

Chapter 3

Strategic use of data in the public sector in Colombia

This chapter seeks to understand the actions needed to foster the strategic use of data for the purpose of achieving citizen-driven results in the Colombian public sector. It analyses the governance of the value chain of government data towards its use for foresight in policy design, service delivery and performance. It addresses the legitimacy and transparency in data sharing and use, and skills development within Colombian public institutions as prerequisites to take full advantage of the benefits of data-based technologies for the digital transformation of the public sector.

Introduction

Today, governments worldwide have the opportunity to make use of the benefits from the data produced, collected or commissioned by government institutions or non-governmental stakeholders (Ubaldi, 2013). To create public value from this data, policies are formulated to drive the openness, interoperability, processing, exchange and re-use of data in all political fields and all levels of government, and by stakeholders in public, private and other sectors. These efforts and commitments can contribute to public sector intelligence, by allowing the design and implementation processes of public policies to be built with more and better data and based on citizen-driven approaches enabled by technology and digital data.

Under the appropriate institutional conditions, the data can become an integral part of efforts to take advantage of the opportunities described in Chapter 2, as regards a more transparent, participative, collaborative and inclusive government. A more strategic use of data can also contribute to accomplish the delivery of more citizen-driven and efficient services.

Colombia has the opportunity to build on its previous achievements —the setting up of the IT Management Enterprise Architecture and the interoperability framework, the creation of the Citizen Folder for service delivery and several data-driven initiatives throughout the Colombian public sector— and thus create a truly smart and reliable government. The data produced by the government, citizens and other stakeholders in society have the potential to become the fuel for the digital transformation of the public sector in Colombia, with the support of other key human and monetary resources. The challenge is to create a context that completely enables the government to capture the strategic value of government data as a primary vector for the digital transformation of its sectors.

The 2014 Recommendation of the OECD Council on Digital Government Strategies, in particular key recommendation 3, recommends that adherent countries, including Colombia, create a data-driven culture within the public sector (Box 3.1) as part of their efforts to promote openness and commitment.

Box 3.1. Key Recommendation 3 - Creation of a data-driven culture in the public sector

The Council, on the proposal of the Public Governance Committee, recommends that governments develop and implement digital government strategies which create a data-driven culture in the public sector by:

- i. developing frameworks to enable, guide, and foster access to, use and re-use of, the increasing amount of evidence, statistics and data concerning operations, processes and results to (a) increase openness and transparency, and (b) incentivise public engagement in policy making, public value creation, service design and delivery; and
- ii. balancing the need to provide timely official data with the need to deliver trustworthy data, managing risks of data misuse related to the increased availability of data in open formats (i.e. allowing use and re-use, and the possibility for non-governmental actors to re-use and supplement data with a view to maximise public economic and social value).

Source: OECD (2014), *Recommendation of the Council on Digital Government Strategies*, OECD, Paris, www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm.

This chapter focuses on the governance of data within the Colombian public sector, making use of the analytical framework developed by the OECD (OECD, 2018). It

examines policies and initiatives in Colombia in terms of their contribution to the use of data as a strategic asset for better public policies, services and performance. Firstly, it studies the opportunities to create data-driven value in the Colombian public sector according to the three dimensions of foresight, delivery and performance. The following section analyses the governance of the value chain of public sector data. The final section focuses on the key enablers for the creation of public value and their status in Colombia.

Driving the use of data in the entire public sector

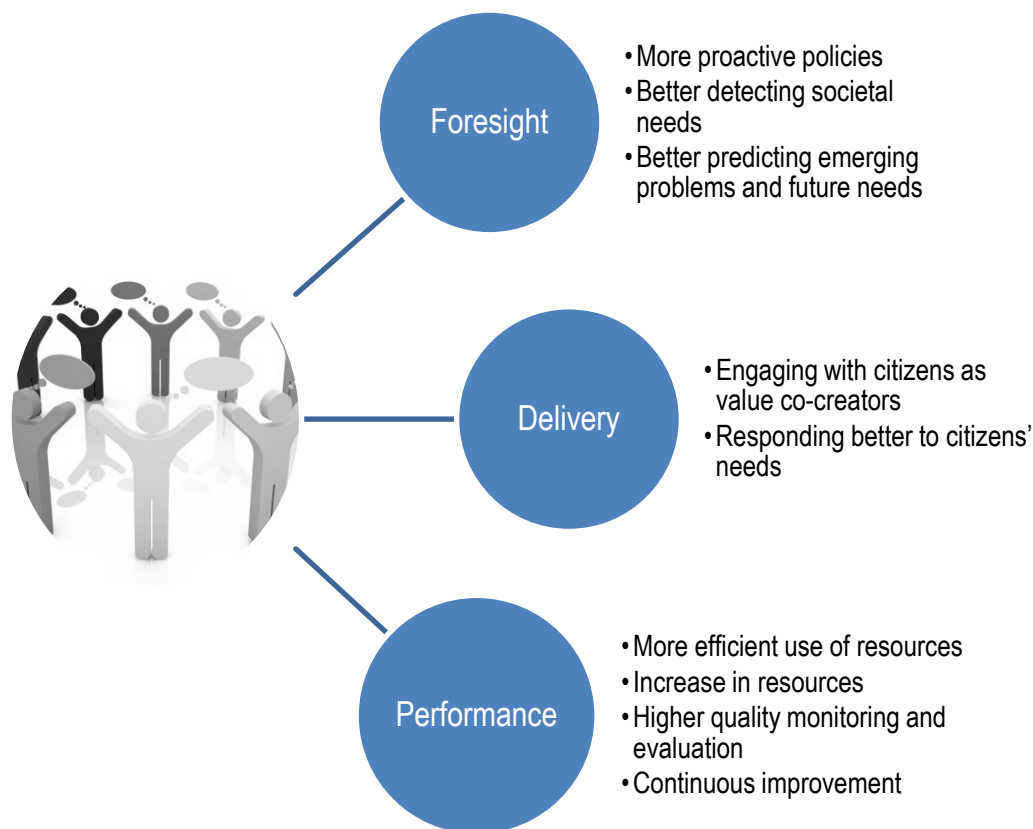
Data (re-)use to strengthen foresight, delivery and performance

Policy makers and public servants can leverage data to better identify current public policy problems, foresee new events and needs, design innovative approaches to public policy formulation and monitor activities undertaken and the management of resources (financial, time, human and material) mobilised to address specific issues (OECD, 2018). Consequently, government capacities in foresight, delivery and performance are strengthened (Figure 3.1).

Foresight refers to being aware of trends and anticipating events, or social and economic needs. Prediction and modelling techniques enabled by data act as support mechanisms for governments to be aware of potential social, economic or nature-related developments, and also so they can better assess the need to intervene, design suitable policy measures and anticipate their expected impacts with greater precision. Data can also be leveraged to enable new forms of collaboration with stakeholders in society and integrate a citizen-driven approach in the delivery of public services. For example, through social networks and mobile applications, citizens offer valuable information to public authorities about different problems they encounter in daily life (OECD/International Telecommunication Union, 2011), as well as their needs, preferences and behaviours. A data-driven public sector also facilitates that actors involved in monitoring and managing performance know about relevant data and have access to them. Moreover, it can foster innovative approaches for monitoring, evaluation and organisational management. For example, as highlighted in *Assessing the Impact of Digital Government in Colombia* (OECD, 2017b), alternative sources and methods for the collection of data for policy monitoring and evaluation could be used.

The use of data analytics is not yet on the radar of the majority of public institutions in Colombia. The responses to the Questionnaire for Assessing the Impact of Digital Government in Colombia (OECD, 2017a), show that 41% of public institutions at the national level (61), 31% of governorates (10) and 7% of municipalities (77) carry out data analytics, for example, data mining, profiling, machine learning to support decision-making and the formulation of public policies. However, Colombia has several promising initiatives related to the creation of data-driven value.

The community of Cali, with the support of an initiative from the Centre of Excellence and Appropriation in the Internet of Things, offers an excellent example of consolidating data to predict emerging problems: the creation of a sensor-based system to detect the risk of flooding. Furthermore, in the centres of excellence for data analytics, CAOBA, and for the Internet of Things, CEA-IoT, (Box 3.2), several initiatives have been devised for consolidating data that allows for better foresight.

Figure 3.1. **Opportunities for the (re-)use of public sector data**

Source: OECD (2018), “A Data-Driven Public Sector for Sustainable and Inclusive Governance”, Public Governance Working Papers, OECD, Paris, forthcoming.

Box 3.2. Centres of excellence in data analytics and the Internet of Things

CAOBA Alliance

The CAOBA Alliance is seen as the “first public-private partnership that promotes Big Data and data analytics in Colombia.” It is made up of 11 representatives from the country’s academic, public and private sectors. By direct invitation of the Ministry of Information and Communication Technologies (MinTIC) and the Administrative Department of Science, Technology and Innovation (Colciencias), different Colombian public and private sector organisations joined together for the purpose of strengthening the creation of data analysis solutions. This agreement gave rise to the Centre of Excellence and Appropriation in Big Data and Data Analytics (CAOBA Alliance), whose aim is to create solutions in various industrial, governmental and academic sectors.

The centre carried out data analytics projects to:

- visualise the mobility of Bogota residents,
- predict the ways to recover taxes in Colombia, and
- better understand water leaks and losses.

CEA-IoT

The Centre of Excellence and Appropriation in the Internet of Things (CEA-IoT) was created on 25 November 2015. It is a partnership between universities, world technology leaders and anchor companies to further the economic development of Colombia, from technology and innovation to the Internet of Things (IoT). It attempts to solve the needs of the country's different productive sectors by training human talent specialised in IoT.

The CEA-IoT is an initiative driven by MinTIC, with the support of Colciencias.

The centre implemented Internet of Things projects to:

- detect water, air and noise pollution through sensors,
- regulate temperature and humidity in areas for storing medication, and
- implement a sensorial model for smart lighting of streets.

Source: Information provided during the peer mission for the purpose of this review; <http://alianzacaoba.co/> (in Spanish, consulted on 7 December 2017).

In *Mexico*, Datalab, a specialised data laboratory was funded to encourage the use and analysis of data for the purpose of developing, implementing and evaluating evidence-based public policies.¹ A flow of activities is aimed at creating predictions based on data of populations at risk in relation to illness, areas with emerging environmental problems and future conflict outbreaks.

The Excellence Route provides a key opportunity for the transformation of service delivery by connecting data management and data re-use to other priorities through a citizen-driven approach (Box 3.3). The strategy “seeks to answer the most pressing needs and strategies of citizens and entrepreneurs in terms of access to services provided by public institutions.”² Projects for land restitution and the comprehensive care of and reparation of the victims of the conflict are examples of services which try to go beyond the rationale of individual institutions and focus on the needs of the victims. The collaboration between the eight relevant public institutions in land restitution and for the purpose of establishing catalogues of sensitive data and high-quality interoperable data systems not only promotes the efficiency of institutions to provide services to citizens (in helping more victims in less time), but also the quality of the process of land restitution.

Box 3.3. Data as fuel for the Excellence Route

The Excellence Route comprises 25 projects:

- 16 on procedures and services,
- 3 on management systems, and
- 6 on open data.

Some of the projects in which good data management is essential are:

Registration, correction and copies in the Civil Register

This project is aimed at facilitating the process of birth, marriage and death registries, as well correcting and obtaining copies of these documents on the Internet. It seeks to solve problems such as the lack of birth, death or marriage records and to improve the *exchange of information* between notaries, hospitals, DANE and the National Civil Registry.

National system of care and comprehensive reparation of the victims

The aim of this project is to improve reporting and consulting in the planning and execution of actions taken, and make control and monitoring of victim policy timely and efficient on the part of national and territorial level institutions.

Online care of family conflicts

This project aims to find a solution that allows using and improving decision-making by the police in assisting victims of domestic violence through the involvement of different police stations and *improving registers* and knowledge bases.

National system for managing the land restitution process

This project seeks to improve reporting and consulting in the planning and execution of actions taken, and make control and monitoring of victim policy timely and efficient on the part of national and territorial level institutions.

Opening of data on citizen security

This consists of the opening of data on institutions for the prevention and treatment of criminal offences, violations to the police code, the preservation of citizen coexistence, networks for the provision of law enforcement services, conflict resolution centres, public-private security networks, family police services, figures on criminal incidents and missing persons.

Source: www.rutadelaexcelencia.gov.co/634/w3-channel.html (consulted on 22 December 2017).

The integrated processing of citizen data from different public institutions allows for user-driven service provision; citizens contribute directly to the design and delivery of public services, insofar as their real needs and personal situations are taken into account when the data they produce and offer are included in the public policy and services production cycles. Letting the public institutions know how citizens use their services will make it easier for them to, consequently, adapt their design. However, for the purpose of guaranteeing legitimacy of data policy and not harming public confidence it is essential that data governance considers the security of the information systems and the data they contain, as well as data protection and the social acceptance of the use of citizen data. This is analysed in greater detail in the section entitled *Guaranteeing legitimate and trustworthy data governance*.

In *Sweden*, the rheumatology register not only focuses on patients, but also on multiple users and it adapts to specific needs, with data as a key resource.³ The exchange of data also facilitates new forms of international co-operation for addressing cross-border problems, e.g. illegal trade and corruption, and improving border area services, e.g. transport and migration, thanks to the capture and authorised processing of data that shows the needs and behaviour of citizens and businesses (OECD, 2017a). For example, it is hoped that the automated exchange of basic data in the business register can facilitate and encourage the development of business across the border between Estonia and Finland (OECD, 2015b).

Data-driven initiatives in Colombia, such as the flood warning system in Cali, the Legalapp application from the Ministry of Justice, Agronet from the Ministry of Agriculture and the system for evaluating rights of the Unit for Victims show that:

- digital government is not a matter of data and technology per se, but about enabling governments to do a better job in addressing real problems and *producing value for their citizens*; and
- investment in ICT can provide a significant return, both financially and non-financially (for example, looking at the damage caused by the floods in Putumayo).

Creating public value from data

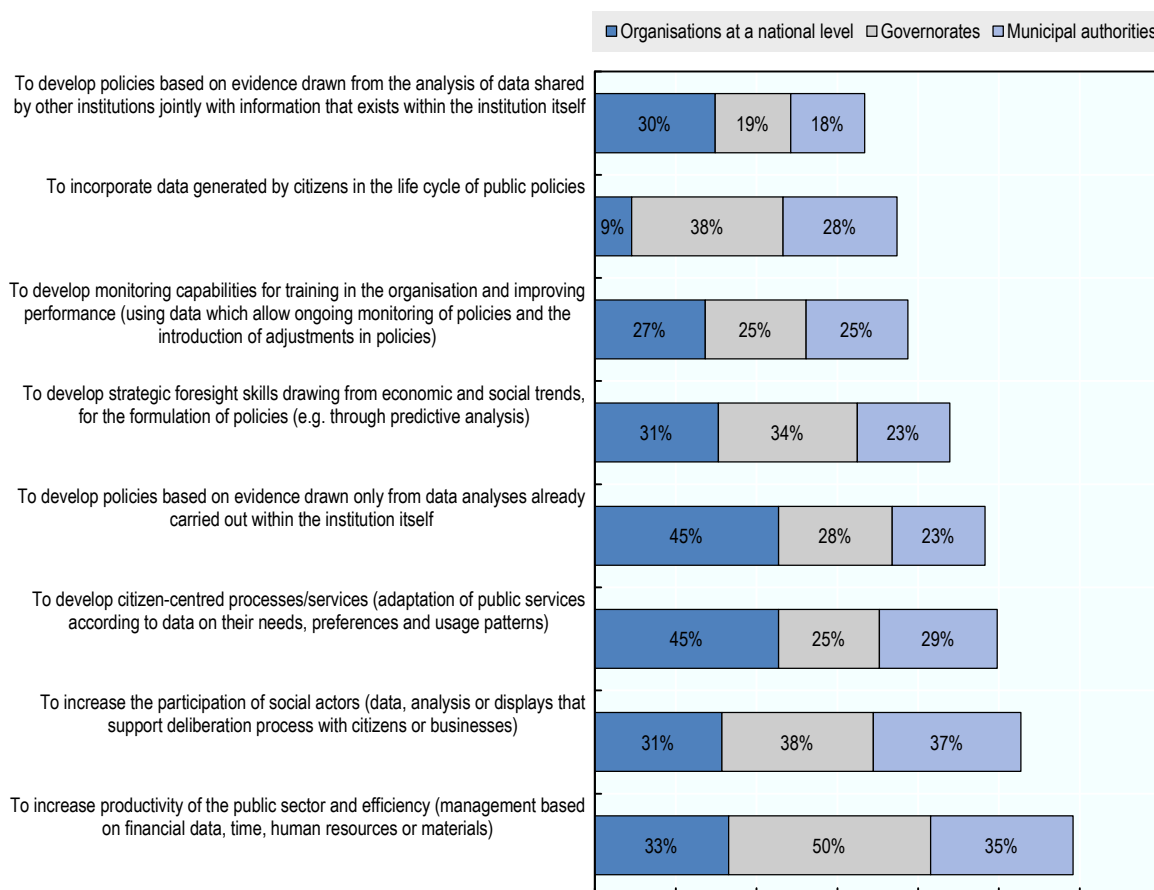
With the purpose of fostering the more extensive exchange and use of public sector data, it would be useful to establish a common agenda on the value that is sought. When institutions were asked about the reason they had undertaken projects in which data was re-used, the most common purpose in Colombia was to increase the productivity and efficiency of the public sector, above all for the governorates (Figure 3.2). The “once only principle” could be implemented for achieving gains in operational efficiency through the reduction of administrative processing time for tax returns or social security requests. An illustrative case are tax returns filed in *Estonia*, which are transferred to citizens within two days following the presentation of their tax returns, which are already completed with data from public and private sources (Tamkivi, 2014). Consequently, both public institutions and citizens save time thanks to data-driven transactions.

Almost half the institutions at national level (45%) use their own data to develop evidence-informed policies and to improve processes and services for citizens. Above all, the governorates are interested in using data to engage with citizens, via the data produced by them (38%) and to facilitate participation processes (38%). Relatively few institutions show any interest in using data shared by other institutions to develop evidence-informed policies. This last point illustrates the need for Colombia to reinforce its communication strategy towards public institutions, as noted in Chapter 1. This refers to efforts to show that data re-use from other sources can be of value to institutions and their constituents. As in the case of *Denmark*, institutions are more likely to share their data with other institutions if they understand (or come to understand) the value of what they do.

The approach to data as a strategic asset for efficiency and modernisation of the public sector helped the Danish government to create a common agenda around the ideas of data governance (quality, use and exchange) as central to public sector reforms (employment, taxes, the environment) (OECD, 2016a). Therefore, by providing a clear value proposal (business case) to join the Basic Data Programme as a key component in achieving broad reform, the government encouraged stakeholders to participate in the programme in light of the high value of data as a strategic resource for the public sector, and not because of its mandatory nature. The aim is to increase the number of data sets—for example, social demographic data—in the Basic Data Registry Programme that also contribute to the promotion of business cases linked to societal value and not only financial benefits.

Figure 3.2. **Institutional goals for data re-use**

For what purpose did your organisation carry out projects involving data re-use?



Note: The percentages for each administrative level are calculated based on the total amount of institutions that took part in the 2017 impact assessment of the Online Government Strategy: 147 institutions at the national level, 32 governorates and 1 101 municipalities.

Source: OECD (2017a), "Questionnaire for Assessing the Impact of Digital Government in Colombia", OECD, Paris.

In the *United States* a new regulatory framework is being prepared to establish a more secure, transparent and efficient data system that will aid federal institutions to better evaluate the effectiveness of their programmes. In November 2017 a bill for fundamentals in the formulation of evidence-based policies was submitted to the House of Representatives and the Senate.⁴ Title I of the new law focuses on federal activities for generation of evidence, requiring that federal institutions propose a plan to generate evidence. This will be consolidated into a whole-of-government plan by the Office of Management and Budget, with a chief evaluation officer having responsibility to coordinate these activities within the institution. Also required is the establishment of an advisory committee on data for the generation of evidence. Title II stipulates guarantees on maximum availability of data, respecting privacy and national security concerns, that federal institutions appoint a chief data officer and establish a data catalogue and a federal data catalogue. Title III addresses the protection of Confidential Information and Statistic Efficiency through a wider access to data while privacy standards are improved.

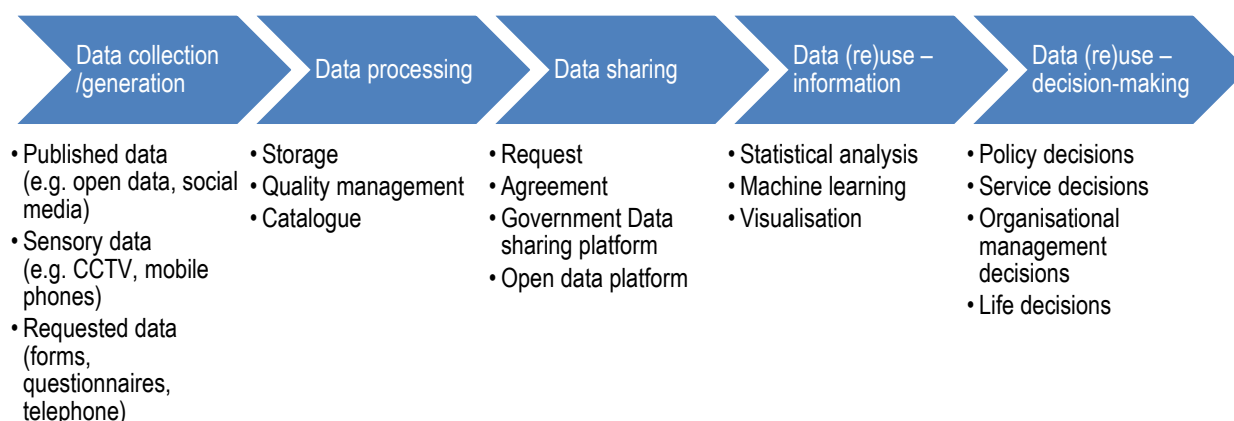
Colombian data-driven initiatives can be considered advanced not only from a technical perspective but also from the perspective of its approach based on multiple stakeholders interested in solving social challenges. However, even though promising, initiatives are generally limited to the local context and do not go beyond sectoral frontiers, which would be essential to implement a truly citizen-driven administration instead of a government-driven one. To understand why these initiatives remain limited to the sphere of public sector innovation it is necessary to take a deeper look at the data value chain. The Colombian government can direct its efforts to several domains to boost the strategic use of data, as explained in greater detail in the following sections.

Governance of the data value chain in the public sector

Steps in the data value chain

Governance of the data value chain (from data collection to sharing and re-use) (Figure 3.3) within the public sector is crucial for capitalising on data as a strategic asset, and thus promoting a data-driven public sector that transforms the design, delivery and monitoring of policies and public services through its strategic management and use (OECD, 2018).

Figure 3.3. Public sector data value chain



Source: OECD (2018), “A Data-Driven Public Sector for Inclusive and Sustainable Governance”, Public Governance Working Papers, OECD, Paris, forthcoming.

Building a data-driven public sector requires understanding how to link the data value chain to the accomplishment of the main public policy goals. To conceive of all the stages of the value chain and its results (e.g. data catalogues and open government data) as interconnected elements of data value chain process, and to recognise how different key factors (e.g. human, legal, technological) perform a role in the interaction of the entire process is vital for building a data-driven public sector.

Improved management of the data value chain in the public sector helps the government to strengthen its skills in foresight, delivery and performance. This happens when analytical methods are used to convert data (hard facts) into information (establish relationships) and knowledge (understand relationships), which provides the foundation for decision-making in the strategic, tactical and operational fields of government

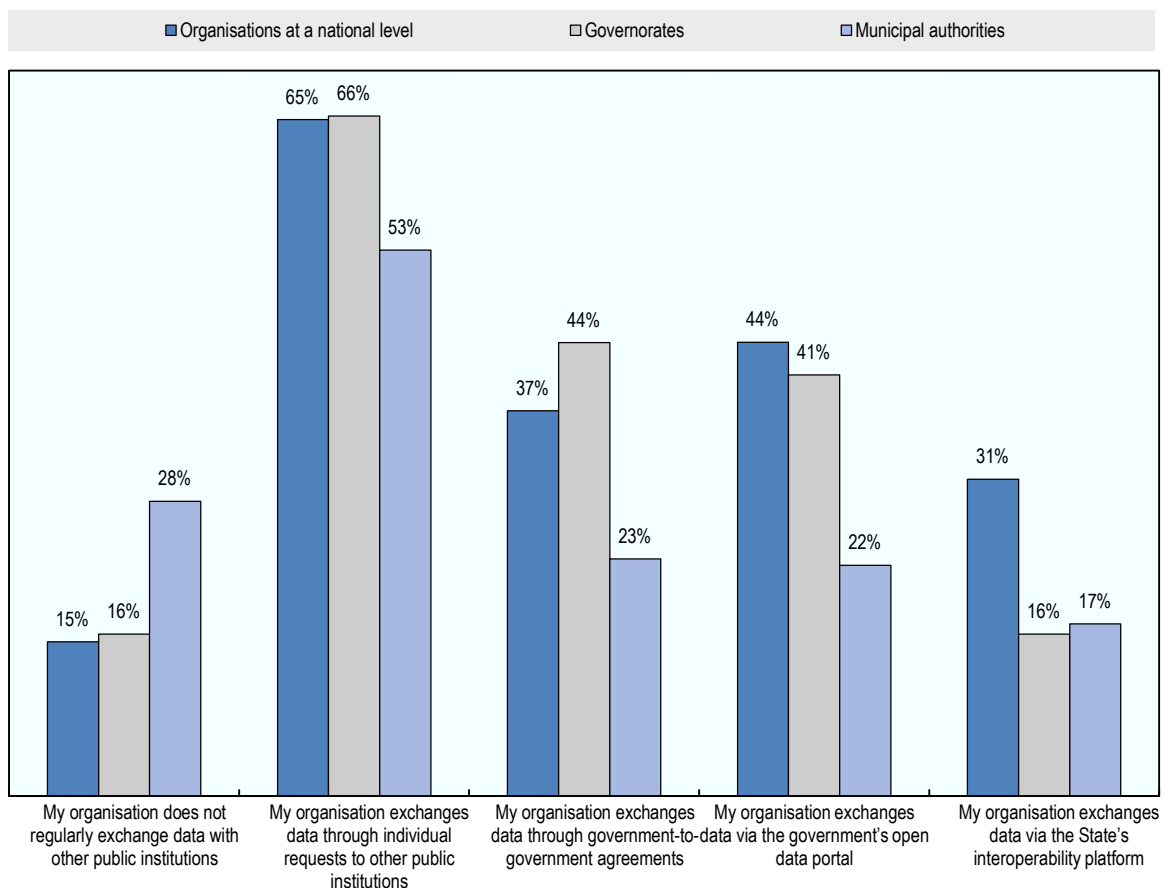
(undertake an action) (OECD, 2015a). Although described in linear fashion, driving public sector intelligence and creating public value involves feedback loops in various phases of the value creation process. Data can inform and affect the nature of decision-making processes, which in its turn can generate ideas on the category and quality of the required data, thus potentially allowing the production and collection of different or larger amounts of data.

Data exchange between different public institutions

When looking at the practice of data exchange in the Colombian public sector, it seems low between the municipalities (40.7%), while national institutions (64.8%) and governorates (68.6%) show moderate levels of data exchange. Figure 3.4 shows mechanisms for data sharing in greater detail.

Figure 3.4. **Data exchange methods between public institutions**

Please indicate the methods used by your institution to exchange data regularly with other public institutions.



Note: The percentages for each administrative level were calculated on the basis of the total number of institutions that participated in the impact measurement of the 2017 Online Government Strategy: 147 institutions at the national level, 32 governorates and 1,101 municipalities.

Source: OECD (2017a), "Questionnaire for Assessing the Impact of Digital Government in Colombia", OECD, Paris.

Colombian public institutions do not share data in a proactive fashion and current data governance arrangements do not encourage them to do so, meaning opportunities to create value remain. While public institutions that do not exchange data with other institutions are a minority throughout the administrative structure, most institutions report that they exchange data based on individual requests. Establishing inter-institutional data exchange agreements (G2G). can be an especially long and complicated process for public institutions when sensitive data can be traced back to individuals. Furthermore, inefficiencies emerge on implementing said agreements because the same data can be requested twice if not up to date at the moment of being used by the requesting institution.

Several respondents stated during the peer review mission that the legal framework or lack of knowledge of it was a key barrier for better data exchange within the Colombian public service. A sound legal and regulatory framework can contribute to not only enable agile data exchange processes, but also to guarantee the legitimacy of data policies, in accordance with social expectations and ethical principles, all of which are essential for gaining and maintaining public confidence.

The basic regulations that govern access to and management of data and government information in Colombia are:

- Law 57 of 1985. Publication of official acts and documents
- Law 594 of 2000. Public Archive Law
- Law 1712 of 2014. Transparency and the Right to Access to National Public Information Law
- Single Regulatory Decree 1081/2015. Single Regulatory Decree of the President of the Republic Sector, that has incorporated decree 103/2015, Regulation on public information management
- Resolution 3564 of 2015. Regulations associated to the Transparency and the Right to Access to National Public Information Law
- Decree 235/2010. Exchange of information between institutions for compliance with public functions
- Decree 1083/2015. Single Regulatory Decree of the Public Function Sector, added by decree 415/2016, Guidelines for institutional strengthening in the area of information and communication technologies
- Agreement 003/2015 of the National General Archives, that provide general guidelines on electronic document management

In accordance with Law 1712/2014 and the Colombian transparency and access to public information policy, all information in the power of a regulated institution is public, including open government data. Articles 9, 10 and 11 stipulate that institutions are mandated to proactively publish minimum mandatory information, even if it has not been requested. Although Colombia operates under the principle of openness by default, as noted in Chapter 2, this is not to say that data management processes are designed to facilitate data sharing. Additionally, there is no legal will to facilitate the exchange of reserved or classified public data between public institutions. Reserved public data refers to data of which its disclosure could constitute harm to public interests, such as defence and national security, public safety and international relations.⁵ Classified public data refers to data of which its disclosure could potentially harm any person's rights to privacy, health, life and safety, as well as commercial, industrial and professional secrets, among others.⁶ The exchange of these categories of data is mostly carried out through a system of requests for access to information.

To promote a data-driven culture in the whole public sector, where producing, sharing and using data becomes part of the routine of public organisations, it is useful to consider adopting the principles of “openness by design” and “sharing by design”. Specifically, this would mean that all data produced by public institutions should be released as open data and if this is not possible (e.g. in the case of sensitive information), it should be accessible to other public institutions, unless higher interests prevent this. A possible way to implement these principles would be to integrate them in the design of the data management process and to ensure there is a suitable regulatory framework.

Several OECD countries have made it obligatory that public institutions proactively share certain data with other public institutions and have designed data management processes in accordance with this. For example, in *Spain*, the Common Administrative Procedure Law of 2015 recognises the right of citizens to not provide data already in the hands of government, thus forcing public institutions to exchange data between themselves and comply with data protection regulations and the “once only principle.” In administrative procedures, this provision of information was replaced by the consent to consult the data in its corresponding database. For example, for grants, citizens used to provide information on their income (taxes). Now, the public institution in charge directly consults the tax authority’s income database. Citizens can see when the public institution responsible for grants carries out the consultation. It is also possible to generate a certificate that this consultation was carried out in case it is necessary to make a claim if the grant is not allocated due to the tax data not being submitted. In *Estonia*, in 1997, the “once only principle” became a legal obligation: the public administration can no longer ask an individual to provide information that has already been provided to another institution within the administration (OECD, 2015b). There was a commitment to make the principle a reality, together with the understanding that quick and complete availability of information for decision-makers is fundamental in a country with limited natural and human resources. This led to the development of a national interoperability infrastructure to exchange information between government institutions in real time. In 2001, the data exchange layer, X-Road, was launched and became the standard platform for streamlining services between public institutions in Estonia. It also helped create uninterrupted workflows in which non-government stakeholders engage, for example, in the exchange of information between tax and social security authorities regarding revenues and assets of private companies.

Such regulatory frameworks not only focus on legally allowing and encouraging the proactive exchange of data, but also in establishing requirements and standards for the interoperability of data systems. Establishing a suitable regulatory base, i.e. a law that allows sharing data, microdata and information within public sector institutions with greater ease, would aid in overcoming barriers for the sharing and data re-use, e.g. the fear to share data. Personal data protection must not be a mechanism that hampers information sharing between institutions for providing services to citizens. Therefore, it is important that regulations in the area of personal data protection and interoperability are aligned in a fashion that they do not infringe upon each other and both facilitate information sharing in a secure environment.

It is important to align the efforts undertaken by the National Planning Department on developing a national data policy (CONPES on data use) with the Open Data policy of MinTIC and establishing clear responsibilities on the policy implementation. A data authority with a clear mandate to support public institutions in the transition is required. Furthermore, the management of micro-data (sensitive data) as developed by DANE

could be scaled up to design implementation guidelines for the sharing by default policy beyond the realm of statistical data (Box 3.4).

Box 3.4. Anonymisation of DANE microdata

The National Administrative Department of Statistics (DANE) has made anonymous microdata from the Household Surveys available to its users. Through Resolution 1503 of 2011, DANE establishes technical level, administrative and legal measures to guarantee the security of the data, archives and databases that contain information of a personal and legal nature.

The anonymisation methodologies are established by teams in charge of different topics, and access is determined by the Statistical Reserve assurance committee in accordance with the set protocol. The Systems Office applies the methodology to create these anonymous archives, which are stored on servers in a safe atmosphere in the computer centre. This allows making use of the security infrastructure with defined access levels through authentication, authorisation and registration of activities, thus providing appropriate integrity, availability and confidentiality.

As the co-ordinator of the national statistical system and in the framework of the Statistic Planning and Harmonisation project, DANE implemented the National Data Archive (ANDA), a catalogue in which users can explore, search, compare, request access and download information related to the censuses, sample surveys and statistical use of administrative records. ANDA contains operational statistic metadata produced by DANE and other institutions of the national statistical system. Additionally, some of the archives provide microdata available to the public.

In 2014, DANE set guidelines for microdata harmonisation that contributed to the display and comprehension of statistical processes. These include the main technical features of the processes and subprocesses in a standard, complete and easy-to-read format, which allows their analysis, control, replicability and evaluation. This promotes the transparency, trust and credibility in the technical quality of the institution for a better understanding, comprehension and use of the statistical information. The general guidelines are established to implement the microdata anonymisation processes in statistical operations produced by the institution, and reference is made to some techniques that allow reducing the risk of identifying the data sources.

Source: www.dane.gov.co/files/sen/lineamientos/DSO_020_LIN_08.pdf; www.dane.gov.co/index.php/servicios-al-ciudadano/3796-acceso-a-microdatos-anonimizados; <https://sitios.dane.gov.co/visor-anda/> (consulted on 8 December 2017).

Efforts to foster data sharing could go hand in hand with the promotion of the use of data on the part of institutions through visualisations, analysis of data and artificial intelligence, as this would aid in demonstrating the value of having more and better data.

Data processing

With public institution data processing as part of the ICTs for management component of the Online Government Strategy, the government launched various plans and initiatives to help Colombian institutions to be able to rely on an information management system. MinTIC, along with other things, set out several implementation guides:

- Proficiency Guides in IT Strategy, <http://bit.ly/2nekRDr>

- General Guide for the Adoption of the Enterprise Architecture Reference Framework, <http://bit.ly/2mTAzCW>
- Proficiency Guides in IT Governance, <http://bit.ly/2nrNltU>
- Guide for Understanding the Price Framework Agreement (AMP), <http://bit.ly/2n3tCjm>
- Proficiency Guides in Information, <http://bit.ly/2n3qK5M>
- Proficiency Guides in Information Systems, <http://bit.ly/2nekusn>
- Proficiency Guides in Technological Services, <http://bit.ly/2nwiCsr>
- Proficiency Guides in Use and Appropriation, <http://bit.ly/2n3prUv>

Although these guides have strong correlations with institutional policy and planning activities, the extent to which institutions actually use them is fairly limited, especially at the territorial level (OECD, 2017b). While the national institutions have a score in the related indicator of 61.7 (on a scale of 0 to 100), the governorates only have a score of 44.1 and the municipalities show a very low usage of these guides (20.1). Given that the impact assessment shows that the use of these guides is an important advantage in achieving results in the strategic use of data by the institutions through a potential improvement of internal processes, it is unlikely that the content of the guides should change to obtain better results. Rather, it would be essential to promote the use of the guides and provide mentoring for the institutions with this aim in mind.

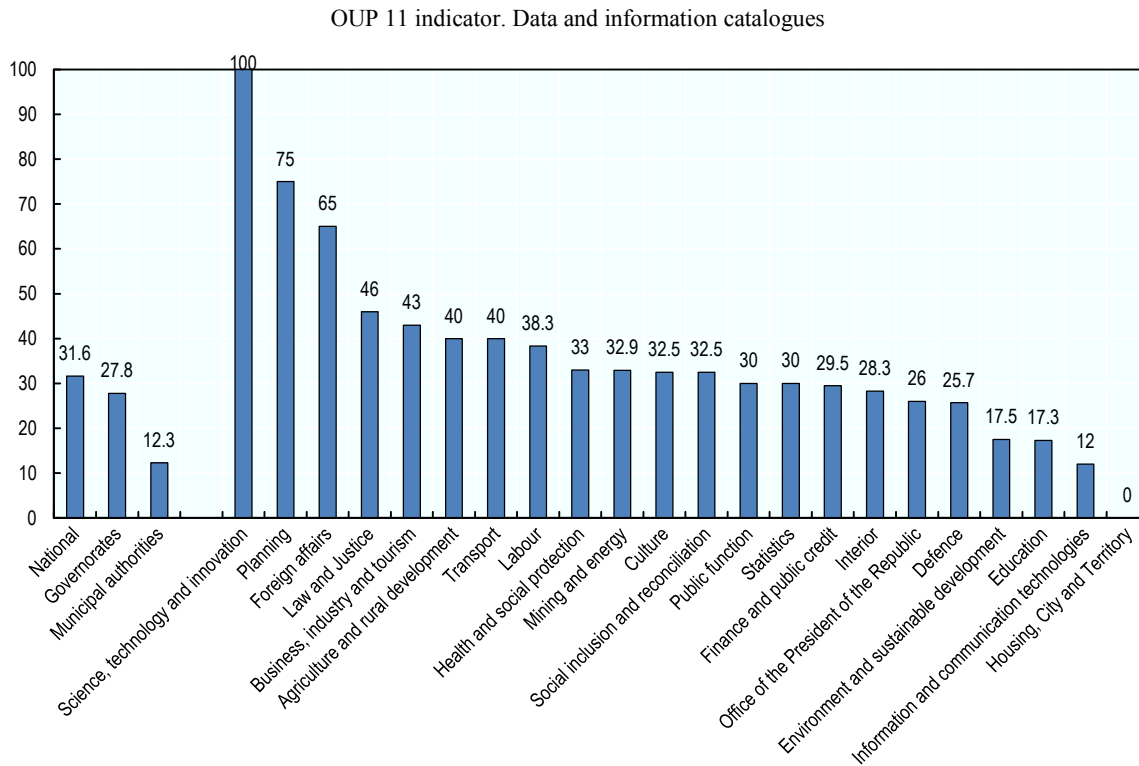
Judging by the extent of data catalogues within public institutions in Colombia, it remains clear that this is still not common practice (Figure 3.5). However, there are some national sectors that have made progress in documenting the information and data they have. Institutions in the science, technology and innovation, planning, and foreign affairs sectors can be an example and inspiration for institutions that have yet to develop data and information catalogues.

Institutions must be fully aware of the data at their disposal and data alteration processes in use to manage data as an asset during their life cycles, and must ensure that the data is recognisable within and between government institutions; otherwise the enormous potential of data will become very limited. An additional benefit of this knowledge is that it helps to shed light on data and dataset duplication, which tends to occur in government and is a burden for government efficiency and also a significant burden for citizens who must share the same information several times.

When considering the status of the quality of government data (open and not open) in Colombia, it is evident that institutions have made progress in the completeness and frequency of dataset updating, whereas advances in producing metadata and providing raw data have been less evident. (Figure 3.6). Governorates have made greater progress in the quality of the databases that they manage than institutions at the national and municipal level.

To understand why the creation of data-driven value has still not happened on a large scale in the Colombian public sector one must examine the status of several key conditions in addition to those already analysed in this section; legitimate data governance, the capacity for data leadership and data skills.

Figure 3.5. Range of available information and data catalogues

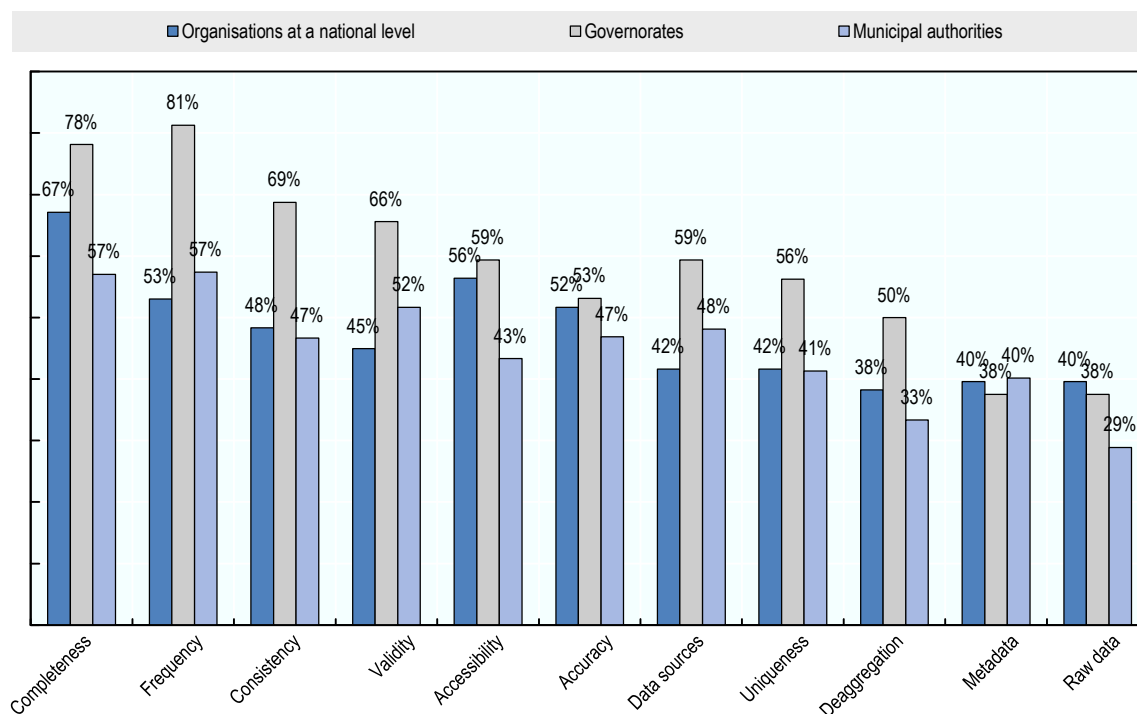


Note: This indicator was calculated according to score “ $((a+b+c+d) / 4) * 100$; If $e = 0$,” on the basis of institution responses to the following question: “Regarding the information components catalogue, the institution documented it in accordance with the Enterprise Architecture Reference Framework: (a) Data catalogue or directory (open and geo-referenced)?, (b) Information catalogue?, (c) Information services catalogue?, (d) Information flows catalogue?, or (e) None of the above.”

Source: OECD (2017b), *Assessing the Impact of Digital Government in Colombia*, OECD Publishing, Paris.

Figure 3.6. **Progress in quality criteria in government data**

Percentage of public institutions that stated they had improved criteria on data quality between 2015 and 2016



Note: The percentages of each administrative level are calculated based on the total amount of institutions that took part in the impact measurement of the 2017 Online Government Strategy: 147 institutions at the national level, 32 governorates and 1,101 municipalities.

Source: OECD (2017a), “Questionnaire for Assessing the Impact of Digital Government in Colombia”, OECD, Paris.

From promising innovations to fundamentals for data exchange and re-use across the Colombian public sector

Guaranteeing legitimate and trustworthy data governance

Transparency and control of citizen-driven data

The efforts of the Colombian government related to information privacy and security are especially focussed on protection of information systems, management of e-security incidents and training public servants in personal data protection. The implementation of this policy has yet to be completed throughout the whole of the public sector and challenges remain in terms of territorial institutions taking ownership of this area. At this stage of the implementation it is still perceived as an internal management matter and a risk for the government’s reputation. Consequently, it is not an open policy which considers a more active role for citizens in the management of their personal data.

It is more probable that data-driven governments are perceived as fair and responsible if they show that they have thought about principles such as integrity and openness in their government data strategy. Several OECD countries implemented single access points so that citizens can use government services, regularly bringing together citizen data from different government sources (Box 3.5). These citizen folders not only facilitate the

operational integration of different services and the implementation of the “once only principle”, but also increase transparency and citizen control over data that governments have collected about their citizens.

Box 3.5. Citizen folders for transparency and control of data

Spain

In 2007, the Spanish Ministry for Public Administration established an e-Delivery platform so that all public institutions had access to more than 80 administrative base registries, all with the consent of citizens. Within the Citizen Folder (<https://sede.administracion.gob.es/carpeta>) citizens can see all the information the administration has recorded about them in the base registry and can also obtain administrative certificates with this data. Citizens must be able to monitor the use the administration makes of their data, as well as all the information generated in transactions they enter into with the administration. For example, in Spain, citizens can:

- review the status of citizen documents sent to a public institution,
- consult data exchanged between administrations via interoperability nodes, and
- consult electronic signatures in services provided by the administration.

Denmark

One of the goals of Denmark’s 2016-2020 Digital Strategy is to improve the transparency and global view for citizens and businesses. Consequently, an IT architecture for the public sector is being developed that establishes the framework for exchanging data between authorities at all levels of government, from the national government to regions and municipalities. Several inter-sectoral Internet portals were established, such as a portal with access to personal health data (www.sundhed.dk), a single point of access to digital public services (www.borger.dk) and a portal of public services for businesses (www.virk.dk).

The Netherlands

Digital access to citizen personal data can be carried out through the central state portal www.mijnoverheid.nl. After entering with DigiD, the electronic authentication system, the citizens can review their data, recorded in different record bases and service providers, such as the personal data registry (BRP) for residence, birth, marriage, children, vehicle registration, income and land.

To information requests about specific data exchanges, the citizens still have to go to their municipality, or the institution that provides the public service. Work is in progress to obtain access to the personal data process through the central state portal www.mijnoverheid.nl, but it is not functional yet. However, it is possible to search in www.wiekrijgtmijngegevens.nl (whohasmydata.nl) and find the institutions that have the right to receive data from the personal data registry.

Source: Information provided to the OECD in 2017 by the E-leaders Thematic Group on personal data and transparency.

As enablers of these initiatives, several countries undertook actions to share administrative information of citizens between public institutions. In regard to these initiatives, some countries provide a layer so that the citizens could access their own data.

They also work on a catalogue to have a general overview of base records in order to facilitate, among other things, the implementation of the “once only principle”. The Netherlands and Spain are working to provide access for citizens not only to the data themselves but also to previously consented transactions with these data between public institutions.

Ensuring data management skills throughout the whole public sector

To guarantee a successful implementation of the policy for openness and sharing by default in Colombian public institutions, it is not sufficient to have a regulatory framework and policy guidelines. To incentivise the culture change that is required, the institutional leadership needs to be aware of the potential value of good data management and use in relation to solving the social problems under its responsibility. This allows for the design and modification of institutional data management practices with the re-use of data from the outset. The above implies ensuring the ability to manage and re-use data throughout the public sector.

The data, as a recently discovered valuable key resource for the public sector, would not produce value without aid of human resources. Firstly, this refers to the need to have good leaders with suitable mandates, and secondly, that it is essential that the public servants have the abilities to handle data flow from a technical and ethical perspective.

Data leadership

Along with 14 of the 34 OECD member and partner countries, Colombia has a Chief Data Officer (Figure 3.7).

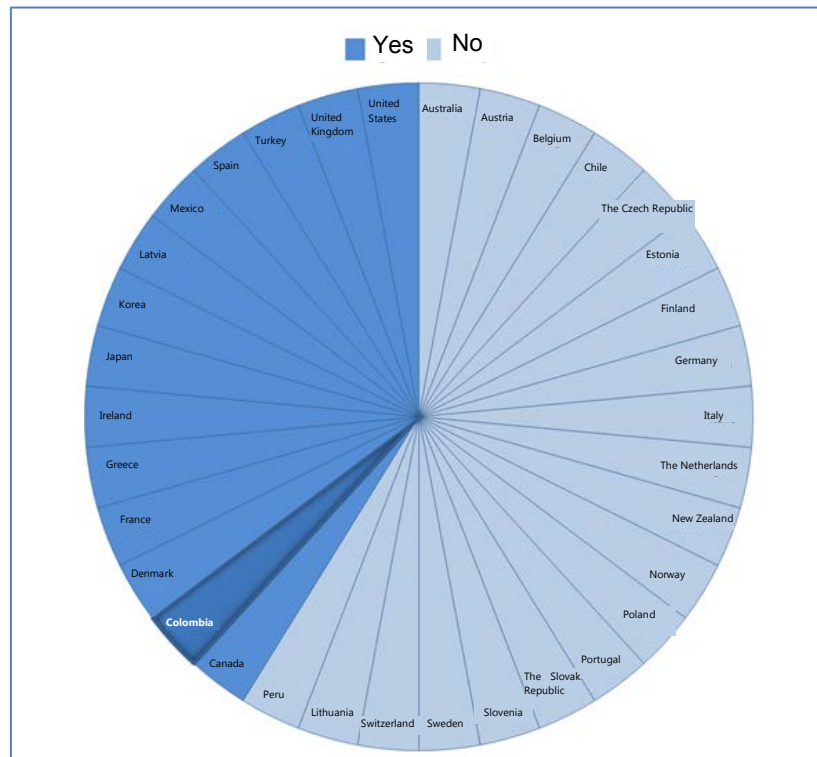
Although the Chief Data Officers (CDO) are responsible for translating national and international goals in open data policy into strategic actions and co-ordinating central institutions towards a synchronised and well-structured implementation, the role of institutional data stewards is focused on turning these policies, guidelines and standards into well-structured public data management strategies. The data stewards are, therefore, able to connect the strategic vision with central government and data management on the international level (OECD, 2015c).

The data stewards act as drivers of change and data promoters within public institutions. Their role is key for moving from a centralised government-user co-operation approach (directed by central co-ordinating institutions) to a more direct and proactive approach that allows a closer and more direct collaboration with stakeholders (within and outside of the public sector), aligned with sectoral goals and the specifics of policy/value.

Despite the relevance of the institutional chief data officers, the existence of this position is not very widespread in OECD countries. Colombia is among the minority of OECD member and partner countries (16 of 34) that report the formal recognition, e.g. with legal instruments, and/or the availability of data stewards or institutional officers in public sector institutions (OECD, 2016b).

Figure 3.7. Availability of Chief Data Officers in selected countries

Does the central/federal government have a Chief Data Officer (CDO)?



Source: OECD (2016b), “OECD Open Government Data Survey 3.0”, OECD, Paris.

While the role of institutional chief data officer (iCDO) in Colombia is linked to open government data, as happens in the majority of OECD countries, their responsibilities go beyond this (Box 3.6). Among other things, the iCDO has the legal mandate to foster data exchange with other public institutions and promote and co-ordinate actions to create public evidence-based policies and data use to design services. Although the formalisation of these responsibilities suggests an official recognition of strategic contribution of the iCDOs in the construction of data-driven public sectors, it may be overshadowed by the wide range of other responsibilities for digital government they have.

Box 3.6. The role of data stewards in Colombia

In Colombia, Decree 415/2016 orders that all public institutions designate a Chief Data Officer (iCDO) (data stewards) at managerial level. Among others, the main responsibilities of the iCDOs are:

- to focus on creating public value, which enables, therefore, the necessary abilities and technology services in the public service institutions to promote the digital transformation, organisational efficacy and government transparency,
- to ensure the implementation and maintenance of the institution’s IT enterprise architecture in conformity with central guidelines, the e-government strategy and in conformity with the strategy vision, the needs of digital transformation and the

specific available legal framework for that institution or policy sector,

- to identify opportunities to adopt new technology trends that could contribute to create a better impact at the national and sectoral level,
- to lead the procurement process of technology goods and services,
- to co-ordinate with other stakeholders in the public sector, private sector, civil society and academia that could contribute to the design and implementation of IT policies and more evidence-based data,
- to design information management strategies to guarantee the relevance, quality, opportunity, security and exchange of an efficient flow of public sector information within public sector institutions, and between them,
- to propose and roll out strategic actions to promote the open government policy through the publication and interoperability of government data towards better civic participation, collaboration between stakeholders and public sector transparency,
- to appoint public servants responsible for leading the development, roll out and maintenance of the information systems and digital services in accordance with the Central Strategic Plan for Information and Telecommunications Technology, taking into account the need to contribute information for the design of civic services,
- to promote and facilitate the use and adoption of information technology, systems and digital information services by public servants, citizens and other stakeholders, and
- to promote the effective use of right to access by all people to information and telecommunications technology, within the limits established by the Constitution and Colombian law.

Source: Colombian Government (2016), Decree 415/2016, www.mintic.gov.co/portal/604/w3-article-61527.html.

Although Colombia has both a national and other institutional CDO posts, it is necessary to go beyond the establishment of public policy goals or the drawing up of regulations and guidelines for data sharing or open data for the purpose of enabling data governance in the whole public sector. The OECD reviews in the area of open government data (OECD, 2015c, 2016a) highlight the emerging, yet key contribution, of the role of the CDO as key component of data governance in leading countries such as France, the United Kingdom and the United States. As Chief Data Officers they can steer government data strategies and, therefore, connect the strategic vision of the central government to the general public sector data value chain. The CDOs should have the ability to produce rapid policy gains in a structural way, based on the functioning of processes in the public sector and the necessary abilities and needs in the whole public sector to do it. Decree 415/2016 provides a sound base to empower the iCDOs in the whole Colombian public sector. However, a lack of awareness is noted, on the part of institutions about the role of the iCDO and the abilities necessary to fulfil it. This is crucial to ensure that the rapid structured gains are translated into sustainable impacts in the long term. To create a data-driven public sector requires not only to have established policies or formal guidelines, but also a strategy that describes how to achieve the public policy goals. Leadership is crucial for this purpose.

Promoting awareness and data literacy

Although the practical difficulties and the lack of awareness about the legal possibilities for data sharing represent significant obstacles for access and re-use of data in the most advanced institutions, another very important problem in less advanced institutions is the lack of knowledge and ability in relation to data management. This problem not only has an impact on the individual institution, but also can cause problems for the interoperability of data systems throughout the public sector.

A more open approach to data management also opens the doors for less advanced institutions, such as the smaller municipalities to come out of isolation and join forces with other stakeholders in both data management and setting up re-use programmes. They must include initiatives to ensure that the required data protection is available and in all public strategies and in the most comprehensive government strategy for the increase in digital capacity, and that it takes into account the different contractual situations which public servants can encounter.

Prioritising strategy design aimed at developing data skills, e.g. data analysis, data science or coding, in the broad public service can be a key enabler for developing a dexterous public workforce with the data. For example, in *Australia*, the Department of the Prime Minister and the Cabinet teamed up with the Australian Public Service (APS), other Australian government institutions and the private sector and academia to develop a holistic approach and thus improve the general skills and abilities related to the use of data in the APS (OECD, 2017b). With this partnership the APS Data Skills and Capabilities Framework was drawn up in order to empower the Australian Public Service in a fashion that makes use of the value of data and increase data literacy at all levels in the APS. Four components that make up the APS Data Skills and Capabilities Framework:⁷

1. the Data Fellowship Programme,
2. university courses,
3. the APS Data Literacy programme, and
4. data training partnerships.

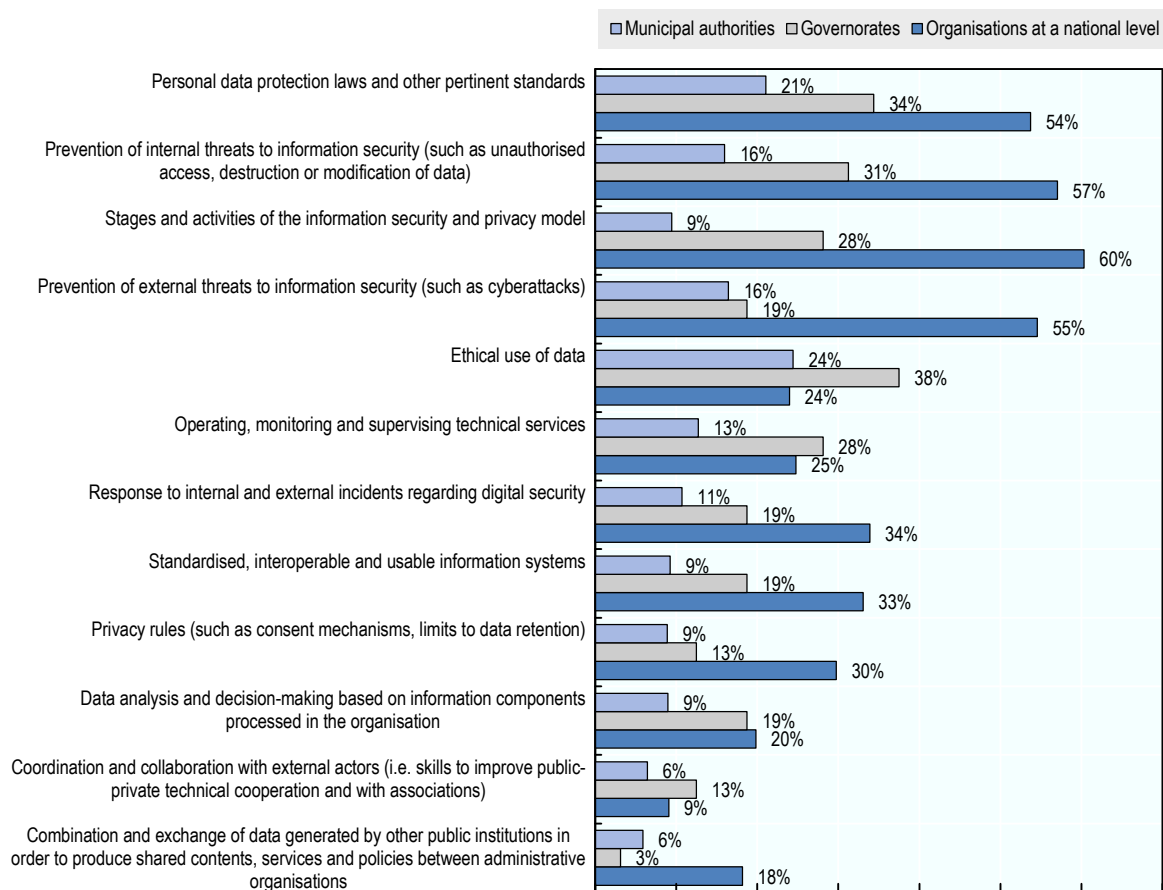
Senior executives across the APS will encourage employees to take advantage of these learning and development opportunities.

The response to the questionnaire for the impact assessment of digital government in Colombia shows that public servants in institutions at the national level and to a lesser extent at the territorial level are being specifically trained in areas related to the information security and privacy (Figure 3.8).

Very few public servants, notably in the municipalities, had the opportunity to take advantage of training in information systems, data exchange or analysis, which are the essential skills for several stages in the data value chain. In almost all the areas, national level institutions have better trained public servants compared to territorial level institutions.

Figure 3.8. Training public servants in areas of data management

During 2016, in what aspects of the Online Government Strategy were public servants trained in your organisation?



Note: The percentages for each administrative level were calculated on the basis of the total number of institutions that participated in the impact measurement of the 2017 Online Government Strategy: 147 institutions at the national level, 32 governorates and 1,101 municipalities.

Source: OECD (2017a), “Questionnaire for Assessing the Impact of Digital Government in Colombia”, OECD, Paris.

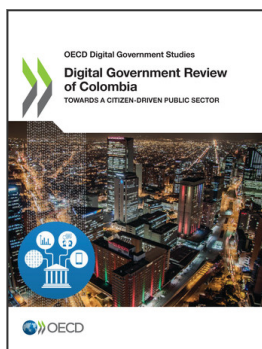
Notes

1. For more information, see <http://datos.gob.mx/blog/abrimos-convocatoria-datalab?category=noticias&tag=desarrollo-sostenible> (in Spanish).
2. www.rutadelaexcelencia.gov.co/634/w3-channel.html (in Spanish).
3. <http://srq.nu/en/>.
4. www.congress.gov/bill/115th-congress/house-bill/4174.
5. www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=56882 (in Spanish).
6. www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=56882 (in Spanish).

7. Information provided by the Australian Government. For more information, see www.dpmc.gov.au/resource-centre/public-data/data-skills-and-capability-australian-public-service.

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