedness.

The work under the OECD Strategy on Development has highlighted that more comprehensive approaches, bringing in diverse policy communities and key actors and stakeholders, are now needed to better understand the magnitude and the multidimensionality of development challenges, and to identify effective solutions based on dialogue, knowledge sharing, partnerships and policy coherence. Applying a broader policy coherence for development lens to OECD work across different areas (i.e. global food security, illicit financial flows and green growth) has shown how greater coherence at different levels (local, national, regional, global) is critical for dealing with systemic conditions that constrain sustainable development.

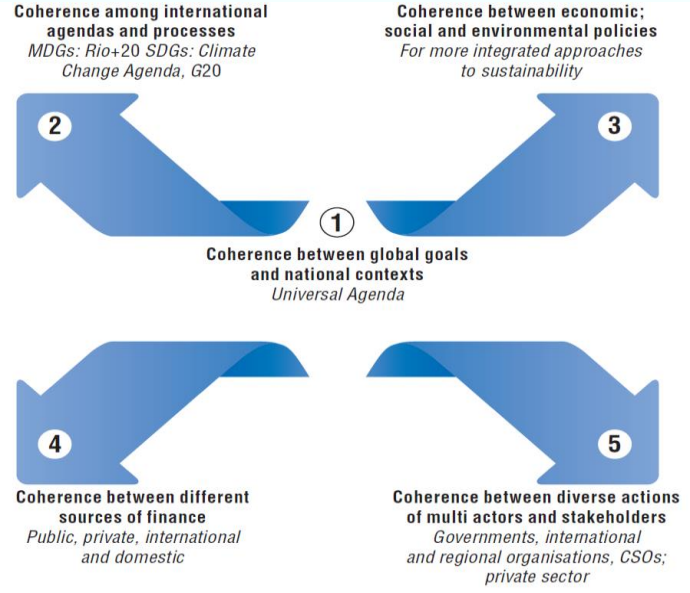
Ensuring progress on policy coherence involves going beyond institutional aspects to take into account the whole policy-making process, from policy objectives, policy design mechanisms and instruments to implementation at different levels. Policy coherence beyond 2015 will be the result of complementary efforts in articulating four key elements of the policy-making process:

1. setting up explicit institutional mechanisms for coherence, including commitment by the political leadership, central overview, co-ordination capacity and monitoring systems
2. managing policy interactions at different levels to anticipate, detect and resolve policy conflicts
3. addressing contextual factors that enable or impede coherence for sustainable development
4. considering policy effects.

Within this framework, on the one hand, the coherence between international open data agendas and central and local open data policies could contribute to the achievement of the SDGs. To achieve this, central and local governments should articulate a common vision, acknowledging their own responsibilities and how instrumental and co-ordinated actions (including those of line ministries and public bodies) can contribute to the achievement of ambitious and highly demanding development goals. On the other hand, coherence should also be present between those actions taken by all stakeholders (Figure 5.1). It is necessary to involve all stakeholders and to create collaboration and communication mechanisms in order to address isolated efforts and escalate impact.

Box 5.1. **Policy coherence for sustainable development beyond 2015: Involving all actors at all levels** (*continued*)

Figure 5.1. **Five complementary levels of coherence for implementing the Post-2015 Agenda**



Source: OECD (2015), *Better Policies for Development 2015: Policy Coherence and Green Growth*, http://dx.doi.org/10.1787/9789264236813-en.

The Open Mexico Network: Aligning central and local open data policy objectives

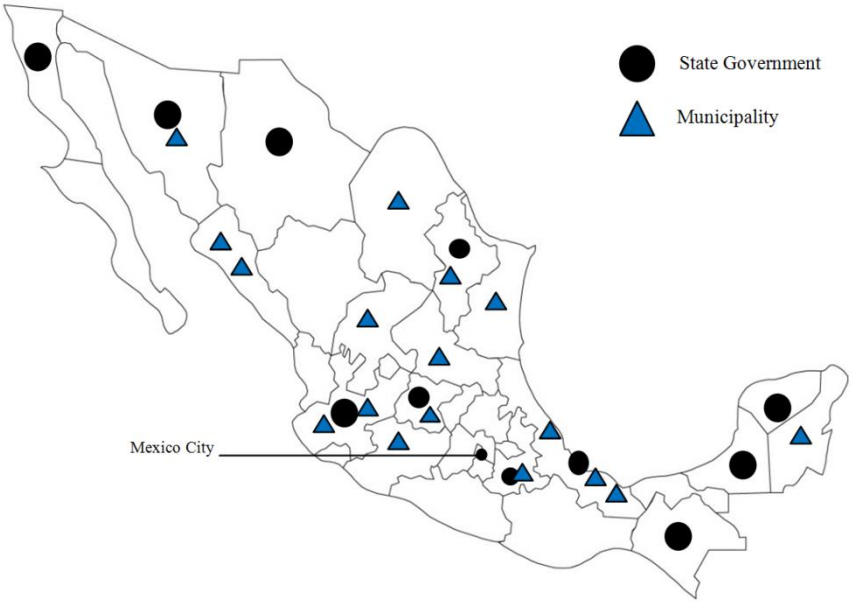
In Mexico, multi-level co-operation around open data has been built mainly on the definition of collaboration agreements between the central and local governments. These collaboration agreements (a direct result of the Open Data Executive Decree) centre on the activities of the *Red Mexico Abierto*[3] initiative (Spanish for Open Mexico Network, OMN). Indeed, the efforts of the Mexican government to work closer with local governments and stakeholders are not limited to the open data domain but also to open government policies (see Chapter 1).

The Open Mexico Network aims to create a link between local governments and the National Open Data Policy. The objective is to increase local governments' willingness to embark on open government data, and, as a result, to increase not only the availability of local OGD in the central portal but to foster the development of open government data-centred practices at the local level with the support of the CEDN, the SFP, and a variety of actors from the social and private sectors.

While in the short term the goal of the Mexican government is to make all states and Mexico City (together with all state capitals) join the OMN, currently 12 states and 17 municipalities have joined this initiative (Figure 5.2). While in some cases both the state government and some of its municipalities have joined the OMN (i.e. in the state of Veracruz, the state government and three municipalities are members of the OMN), in other instances such co-ordination might not be the case. For instance, in the states of

Colima and Morelos, only the state government has joined the OMN; in other cases only municipalities have joined the network, with no participation of the state government. Still, local governments' involvement and membership within the OMN does not imply the absence of open government data programmes or initiatives in others localities (which is the case of Mexico City).

Figure 5.2. **Open Mexico Network: Member states and municipalities, March 2016**



Note: This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory covered by this map.

Source: Based on information from the *Red Mexico Abierto* website, www.mxabierto.org

Policy coherence for a multi-level shared vision for open data in Mexico

To promote the publication and use of strategic data, a group of public servants was consulted to determine the main topics that could be improved with more available tools and information. The Open Data Squads (ODS) (see Chapter 2 for more information) play a key role in this strategy. As done at the central level, the squads provide technical support and guidance for those local governments and public institutions involved in the OMN. The topics identified resulted in the definition of five key areas of action at the local level:

1. Mobility: improvement of urban mobility based on greater and timely provision of information on public transport to citizens.
2. Resilience: strengthen municipal governments' capacities for risk response (including natural, economic and social risks). It aims to help municipalities better prepare and respond to hazards and potential risks in order to increase resilience.
3. Crime prevention: promote data inter-operability at the municipality level in order to facilitate the assessment of public safety policies through data standardisation.
4. Land management: improve the quality of land information, reduce information asymmetry to prevent acts of corruption and encourage private investment.

5. Sustainable development: advance in the monitoring of the compliance of the SDGs with more disaggregate information at all three levels of government.

Expert allies such as Google, the World Resources Institute (WRI), the United Nations Office of Drugs and Crime (UNODC), the Institute for Transportation and Development Policy (ITDP), among others, helped build a basic inventory of data related to each topic and to promote best practices in the use of this data.

These five areas of work are aligned to the goals of the central open data policy, thereby connecting local open data initiatives with central policy goals. For instance, the municipality of Xalapa (state of Veracruz) centres its co-operation with the CEDN on mobility and public transport. The state of Jalisco (which has launched its own data portal)[4] is co-operating with the CEDN and the squads to release data in all five policy areas, and the municipality of Veracruz is also working on land management as a result of its participation in the OMN.

The active collaboration between the CEDN, the SFP and the OMN's members has been also fruitful to connect local and global open data initiatives. Mexico has been particularly active within the international open data community (see Chapter 2). This participation has been pivotal not only to bring innovative practices on open data to the country, but to set an evolving national open data agenda. Indeed, Mexico's role at the international level is not limited to the Open Government Partnership, the ODC and the G20 Anti-Corruption Open Data Principles. In tandem with these activities, the country is also a founding partner of the Global Partnership for Sustainable Development Data (Box 5.2).

Box 5.2. **Global Partnership for Sustainable Development Data**

Launched in 2015, the Global Partnership for Sustainable Development Data aims to strengthen the case for open data as a mechanism to fulfil the United Nations' Sustainable Development Goals (SDGs) for 2030. It is a multi-stakeholder group integrated by governments, private, social, academic and international organisations. The partnership aims to increase the availability and two-way reuse of high-quality data in order to help governments take better decisions towards the achievement of the SDGs, and increase data-driven initiatives that could contribute to fighting poverty, inequality and climate change. Its main action lines centre on:

- supporting multi-stakeholder data initiatives which connect the data revolution in achieving the SDGs
- focusing on building a capacity to generate, share and use available data at local levels
- contributing to filling data gaps, using original data as well as new data in achieving the SDGs
- helping to develop and build support for international principles tying together the data, including sharing and leveraging the current, privately held data
- organising local, regional and global data events to advance increasing connectivity, collaboration and innovation towards achieving and measuring the SDGs.

Source: Global Partnership for Sustainable Development Data website, www.data4sdgs.org.

As a result of this active participation, the OMN has worked as a platform to connect local governments with international open data instruments. Two states (Morelos and the State of Mexico) and five municipalities (Minatitlán, Puebla, Reynosa, Torreón and Xalapa) have adopted the International Open Data Charter and its principles.

Together, Mexico's participation within the international open data community, the work the country is doing with the OMN at the local level and the adoption of the ODC by local governments will be crucial to continue setting local open data initiatives that could contribute to the advancement, measurement and achievement of the SDGs in the long run, in line with international open data instruments such as the ODC (Box 5.3).

Box 5.3. **Open data and territorial indicators: Measuring the advancement of the Sustainable Development Goals at the local level**

Territorial indicators can have a major potential to respond to citizens' needs and expectations, as they generally refer to the outputs and outcomes rather than the inputs of government activities, and are closer to local demands of data for decision making (citizens, business, civil society) and policy making (local and national governments).

In March 2016, the United Nations Statistical Commission agreed on a set of 230 global indicators for monitoring the progress towards the achievement of the 17 Sustainable Development Goals (SDGs) (UN, 2016). As such, the framework poses immediate challenges related to data production, collection and availability at the national and local levels. This has direct implications for national statistical offices as the framework will require "looking ahead" in order to find innovative ways to collect and produce data, build data management and analytics capacities, and manage the risks related to data reliability and privacy.

At the international level, various initiatives to support the accessibility and use of data have been put in place in OECD and developing countries and by international organisations in connection with the definition of the SDGs (PARIS21, 2015; OECD, 2014; UN-IEAG, 2014). In this arena, much of the focus has been on the development of timely indicators for the measurement of the SDGs. Particular emphasis has been placed on harnessing the power of new, emerging and alternative data sources and promoting their accessibility, in the form of open data, and use for the purpose of official statistics.

These changes and challenges are coming at a time in which most statistical agencies have started conducting exploratory projects aimed at assessing the use of alternative data sources in statistical programmes to complement, supplement or even replace traditional data sources (censuses and surveys, in particular). Hence, the push toward open data is likely to have several implications for national statistical offices and multiple rippling effects for the statistical programmes currently delivered by national statistical offices.

Local and regional organisations, the traditional consumers of territorial indicators, are increasingly becoming (independent) producers of territorial data. National statistical offices have recognised the potential of alternative (non-official) statistical sources and have initiated projects to explore them. Open data can be an opportunity for the statistical community to present data as an asset for local development.

Data co-creation and crowdsourcing platforms feed, for instance, through citizen-produced (open) data (online and offline) and should be identified as valuable first-hand feedback input for local and central governments to facilitate the measuring of open data policy performance and impact. The role of local stakeholders working with open data and the support of public institutions at the local level will be crucial to ensure that open data reaches decision makers at the central and local levels.

For such purpose, data crowdsourcing should aim to help decision makers at all levels of government better focalise the allocation of resources and increase policy impact. Within this framework, national statistical offices will play a key role as open data prosumers in order to reap the benefits that open data has as an asset to measure local development, thereby moving from the value proposition of open data at the local level to the effective measurement and achievement of local impact in line with the SDGs.

Source: Based on OECD (2016), "Open data and territorial indicators: An assessment of the nexus and synergies".

In parallel, the work of the Open Data Squads at the local level is, and will remain, decisive to increase open data literacy across local public institutions, and to maintain coherence between central and local policy goals based on the areas of work that have been defined by the central government at the national level (through the ODN) and at the international level (i.e. through the Global Partnership for Sustainable Development Data).

The business case for open data: Building political consensus around open data at the local level

High-level political support and leadership is a lever for the development of open data policies (see Chapter 2). As such, its availability at the central level contributes to greater institutional buy-in, to the alignment of institutional open data initiatives with national policy goals, and to set a vision for open (government) data at the national level. Yet, multi-level governance efforts that aim to involve central and local governments towards the achievement of common policy goals may require, first, building a consensus at the political level between the different levels of government.

Local governments therefore emerge as both: 1) stakeholders of the national open data policy, who should identify an added value as a result of joining and engaging in open data in collaboration with the central government; and 2) open data prosumers who, on the one hand, should disclose local open government data, and, on the other, consume data towards greater organisational efficiency, more efficient public service delivery, etc.

In Mexico, achieving greater local engagement will require building further consensus at the political level between the centre of government and the heads of local governments. In a second stage, this consensus should aim to highlight the overarching benefits of open data for local governments beyond the transparency discourse.

As per attaining greater political support from local heads of government, in December 2015 the National Conference of Governors (Conferencia Nacional de Gobernadores, CONAGO) announced the creation of a Transparency, Anti-corruption and Open Government Commission in charge of, among other objectives, promoting the Open Mexico Network among its members. This opened a window of opportunity to strengthen the development and sharing of open data policies, practices and tools across Mexican states and municipalities

In January 2016, CONAGO (a peer-to-peer collaboration forum that groups, on a voluntary basis, the heads of government of all states in Mexico with the participation of the President of Mexico) signed a co-operation agreement on open data with the SFP and the INAI. The agreement aims to further engage local governments in the Open Mexico Network in order to spur the development of open data policies at the local level, and contribute to greater public transparency and accountability. Nonetheless, while this is a milestone to open data multi-level governance in Mexico (thus reducing open data politisation), there is a risk of placing transparency and public accountability as the top priorities of open data policies, and not one of the vast array of potential goals for open data at the local level.

Local open data policies and initiatives (particularly those that may result from CONAGO-federal government agreement) that are under development should be aligned with the central policy in order to better contribute to national open data goals in balance to local objectives. For this reason, it will be important to sustain this multi-level collaboration within the framework of the Open Mexico Network in order to keep building a broader vision for open data at the local level. Open data goes beyond

transparency and, while the transparency discourse is useful to build a basis for political agreements due to its relevance at all levels of government, the role of the CEDN and the SFP is and will be crucial to ensure that local open data initiatives won't evolve into transparency-centred open data agendas. Thereby, the work of the OMN will remain of key importance not only for policy coherence, but to further transfer the vision for open data from the centre to the local level.

Cutting-edge innovation-related policies at the local level (i.e. smart-cities, regional smart specialisation, etc.) can benefit from open data prosumerism. The economic and social context of regions and cities calls for a structured and gradual approach towards the development and implementation of such state-of-the-art policies. For this reason, embarking on open (government) data at the local level should be seen as a strategic long-term, cross-cutting policy in line with greater public sector innovation. Engaging local governments in open data practices in collaboration with the central government should aim to align the national vision for open data with local policies but with a forward-looking approach that draws upon the local context and, more importantly, local needs.

The Mexican government could further build on the opportunities offered by the OMN by integrating a business case for open data drawing on the specific needs of local administrations. At the central level, countries may opt for mandatory approaches that build on strong levers (i.e. regulations to enforce data disclosure) or soft policy levers that build, for instance, on providing incentives to public institutions to embark on open data initiatives (OECD, 2014). For instance, **Denmark** implemented the "Basic Data Registries Implementation Programme" (2013-16) (see Chapter 3) not only in order to improve data management across public institutions, but to increase data reuse and sharing among and across public institutions. However, instead of following a hard approach for policy implementation, the programme builds on public institutions' motivation to engage by providing a clear value proposition for open data. The Danish government briefly made open data relevant for public institutions by drawing upon their needs.

There is an opportunity for the Mexican government to use such an approach at the local level. For this reason, "selling" the business case for open data at the local level could help to achieve further local engagement. While the Open Mexico Network aligns central and local objectives around five key policy areas of work, its potential to support local governments in developing and implementing open data policies beyond those bounds should be further exploited, drawing upon local governments' areas of interest (i.e. open data's value and contribution to address specific local needs across other policy areas such as tourism, energy consumption, pollution, etc.).

Still, human and financial capacities at the national policy co-ordination level (particularly those of the Open Data Squads) are limited. Capacity-building activities should therefore remain at the core of the OMN's goals in order to make local public institutions self-capable of developing and implementing open data initiatives in the long run.

The challenge of creating an ecosystem at the local level

In 2010, the 1st International Open Government Data Conference (IOGDC) took place in Washington, DC, bringing together international experts and stakeholders working on open data around the globe. The main goal was to discuss the business case for open government data. That is to say, how greater open government data disclosure could help citizens, among other benefits, to take better decisions or contribute to economic development, drawing mainly on the experience of trend-setting countries such

as the United Kingdom and the United States. The 2nd version of the IODGC (2012) focused on "putting open government data to work" in order to create value for all stakeholders.[5]

2015 set a milestone for the international open data movement. The IOGDC evolved to the 3rd International Open Data Conference (hereafter, the "Conference"), highlighting the dynamics of open data. Open data was no longer only about open government data but about multi-stakeholder collaboration and data co-creation. It was now about the ecosystem. The Conference focused on discussing and sharing the impact that open data (including open government data) was creating across different policy sectors, enabling the exchange of practices between practitioners from all sectors (academia, civil society, private sector, etc.), and the escalation of open data initiatives. The Conference was also useful for finding common agreements on the necessity of developing shared principles for open data, developing data-related skills and capacities for data production and reuse, and measuring and evaluating the impact of open data. In October 2016, the 4th International Open Data Conference will take place in Madrid and will build on the results of the 3rd edition to further discuss new challenges and achievements around open data, centring on translating international agreements and objectives, such as the International Open Data Charter, into local impact.

The current open data discourse is increasingly calling for greater multi-level collaboration. For instance, building capacities at the local level and multi-level collaboration are included as key areas of work of the Global Partnership for Sustainable Development Data. The rationale is that, in most cases, it is the central government (as the source of a national open data policy or strategy) which is accountable for open data policy performance and impact, therefore leaving behind the importance of local governments as intermediaries between the central government and local stakeholders. In Mexico, the Open Mexico Network has been useful for tackling this scenario, scaling up the responsibilities of states and municipalities.

But real impact is achieved through active stakeholders' engagement and collaboration and not only by open data policy making. Impact is about value co-creation. For this reason, the involvement and engagement of local stakeholders (citizens, CSOs, the private sector, etc.) will remain a key challenge for national and local governments, particularly if they aim to use open data as an instrument to contribute to the achievement of the SDGs within the framework of open data policies.

Multi-stakeholder collaboration at the local level is needed to co-create impact with the local level. This will require the active collaboration between national and local governments, and, more importantly, between the local governments and local stakeholders. One of the challenges that local governments will face in Mexico (in hand with the central government) is to invigorate the local open data ecosystem and to connect and collaborate with non-governmental open data initiatives in order to leverage and scale them up to contribute to the achievement of national and international goals.

Sector-specific open data initiatives implemented by social and private organisations at the local level should also contribute in a co-ordinated and collaborative fashion to the achievement of the SDGs and the ODC when possible. Their active involvement as enablers of value creation would be strategic to translate Mexico's international commitments on open data into local impact. For this purpose, local governments will have to further identify open data champions across local stakeholders and co-ordinate and collaborate with them on a regular and well-structured basis.

The work of local governments should centre on their role as partners within the local ecosystem with the objective to collaborate with local stakeholders, invigorate local open data ecosystems and connect communities. This would contribute to move from a "silo" approach to an inter-connected model that links isolated local open data initiatives. If such work is done within the framework of the ODN, this could be equally useful to enhance multi-level impact co-creation where "local wins add-up to greater goals".

Some local governments in Mexico are already collaborating with non-governmental organisations. The municipality of Minatitlán (state of Veracruz), which centres its collaboration with the central government on urban planning and cadastre, is co-operating with a private organisation (a partner of the Open Mexico Network) to explore the potential use of municipal cadastral data. The municipality of San Pedro Garza García (state of Nuevo León) ran a hackathon in 2014 (called Dataton) in co-operation with the SFP, the CEDN, the University of Monterrey and other public, private and social organisations. The hackathon (designed within the framework of the OMN) was focused on finding solutions for public issues in areas such as traffic accidents and public works. These areas of work were suggestions of the local government, which provided the open data community with the opportunity of working on issues relevant to their own reality.

The state of Jalisco's open data portal was launched in 2015 within the framework of Campus Party 2015 – an international event that brought together students, developers and digital entrepreneurs from all over the world. In 2016, the state of Jalisco will hold a new edition of the event (in co-operation with the University of Guadalajara, the central Ministries of Economy and Social Development and the municipality of Zapopan, among others), which will include a hackathon focused on fighting poverty in Mexico.[6]

Mexico City[7] launched the *Laboratorio para la Ciudad* initiative in 2013 (Spanish for "Lab for the City"), with the objective of providing a physical and online space for innovation and multi-stakeholder collaboration. Among other activities, the lab has implemented data-driven initiatives such as the Mapaton – a hackathon focused on improving urban mobility and transport in Mexico City,[8] and it created a DataLab (*Laboratorio de Datos*) as a data repository for other initiatives such as HackCDMx (a software development contest).

In Mexico, local governments have begun to embark on open data. The examples above illustrate that in some cases state and municipality administrations (in co-operation or not with the central government) acknowledge the value of multi-stakeholder collaboration for open data. The question is how to lever an effective horizontal open data policy transfer that could enable the escalation of open data practices at the local level.

Central and local governments as partners

Central governments' spotlight is, by definition, greater *vis-à-vis* that of local governments. Still, innovative policies (such as open data) might not be the result, at least at their origin, of central governments' vision, but more the result of bottom-up demands or the response to open data initiatives developed by non-governmental actors.

For instance, in **Korea** the central government acknowledged the importance and value of disclosing open government data as the result of public pressure. In 2009, a student developed a mobile application (using local government data) to provide information on public transport. The application (which provided users with the location and real-time arrival times of bus transport in Seoul and the Korean Province of Gyeonggi-do) rapidly headed download rankings as a result of its usefulness to Korean

citizens. Yet, after publishing, the application was removed from an application store based on local governments' claims of copyright and use of sensitive information. Public pressure led to the application being made available for public access two days later, attracting the attention of the Korean government, which later evolved into the development the Korean Open Data Policy.

France also provides an example of how the central government reacts to local innovation. In France, the open data movement started in the *collectivités territoriales*, only to be followed by the national level afterwards. Indeed, the French central government (through the Etalab task force) has followed a soft collaborative approach at the central and local levels, thereby focusing on involving and engaging stakeholders at all levels. Still, the French *collectivités territoriales* (which include different levels of local administrations) have been capable of self-organising around open data, having a close and equal collaboration with the central government.

As a result of this horizontal collaboration, French local administrations launched Open Data France[9] as an association of administrations working on open data at the local level (Box 5.4). Etalab participates in the discussions as an "associate member", meaning that, despite being the central government open data policy co-ordinating agency, it sits and discusses as an equal partner.

Box 5.4. **Open Data France: Horizontal government-to-government collaboration to spur open data initiatives at the local level**

In 2013, the French *collectivités territoriales* self-organised and created Open Data France as a collaboration forum for local administrations in the country (including regional, departmental and city level administrations). This collaboration forum enables local governments to:

- support other local administrations during the whole data management process towards greater local open government data disclosure; and during the definition and implementation of open data projects
- be represented as a whole *vis-a-vis* the civil society, the national government and the international open data community
- define communication strategies to better communicate with stakeholders in order to socialise open data ("*vulgarisation de l'open data*")
- create collaboration working groups around specific subjects such as open data standardisation and legal framework, the engagement of user communities, and the invigoration of the local ecosystem.

Source: OECD with information from Open Data France, www.opendatafrance.net.

In parallel, Etalab's (whose main offices are located in the French capital) collaborates with local administrations to carry out open data events outside Paris. This approach has been useful to work closer with local administrations and stakeholders. In 2016, Dataconnexions (Etalab's open data initiative to foster and award innovative data reuse; see Chapter 3), previously held in Paris, was organised in Toulouse (located in southwest France) in collaboration with the Metropolitan Council of of Toulouse. Such an approach favours:

1. strengthening central-local collaboration

2. building a stronger basis to further engage other local governments and create synergies based on concrete examples of the use of OGD at the local level (i.e. the Toulousian government drew upon Dataconnexion's event to award open data projects that could create impact for Toulouse's local population)
3. further reaching and motivating other local stakeholders to further work on open data for the benefit of their own city or region
4. nurturing mechanisms for value co-creation to engage the ecosystem at the local level of government
5. further building capacities at the local level in collaboration with local governments.

The Open Mexico Network has set an important basis for further multi-level collaboration, policy coherence, and to use open data to address local needs and deliver local impact, building on the value proposition of open data for local governments. Nonetheless, it could be leveraged by following the French example in two different ways. On the one hand, the *Retos Públicos* initiative (similar to Dataconnexions) (see Chapter 3) could be incorporated within the framework of the ODN in order to spur open data initiatives at the local level. The case of the hackathon organised in the municipality of San Pedro Garza Garcia (state of Nuevo León), which was organised as a joint effort between the central and local governments within the framework of the ODN, is an example of why this collaborative approach should be sustained for the benefit of local populations.

On the other hand, the OMN also provides an opportunity to strengthen horizontal collaboration between local governments in Mexico at the operational and policy implementation level. So far, horizontal collaboration mechanisms are not open data-specific and they are limited to building consensus at the political level (i.e. CONAGO). Therefore, the OMN could be further leveraged as a platform for horizontal collaboration and support between local governments focusing their activities on open data matters (as done through the Open Data France initiative).

At the same time, the OMN should be seen as an opportunity to connect local actions with initiatives at the international level. While Mexico's active participation within the international open data community provides the country with the opportunity to fully reap the potential of open data, it has also created a context that could be leveraged by the Mexican government to bring the positive value of the global movement on open data to the local level through the OMN.

Mexico City is already carrying out initiatives and leading actions to bring global efforts on open government to the city level (i.e. the Open Cities Initiative) (see Chapter 1). But such initiatives could be expanded and replicated in other trend-setting states and municipalities in Mexico (like those already adhered to the ODC), in collaboration with and building on the experience of the CEDN at the international level. Just as the Global Partnership for Sustainable Development Data highlights the need of spurring data management capacities at the local level, it would be equally relevant to connect cities and local governments working on open data across the globe. The Mexican government could act as a catalyst for such a purpose.

Conclusion

The importance of achieving local impact and engaging local user communities in data reuse for value creation is at the core of the international open data movement. The relevance of central governments as the source of national policies is key to frame public institutions' activities and goals for the achievement of national policy goals. Yet, involving local governments and stakeholders in a co-ordinated fashion towards the achievement of national and supranational goals is crucial to co-create impact and deliver benefits that increase citizens' well-being.

Multi-level collaboration should not only aim to align national and local open data policies. It should be equally beneficial to make open data valuable and relevant for local governments and stakeholders, drawing upon their own needs and context. The Mexican central government is achieving further political consensus around open data in order to spur the availability of open data initiatives at the local level. But this collaboration should be framed within the central government's vision for open data – which goes beyond transparency – and should build on a business case for open data at the local level.

Together, the Mexican central and local governments will face the challenge of further invigorating and engaging the local open data community in order to co-create impact. Achieving supra-national objectives such as the Sustainable Development Goals will require not only a direct collaboration between the centre and local governments, but also further reaching those organisations working on open data at the local level in order to connect them and support their activities, thereby acknowledging their valuable contribution to the SDGs.

Enabling horizontal collaboration, support and the exchange of best practices between local governments will play a key role to spur open data policies and initiatives at the local level building on the success, leadership and experience of trend-setting local governments. While the support of the central government in Mexico is relevant to build capacities at the local level, local governments should further co-operate with each other at the city, municipality, state or regional level, building on their common challenges. It is this horizontal collaboration which will enable the spreading of open data across local governments for the benefit, and based on the needs, of local stakeholders.

Notes

1. datos.gob.mx.
2. Since 30 January 2016 "Mexico City" (*Ciudad de México*) is the new official name of the formerly known Distrito Federal. While Mexico City is not considered a federated state *de jure*, it was granted new rights, such as having its own Constitution and a local Congress. These and other rights were previously exclusive of the other 31 states in the country.
3. www.mxabierto.org.

4. https://datos.jalisco.gob.mx.
5. www.worldbank.org/en/news/speech/2012/07/10/second-international-open-government-data-conference.
6. http://mexico.campus-party.org.
7. Mexico City is not a member of the Open Mexico Network.
8. http://labcd.mx/mapaton-cdmx.
9. www.opendatafrance.net.

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