OECD Digital Government Studies

Digital Government Review of Colombia

TOWARDS A CITIZEN-DRIVEN PUBLIC SECTOR

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Foreword

Colombia's efforts in e-government over the past 15 years have laid the foundations for a new digital government policy that can foster a citizen-driven administration capable of serving the needs of all Colombians. The country's significant achievements in digital citizen participation and open data are reflected in international comparisons, such as the 2017 OECD Open, Useful and Reusable Data (OURdata) Index, in which Colombia finds itself among the top-performing countries. However, the population's uptake of digital government initiatives and the reuse of open government data remain low, especially in the less developed regions.

Following the 2017 OECD report *Assessing the Impact of Digital Government in Colombia*, which took an in-depth look at the monitoring and evaluation framework for digital government, this review aims to help the Colombian government advance the digital transformation of the public sector. It proposes a set of strategic policy recommendations for moving from e-government to digital government, reaping the full benefits of digital technologies.

The Review's policy recommendations cover key areas such as the governance of digital government, the use of digital technology for engaging and collaborating with citizens, the strategic value of both non-disclosed and open government data, and how to implement digital government coherently, taking into account regional disparities.

This *Digital Government Review* takes into account previous OECD work with the Colombian government, in particular, the 2013 *Public Governance Review of Colombia* and the above-mentioned 2017 report. It draws upon the OECD's analytical and empirical work on digital government, open data and data-driven public sectors. This work is supported by the conceptual framework provided by the OECD Recommendation of the Council on Digital Government Strategies, of which Colombia is an adherent.

The Review was prepared based on a questionnaire as well as on interviews with Colombian officials. It is part of the OECD cross-cutting project "Going Digital", which guides countries in developing a coherent and effective policy framework to ensure the digital transformation of public sectors, economies and societies contributes to growth and well-being.

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The review was produced by the Reform of the Public Sector Division (GOV/RPS), headed by Edwin Lau, under the supervision of Barbara-Chiara Ubaldi, Senior Project Manager and lead of the Digital Transformation of the Public Sector work. A highly valuable contribution was provided by Luiz De Mello, former Deputy Director of the Directorate for Public Governance and currently Director of the Economic Department.

Chapters 2 and 3 were written by Charlotte van Ooijen, Digital Government Policy Analyst (GOV/RPS), who also served as the overall co-ordinator for the review. Chapters 1 and 4 were written by Elsa Estevez, independent researcher of the Argentinian National Council of Scientific and Technical Research (CONICET) and Associate Professor of the Universidad Nacional del Sur in Argentina. All chapters benefited from strategic contributions and guidance provided by Barbara-Chiara Ubaldi.

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Executive summary

This review examines the efforts of the Colombian government to move beyond e-government toward digital government in order to better serve its citizens and foster social and economic growth in the post-conflict era. It focuses on the following aspects: the governance framework for digital government; the extent to which digital technologies and open data are used to engage citizens and businesses and collaborate with them to develop policies and services; how public sector data is managed to improve strategic foresight, policy and service delivery and overall performance; and the implications of regional disparities for implementing digital government.

Main findings

The implementation of Colombia's Online Government Strategy has provided a solid foundation for progress towards the full digital transformation of the public sector.

Overall, Colombian public institutions demonstrate an acceptable level of readiness for digital government, but operate in an isolated way, at different paces. This often results in duplication and actions that are not aligned with the overall strategic approach. The recent reform of the Ministry of Information and Communications Technologies provides a good basis for strengthening the position of the Digital Government Directorate as the central driver of public sector digital transformation. However, the Ministry currently performs operational tasks that other stakeholders should perform but do not, such as building human capacities in public institutions and providing financial resources for digital government. To guarantee a sustainable implementation of digital government, the Ministry should assume a more strategic role and focus on fully leveraging digital technologies in the service of a more transparent, innovative, participative, collaborative and inclusive state.

The Peace Agreement and the related transparency and anti-corruption agenda provide a solid foundation for digital transparency initiatives and open government data policy. Nevertheless, the intense debate around transparency could result in greater emphasis being placed on the disclosure of government data and information as the ultimate objective, rather than on the use of such data, by both government and citizens, to help solve society's problems. Allowing and encouraging the reuse of government data is crucial for building public trust and making policy making more inclusive.

Colombia can improve its capacity to use government data strategically and thus make the public sector more responsive, trustworthy and focused on citizen well-being. It already has promising elements for creating a data-driven public sector, but lacks foundations in terms of data governance, institutional culture and the ability to leverage the knowledge and expertise available in universities, the private sector and some parts of the public sector.

There are significant regional differences in Colombia, including wide variations in levels of resources and capacities for digital government. These disparities present a challenge for formulating and implementing a national digital government strategy, but also create

opportunities. The government will need to ensure that the strategy is embedded across all government sectors and levels in a timely and coherent way, while taking into account the needs of different regions.

The right conditions are lacking for national and territorial government institutions to act as a platform for "public value co-creation", whereby government, citizens and businesses work together to design and deliver polices and services.

Key recommendations

The government of Colombia is encouraged to:

- Increase the involvement of citizens and stakeholders from across the public sector in the development and implementation of the Digital Government Policy. Key performance indicators, based on expected outputs, outcomes and impacts of the strategy, should be used to guarantee that the policy supports necessary changes across the country and contributes to comprehensive socio-economic development.
- Develop mechanisms to ensure awareness and uptake of the Digital Government Policy among government leaders across all areas and levels so that it becomes part of the "fabric" of the state and is sustainable beyond the current administration.
- Consider the creation of a digitalisation agency in charge of co-ordinating the nationwide implementation of the Digital Government Policy. Empower the Digital Government Directorate as a leader and supervisor, enlisting the Centre for Digital Public Innovation as an ally in promoting the required organisational changes across the whole public sector.
- Establish strategic and operational co-ordination mechanisms among governmental and non-governmental stakeholders to encourage collaboration, co-ordination, integration and sharing.
- Create more opportunities for citizens and civil society organisations to drive collaborative processes by redesigning central platforms for participation and service delivery to incorporate and reflect the needs of citizens.
- Make the reuse of open data the main pillar of the open data policy and actively engage with civil society organisations, data entrepreneurs, researchers and journalists to respond to their data needs.
- Improve the measurement of the impact of digitally enabled government-citizen collaboration, and communicate results in order to increase citizen engagement and strengthen public trust.
- Manage public sector data in a way that allows it to be used, both inside and outside government, to create economic value and improve citizen well-being. This entails data cataloguing as well as developing strategic guidelines and standards on openness and exchange of data, supported by a data authority and regulatory framework.
- Provide enhanced transparency to citizens on the personal data held and processed by public authorities and give them a more active role in the management of these data.
- Encourage institutional chief data officers to link open data efforts to overall data management and sharing across the public sector. Train public servants on data use to ensure necessary skills across the public sector.

- Support the definition of territorial strategies for digital government, for example by creating working groups with representatives of the main stakeholders in each region to identify their specific needs and priorities.
- Expand the support provided to territorial governments in areas such as ICT commissioning, knowledge and resource sharing and digital skills development to ensure a more effective and efficient implementation of the national digital government policy nationwide.
- Complement support mechanisms with policy incentives to ensure consistency in the approach and pace of the digital transformation of the public sector across sectors and levels of government.

Assessment and recommendations

Governing the digital transformation of the Colombian public sector

Key assessments

Defining a Digital Government Strategy

Colombia is currently undergoing its most radical transformation process of the last 50 years. The peace process, and the resultant end to conflict, offers unrivalled opportunities to devise solutions to the country's structural problems, such as unequal distribution of land, inclusion of displaced persons, marginalisation of certain communities, urbanisation of reclaimed land and economic development of its communities, to name a few. Expectations are that these opportunities will bring significant social, economic and development benefits in the next few years.

For more than 15 years, the Online Government Strategy defined and implemented clear guidelines which helped to create important organisational and institutional capacities, resulting in significant achievements at an international level in terms of transparent data and the digital participation of citizens, thus laying the foundations for the new Digital Government Policy. Among other practices, implementation guidelines for an online government were developed, a culture of monitoring and measuring was promoted in public institutions and exercises in open innovation were created; this encouraged the use of digital platforms and the opening up of government data by various entities to foster citizen participation. Additionally, good legal and regulatory foundations were established for the use of digital technologies by the State and society, such as the laws on e-commerce and digital signatures, the simplification of processes and procedures, data security and privacy, as well as access and accessibility to public information.

Nevertheless, the current normative framework, as formulated in the Online Government Strategy, represents an e-government approach and not a digital government one. Furthermore, the majority of digital services reproduce analogue processes, which reflects the traditional organisation of the public sector and not a digital design from its very conception, based on the needs of citizens and following a user-driven approach.

Public institutions at the national and territorial level are familiar with the Online Government Strategy and understand the strategic importance of its implementation. However, they differ significantly in their use of current solutions for its implementation, which suggests they have different priorities.

Many initiatives have been implemented in different areas to develop the Online Government Strategy, with different levels of resource allocation. However, they have not been fully harnessed to create synergies, economies of scale and shared learning between public entities.

Furthermore, during this review it was evident that, with the exception of the leadership of the Ministry of Information and Communications Technologies (MinTIC), there is still

no clear understanding among government representatives about the concept of digital government. This situation could be attributed to the fact that until now the country has promoted a policy of e-government, which has resulted in the stakeholders of Colombia's digital government ecosystem having varying degrees of understanding on the differences between online government and digital government. Also evident was the lack of intuition and basic observation of the changing digital needs of citizens in their interactions with the government, and of the new role public institutions must play in order to respond to this situation. The evolution towards a digital government requires greater dissemination efforts and a wider adoption of the deep transformations implicit in this process among most stakeholders.

Strengthening the institutional framework

Although in general the current institutional set-up was effective for the implementation of the Online Government Strategy at a national level, it appears insufficient to fully enact the transformations which the whole government needs if it wishes to shift to digital government. In particular, the current set-up shows the excessive efforts by MinTIC, and in particular by its Digital Government Directorate (considering its mandate and available resources), which has taken on responsibilities for both planning and implementing the strategy, rather than focusing on planning the strategy and co-ordinating its implementation. It would not be tenable for MinTIC to maintain its current responsibilities in the evolution to a digital government, as this requires co-ordination and collaborative efforts between the various institutions.

The institutional set-up within MinTIC does not fully empower the Digital Government Directorate to carry out co-ordinated, coherent and efficient implementation of the strategy in all fields and sectors. In consequence, no clear and comprehensive efforts to create synergies with a systematic approach have been evident at MinTIC; on the contrary, the approach to developing strategies within MinTIC, as well as to ICT strategies in other ministries, is vertical and isolated. Another consequence is the duplication of efforts across sectors acting at different speeds and taking actions that are not in tune with the overall strategic approach.

Decree 1414/2017 (Government of Colombia, 2017), modified the structure of MinTIC by establishing two vice-ministries: that of the Digital Economy and that of Connectivity and Digitalisation. This restructuring is an important first step to defining an appropriate institutional framework and creating bases for planning and efficient co-ordination of the implementation of the new Digital Government Policy.

As part of the restructuring of MinTIC, the Digital Public Innovation Centre (CIPD) was assimilated into the Digital Government Directorate in the Vice-Ministry for the Digital Economy. This new position strengthens the case of CIPD to become a key ally in promoting the digital transformation of the public sector in Colombia. Its position in the Directorate guarantees that the approach of CIPD in generating public value, driving forward the Sustainable Development Goals (SDG) and creating an ecosystem of digital public innovators will be firmly aligned with the vision and strategy for digital government. The activities of CIPD related to developing prototypes for digital applications which create public value, to strengthening innovative skills throughout the public sector and to creating a network of catalysts for innovation are of great value in the shift to digital government. The position of CIPD within the Digital Government Directorate will also help to promote the necessary change in mentality and culture in public entities to guarantee successful implementation of the Digital Government Policy

and turn technological and organisational innovations into lasting practices on a grand scale.

Establishing co-ordination mechanisms

National institutions and local authorities have a keen appreciation of the leadership and support offered by MinTIC in the implementation of the Digital Government Policy. Nevertheless, there is no formal co-ordination in strategic or operational terms (for example, mechanisms or organisations) between entities in the public sector. Co-ordination happens on an ad hoc and informal basis; for example, it may be based on ICT consultants and officials at MinTIC having met or worked together previously or on meetings set up for this purpose.[1] As a result:

- There are few formal institutional spaces to co-ordinate and empower CIOs and guarantee their accountability as they participate in the implementation of the Digital Government Policy (previously, the Online Government Strategy).
- There is no strategic alignment with MinTIC, but only vertical, duplicated efforts.
- Opportunities for synergies are being wasted and the benefits from economies of scale, planned growth in IT resources and use of shared resources are being missed.

The current set-up also lacks a formal institutional forum (e.g. an advisory council) to facilitate and promote dialogue and engagement with the whole digital government ecosystem, including representatives from the private sector, academia and civil society, as well as members of the legislative branch. Most links with stakeholders from academia, civil society and the private sector have thus far been established in an ad hoc way and have been short-lived, in a manner typical of an e-government mindset.

Such a forum is essential to ensure a citizen- and demand-driven, inclusive and participatory approach to development and implementation of the strategy and which, at the same time, enables the role of the government as a platform, as a key characteristic of digital government.

Establishing support policies

It is clear that there are untapped opportunities for integrating and co-ordinating digital government projects. Collaboration between government institutions can be improved, amongst others through legislation to promote collaboration. Moreover, increasing the co-ordination with the legislative and judiciary branch and with the autonomous entities of the State is of utmost importance for planning and implementing ICT projects and for sharing data and information within the government. Sharing resources within the Colombian Government is not yet common practice, which represents a barrier to encouraging whole-of-government approaches to identify integrated solutions.

Recommendations

Governing the digital transformation of the Colombian public sector

Based on the assessments described above, which stem from the main findings in Chapter 1 of this review, the Colombian Government could consider the following public policy recommendations:

Defining a Digital Government Strategy

1. **Guarantee that the new Digital Government Policy** supports the necessary changes in Colombia in the post-conflict period, contributes to a comprehensive socio-economic development of its society and is oriented to the needs of its citizens. Consequently, the following is recommended:
    - The policy must build on the capacities developed by the Online Government Strategy and define strategic objectives aligned with the necessary changes in the State and in society and which drive forward initiatives of the whole government. In this way the enabling role of the government as a platform would become more concrete in the strategic use of digital technologies for the co-creation of public value as a key characteristic of digital government.
    - The design of the new policy must be based on the *results of citizen engagement practices*, whereby direct participation of citizens helps to identify their needs and preferences as they interact with the State, thus ensuring their inclusion in the goals of the strategy itself. This in turn leads to the use and establishment of the "user-driven" standard.
    - With this in mind, the policy must generate guidelines and specific direction so that public entities link up with citizens —and users in general— by developing policies and services so that citizens can also develop the skills to interact with the State via digital media.
    - Likewise, the policy must consider and prioritise specific needs on a territorial basis which represent the shared and specific needs of regions, departments and municipalities, as well as of vulnerable groups, for which digital government initiatives could generate considerable public value.
    - The programmes defined to attain these goals must be prioritised according to the beneficiaries and the benefits they provide.
    - In order to ensure the efficacy of such changes, the systems to measure them must be based on the needs of citizens and businesses, and not on the needs of institutions as service providers.
    - To ensure accountability of the various entities, the policy must clearly identify its key stakeholders who are to bring about the various goals defined in the strategy itself.
2. Establish mechanisms which guarantee that the **Digital Government Policy is adopted correctly** by government leaders in all areas and at all levels so that it becomes integrated in the "fabric" of the State and reaches beyond the current administration. Said mechanisms must consider **efficient communication strategies** capable of reaching citizens and stakeholders.
    - To align the strategic aims defined by the various areas and levels of government, government leaders at the *national* and *territorial* level must be made aware of the foundations and guiding principles of the Digital Government Policy and the need for their active participation in the implementation of the strategy for the attainment of its goals, so that their political support facilitates co-ordinated implementation and monitoring of the initiatives.
    - In particular, the Administrative Department of Public Service (DAFP) must become

a strategic ally to promote the key role of digital technologies in the modernisation of the State and in public sector reform. Transformations must include new standards, such as "digital by design".

- *A culture must be promoted throughout the whole government that is conducive to the attainment of its targets in each and every one of the political and organisational fields*. The digital government policy and initiatives must support the approach of the government so as to show that the Digital Government Policy can support the implementation of policies in all areas of government, from management and institutional performance in the Integrated Planning and Management Model (MIPG) to specific sectors such as education, health and labour.
- *It is important to communicate to citizens the public value which the policy and its initiatives will generate*. The intention behind this communication is that citizens will adopt the strategy and support its implementation through informed demand. The strategy must be communicated to citizens through their preferred channels so that messages are received clearly and directly. Consequently, the recommendation is to focus on channels such as social networks, videos and communication forums that ensure reaching the largest possible audiences. Accordingly, these messages should be disseminated in public spaces and via mass media outlets.

Strengthening the institutional framework

The effective implementation of the Digital Government Policy requires the appropriate institutional framework. This framework must incorporate mechanisms to break with the traditional culture of working in isolation and encourage a **whole-of-government approach** based on standards of collaboration, co-ordination, integration and sharing. To achieve this, institutional frameworks are needed which promote mainstreaming of issues and collaboration between institutions so as to ensure an integrated provision of services based on a public administration that is fully interoperable.

3. **The new vice-ministries must work together** to drive forward an agenda ensuring that the digital government acts as a tool for progress in two important areas for Colombia: competitiveness and market strengthening; on the one hand, with products and services that contribute to the development of the digital economy, and on the other, developing mechanisms and services to create bonds that restore trust between citizens and public institutions.
4. MinTIC must evaluate the options in order to guarantee a **clear division and empowerment of responsibilities** between public policy design and implementation.
    - Empowerment of the Digital Government Directorate is needed to ensure the strategic alignment of all other areas of government and the adoption of the policy and its guidelines throughout the whole government, as well as to monitor and oversee policy implementation.
    - The body tasked with implementation of the policy (for example, a government agency) must be appropriately empowered, on the basis of legal instruments, to ensure clear strategic leadership and co-ordination of all stakeholders and implementation efforts by the different government entities. This agency will need to have sufficient standing to ensure the necessary political support, a clear mandate, sufficient capacities and resources, the authority to co-ordinate stakeholders and make decisions (regarding standards, for example) throughout the whole government. Clear institutional governance of the agency is required, in a context of overall institutional clarity with respect to key stakeholders in MinTIC.
5. Leveraging the integration of CIPD in the Digital Government Directorate is recommended for designing and developing of the Digital Government Policy:
    - Define a work process to scale successful innovations in a sustainable manner and

thus contribute to progress towards the digital government, taking into account the various contributions from the whole ecosystem of digital government.
- Extend the Innovation Catalysts Programme to strengthen innovative skills and culture for digital transformation in public entities, prioritising territorial entities.
- Secure the position of CIPD within the Digital Government Directorate, at least while the Digital Government Policy continues, in order to turn the necessary large scale technological and organisational innovations into lasting practices.

Establishing co-ordination mechanisms

The whole-of-government approach motivated by the new Digital Government Policy will only materialise if the digital government ecosystem in Colombia and its co-ordination mechanisms are strengthened. To this end the recommendation is to:

6. Ensure full validity and operability of Decree 415/2016, which defines guidelines for strengthening institutions in terms of ICT and that public entities adapt their organisational structures to **guarantee that the IT leaders in each area support the attainment of every institution's mission and goals**.
7. Establish **co-ordination mechanisms** with two levels of co-ordination to guarantee the appropriate level of performance and coherent use of digital technologies throughout all government:
   - *Strategic co-ordination*, under the responsibility of a collegial body which should involve all the relevant parties to co-ordinate digital government initiatives throughout the whole government. The Council for Management and Institutional Performance could be responsible for providing feedback on the strategic guidelines for digital government compiled by MinTIC and ensure co-ordination with other MIPG policies. Nevertheless, due to the sizeable agenda this Council might have to deal with, mechanisms must be implemented to avoid a shift in digital government policy, such as postponing the issues of digital government in favour of others considered to be of greater priority. To this end, a specialist committee for digital government should be set up within the Council.
   - *Operational co-ordination*, under another collegial body (or similar to the strategic co-ordination mechanism but representing institutions from different levels) responsible for the operational co-ordination of ongoing projects which may be linked to more operational decisions to promote an inclusive and shared approach, which is essential to develop a digital government.

     This body could be chaired by the person in charge of the Vice-Ministry for the Digital Economy and include the CIOs from each ministry, who would be members of the existing CIO network in Colombia.

     The organisation responsible for operational co-ordination must take responsibility for empowering CIOs in the government as well as their on-going training in digital government and governance practices. To do so, they could use the substructures established in the Digital Government Directorate, by Decree 1414/2017, as working groups on different topics including business architecture, procurement, transparency, information management and cybersecurity, etc. This body could also co-ordinate the institutional actions required under Decree 415/2016 on monitoring and assessing the Digital Government Policy within the framework of MIPG.
8. Establish formal spaces for structured co-ordination with stakeholders in the digital government ecosystem. The **creation of an advisory council** is recommended to act as an intersectoral forum to promote dialogue and commitment between the various stakeholders. The council should be made up of representatives from the private sector, civil society, academia and the legislative branch. It would be advisable for the government to adopt a new role to foster a sustainable digital ecosystem.

9. Collaboration between government institutions must be part of the new culture created by the digital government. Training and network development at the national and territorial level must be promoted. These networks must encourage the dissemination of good practices, experience, solutions and resources. The must also builds bridges between public institutions and support the execution of collaborative projects.

Establishing support policies

10. The new Digital Government Policy will need public policies that support its vision. In particular, **policies must be formulated which promote the whole-of-government approach**; this will encourage institutions to share resources and collaborate in inter-organisational projects that deliver integrated solutions. These policies must establish the concept of whole-of-government resources and put an end to the idea of data, information and resource "ownership" by government institutions.

Fostering a more collaborative and citizen-driven Colombian public sector

Key assessments

Moving from consultation to citizen-driven collaboration

When considering the post-conflict context in which Colombia finds itself, reconfiguring the relationship between government and citizens in order to strengthen the legitimacy and trust in governmental institutions is a major challenge, but also a key instrument to stimulate economic growth and social welfare. As a consequence, a guiding principle for this new model of governance to support the digital transformation of the public sector in Colombia should be the re-establishment of trust and legitimacy. This entails reshaping the relationship between citizens and the State in a manner conducive to the greater empowerment of citizens. If Colombia wishes to fully benefit from the opportunities that digital technology offers to create a more transparent, participative, collaborative and inclusive State, it must recognise that trust between State and citizens must be built around the needs and challenges of the post-conflict context the country is entering.

The Peace Agreement and the firm transparency and anti-corruption agenda related to it provide a solid and legitimate foundation to drive forward the digital transparency initiatives and the open government data policy. Nevertheless, the intense debate about transparency could result in greater emphasis being placed on the disclosure of government data and information as the ultimate objective and overshadow the possibilities offered by digital technologies in facilitating a more active role for citizens and civil society organisations in the use of government data and information, and in solving society's problems through new types of collaboration. Allowing and encouraging this role is key in building up public trust.

In using ICTs to create an open government agenda, Colombia has done more than simply focus on transparency. It has also encouraged public institutions to design digital participation initiatives that capture the opinions of citizens and involve them in institutional decision-making. A key factor in the successful increase in the digital participation of Colombian citizens was the initiative known as Crystal Urn. However, these initiatives are largely driven by public institutions and do not consider facilitating a more active role for citizens or civil society organisations.

The Colombian government took an important step in redefining the relationship with its citizens and society as a whole by inciting the evolution from a top-down rationale, as

part of the e-government approach, to a digital government approach, requiring the government to take up a facilitating role and act as a platform. Initiatives are being developed in several areas of Colombia's digital government that consider a more active role for citizens, but it is not always clear how to encourage this role or how much progress has been made towards this end.

Strong political willingness is evident and is supported by institutional arrangements within the national government —materialised in the Transparency Secretariat— aimed at promoting an agenda for transparency, open government and anti-corruption, all of which has helped to enable various digital initiatives. Although these initiatives envisage active roles for citizens —for example, as anti-corruption auditors or quality monitors for school meals— it remains unclear how these roles can be promoted. Moreover, there is no clear alignment with MinTIC initiatives aimed at participation and open data, which is why potential synergies are lacking, such as the publication of data generated by citizens on the open data platform and initiatives to encourage the re-use of these datasets.

The "Science and ICTs for Peace" initiative led by the Administrative Department for Science, Technology and Innovation (Colciencias), MinTIC and the Unit for the Assistance and Comprehensive Reparations of Victims is an excellent example of the government providing a platform so that society's stakeholders can together devise a digital solution to a problem they believe is worthwhile addressing. This approach is not only relevant for matters related to peacebuilding, but also for other problems in society. "The Biggest Conversation in the World", is a successful civil society organisation managed on a digital platform allowing conversations between Colombians about their role in the peace process. In both cases, the government provided the platform on which citizens created value via digital technologies. Additionally, initiatives involving user research labs to engage citizens from the very start in the design of digital services are highly valuable to identify their needs as service users and co-create solutions meeting those needs. The challenge will be adopting this approach on a larger scale and ensuring that efforts are maintainable and will therefore contribute to public trust.

Leveraging open government data to create economic and social value

Over the past years, Colombia has managed to increase significantly the number of open datasets on the Open Data Portal of the Colombian State and has also invested in improving accessibility of datasets. Whilst these efforts should be continued and expanded, Colombia has much to gain from investment activities aimed at fostering the re-use of open government data for the co-creation of public value; this would also strengthen the government's role as facilitator (government as a platform). This is also reflected in the OURdata index of the OECD at the national level, in which Colombia's relatively high scores in comparison with the majority of the countries in the Organisation fall when considering activities focused on encouraging the re-use of open government data (OECD, 2017).

Demonstrating the impact of citizen engagement

Measuring the results of activities related to digital participation and collaboration, and the dissemination of these results, is characterised by an institutional perspective. In other words, there are few citizen-driven measurement parameters which represent real user experiences or the impact of their contribution on public policies.

Recommendations

Promoting a more collaborative and citizen-driven Colombian public sector

Based on the assessments described above, which stem from the main findings in Chapter 2 of this review, the Colombian Government could consider the following public policy recommendations:

Moving from consultation to collaboration driven by citizens

11. In order to bring about the necessary engagement of Colombian citizens in rebuilding the country in an era of peace, while overcoming the challenge of low public trust, **efforts must be focused on creating specific value for the population** and on offering forums for collaboration between citizens, civil society organisations and public authorities to jointly develop or identify solutions to public problems and needs. Hence, the recommendation is to create more opportunities so that citizens and civil society organisations can drive collaborative processes and the design of digital public services through the following actions:
    - Strengthen the Crystal Urn as a central platform for digital participation in Colombia in order to switch from a governmental rationale (with categories of open government policy) to an approach driven by the needs and interests of citizens (with public challenges of high interest).
    - Use the Citizen Folder not only as a single access point for citizen e-services, but also as a channel for topics of interest (e.g. health, agriculture) and inferring these from citizen characteristics and the services they use (for example, unemployment benefits). These functionalities would allow the government to better identify the needs of citizens and send personalised invitations for participation and collaboration activities. It is vital to enable mobile access in order to guarantee inclusiveness of the Citizen Folder.
    - Work with the Centre for Digital Public Innovation (CIPD) to promote initiatives and forums for collaboration that would allow national and territorial government institutions to address public policy issues, and allow citizens, businesses and civil society organisations to participate in creating the solutions.
    - Continue to identify instances of public service research and design involving citizens as "digital service users" from the beginning and endeavour to scale up so that these practices become the institutional norm.

Leveraging open government data to create economic and social value

12. **Incorporate the re-use of open data as the main pillar of the open data policy**, in line with the efforts aimed at encouraging collaboration driven by citizens:
    - Develop the functionalities and features of the national open data portal for it to become a genuine platform of collaboration between the government and civil society, academia, the media and businesses.
    - Support public institutions in order to guarantee data quality, as set out in the guidelines and standards for data management defined in the Digital Government Policy.
    - Intensify collaboration with civil society organisations to increase the re-use of open data, help vulnerable groups and generate social value.
    - Encourage entrepreneurship and innovation with data through hackathons aimed at generating economic value. It is recommended that CIPD initiatives be scaled at the territorial level.
    - Promote collaboration with civil society and data entrepreneurs to identify needs related to data openness and promotion.

- Consider options for stakeholders to upload datasets to the open data portal so that they may have a more active role in the open data ecosystem.
- Make greater efforts to build up more up-to-date knowledge of the open data ecosystem throughout Colombia and its more active involvement in the re-use of data to increase the impact and value for citizens throughout the country.
- Leverage the national open data portal to empower citizens and civil society organisations in monitoring the inputs, activities, outputs and outcomes of digital government initiatives and holding the government to account regarding the progress on digital government. This could be implemented by publishing administrative and service data in open formats and providing dashboards, visualisations, forms and other tools as accountability mechanisms on digital service improvement.

Demonstrating the impact of citizen engagement

13. **Strengthen measurement and evaluation of digital citizen engagement and delivery of results**, on the one hand, to achieve a better understanding of where to apply efforts in organising activities for citizen involvement, and, on the other hand, to motivate citizens to express themselves and contribute to policies driven by them, through the following actions:
    - Measure and communicate not only the achievements related to the process of participation, such as the type of process and its inclusiveness (for example, raising awareness, open innovation or consultation campaigns), the status (e.g. announced, on-going, closed), the number of participants and comments, and the channels used, but also the achievements in terms of political consequences, such as new initiatives, innovative co-operation and changes to existing policies.
    - Incorporate the measurement aspect when devising participative processes and standardise aspects to be monitored and their presentation so as to facilitate comparison of participative activities throughout the country and increase their transparency in order to build up the public trust.
    - Supplement government-driven indicators (for example, public entities which declare the number of open innovation activities they are organising) with citizen-driven indicators (such as the percentage of participants in open innovation activities per available channel, percentage of citizens who visit the initiative but do not participate or the percentage of participants who express their satisfaction with the open innovation solution implemented).

Strategic use of data in the public sector in Colombia

Key assessments

In the context of the peer review mission, the use of data emerged as a key issue for stakeholders in the digital government ecosystem.

Colombia can take advantage of its previous achievements in IT architecture, interoperability framework and data reuse by public entities to create a genuinely 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 an environment which fully allows the government to identify and capture the strategic value of government data as a key vector in the digital transformation of its entities.

Colombia already has various promising elements to create a data-driven public sector, but lacks foundations in terms of governance, institutional culture and capacities to leverage the knowledge and expertise available in universities, the private sector and some parts of the public sector.

Managing the data value chain in the public sector

Sharing and using data analytics is far from a wide-spread practice for the Colombian government. Most initiatives, albeit promising, remain limited to a local context and do not transcend sectoral barriers, although this would be essential in order to implement an administration that is really driven by citizens instead of a government-led administration.

Promising initiatives, such as the flood warning system based on data collected 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:

- A data-driven public sector is not a matter of data and technology alone, but a facilitating factor so that governments perform better when addressing genuine problems and create value for their citizens.
- Investment in data use and sharing can provide a significant return, both in a financial and non-financial sense (for example, looking at the damage caused by the floods in Putumayo).

The Excellence Route shows how to connect the question of management and data reuse with other priorities through a user-driven approach, as in the case of land restitution and providing comprehensive care and reparations for victims of the conflict. These are examples of services which try to go beyond the rationale of individual institutions and focus on the needs of victims. Working with the eight public institutions involved in land restitution and creating sensible data catalogues and high-quality interoperable data systems not only promotes the efficiency of institutions and citizens (in helping more victims in less time), but also the quality of the process of land restoration.

Public institutions in Colombia do not share data in a proactive manner and the current arrangements for data governance do not encourage them to do so, leaving untapped opportunities for value creation. The current rationale is characterised by requests for access to information, where opening data up to the public or sharing them with other public institutions is only allowed if specific procedures are adhered to. This turns out to be a long and complicated process for public organisations —especially when sensitive data are involved which can be retraced to individuals— when trying to reach government-to-government (G2G) data sharing agreements. Furthermore, inefficiencies emerge on implementing said agreements because the same data can be requested twice if they are not up-to-date when they are used in the institution which requested them.

Guaranteeing legitimate and trustworthy data governance

The efforts of the Colombian government related to information privacy and security are focused mainly on protecting information systems, managing digital security incidents and training public servants in questions of data privacy. The implementation of this policy has yet to be completed throughout the whole of the public sector and challenges remain in territorial institutions taking ownership of these matters. At this stage of implementation, it is still seen as a matter of internal management and a risk to the reputation of the government. Hence, it is not an open policy which considers a more active role for citizens in the management of their personal data.

Ensuring data management skills throughout the whole public sector

The practical difficulties and the lack of knowledge about the legal possibilities for exchanging data represent significant obstacles for data use by public institutions. Less advanced organisations face an additional problem: a lack of knowledge and training related to data management both among top management and among public servants. This not only has an impact on the individual institution, but also causes problems for the interoperability of data systems throughout the public sector.

Recommendations

Strategic use of data in the public sector in Colombia

Based on the assessments described above, which stem from the main findings in Chapter 3 of this review, the Colombian Government could consider the following public policy recommendations:

Managing the data value chain in the public sector

14. **As part of its Digital Government Policy, Colombia must draw up strategic guidelines and standards for the management and use of government data**, both open and not within the public sector, in order to strengthen capacities in the foresight of public challenges, the design and delivery of policies and services and the management of government performance:
    - Connect data guidelines to other strategic priorities for the country —such as SDGs, land restitution and assistance for victims of the conflict— so as to show the public value of data use throughout the public sector.
    - Identify and adopt standards for managing public, reserved or classified data throughout the value chain of government data.
    - Ensure that guidelines and data standards are aligned with the open data policy, the national data policy (CONPES [National Council for Economic and Social Policy] on data use) and the guidelines on access to DANE microdata.
    - Develop basic efficiency indicators for data use by public institutions and the open data ecosystem with the aim of improving measurement of the impact related to this issue.
15. **Establish a data authority with a clear mandate** to support public institutions in the transition.
16. Progress towards a **catalogue of government data**, which includes public, reserved and classified data:
    - In addition to the current prioritisation of datasets with a strategic value for reuse as open data, priority datasets must be created for sharing and use by public institutions and catalogued as a first step.
    - Ensure that all public institutions have data catalogues created according to standards applicable to the whole public sector.
    - Base implementation standards and methods on the good practices of the most advanced sectors.
    - Create a single point of access to catalogues and metadata, connected with the interoperability platform and the open data portal.
17. Facilitate and encourage **sharing by design** and **openness by design** of government data:
    - In addition to the obligation to open up public data in a proactive manner as already included in the regulatory framework, an obligation to evolve from a reactive to a proactive exchange of reserved and classified data is required that respects regulations on personal data protection and national security, and takes into account the different maturity levels of public institutions regarding the necessary capacities and skills.
    - Draw up guidelines and standards to guarantee the interoperability of open and non-open data systems.
    - Implement data management processes designed to facilitate exchange and openness.
    - Provide technical support so that institutions share data by uploading these to the State's interoperability platform.
    - Support public institutions to increase their understanding of the principles of sharing

by design and openness by design, and to combat the culture of not sharing.

Guaranteeing legitimate and trustworthy data governance

18. **Promote public trust in data governance** by the Government of Colombia, in particular:
    - Create a digital access point for citizens providing transparency to their personal data. This would facilitate greater transparency on the data recorded by the State, the existing access rights and the use by public entities and other stakeholders, as well as transactions related to these data. This access point could be integrated into the Citizen Folder. It is recommended that a link to this central point be included in each organisation's website to help citizens who are not yet accustomed to central and integrated services.
    - Consider empowering citizens in the management of their personal data at the same access point, preceded by appropriate regulations, technical tools for electronic identification and the possibility of uploading supporting documentation.
    - Show and explain the general public the results and value created by a better flow and use of data throughout the whole public sector.

Ensuring data management skills throughout the whole public sector

19. **Strengthen leadership and training in data governance**.
    - Encourage data officers (iCDOs) (data stewards) to carry out actions addressing the management of the government data chain to facilitate integration and alignment of open data and data use policies by public entities in order to transform services and policies.
    - Improve training of public servants in data use and ensure that it is always offered in conjunction with matters related to security, privacy and ethical use of data.

Coherent implementation of digital government policies in different contexts in Colombia

Key assessments

Recognising territorial differences

Colombia is characterised by its rich biodiversity, both natural and ethnic; consequently, different ecosystems can be found throughout the country, each with its own special characteristics and needs. The country's regions reveal important differences, and not all are prepared equally in terms of connectivity, accessibility, literacy of the population and access to economic resources, which is why they do not have the same needs.

Although MinTIC has defined and implemented good approaches for e-government development in government institutions at the national and territorial levels, these initiatives concentrate on the governments and capitals of departments and, to a lesser degree, on smaller municipal governments. This creates a gap between national and departmental entities on the one hand, and smaller municipalities on the other. Ensuring the mainstreaming and capillarity of the strategy at all levels and sectors of government is one of the biggest challenges when transitioning from an e-government agenda to one of digital government.

There is a risk of a disconnection between the progressive approach of MinTIC and local needs, which may bring about a discrepancy between a strong political will and an approach to implementation with a forward-looking vision at a national scale, and the

most basic concerns and pressures facing territorial entities throughout the country, such as the need to solve questions of connectivity, accessibility and interoperability.

Going forward using existing support mechanisms

The role of MinTIC *vis-a-vis* the territorial entities has been mainly one of advisor and communicator, defining and providing instructions on e-government policy guidelines and standards. It has also provided specific tools and support mechanisms to territorial institutions, such as web platforms, the open data platform, face-to-face workshops and webinars.

MinTIC also supports implementation of the strategy at the territorial level via ICT managers, ICT consultants and other mechanisms. However, support provided by MinTIC to the authorities that are implementing the strategy at a national and territorial level is "supply driven" and based on the agenda of the central government.

Thus, despite the existence of a national strategy, there is a gap between the level of implementation which national and departmental entities achieve and the level achieved by smaller municipalities. This is attributable to a lack of clear support mechanisms for departments and municipalities, such as sharing national infrastructure and software which can be re-used, systematic training of staff, implementation of stand-alone models and integration of a more efficient use of economic and technical resources at territorial levels, among others.

Creating the necessary human and institutional capacities

Institutions do not always manage to implement what is set out in the strategy, mostly owing to the lack of appropriately trained human resources and high staff turnover, and to the lack of resources or the ability to obtain them. Particularly in the territorial governments, they are very dependent on MinTIC support to implement the digital government initiatives, although Decree 1078/2015 assigned responsibility to implement the Online Government Strategy to the legal representative of each body. Furthermore, the lack of their own strategy in the majority of the territorial governments was noted.

Furthermore, given the regulatory framework and related policies and compliance, many public institutions at the national or territorial level allocate most of their resources to the implementation of the Online Government Strategy, assigning a large part of their IT budget to recurring costs, such as software licences, and scarcely 20% to projects investing in ICT.

Responsibility of the implementation of the Online Government Strategy is assigned to CIOs in only a small number of public institutions. The profile of the majority of professionals directing implementation is primarily operational, especially at the territorial level. It is difficult to confirm that these persons have the necessary skills to recognise the strategic relevance of digital government and the use of technology, which is essential for carrying out the digital transformation of the public sector in Colombia.

MinTIC drew up an efficient programme to help public institutions adopt the Online Government Strategy. However, these efforts have fallen entirely on the shoulders of MinTIC, which threatens their sustainability as well as the potential for capacity-building among public employees at a local level so as to support the development of skills among local public servants in an independent manner.

MinTIC covers the missing capacities in public institutions to implement the Online Government Strategy and carries out activities, such as building human capacities and

providing financial resources, which other stakeholders should be performing in view of their own mandates, but do not.

Public institutions face difficulties to retain qualified IT staff due to non-competitive salaries, and lack of incentives for recognising their achievements and contributions.

There are untapped opportunities to create networks with the aim of sharing good practices and experiences between municipalities. These networks could help to create a more collaborative culture in public institutions which, in turn, would help in the execution of joint inter-organisational projects, as well as knowledge management in local governments and learning through sharing experiences. All this would help in leveraging current projects and initiatives to create synergies and economies of scale.

Recommendations

Coherent implementation of digital government policies in different contexts in Colombia

Based on the assessments described above, which stem from the main findings in Chapter 4 of this review, the Colombian Government could consider the following public policy recommendations:

Recognising territorial differences

20. A **definition of territorial strategies** for the digital government could be based on the level of differences between territories. Similarly, the priority lines of action for each region could be reflected in key objectives of the strategy at a national level.
21. In order to understand clearly the priorities for each region, **working groups** should be organised by region with representatives of the main stakeholders, so as to follow a participatory approach in defining the preparation, needs and specific priorities of each region.
22. MinTIC should **strengthen the efforts to provide access to infrastructure** and act strategically in promoting those territories ready to benefit from access to digital technologies.

Going forward using current support mechanisms

23. The expectation is that **MinTIC will help to empower territorial governments**, so they can define their own strategies, so the role of MinTIC must be expanded to help territorial institutions comply with the Digital Government Policy, focusing, for example, on providing shared bases for providing public e-services and training staff.
24. **Defining systems with soft and hard incentives** in order to ensure that all public offices at the national and territorial levels engage in the transformations driven by digital government. The first could consist of public recognition of institutions and persons who achieve results in the form of successful solutions or who contribute to their implementation. The second could be competitive funds to supplement entities' resources for investment projects, or the power to penalise if targets or guidelines are not complied with by these entities.

Building the necessary human and institutional capacities

25. Ensure all necessary resources are duly available:
    - In order to comply with new expectations, institutions should review their IT budgets to ensure resources are available for IT investment projects.
    - Review their procurement policy for IT products and services so as to benefit from

economies of scale, ensure interoperability of the State's systems and strengthen the position of the State as a purchaser of technology. Co-ordination of IT purchases could benefit from the mechanisms provided by the *Colombia Compra Eficiente* system.

26. Define a **holistic capacity-building strategy** as an essential element of the implementation of digital government initiatives. The strategy should consider the needs of the various stakeholders:
    - Help to **create the internal capacities necessary for digital government**, including defining policies to ensure that institutions can count on sufficient human resources, infrastructure and technicians to implement the initiatives. In particular, MinTIC should co-ordinate with DAFP to formulate these policies and ensure they become an integral part of an overarching public sector workforce strategy for Colombia. Special attention should be paid to **consolidating the internal capacity of the government to lead and supervise IT projects**, and not to depend on contractors. **Public institutions should be capable of attracting and retaining human talent**.
    - **Collaborate with universities to create new training programmes on digital skills and update existing ones,** both in the higher education system and internal ones. Training programmes should prepare public servants to be committed to the generation of public value and the associated cultural changes.
    - Ensure IT leadership capacities, as well as for the transformations driven by the digital government initiatives and associated processes of change. This means **relying on IT leaders who are trained and empowered in all institutions**, and on **directors, legal officers and media managers aware** of the aspects of digital government.
    - Guarantee that **directors and media managers act as catalysts for change** focussed on the digital government.
27. Co-operate with the relevant authorities to ensure that **citizens have the necessary IT skills** to use and benefit from e-services. **Institutional solutions** must be devised to develop the digital government:
    - Define **solutions and practices to allow managing and sharing government knowledge** —good practices, solutions, guides, methodologies, standards— with all areas and levels of government.
    - **Define mechanisms to increase efficiency in finding and developing solutions** within the State (for example, to avoid reinventing existing solutions or buying the same solution more than once). This could be achieved through the implementation of government repositories of digital government assets, and an IT procurement process based on a common strategy defined by the whole State and aligned with the priorities of the Digital Government Policy.
    - **Standardising IT management tools and reusing software infrastructure**.

Note

1. Comments received during the personal interviews with representatives of regional governments, OECD mission in Bogota, 12 to 16 June 2017.

Chapter 1

Governing the digital transformation of the Colombian public sector

This chapter analyses the process of strategic change from e-government to digital government in Colombia. It focuses on the achievements made by Colombia with the Online Government Strategy and the need to generate public value for all Colombian society through the strategic use of digital technology. Based on these strengths and the current and future needs of the government and social stakeholders, which have arisen from the peace process, the required changes to ensure a digital transformation in Colombia are examined. These changes include the definition and establishment of an institutional framework, suitable co-ordination mechanisms and policies that can help to formulate and implement a Digital Government Strategy.

Introduction

The following pages examine the national and international context which underpins the strategic change from online government to digital government, the evaluation of the progress achieved by the Online Government Programme as a departure point for this transformation in Colombia, and the conditions necessary to deliver public value through digital government initiatives.

The emergence of new technologies (such as mobile devices, social networks, cloud computing, the Internet of Things, Blockchain, etc.) and their adoption and ownership on the part of society and businesses represent new challenges and opportunities for governments. In terms of challenges, citizens expect that public institutions provide better quality services, for example, easier access to public services and government procedures. And to interact with government via multiple channels, with the possibility to select and alternate between channels according to their personal convenience. Additionally, access to public information, improved transparency in decision-making and better accountability regarding the use of public resources are all required. Conversely, public institutions face their own challenges. For example, how to interact with the millennium generations as public service recipients through new technologies, many of which have already been appropriated by them. How to innovate with the latest technologies in processes and services, structures and cultural organisations in a time of fiscal austerity. And, to protect information security and the critical infrastructure of government in a context in which cyberattacks are a daily occurrence.

In terms of opportunities, the new digital technologies seem to be powerful tools which, if used efficiently and strategically, can aid public institutions to implement major changes in their work methods and the way in which they interact with citizens and businesses. In particular, governments use these new tools to redesign their public service delivery strategies with the purpose of ensuring that they contribute to creating public value, considerably improve public sector efficiency, and achieve specific sustainable development goals, such as social equity, economic development, the protection of natural resources and good governance.

In this new context enabled by technology, governments must be prepared to react efficiently to social expectations, making use of opportunities and needs to introduce reforms, as well as carefully considering the associated challenges and risks. With the aim of aiding governments in these efforts, the OECD Council issued its *Recommendation on Digital Government Strategies* (OECD, 2014). These recommendations highlight the need for governments to review the underpinning strategies, frameworks, institutional structures and forms of governance through the adoption of a more strategic approach to the use of digital technology, with the aim of adapting to these contexts. The most important aim is to encourage governments to be more open, participative, and innovative and that they facilitate efficient and effective public-sector reforms. Essentially, the recommendations focus on the way governments change from an approach in which digital technology is used in the public service to improve its operations and to deliver better services (e-government approach) to one in which digital technologies become an integral part of public sector reform and modernisation (digital government approach). In other words, how to design and implement digital government strategies that can be integrated into modernisation policies and the design of public services in a way non-governmental stakeholders can participate and take ownership of the final results of the main reform policies (OECD, 2014).

Embedded in the international context —guided by the specific needs of the Peace Process— this is a historic moment for Colombia and its most radical transformation process in the last 50 years. In considering the need to think about the strategic use of technology to aid this process, the Colombian government aims to develop the strategic policy framework to ensure an effective transition from e-government to digital government. Citizens will play an active role through their direct participation in the design of policies and services. These efforts will require bridging the gaps and improving links between public institutions and citizens and other non-public sector stakeholders. It will also require better and fluid collaboration between public institutions, and between public and private sector representatives.

Strategic change: from online government to digital government

The Online Government Strategy as a starting point

As set out in more detail in the OECD report, *Assessing the Impact of Digital Government in Colombia*, (OECD, 2017a), the country began its work on e-government at the beginning of the 2000s. During these years, the work was characterised by its well defined and implemented strategic plans, which led to very good results.

One of the benefits achieved up to now with the implementation of the Online Government Strategy has been the monitoring system for strategy implementation which has been effectively established in the organisational culture of the whole national and territorial government. However, the system measures the supply of digital services, i.e. the services the institutions provide, and not the impact of these services on the society, economy and other areas. Furthermore, the Ministry of Information and Communications Technologies (MinTIC) has shown its ability to develop and promote implementation guides for digital government activities. It has successfully implemented open innovation practices, among other benefits. Based on what has been done, areas for improvement were also identified, such as collaboration with Colombian public institutions in establishing ambitious levels of planning for digital government, improving the explanatory power of the current monitoring methodology, including time considerations, the most advanced digital government indicators, and the user-driven measurement parameters, among other recommendations. Furthermore, also raised was the convenience of maintaining MinTIC's support to public institutions in developing their abilities to collect, manage, analyse and share evaluation data.

The concerted efforts up to now have made Colombia a regional leader in e-government. In the *United Nations E-Government Survey 2012* Colombia reached position 43 in the world and second position in the Latin America and Caribbean region. Only considering the online services index, Colombia leads the region and is number 16 in the world, at the same level as Sweden; with 100% of services at emergent level, 76% interactive, 65% transactional, and 74% connected. Additionally, in the electronic participation ranking, Colombia was the first in the region and sixth in the world, along with Finland, Japan and the United Arab Emirates (United Nations Department of Economic and Social Affairs, 2012).

Decree 2573/2014,[1] updated the Online Government Strategy to pursue the aim of building a more efficient, transparent and participative State through ICTs. The strategic aim results in a series of actions to provide citizens with the best online services, achieve excellence in management, empower and build public confidence, promote and facilitate the necessary actions to advance sustainable development goals, in a way that facilitates

the effective exercise of rights through ICTs. For implementing the strategy, four components are defined: 1) ICTs for services, 2) ICTs for open government, 3) ICTs for management, and 4) Information security and privacy.

Table 1.1 shows the development of Colombia's strategic plan regarding online government and its implementation plans. For each one, the aims, principles and main elements are summarised.

Table 1.1. **Colombia's e-government plans and strategies**

YEAR	STRATEGY	AIMS	PRINCIPLES	MAIN ELEMENTS
2000	Connectivity Agenda through CONPES No. 3072	• Expand the use of ICT in the country • Modernise institutions • Increase private sector competitiveness • Analyse and discuss access to information	• Quality of life • Competitiveness • Modernisation	Five strategic directions: 1. Access to information infrastructure 2. Use of IT in education and training in its use 3. Use of IT in businesses 4. Promote the national IT industry 5. Create online government content
2000	Action Plan for the Online Government	• Provide the State the connectivity that facilitates the online management of government institutions and aids their public service function.	(unspecified)	Three phases: 1. Provide information online 2. Offer online processes and services to the public 3. Online procurement
2008	Online Government under Decree 1151	• Build a more efficient, transparent and participative State. • Provide better services to the public and businesses.	• Citizen-centred government • A unified vision of the State • Equitable and multichannel access • Information protection • Credibility and confidence in online government	Five phases: 1. Online information 2. Online interaction 3. Online transaction 4. Transformation 5. Online democracy
2010	Live Digital Plan 2010-2014	• Boost the growth of Internet use to increase democratic prosperity	• Promote the development of the private sector to expand infrastructure and offer services • Incentivise the supply and demand of digital services • Reduce regulatory and mandatory barriers for telecommunications infrastructure and services • Prioritise state resources for capital investment • The government to lead by example	Four components: 1. Expansion of infrastructure 2. Creation of services at lower prices 3. Development of digital applications and content 4. Fostering ICT adoption and use
2012	Online government under Decree 2693	• Provide better services in collaboration with the society	• Collective construction • Innovation • Technology neutrality • Confidence and security	Six components: 1. Cross-cutting elements 2. Online information 3. Online interaction 4. Online transaction 5. Transformation 6. Online democracy
2014	Online government under Decree 2573	• To contribute to the construction of an open, more efficient, more transparent and participatory State, thanks to ICTs.	• Excellence in public service • Open and re-usable data • Standardisation • Interoperability • Network neutrality • Innovation • Collaboration	Four components: 1. ICTs for services 2. ICTs for open government 3. ICTs for management 4. Information security and privacy

YEAR	STRATEGY	AIMS	PRINCIPLES	MAIN ELEMENTS
2014	Live Digital Plan 2014-2018	• Making Colombia a world leader in social applications aimed at the least favoured in society and having a more efficient and transparent government, thanks to ICT.	• Less poverty • More employment • More opportunities	Four components: 1. Infrastructure 2. Services 3. Applications 4. Users

In addition to the strategic directions, Colombia established a sound regulatory framework to give legal status to digital documents and transactions. For example, Law 527/1999[2] was enacted in 1999 defining and regulating the access and use of data messages, e-commerce and digital signatures, and certification authorities were established. Moreover, in 2005, under Law 962,[3] provisions were enacted regarding the streamlining of transactions and administrative procedures of state institutions and organisations, particularly those that carry out public functions or provide public services. Both laws were amended by Decree 19/2012,[4] which sets out rules for abolishing or amending unnecessary regulations, procedures and transactions in public administration.

The regulatory framework also includes Law 1581/2012.[5] It legislates for the constitutional right to know, update and amend information that has been collected about people. Furthermore, Law 1712/2014[6] regulates the right to access public information, procedures to exercise this right, guarantees of the right and the exemptions for disclosing this information. To aid public institutions in guaranteeing access to information, MinTIC issued Resolution 3564/2015[7]. It defines guidelines regarding standards for publication and dissemination of information, electronic media accessibility for people with disabilities, an electronic form for receipt of requests for access to public information, open data and security conditions in electronic media. The most important framework regulations for the development of e-government are shown in Table 1.2.

Table 1.2. **Main laws and regulations for online government**

YEAR	LAW	ISSUE	SCOPE
1999	Law 527	E-commerce Digital signature	Access and use of data messages, e-commerce and digital signatures, and certification authorities.
2005	Law 962	Simplification of routines and procedures	Streamlining of transactions and administrative procedures of State institutions and organisations, particularly those that carry out public functions or provide public services.
2012	Decree 19	Simplification of routines and procedures	Rules for abolishing or amending unnecessary regulations, procedures and transactions in public administration. Amending Law 527/1999 and Law 962/2005.
2012	Law 1581	Personal data protection	Constitutional right to know, update and amend information that has been collected about people (personal data).
2014	Law 1712	Access to public information	Access to public information, procedures to exercise this right, guarantees of the right and the exemptions for disclosing this information.
2015	Resolution 3564	Access and accessibility to public information	Right to publish and disseminate information, electronic media accessibility for people with disabilities, an electronic form for receipt of requests for access to public information, open data and security conditions in electronic media.

Given the relevance of the required developments in government (e.g. in terms of the design of policies and services, of changing the existing institutional culture focused on e-government to one focused on digital government, of engagement and interactions with non-institutional stakeholders), there is a need to:

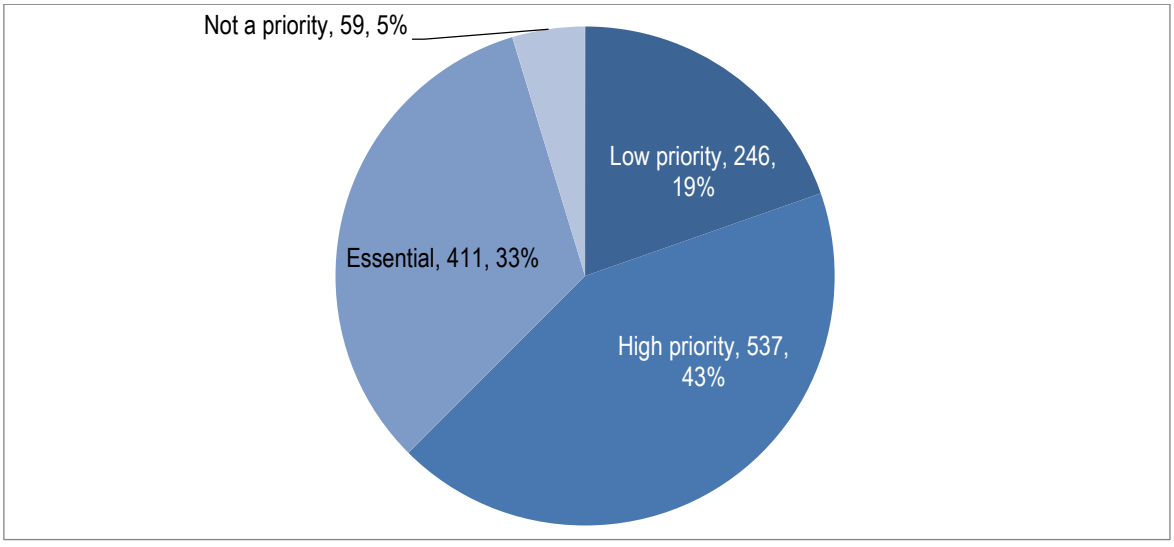
a clearly define the strategic priorities for a digital government agenda,
b establish effective institutional frameworks and governance mechanisms to foster horizontality, co-ordination and integration, and a whole-of-government and systems thinking approach to develop a fully interoperable administration,
c define policy levers to facilitate the co-ordination and implementation of the various initiatives.

Defining a Digital Government Strategy and aligning goals

Public institutions at national and territorial level show reasonable awareness about the strategic priority of implementing the Online Government Strategy. However, they differ significantly in how they use current solutions for its implementation, thus indicating their different priorities in carrying it out. The following can be seen from data collected by the OECD survey to evaluate the impact of the Online Government Strategy in Colombia. Of the 1,253 national level participating institutions, 33% (411 institutions) consider the implementation of the strategy essential, and 43% (537) consider it to be of high priority (Figure 1.1).

Figure 1.1. **Institutional strategic priority of online government**

Up to what point is the implementation of the Online Government Strategy (GEL) a strategic priority for your institution?



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

It is necessary to define a Digital Government Strategy that establishes goals and priorities for the whole executive branch of the State. This strategy must be integrated into the fabric of the State; this means that it should not be solely for the current government but rather as lasting the course of time. For this to happen, all sectors must be able to connect to it in a way that they benefit from the whole-of-government transformation and the sustainability of the efforts and results are guaranteed through fluid collaboration.

A recent study indicates that territorial governments in Colombia frequently consider planning as merely a formal exercise (OECD, 2016a). There is a need to raise awareness

among government leaders about the core ideas underlying the Digital Government Strategy. This awareness will contribute to closing the gap between the vision of the future led by MinTIC as opposed to public managers', generally strong, focus on e-government. It is hoped that awareness among leaders across the government will also contribute to better align the strategic goals defined by different sectors and levels of government with the national Digital Government Strategy, so to facilitate the co-ordinated implementation and follow-up of various initiatives.

The Administrative Department of Public Service (DAFP) appears to be a key government stakeholder and a potential ally for MinTIC in implementing the Digital Government Strategy. It would be strategic that the DAFP clearly understands the importance of placing technology at the centre of public sector modernisation and reform. In particular, that it should implement new approaches such as "digital by default" or "digital by design", among others, in streamlining and simplification of routine policies. It does not give the impression that this forms part of its current practice.

The new Digital Government Strategy should emphasise a citizen-driven approach, where beneficiaries participate and are engaged in the design and implementation of projects and programmes. This approach would replace a citizen-centred approach, which is based on what public institutions believe is best for the public, businesses and other service recipients. In some instances, it would replace the even more traditional government-centred approach, where projects and programmes are designed and implemented based on government's needs. Among other changes, this would lead to transforming civic participation practices into citizen engagement. In all cases, each institution's level of readiness should be considered, and the necessary actions defined in case some specific skills need to be developed.

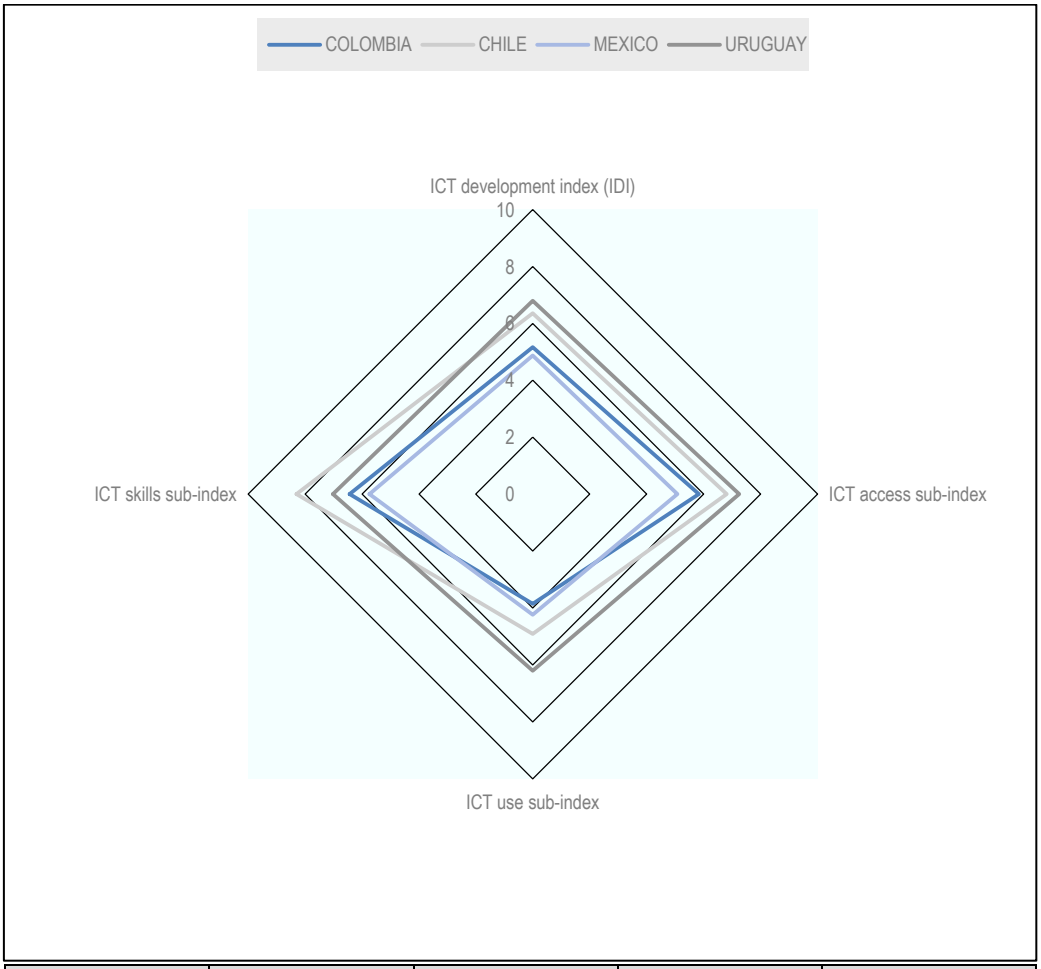
The national strategy should consider and prioritise important needs at the territorial level. For example, the strategy should define objectives and priorities targeting specific regions, groups of municipalities and departments with similar needs. In addition, the specific needs of the victims of the armed conflict and vulnerable groups must be particularly addressed.

Focusing on the delivery of public value

For analysing the delivery of public value, it is important to bear the local context in mind to understand the opportunities and challenges posed by the country's conditions. Colombia has a population of 49.4 million inhabitants, of which 34.83% are less than 20 years old.[8] This means there is a high degree of the population, digital natives, that require public services. In the ICT indices, as part of the efforts to evaluate the advances in the information society —ICT Development Index (IDI), and the corresponding access, use and skills sub-indices— Colombia shows a low level regarding access, but mainly in the population's use of ICT and ICT skills (International Telecommunication Union, 2016). Another relevant measurement is the Gini index, it measures the level of income inequality in a country, on a scale from 0 (maximum equality) to 1 (maximum inequality). In the case of Colombia, the national index is 0.517 and, although it has consistently reduced since 2014, it is still higher than other countries in the region (Departamento Administrativo Nacional de Estadística, DANE [National Administrative Department of Statistics], 2017). Furthermore, Colombia has a current unemployment rate of 9.1%. And, according to the Unit for Victims (UARIV), as on 31 December 2014 there were a reported 6.4 million people who were victims of forced displacement (Centro Nacional de Memoria Histórica, CNMH [National Centre for Historical

Memory], 2015). These three indicators show the existence of vulnerable groups, for which the digital government initiatives could create results with high public value. The ICT and Gini index values for Colombia compare with three countries in the region (Chile and Mexico, members of the OECD, and Uruguay, leader in digital government in Latin America and the Caribbean) as shown in Figure 1.2.

Figure 1.2. **Colombia's ICT and Gini indices and other countries of the region**



Gini Index	Colombia	Chile	Mexico	Uruguay
	51.1	47.7	48.2	41.7

Source: DANE (2017), *"Pobreza Monetaria y Multidimensional en Colombia 2016"* [Monetary and Multidimensional Poverty in Colombia 2016], (DANE), www.dane.gov.co/index.php/estadisticas-por-tema/pobreza-y-condiciones-de-vida/pobreza-y-desigualdad/pobreza-monetaria-y-multidimensional-en-colombia-2016; International Telecommunication Union (2016), *Measuring the Information Society Report*, www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2016.aspx.

MinTIC has demonstrated its ability to introduce interesting innovations when planning the delivery of public value to society. One example is the Excellence Route *(Ruta a la Excelencia)*, which focuses on simplifying routines and services that are in high public demand (analysed in more detail in Chapter 3). The Ministry of Health and Social Protection (MinSalud) also showed leadership in the delivery of public value. Most notably, MinSalud moved from having vertical solutions for providing each service

individually to cross-cutting solutions that provided integrated services (Box 1.1). This is a clear example of the transformations necessary to move forward from e-government to digital government.

Box 1.1. **Public value delivered by Colombia's MinSalud**

MinSalud was one of the first institutions that sought solutions to the problem of having several parallel systems —to solve vertical applications—, and each of them had data about individuals but did not have the ability to integrate them as the systems identified citizens differently.

Health and Social Protection Information System (SISPRO)

SISPRO is currently in progress and some modules have already been implemented. It is a health services administration system that has the following components: 1) assurance, 2) finance, 3) supply of health services, and 4) demand for health services.

On this basis, it began to structure different existing systems. Currently, there are 28 applications and a system for information exchange. MinSalud moved from vertical solutions to having cross-cutting solutions, by incorporating information with an integration table for the identity document. The table associates a person's different documents in several systems. Additionally, it exchanges and checks the table data with Colombian Migration and the National Public Registry, the sources of identification information of the State, to correctly identify the citizen.

Mi seguridad social (My Social Security)

In 2016, MinSalud established a new model for citizen assistance, "Mi seguridad social". It not only takes the citizen into account, but also their family and community. Furthermore, it offers the *Sistema de Afiliación Transaccional* (Transactional Affiliation System) (SAT). Here, each citizen can register and access their information, that of their family group, the data inputted in the health system and the health services from the previous three years. The system also has information provided by the health services' private suppliers.

Clic Salud

As an example of an initiative developed in collaboration with multiple stakeholders and data re-use, MinSalud, along with MinTIC, Colciencias (Administrative Department of Science, Technology and Innovation), and the Superintendence of Public Health designed the application Clic Salud. The application has three components: 1) *"Elijo saber"* (Choose to know) with information on the prices of specific brands of the same medication (it contains 4 285 medications, the equivalent of 46% of sales in drugstores); 2) *"Tu voz en el sistema"* (Your voice in the system), this allows health care to be rated, request information and make complaints and claims, and 3) *"¿Sabías que…?"* (Did you know?), which offers news about the system, information on people's rights and duties in the social security system, and recommendations related to diseases such as zika, chikungunya and dengue fever.

Source: www.minsalud.gov.co/Paginas/default.aspx; Health and Social Protection Information System, report for the OECD; www.miseguridadsocial.gov.co/index/index; www.mintic.gov.co/portal/604/w3-article-15294.html (in Spanish, consulted on 12 October 2017).

Apart from best practice, it is important that strategic aims should focus on the delivery of public value through ICT-driven initiatives and not merely on the delivery of ICT products or services (for example, in the inclusion of vulnerable groups through personalised services and accessible by mobile devices). It is essential to consider how recipients will adopt these products and services to increase the value that can be created with the digital government initiatives.

It was noted that many initiatives in different areas have been implemented in parallel with a certain allocation of resources. To ensure their continuity in a strategic manner, it is recommended that, in the implementation plan, initiatives are prioritised on the basis of the public value they create as a benefit, i.e. prioritise those that ensure greater impact considering the beneficiaries and the benefits to be delivered.

A "whole-of-government" approach is needed, leveraged by the digital government strategy and related policies. It is advisable to make managers aware and show examples of best practice in the digital government relationship with management and institutional performance policies within the integrated planning and management model framework led by DAFP. It must demonstrate how digital government policy consolidates the implementation of other policies, avoid duplication of efforts in institutions and ensure that digital government is not limited to the use of ICT in the State, but rather contribute with related initiatives with transparency, public participation, citizen assistance, routine simplification, document management, fiscal performance, education, health, and the environment, among others.

Adopting a communication strategy

Based on the face-to-face interviews with representatives of institutions at national and territorial level it was noted that, apart from MinTIC's leadership, there is no clear understanding among government representatives about the digital government concept and the deep transformations that the shift towards digital government entails.

It is necessary to clearly establish, without ambiguities, the new priorities defined by a Digital Government Strategy, and to communicate them thoroughly to the main stakeholders in all public administration, including all levels of local government.

A suitable communication strategy on the actions and decisions fostering the move toward digital government is a prerequisite for the successful implementation of the strategy. For example, an inappropriate communication might lead to an important landmark project, e.g. "Citizen Folder", as a project related to interoperability (the usual e-government approach) instead of a perfect example of the government's digital transformation.

In the same way as the relevance of communicating a Digital Government Strategy to the public administration is presented, importance should be attached to communicating the value of the strategy towards citizens. The main argument for developing this dialogue is that the population takes ownership of it and, above all, supports it, becoming a key player in driving the country's digitalisation strategy through informed demand. For this communication to be effective, it is recommendable to use the channels most used by citizens, such as social networks. This would allow for the widest penetration of these networks to communicate key messages to the public. Another example would be to communicate the strategy through videos, to take advantage of the many people that use the Internet in public spaces for this.

Mechanisms for supporting public policy goals with financial resources

Colombia developed a very complete planning system to direct investment priorities, at both national and territorial levels. However, the territorial development plans are usually disconnected from other instruments, such as territorial ordinance plans. Additionally, it is often noted that there is no direct relationship between planning and drawing up the territorial budget. Thus, the local development plans are not connected to the Medium-Term Expenditure Framework (MTEF), the annual budgets nor with selection of projects that are financed with royalty resources. For this reason, it is necessary to establish suitable intergovernmental fiscal agreements that help align the aims among the diverse levels of government (OECD, 2016a).

A commonly accepted idea about the feasibility of a Digital Government Strategy is that it is often tied to the availability of financial resources. In other words, the preconceived idea that "the budget is the solution" seems to prevail. The strategy needs to provide mechanisms for revealing unclear linkages between policy goals and budget, and other public policies and levered mechanisms to ensure the availability of resources needed for the implementation of key initiatives linked to core objectives.

The strategy should also demonstrate the fact that digital government initiatives can ensure savings in government spending as well as transparency in how financial resources are used. Furthermore, if government as a whole needs to manage financial resources in different ways, it would be advisable to establish a working framework and criteria for the reception, prioritisation and evaluation of initiatives.

It raises two necessary questions for establishing solid foundations for the implementation of digital government. On the one hand, a suitable institutional set-up, and on the second, co-ordination mechanisms.

Strengthening the institutional set-up

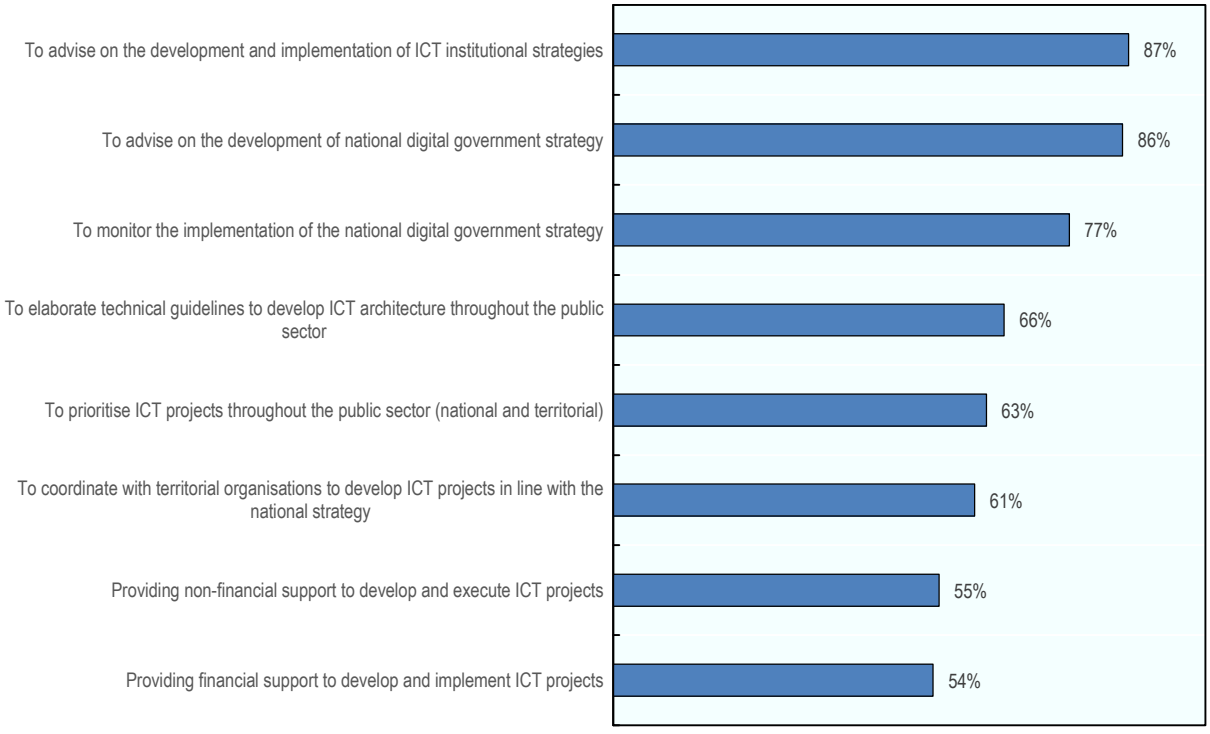
Although the current institutional set-up was effective for the implementation of the Online Government Strategy at a national level, it appears inadequate to fully introduce the transformations which the whole government needs to shift to digital government. The set-up that existed up to the recent restructuring of MinTIC exhibited excessive efforts from this ministry, and in particular the Digital Government Directorate, which had taken up responsibilities for both strategy design and implementation, rather than focusing on strategy design and co-ordination of implementation. In general, it is advisable to have an institution responsible for establishing the strategy and another for its implementation.

The public institutions recognise the efforts of MinTIC. According to the OECD survey for the review of digital government in Colombia, in which 125 institutions participated, 93 (74%) at territorial level and 32 (26%) at national level, 86% understand that the major responsibilities of MinTIC in its role of co-ordinator of the Online Government Strategy is to advise on the development of national Digital Government Strategy. However, they mainly recognise its advisory role on the development and implementation of ICT *institutional strategies* (for example, of ministries, governorates and municipal authorities). Other roles that more than half of the institutions that took part in the survey recognise are monitoring the implementation of the national Digital Government Strategy (77%), drawing up technical guidelines for the development of ICT architecture in the whole public sector (66%), prioritisation of ICT projects in the whole public sector (national and territorial) (63%), co-ordination with territorial institutions for the

development of ICT projects in alignment with the national strategy (61%), providing non-financial (55%) and financial (54%) support for the development and implementation of ICT projects. In Figure 1.3 MinTIC's major responsibilities, as recognised by other institutions, are shown.

In the same survey, when the institutions were asked to classify from 1 (very important) to 10 (not important) MinTIC's responsibilities for achieving the aims of the national Digital Government Strategy in Colombia, the three major responsibilities they recognise as MinTIC's are: 1) to advise on the development of the national Digital Government Strategy, 2) to advise on the development and implementation of ICT institutional strategies, and 3) to carry out monitoring of the implementation of the national Digital Government Strategy. These responsibilities were considered very important (with an evaluation from 1 to 3) by 83%, 75% and 68% of the participating institutions, respectively.

Figure 1.3. **MinTIC's main responsibilities as co-ordinator of the Digital Government Strategy**



Source: OECD (2017c), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

The role assigned to MinTIC for the design and implementation of the Digital Government Strategy should change. It would not be sustainable for MinTIC to maintain the responsibilities it performed during the implementation of the Online Government Strategy. The digital transformation of the entire government should not be, nor can it be, the sole responsibility of MinTIC. The nature of digital government implies integration and collaboration of all the stakeholders in the whole administration.

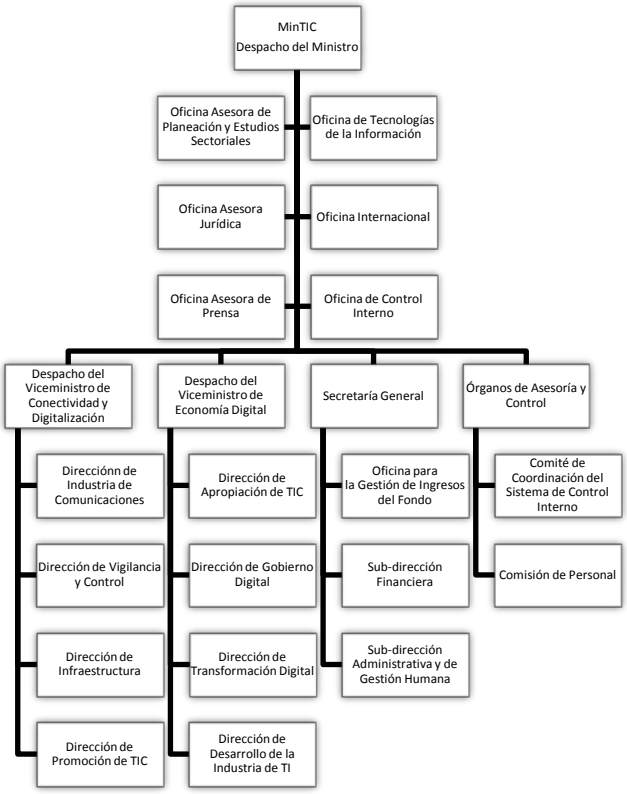
With the purpose of bringing forward its development agenda and as the driver of transformations, the Colombian government will focus on digital government as the

driver of competition and strengthening the Colombian market, as well as building up the links of trust between the public and State. To this end, Decree 1414/2017[9] (Government of Colombia, 2017), modifies the structure of MinTIC with the establishment of two vice-ministries: that of the Digital Economy and that of Connectivity and Digitalisation (Figure 1.4). This change, among others, seeks to establish an institutional framework and the basis to implement the digital government transformations.

In the new structure, some of the responsibilities assigned to the vice-ministry of the Digital Economy are as follows:

- Formulate public policies for:
  - the use, access and administration of the technology infrastructure that supports state information,
  - the security, privacy and interoperability of systems, and
  - the development of the IT industry, including digital content industry in the creative economy framework.
- Additionally, it must lead the design and adoption of policies plans and projects to:
  - promote and expand online government through the co-ordination of actions with relevant institutions,
  - promote and facilitate availability, afforded by the State, of general public data sets that allow the development of innovation and entrepreneurship processes based on technology through ICT, promoting the use of state information,
  - attract national and foreign direct investment in the ICT sector, as well as the establishment of technology businesses that facilitate access, ownership and use of communication technologies to the residents of the national territory, and valuing their benefits and guaranteeing their implementation,
  - promote digital entrepreneurship, and the consolidation of related business models, and
  - take advantage of ICTs in the development and promotion of e-commerce of goods and services.
- It must lead the formulation of management policies, maintenance and development of the name of Internet domains with the country code corresponding to Colombia. Have the responsibility to "Identify the degree of digitalisation" in the different sectors of the economy, it must formulate and articulate policies and programmes aimed at incentivising the use of ICTs in production processes of these sectors.

Figure 1.4. **Structure of MinTIC**



- **Establish***:* 1) the technology architecture of the state information systems, including standards of interoperability, privacy, security and construction or customising applications, 2) IT information that must be incorporated in the integrated information system, with IT sector data, variables and indicators, 3) national digital security risk management models, and 4) the strategic agenda of co-operation, collaboration and assistance in areas associated with digital security in the use of ICT. Furthermore, it must formulate, co-ordinate and implement actions with territorial institutions, smart cities policies and programmes.
- **Design and implement finance mechanisms**, advocacy and incentives for the IT sector to finance plans, programmes and projects.
- **Co-ordinate***:* 1) in each governmental sector, implement the recommendations and best practice established by the National Commission for Digital and State Information, and 2) encourage the adoption of public policies that reflect the norms of the new business models that support financial collaborative technology platforms.
- **Promote***:* 1) research processes, IT development and innovation, applications, digital content and emerging digital technologies, such as Cognitive Computing, the Internet of Things, data analytics, Artificial Intelligence, Distributed Registry and Robotics, etc., and 2) the intensive use of ICTs in the production processes of micro-, small and medium-sized enterprises and their value chain.
- **Advise on strategic planning**, on the design and formulation of Institutional Information Technology Plans, and support their implementation through the roles of management, supervision and audit.

With the new structure, Digital Government Directorate is composed of two sub-directorates: Online Government, and Information Technology Standards and Architecture. Among the responsibilities assigned to the Directorate are the following:

- to propose IT guidelines that comply with the required parameters of state information, security and information protection,
- to establish and co-ordinate the implementation of strategies to streamline IT procurement in the State,
- to plan and establish IT standards and structure that guarantee shared information environments and systems interoperability,
- to formulate and recommend action plans to incorporate IT standards and architecture parameters for state systems,
- to promote public-private partnerships for IT adoption processes,
- to formulate policies, programmes and IT adoption and ownership plans in state institutions,
- to establish guidelines for measuring the impact of public policies on online government and IT in the State,
- to formulate online government policies, strategies and practices,
- to promote co-operation between national, regional and local authorities, and relationships with community intuitions in online government issues,
- to draw up and implement policies so that the State publishes data that allows innovation processes to develop, and
- to design, co-ordinate and implement smart cities policies and programmes in co-ordination with the ICT Promotion Directorate and territorial institutions.

It is noted that in the new MinTIC structure, that the Digital Government Directorate retains responsibilities for establishing and implementing policies. Neither the previous nor the new institutional set-up within MinTIC fully empower the Digital Government Directorate to carry out co-ordinated, coherent and efficient implementation of the strategy in all fields and sectors. As a result,

- no clear and comprehensive efforts to create synergies with a systematic approach can be seen within MinTIC. On the contrary, the approach to developing strategies within MinTIC, as well as ICT strategies in other ministries, is and could remain vertical and isolated,
- without satisfactory empowerment of the Digital Government Directorate there is, and could continue to be, a duplication of efforts across sectors proceeding at different speeds and taking actions not aligned with the overall strategic approach. For example, although MinSalud showed leadership and ability to introduce relevant digital transformations in its associated institutions, this progress could impede the more holistic effort of the whole government to implement the "Citizen Folder". In other words, there are programmes that do not follow the interoperability guidelines defined with a digital government approach.

Some studies show that the hierarchy level of the unit, agency or role delegated to digital government in central government enormously influences its ability to ensure the necessary leadership to use the technology that drives change in the public sector (OECD, 2016b). By analysing 10 case studies of countries associated with the OECD, it was noted that three types of institutions effectively co-ordinate ICT rollout in the public sector: 1) internal units, offices or directorates that, generally, show good co-ordination ability and knowledge of the government's policy agenda. It expressly indicates that in these

cases it must be ensured that the unit has sufficient political support and adequate financial resources to drive forward the necessary transformations, such as in the case of the ***United Kingdom;*** 2) an agency that typically has stable leadership and staff, good funding and is independent from political priorities and cycles, and 3) a ministry or similar political authority, that gives enhanced visibility and financial resources, as well as better political positioning for the formulation of public policies (OECD, 2016b).

A new organisational structure, e.g. a new governmental agency, could provide the necessary institutional set-up to guarantee the appropriate implementation of the strategy. If established, it is essential to grant it with very solid foundations, e.g. a strong and sound legal basis, strong mandate with power to act government-wide, necessary resources, political support, clear governance of the agency, and in a context of overall institutional clarity with respect to key stakeholders in MinTIC. For example, MinTIC would establish the strategies and the policies and would oversee its implementation, while the agency would be responsible for the Digital Government Strategy, as well as the provision of the common components and resources that would be useful government-wide.

The responsible digital government agencies typically have a stable staff, show strong leadership and have good funding and are independent from political priorities and cycles (OECD, 2016b). They can exclusively pursue the implementation or have the regulatory authority and the formulation of public policy. The ability of the agency to enforce regulations and policies it establishes, as well as guarantee political support and its legitimacy, is essential to ensure the effectiveness of its work. As an institution, it needs to know how to compensate between political control and autonomy. In Box 1.2 examples of agencies in ***Denmark***, ***Portugal*** and ***Uruguay*** are shown.

Box 1.2. **Agencies for digital government**

Agency for Digitisation in Denmark

Created in 2011, the Agency for Digitisation is under the auspices of Ministry of Finance. The Agency oversees digitisation in Denmark and is responsible for the implementation of digital government initiatives in the public sector. It has the power to implement strategy, formulate policy, establish standards and drive implementation.

Agency for Administrative Modernisation (AMA) in Portugal

AMA was created in 2007 and sits within the Presidency of the Council of Ministers. The Agency is responsible for promoting and developing administrative modernisation in Portugal. AMA has administrative and financial autonomy and its own assets. It has substantive powers in terms of assigning financial resources and approving ICT projects. AMA manages funds for administrative modernisation, including national and European Union structural funds.

AGESIC in Uruguay

The Agency for the Development of E-government and the Information Society (AGESIC) was created in 2007 and is under the Office of the President of the Republic. The agency is the governing body for digital government in the country and has executive and regulatory powers. It has powers to issue regulations and administrative decisions in its area of responsibility and has a dedicated fund to provide technical and financial support for ICT projects in the public sector. Although it has sanctioning powers, it prefers not to use them in favour of promoting collaboration and sounder governance.

Source: https://en.digst.dk/; www.ama.gov.pt/; www.agesic.gub.uy/ (consulted on 12 November 2017).

Establishing co-ordination mechanisms

Co-ordination between public institutions

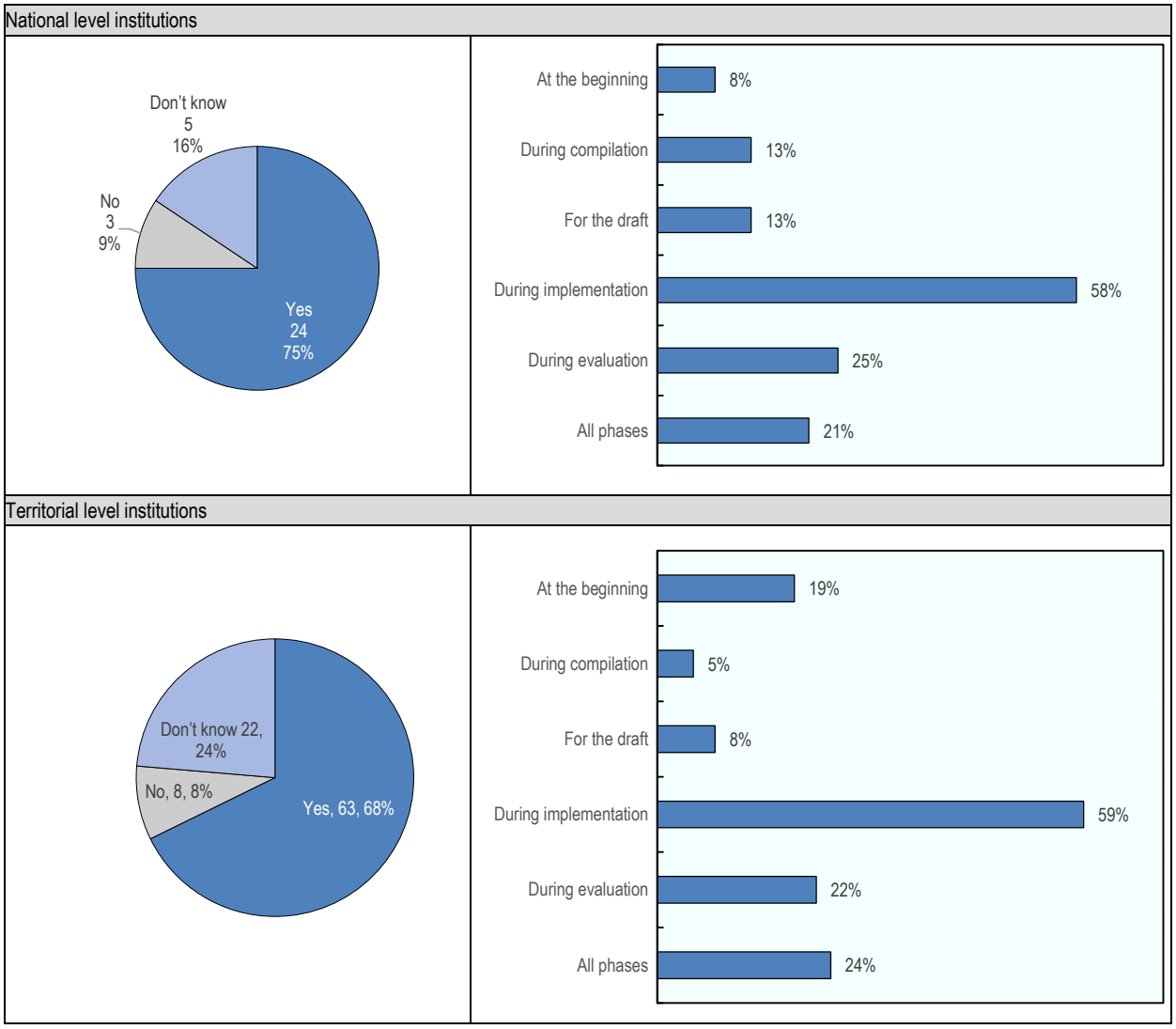
To co-ordinate the implementation of the national strategy MinTIC established mechanisms to support strategy implementation in the territorial area, e.g. through the following programmes:

- **Regional ICT Managers**. These are public servants charged with linking the regions with MinTIC and promoting the institutional services in governorates and municipal authorities. There are 32 managers, one for each territorial department, co-ordinated by MinTIC's ICT Promotion Directorate. As Minister David Luna remarked to them, "its management is key to the success of the *Plan Vive Digital* (Live Digital Plan) in the regions, it depends on you to truly deliver ICT to the people. Your job is to convince the municipal authorities and the governorships of the importance of technology in people's lives, the growth of the regions thanks to innovative technology based projects. You are my allies."[10]
- **ICT offices**.[11] These offices were set up with the responsibility of administering policies, as well as investment procedures and resources, aimed at promoting the use and appropriation of ICTs. They are structures that local governments implemented with their own budgets, the participation of their respective department assemblies and municipal councils, and with the advice and backing of MinTIC's Promotion Directorate. ICT offices were planned for the 63 main territorial institutions (32 departments and 31 capital cities). According to the size, the offices had distinct names, for example:
  - **ICT Secretariat**. In the departments of Atlántico, Boyacá, Caldas, Caquetá, Chocó, Cundinamarca, Meta, Norte de Santander, Santander, Tolima and Valle, and in the municipalities of Armenia, Florencia, Manizales, Mocoa, and Neiva;
  - **ICT Advisory Office**. In the departments of César, Magdalena, Putumayo and Vichada and in the municipalities of Bucaramanga, Cartagena, Cúcuta, Ibagué, Providencia, Quibdó, and Sincelejo;
  - **ICT Directorates**. In the departments of Amazonas, Antioquia, Córdoba, Guajira, and Quindío; and in the municipalities of Riohacha, Yopal, and San José de Cúcuta;
  - **ICT Sub-secretariats**. In the municipalities of Medellín and Pasto;
  - **ICT High Counsels**. In the municipalities of Bogotá and Barranquilla;
  - **ICT Liaisons**. In the department of Huila, and
  - **ICT offices**. In the department of Montería.

However, the support provided by MinTIC to the authorities that are implementing it at a national and territorial level is "supply-driven", i.e. conforms to its own agenda. For example, the OECD survey results show that, although MinTIC consulted the institutions for the development of the Online Government Strategy, their participation mainly occurs in the implementation and evaluations stages. In particular, 24 institutions at national level (75% of those surveyed), and 63 at territorial level (68% of those surveyed) responded that they were consulted. In total, at national level, a low percentage of institutions responded that were consulted at the beginning (8%), during the drafting (13%), and for the strategy draft (13%), and 58% and 25% responded that they were consulted during the implementation and evaluation, respectively. Similar percentages,

and even less in the first stages of formulation, were noted in the responses from the territorial institutions. This data is shown in Figure 1.5.

Figure 1.5. **Involvement of institutions in the development of the Online Government Strategy**



Source: OECD (2017c), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

The institutions do not always manage to implement what is set out in the strategy, mostly due to the lack and high turnover of adequate human capacity, and the lack of resources or the ability to obtain them. Particularly in the territorial governments, they are very dependent on MinTIC's support to implement the digital government initiatives, although Decree 1078/2015 assigned responsibility to implement the Online Government Strategy to the legal representative of each institution. As shown, more than half of participant institutions in the conducted survey considered that MinTIC must co-ordinate with and support the territorial institutions. Furthermore, most of the territorial governments lacked their own strategy.

In its efforts to institutionalise the implementation of the Online Government Strategy, Colombia implemented several important initiatives. In Decree 415/2016 strengthened the leadership for strategic IT management in state institutions by creating the post of Director of Information Technologies and Systems. The Decree requires public institutions to adapt their organisational structures with aim of guaranteeing that the leaders in IT areas hold a position that reports to the Head of the institution and ensuring that they participate in the management committee of the institution.

As explained, national institutions and local authorities have a keen appreciation of the leadership and support offered by MinTIC in the implementation of the Digital Government Strategy. However, there is no formal co-ordination in strategic or operational terms (for example, mechanisms and organisations) between institutions in the public sector. Co-ordination happens on an *ad hoc* and informal basis; e.g. based on personal knowledge or previous work experience between ICT consultants and officials at MinTIC, or through meetings set up for this purpose.[12] As a result,

there is a lack of formal institutional space to co-ordinate and empower the Chief Information Officers (CIOs), e.g. the equivalent to an executive committee with representatives from the key central government stakeholders, such as the National Planning Department, the Ministry of Finance and Public Credit, the DAFP, MinTIC and associated local authorities, among others,

- There is no strategic alignment with MinTIC, but only vertical, duplicated efforts. For example, several institutions have their own petition, complaints and claim systems. There are municipalities that buy the same citizen participation system, among other cases, and
- Opportunities for synergies are being wasted and benefits are being missed from not using economies of scale, planned growth in IT resources and shared resources.

The co-ordination framework for digital government should have at least two levels of interaction to guarantee the appropriate level of performance and coherent use of digital technology throughout the entire government.

The first level is related to the high-level *co-ordination strategy*, which serves as governance mechanism. This level must involve all interested parties that are relevant to decision-making, usually in the form of a committee or a high level advisory council to provide strategic directions and guidelines, comprising direct representatives from the several areas of national and territorial governments, private sector, academia and civil society.

The Colombian Government recently enacted Decree 1499/2017.[13] It establishes the integrated planning and management model (MIPG), and establishes a Council for Management and Institutional Performance. This Council is responsible for administrating the management and institutional performance system and, among other responsibilities, must propose the institutions' interaction and co-ordination strategies, and establish and manage the institutional management and performance policies, which cover, among other matters, the digital government policies (Box 1.3). With this new management model, the strategic co-ordination of digital government could be implemented through an advisory committee within the MIPG and co-ordinated by the Council for Management and Institutional Performance, which, as established in Decree 1499/2017, is the only cross-sectional institution in the Colombian Government which

will handle and decide matters related to institutional management and performance policies.

Box 1.3. **Management System for Strategic Co-ordination**

Decree 1499/2017 amends the Public Administration Management System and establishes the MIPG. The management system will be led by the President of the Republic with the support of the Council for Management and Institutional Performance.

The Council will be chaired by a DAFP representative and consist of institutions and organisations that are responsible for cross-cutting management and performance functions at national and territorial levels. The legal or management representatives of the corresponding technical areas, the heads of the different offices of internal control and of planning from the following offices will serve as members of the Council for Management and Institutional Performance: 1) Ministry of Finance and Public Credit, 2) Ministry of Information and Communication Technologies, 3) Administrative Department of President of the Republic, 4) National Planning Department, 5) National Administrative Department of Statistics, 6) Administrative Department of Public Service, 7) General National Archive, 8) National Public Procurement Agency–Colombia Compra Eficiente 9) National State Legal Defence Agency, and 10) General Accounting Office.

Furthermore, it was determined that the Council will meet twice a year and can invite to its sessions representatives from other public institutions and organisations from territorial institutions or individuals. Among its responsibilities, in addition to administrating the management and institutional performance system, the Council should propose interaction and co-ordination strategies for its constituent institutions, with the aim of strengthening the MIPG and avoiding the overlapping of powers and the duplication of functions.

The Decree establishes that the management and institutional performance policies covers institutional planning, budgetary and efficient public spending management, human talent, integrity, transparency, access to public information and the fight against corruption, organisational strengthening and process simplification, public service, citizen participation in public management, digital security, streamlining of routines, document management, digital government, digital security, legal defence, knowledge and innovation management, internal control, monitoring and evaluation of institutional performance.

Furthermore, an Institutional Management and Performance Committee will be established in each agency, responsible for guiding the implantation and operation of the MIPG.

Source: www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=71261 (consulted on 19 November 2017).

Although this institutional arrangement could serve as the co-ordination strategy for digital government matters, there are two issues that need attention. First, although the Council for Management and Institutional Performance is placed at a high strategic functional level (it reports to the President of the Republic), an advisory council within it would be at an inferior level. Second, there is the risk of shifting the agenda (or lack of prioritisation of digital government matters) due to the variety of management and institutional performance policies that the Council must attend to.

The second level concerns *operational co-ordination*, and it must address the challenges and bottle-necks of implementation and involve all the relevant stakeholders for specific ICT projects. This level should be a collegiate body chaired by the highest authority of digital government. In the case of Colombia, this function should be carried out by the Vice-Minister of Digital Economy, who would act as the Chief Information Officers of the Colombian Government (GCIO); it should be made up of the CIOs from the different central government institutions (OECD, 2016b), which would be the members of the current CIO network in Colombia.

Regardless of the model adopted for operative co-ordination, this governance body must be empowered for the ongoing training of CIOs in the practice of digital government and governance. There are several options for establishing this co-ordination. For example, a starting point could be a central co-ordination body for the CIOs that works closely with an executive committee which understands and can interact with high-level civil servants who do not necessarily have a wide knowledge of technology. Thus, both can focus on strategic priorities and management related government issues. The CIO committee could expand rapidly to include subcommittees focused on regulations, enterprise architecture, procurement, better IT projects, transparency, information management and other relevant issues. This committee could also count on the assistance of the new agency that would be created, where the CIOs would form a technical supervision body so that the various authorities would feel that the strategy was more their own. However, at the same time co-ordination could be facilitated, which would be provided by the director of the agency. In Box 1.4 an example of the ***United States of America*** CIO Council is shown.

Box 1.4. **United States of America CIO Council**

The CIO Council of the government of the United States is the main inter-agency forum for improving practices related to design, acquisition, development, modernisation, use, sharing and performance of federal information resources. It was established by Executive Order 13011 Federal Information Technology and was later defined in the e-Government Act of 2002.

The co-ordinator of the CIO Council is the vice-director of the Office of Management and Budget (OMB) and the vice-co-ordinator is chosen from among the Council members. The members of the Council are the CIOs and the vice-CIOs from 28 executive federal institutions. Additional members of the Council include liaisons from the Chief Acquisition Officers Council, Chief Financial Officers Council, Chief Human Capital Officers Council, and other groups selected by the CIO Council's Executive Committee. Also included as members are a representative from the Office of Science and Technology Policy and representatives from OMB's Office of Information and Regulatory Affairs.

Source: About the CIO Council, www.cio.gov/about/ (consulted on 12 November 2017).

Fostering a sustainable digital government ecosystem

Moreover, the current bases were evaluated to forge more interactive relationships with stakeholders outside of the public sector. This allows for an atmosphere in which the government operates as a platform that connects the different stakeholders.

To move from local success stories to more widespread and long-term digital value creation, it is essential for the Colombian government to invest in activating and creating sustainable connections within the digital ecosystem. Currently, most connections with

stakeholders from academia, civil society and the private sector have thus far been established in an *ad hoc* and short-lived manner. It is necessary to establish suitable mechanisms for co-ordination and collaboration in a fashion that guarantees the co-operation of multiple stakeholders, as well the co-responsibility of public sector, private or civil stakeholders. This is also essential to create a shared ownership of the results, which aids joint and integrated efforts.

The current set-up lacks an institutional formal space (e.g. an advisory council) to facilitate and promote the dialogue and engagement with the whole digital government ecosystem, including representatives of the private sector, academia, civil society, as well as legislative branch of government. Such space is essential to ensure a user- and demand-driven, inclusive and participatory approach to the strategy development and implementation. The participation of private sector representatives in such an advisory council could also drive identifying opportunities to promote public-private partnerships. In Box 1.5 a ***Danish*** example is shown.

Box 1.5. **Danish National Council for IT Projects**

The Council is comprised of nine senior managers, mainly from the private sector. However, semi-public and public organisations also make intensive use of IT. The Council offers secretarial services for IT projects, risk analysis for government programmes and projects that exceed DKK 10 million, and biannual progress reports on ongoing IT programmes and projects that exceed DKK 10 million. In 2017, around 50 risk analysis evaluations for government IT projects have been conducted, of which nine were considered high risk.

Source: Inter-Ministerial Project Office, www.digst.dk/Servicemenu/English and Danish Council for IT Projects, www.digst.dk/Styring/Itprojektraadet (consulted on 12 November 2017).

Collaboration across government institutions, and with the broad ecosystem of digital government stakeholders, needs to be instilled as part of civil service culture. Different types of work networks at both national and local level must be established and developed to share experiences, solutions and resources, and to increase skills between professionals, as well as to bridge the gaps between public institutions and to carry out collaborative projects.

In the case where formal spaces are set up for structural co-ordination with these stakeholders, they could serve as the basis to forge new types of collaboration, not as contractors or consultants but rather as partners in the digital ecosystem. Such spaces would facilitate the necessary decision-making and support gathering for a more sustainable approach towards multiple stakeholder initiatives such as the Centre of Excellence and Ownership in Big Data and Data Analytics (CAOBA Alliance) and the Centre of Excellence for the Internet of Things (CEA-IoT). Furthermore, this would demonstrate the government's commitment to change its role towards the provision of a platform for a digitally enabled dialogue and a commitment that adapts to the post-conflict era.

The Digital Public Innovation Centre (CIPD) has already adopted the government approach that serves as a platform to facilitate the ecosystem of the digital government stakeholders in the country. Its experience can encourage this action at a national level.

As part of MinTIC's restructuring, the CIPD was assimilated into the Digital Government Directorate in the Vice-Ministry for the Digital Economy. This new position strengthens the case of CIPD to become a key ally in promoting the digital transformation of the public sector in Colombia. Its position in the Directorate, will guarantee that the CIPD approach on public value creation, the drive of sustainable development goals and the creation of a public digital ecosystem for innovators are completely aligned with vision and strategy of digital government. A key CIPD initiative is the Innovation Catalysts Programme,[14] which has been running since 2015. It allows public servants selected by invitation to receive training and specialised mentor support to apply the knowledge learned to solve challenges in their organisation. Thus, innovation skills and an innovation catalyst network are created in public institutions. This can leverage the mobilisation of initiatives in public digital innovation. This was begun among other projects to improve the anticipation and supply of the needs of the most vulnerable in society and for rural tourism as an income diversification strategy in Minca and Boquerón. Currently, there are 17 catalysts at national level and 20 at territorial level.

CIPD activities related to the development of digital application prototypes with public value, strengthening innovation skills in the whole public service and the creation of an innovation catalyst network are of great value for the move towards digital government. The CIPD integration allows it to more easily co-ordinate the scaling of successful innovations to widespread practice in the whole of the public service. The CIPD can also help to promote the necessary change in mentality and culture in public institutions to guarantee successful implementation of the digital government policy.

Establishing support policies

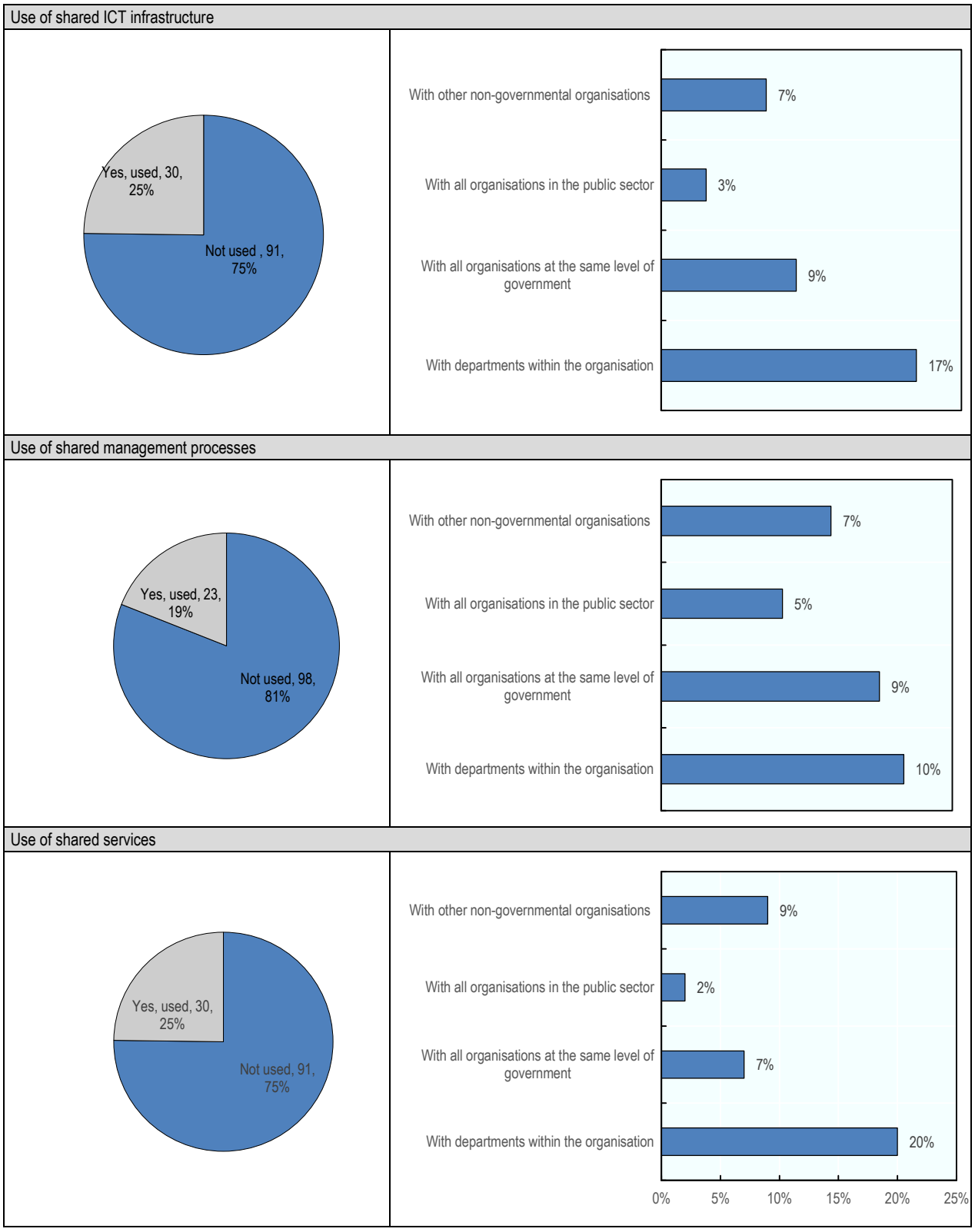
There is a combination of areas where it is important to establish policies to support digital government transformations. These policies are related to a whole-of-government approach and measurement systems.

A whole-of-government approach

The OECD survey to evaluate the impact of the Online Government Strategy shows that there is not much of a culture of shared resources and, thus, nor of promoting integrated digital government solutions. Of the 121 participating national level institutions, only 30 (25%) indicated they share ICT infrastructure, such as shared data centres or website hosting. The proportion is the same for the use of shared services such as software development or collaborative electronic systems. Regarding the practice of using shared management processes, such as logistics management or a common payment system, only 19% say they use them. This data is analysed in Figure 1.6 and is explained in more detail below.

Of all the participating institutions, only 17% use shared ICT structures with their own organisation's offices, 9% with institutions at the same level of government and only 3% with public sector institutions. On the hand, 7% share them with non-government institutions such as banks, businesses and others.

Figure 1.6. **Use of shared digital government resources**



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

Of all the participating institutions, 10% confirmed that they use shared management processes with offices inside the organisation, 9% with institutions at the same level of government, 5% with public sector institutions, and 7% share them with non-government institutions.

Finally, only 20% of all the participating institutions, say that they use shared services with offices inside the same organisation, 7% with institutions at the same level of government, 2% with public sector institutions, and 9% share them with non-government institutions.

Effective measurement

Another important MinTIC initiative was the establishment of a monitoring and evaluation process for the implementation of the Online Government Strategy. Thus, the Online Government Index is published periodically. This is a quantitative tool that shows agencies' advancement in implementing the Online Government Strategy. The index is made up of a national and other territory ranking. This shows the institutions and sectors that have advanced the most in the implementing the strategy.[15] This initiative contributed to instilling a measuring and monitoring culture in all public institutions at national and territorial level. With this foundation, a new methodology for measuring the impact of the strategy was developed and implemented (OECD, 2017a).

The current effort to review the measurement framework and the related tools related to the Online Government Strategy should be leveraged to support the change towards digital government, e.g. give more emphasis to policy results rather than those of projects. Through strengthening a logic model for the Digital Government Strategy and clear metrics for each stage, insight can be gained on how the strategy leads to public impact. This will also facilitate the development of an incentives system rewarding the fulfilment of strategic goals instead of the adherence to norms.

Notes

1. Decree 2573/2014, MinTIC, www.mintic.gov.co/portal/604/articles-14673_documento.pdf (in Spanish, consulted on 10 October 2017).
2. Law 527/1999, Congress of Colombia, www.mintic.gov.co/portal/604/articles-3679_documento.pdf (in Spanish, consulted on 11 October 2017).
3. Law 962/2012, Congress of Colombia, www.mintic.gov.co/portal/604/articles-3725_documento.pdf (in Spanish, consulted on 11 October 2017).
4. Decree 19/2012, Colombian Government, www.mintransporte.gov.co/descargar.php?idFile=13117 (in Spanish, consulted on 11 October 2017).
5. Statutory Law 1581/2012, Congress of Colombia, www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=49981 (in Spanish, consulted on 11 October 2017).
6. Law 1712/2014, Colombian Government, www.mintic.gov.co/portal/604/articles-7147_documento.pdf (in Spanish, consulted on 11 October 2017).
7. Resolution 3564/2015, MinTIC, www.mintic.gov.co/portal/604/articles-14476_documento.pdf (in Spanish, consulted on 11 October 2017).
8. Population clock, National Administrative Department of Statistics, (DANE), www.dane.gov.co/reloj/ (in Spanish, consulted on 10 October 2017);

9. Decree 1414/2017, MinTIC, www.mintic.gov.co/portal/604/articles-57805_documento.pdf (in Spanish, consulted on 12 October 2017).

10. ICT Manager Convention, 23 June 2015, "ICT Managers promote Live Digital Plan in the country's municipal authorities and governorates", www.mintic.gov.com/portal/604/w3-article-11061.html (in Spanish, consulted on 12 November 2017).

11. There were already 41 ICT offices in the country's municipal authorities and governorates by 25 November 2013, www.mintic.gov.co/portal/604/w3-article-4665.html (in Spanish, consulted on 12 November 2017).

12. Comments received during the personal interviews with representatives of regional governments, OECD mission in Bogota, 12 to 16 June 2017.

13. Decree 1499/2017, www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=71261 (in Spanish, consulted on 19 November 2017).

14. http://centrodeinnovacion.gobiernoenlinea.gov.co/es/eventos/catalizadores-de-la-innovacion (in Spanish).

15. How to advance the Online Government Strategy, MinTIC, http://estrategia.gobiernoenlinea.gov.co/623/w3-propertyvalue-7651.html, (in Spanish, consulted on 11 October 2017).

References

Colombian Government (2017), *Decree 1414 of 2017,* http://es.presidencia.gov.co/normativa/normativa/DECRETO%201414%20DEL%2025%20DE%20AGOSTO%20DE%202017.pdf (consulted on 19 November 2017).

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

International Telecommunication Union (2016), *Measuring the Information Society Report*, www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2016.aspx (consulted on 12 November 2017).

Ministry of Information and Communications Technologies (2012), *"Manual 3.1 para la Implementación de la Estrategia de Gobierno en Línea para Entidades del Orden Nacional"* [Manual 3.1 for the Implementation of the Online Government Strategy for Agencies at a National Level], http://programa.gobiernoenlinea.gov.co/apc-aa-files/eb0df10529195223c011ca6762bfe39e/manual-3.1.pdf.

Molano Vega, D. (2013), Colombia's Digital Agenda : Successes and the Challenges Ahead. In B.L. Beñat Bilbao-Osorio, Soumitra Dutta (Ed.), *The Global Information Technology Report 2013 - Growth and Jobs in a Hyperconnected World*, pp. 111-117, World Economic Forum, www3.weforum. org/docs/GITR/2013/GITR_Chapter2.1_2013.pdf.

National Centre for Historical Memory (2015), "Una Nación Desplazada: Informe Nacional del Desplazamiento Forzado en Colombia*"* [A Nation Displaced. National Report on Forced Displacement in Colombia], Bogota, CNMH – UARIV, www.centrodememoriahistorica.gov.co/descargas/informes2015/nacion-desplazada/una-nacion-desplazada.pdf (consulted on 10 October 2017).

National Administrative Department of Statistics (DANE) (2017), *"Pobreza Monetaria y Multidimensional en Colombia 2016"* [Monetary and Multidimensional Poverty in Colombia 2016], www.dane.gov.co/index.php/estadisticas-por-tema/pobreza-y-condiciones-de-vida/pobreza-y-desigualdad/pobreza-monetaria-y-multidimensional-en-colombia-2016 (consulted on 10 October 2017).

OECD (2017a), *Assessing the Impact of Digital Government in Colombia: Towards a new methodology*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264283282-en.

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

OECD (2017c), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

OECD (2016a), *Making the Most of Public Investment in Colombia: Working Effectively across Levels of Government,* OECD Publishing, Paris, http:dx.doi.org/10.1787/9789264265288-en.

OECD (2016b), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/2010.1787/9789264258013-en.

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

United Nations Department of Economic and Social Affairs (2012), *UN E-Government Survey 2012 - E-Government for the People*, https://public administration.un.org/egovkb/Portals/egovkb/Documents/un/2012-Survey/unpan048065.pdf.

United Nations Department of Economic and Social Affairs (2003), *UN Global E-government Survey 2003*, https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2003-Survey/Complete-Survey.pdf.

Chapter 2

Fostering a more collaborative and citizen-driven Colombian public sector

This chapter analyses the conditions for leveraging digital technology and open data, with the aim of promoting a public sector which is both citizen-driven as well as proactive in establishing approaches for its own use as an enabling platform for the digital government ecosystem. It also examines the context of government transparency and openness, as well as Colombia's position with regard to the digital participation and collaboration of its citizens. Inclusive citizen engagement is also analysed, including the use and leverage of digital technology and open data for promoting a more active citizen role, also considering vulnerable communities.

Introduction

The governments of OECD countries strive to create more user-driven and proactive public sectors in which government performs a facilitating role as a platform for citizen engagement and co-creation of public value in collaboration with public, private and social stakeholders. Thus, the objective is to allow the real needs of citizens to drive the design and implementation of public policies and services (user-driven), replacing the approaches in which governments made assumptions about these needs (user-centred). The evolution from e-government to digital government comes with a change from a user-centred to a user-driven approach (OECD, 2014). The intention is to foster more collaborative administrations that are driven by citizens and service users, thus strengthening the confidence in government and the reliability of its actions (OECD, 2016a).

For Colombia, reconfiguring the relationship between government and citizens in order to strengthen the legitimacy and trust in governmental institutions is both one of its greatest challenges, but also a key instrument in fostering economic growth and social welfare in the post-conflict period. The armed conflict harmed the credibility of public sector institutions and the State. It left deep scars in society and eroded citizens' confidence in the government, especially in the most affected rural areas (OECD, 2017a). In the shadows of the conflict, systemic corruption, state capture and organised crime took advantage to spread itself and interconnect, further undermining state legitimacy. In 2016, the Colombian Government and the main guerrilla group signed the *Final Agreement to End the Armed Conflict and Build a Stable and Lasting Peace* (Peace Agreement). Thus, Colombia officially put an end to one of the longest civil wars in recent history. Now, Colombia faces a crucial moment in its history.

Digital government can play a key role in placing citizens at the centre of public efforts to re-establish a context of public trust, while redefining the role of government. This means developing the government's ability to act as platform (government as a platform) and promote collaboration with citizens and businesses to co-create public value and to develop user-driven policies and services. If Colombia wishes to fully benefit from the opportunities that digital technology offers to create a more transparent, participative, collaborative and inclusive State, it must recognise that trust between State and citizens must be built around the needs and challenges of the post-conflict context the country is entering.

This chapter analyses the conditions needed for the government to adopt a role as platform in the digital government ecosystem, promoting a proactive and user-driven Colombian public sector. It also examines the context of policies for openness, as well as Colombia's position as regards digital citizen collaboration. Also addressed are inclusive civic participation and collaboration between non-institutional stakeholders (citizens, businesses and non-governmental organisations) to co-create services and policies. It also considers how to consolidate digital technology and open data to promote a more active role for citizens, including those from vulnerable communities.

Openness as a starting point for citizen collaboration

Political and strategic guidance for a collaborative State through digital technology

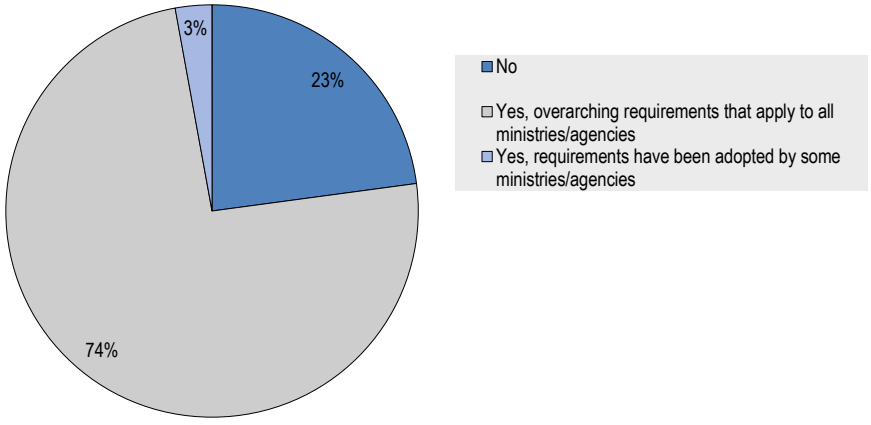
Digital technology can increase the State's openness, thus creating the minimum albeit not sufficient conditions for more intensive citizen collaboration. For example, the opening of government data provides a platform for the co-creation of solutions to public challenges. However, the government must not stop at simply publishing open data; rather it must encourage citizen engagement, so data is effectively used (OECD, 2016b). Colombia's current Online Government Strategy embodies the typical approach to e-government based on State openness and transparency thanks to ICTs. It does not take into account the notion of digital citizen engagement, according to which citizens' needs are the drivers of collaboration and co-creation.

The strategic component of ICTs for open government focuses on building a more transparent, participatory and collaborative State, in which citizens are involved in the decision-making process (OECD, 2017b). As such, the Colombian government created several important conditions for e-government, building strong momentum for open data and citizen participation initiatives. However, the shift towards digital government requires looking beyond the principle of openness, with its focus on transparency, and introducing support mechanisms for the co-creation of policies and services based on this openness.

As mentioned in Chapter 1, the Colombian regulatory framework for digital government contains various elements centred on skills and promoting State openness and transparency through digital technology. As in most OECD member countries and partners (25), government data in Colombia is required to be open by default, and this applies to all public institutions at the national level (Figure 2.1).

Figure 2.1. **Open data by default, in OECD member countries and partners**

At the Central/federal level, are there formal requirements whereby government data should be "open by default" (unless a legitimate justification is provided)?



Note: Data from 34 OECD member countries and partners.
Source: OECD (2016c), "Open Government Data Survey 3.0", OECD, Paris.

When asked about the main reasons to promote openness and participation at an institutional level, Colombian public institutions report that their main motivation is to strengthen public confidence in their particular institutions and foster transparency. They also highlighted the fight against corruption as a priority (OECD, 2017c). These interrelated institutional drivers are very well aligned with several measures specified in the Peace Agreement. However, from the perspective of digital government, leveraging digital technology for citizen collaboration with the aim of co-creating solutions in response to the needs of groups affected by the conflict should be a priority.

The challenges of corruption and the opportunities offered by the Peace Agreement have been recognised by the Colombian government and the FARC-EP guerrillas. In the course of the Peace Agreement, measures were included aimed at fighting corruption through greater citizen participation, transparency and integrity. Effectively, corruption, whether real or perceived, causes mistrust between citizens and can undermine the legitimacy of public sector institutions (OECD, 2017b). In the OECD survey for the digital government review of Colombia, 53 of the 125 responding institutions reported they had or were drafting policies or initiatives to implement the Peace Agreement in Colombia. Of these, a majority (30 institutions) envisaged a role for ICTs or the use of (open) data in these policies.

Strong political willingness is evident and is supported by institutional arrangements within the national government —materialised in the Transparency Secretariat— aimed at promoting an agenda for transparency, open government and anti-corruption. This impetus has helped to enable various digital initiatives, among which the good practices of the Transparency and Anti-Corruption Observatory are worth highlighting (Box 2.1).

Box 2.1. **Colombian Transparency and Anti-Corruption Observatory**

The Colombian Transparency and Anti-Corruption Observatory is considered a good practice at an international level. The Observatory was originally designed and launched by the Office of the Inspector General of Colombia (PGN) and, in 2012, it was appointed to the Transparency Secretariat. The Observatory is a tool for promoting integrity in government as a whole, in government institutions and levels, as well as in society as a whole, with citizens, the private sector and civil society also under its umbrella.

The Colombian Anti-Corruption Observatory anticorrupcion.gov.co provides relevant anti-corruption information so that people are informed about government efforts and results, for example, time sequences and location of crimes committed.

The main challenge for the Transparency Secretariat is how to share with citizens all the collected information in a transparent and accessible manner; for example, by creating data sets with search functionalities.

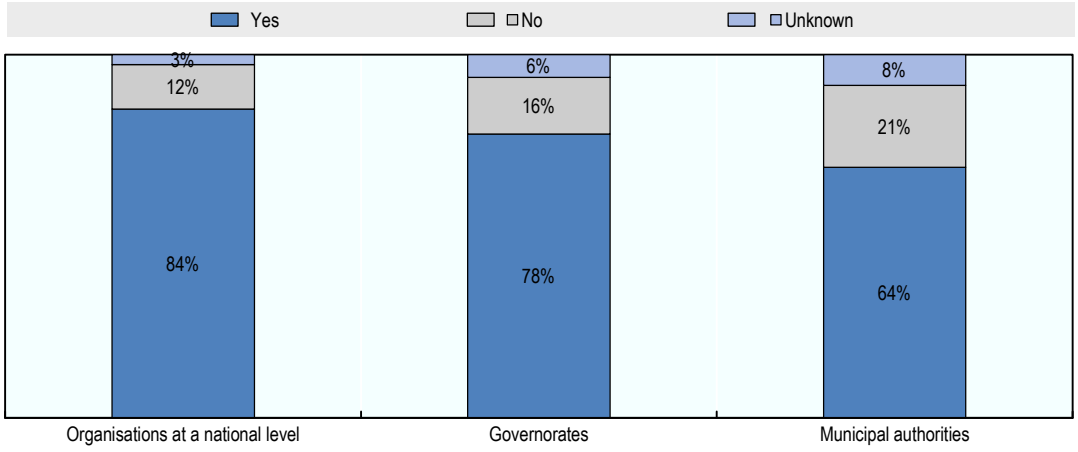
The Observatory publishes a Composite Indicator of the Regional Moralisation Commissions (CRM) which assesses the degree of compliance and development of the Action Plan adopted by each CRM. These evaluations are rendered into graphs that show the combined scores, as well as scores by departments. It also provides indicators on the level of attainment of the goals established by the Comprehensive Public Anti-Corruption Policy.

Source: OECD (2017b), *OECD Integrity Review of Colombia,* www.oecd-ilibrary.org/governance/oecd-integrity-review-of-colombia_9789264278325-en and interview during the OECD mission in June 2017.

Figure **2.2** shows that most Colombian public institutions have a plan or policy that defines the goals for ICT and open data use, with the aim of improving government transparency, citizen participation and accountability. However, more than 20% of the municipalities still lack this type of direction.

Figure 2.2. **Institutional ICT policy for open government**

Does the institution have (a) plan(s)/policy(ies)/strategy(ies) in which it specifies the targets/goals of ICTs for open government (use of ICTs to improve government transparency, citizen participation and accountability, including open data)?



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

The Peace Agreement and the strong transparency and anti-corruption agenda provide a solid legitimate base on which to advance digital transparency and open government data policy initiatives. Nevertheless, the intense debate around transparency implies a one directional view of data and information dissemination and could overshadow the possibilities offered by digital technologies in facilitating a more active role for citizens in the use of government data and information, and in co-creation efforts to solve society's problems. Indeed, allowing and encouraging this active role will be essential to strengthen public trust.

Collaboration with citizens enabled by digital technology

In using ICTs for the open government agenda, Colombia has gone beyond simply focusing on transparency. It has also encouraged public institutions to develop digital participation initiatives that register the opinions of citizens and involve them in institutional decision-making. Furthermore, the country has implemented open innovation practices to involve citizens in finding solutions to the challenges faced by society. Setting targets in these areas, monitoring their attainment and the provision of technical support by the central government have all created a surge in digital participation initiatives at the national and the territorial government level, as well as the emergence of several open innovation initiatives by governorates and national institutions.

A key factor in increasing digital citizen participation in Colombia has been the Crystal Urn (Box 2.**2**). However, the guidelines provided to the public institutions, such as the *Online Government Manual*, above all focus on the role of institutions as drivers of participation, consultation and collaboration activities in the sense of receiving citizen

feedback. They do not consider facilitating a more active role for citizens, so they may be able to co-create policies and services. For example, in regard to open innovation, the *Online Government Manual*[1] instructs public institutions to assume control when facing societal challenges, supplying resources and administering the collaborative process:

- Institutions identify the problems and challenges to be solved.
- Institutions enable the technological tools and inputs necessary for the collaboration of users, citizens and interest groups.
- Institutions manage the collaborative actions to acquire the solution(s) or improvement(s) for the identified problems or challenges.
- Institutions publish the results of the collaboration process.

As such, citizen collaboration is largely determined by the perception of a particular institution on the importance of a given matter and its suitability to address it, in co-operation with citizens, in conjunction with the institution's resources and its ability to drive the participation process. This not only means that a great share of responsibility and investment falls on the occasionally small shoulders of public institutions, but that collaboration initiatives to co-create public value are rarely encouraged.

Box 2.2. **The Crystal Urn**

The Crystal Urn is a Colombian Government initiative that leads the strategy for electronic citizen participation and government transparency; since 2017 it has transitioned into Colombia's open government portal. Since its launch in October 2010, the Crystal Urn has consolidated a multichannel platform that integrates traditional communication media, such as television, radio and telephone calls, with digital ones, such as social networks, SMS and websites.

These channels are available to all national and territorial government entities to facilitate the creation of participation forums at all levels, with the aim of improving the relationship between citizens and State. Thus, Colombians can influence the decisions of leaders and know the results, progress and initiatives of the government, transmit their concerns and proposals directly to government institutions, and participate and interact with state management, services and public policies. This creates a binding relationship between citizens and a State with a true vocation to serve.

Since it was launched, the Crystal Urn has received around 20 million submissions, and the web portal has registered around 10 million visits from Colombians looking to access government information or participate in public policy impact exercises or ongoing educational campaigns or consultations. Furthermore, since 2011 it has handled close to 140 thousand questions asked by Colombians through various traditional and digital media made available by the platform.

The Crystal Urn team has responsibility, together with the Digital Government Strategy team and MinTIC, to roll out and operate the initiative.

Lessons learned from this initiative include:

- Create the practice at senior management level. Gaining political will.
- The fundamental value lies in the timeliness and effectiveness when responding to the citizen.
- The information needs of citizens should be transformed into opportunities for collaboration on issues of public interest.
- Digital and analogue channels remain complementary to each other.

Source: OECD (2016b), *Digital Government Toolkit*, OECD, Paris, www.oecd.org/gov/colombia-urna-cristal.pdf, complemented by information shared by the Colombian government in the context of this review.

This scenario is illustrated by the products and results indicators related to a digitally enabled open government, which were conducted for the OECD's *Assessing the Impact of Digital Government in Colombia* (OECD, 2017b). As illustrated in Table 2.1, it is clear that Colombian public institutions, and especially department governorates, have dedicated considerable efforts to creating transparency sections on their websites (Indicator OUP 5), publishing open data (Indicator OUP 6), creating opportunities for digital participation (Indicator OUP 7) and organising open innovation exercises (Indicator OUP 8). The tangible results of their efforts are reflected in the output indicators, where accomplishments are recorded on a scale from 0 to 100. However, when examining the desired outcomes —which require the active participation of citizens and other stakeholder groups in society— indicators are much lower.

Table 2.1. **Digital transparency, participation and collaboration indicators**

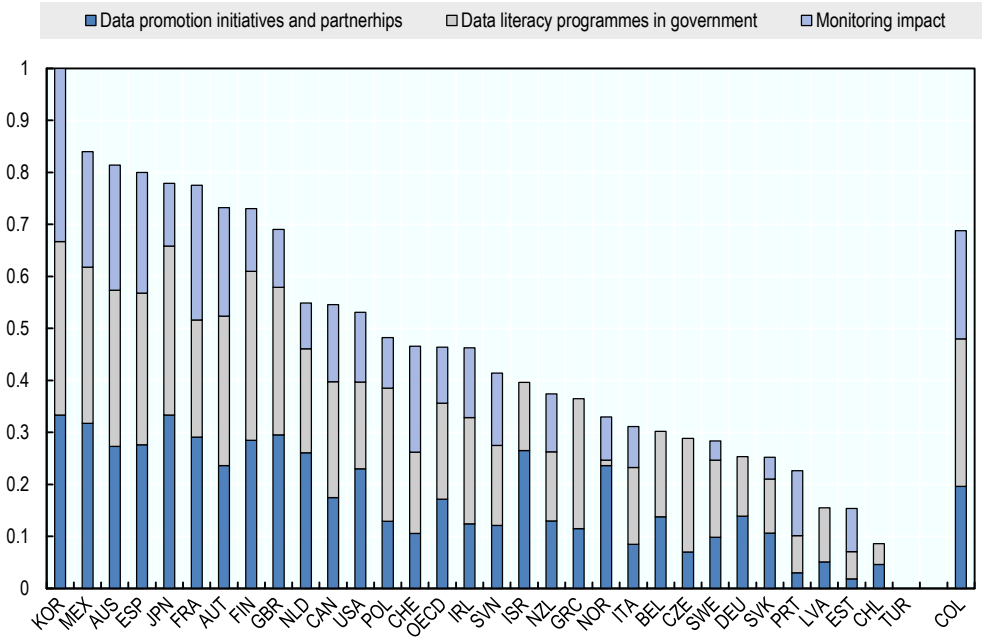
	OUP5	OUP6	OUP7	OUP8	OUC6	OUC7	OUC8	OUC9	OUC10
	Online trans-parency	Open government data	Digital participation availability	Open innovation practices	Use of public information	Re-use of open government data	Digital participation	Digital participation by vulnerable groups	Open innovation solutions
Total	69.9	57.3	74.5	36.1	50.1	19.7	46.6	36.9	31.8
National	76.7	66.4	58.1	54.3	58.0	26.4	55.8	24.0	47.1
Municipalities	68.9	55.0	75.8	33.1	48.1	18.5	44.9	38.9	29.3
Governorates	84.8	67.1	100	62.5	70.5	28.7	65.6	46.4	50.0

Note: All scores are calculated on a scale from 0 to 100.
Source: OECD (2017b), *Assessing the Impact of Digital Government in Colombia,* OECD Publishing, Paris.

This image is also reflected in Colombia's score in the third pillar of the OECD OURdata Index (Figure 2.3). This pillar focuses on government activities to encourage the re-use of open government data. Although Colombia is ahead of the majority of OECD countries as regards this pillar, the country's overall score in the OURdata Index suffers because of this (OECD, 2017e).

When Colombian public institutions are asked about the main barriers for successful digital participation for citizens, an overwhelming 58% refers to (Figure 2.4) the lack of access to technology. As discussed in more detail in Chapter 4, this is indeed a key obstacle for the progress towards digital government, especially in the rural areas. The other four perceived barriers are linked to the image that institutions have of citizens, and with their will and ability to participate digitally in matters of public interest, which points to the importance of clear communication from the government regarding what citizens can achieve. Only 26% of institutions mention a lack of citizen trust in public institutions among the five main barriers. This indicates that, in general, they do not perceive it as an important obstacle for digital participation by citizens.

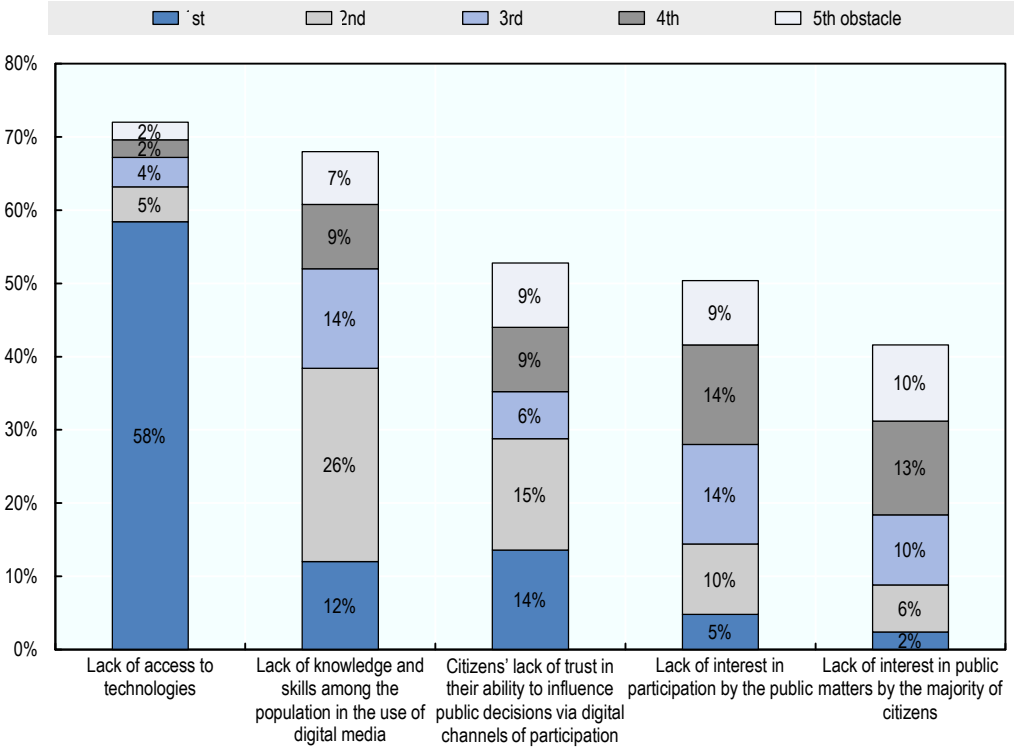
Figure 2.3. **OURdata Index, government support for data re-use (pillar 3), 2017**



Note: The data from Hungary, Iceland and Luxemburg are not available. Denmark does not have a central/federal data portal and is therefore not displayed in the index.
Source: OECD (2016b), "Open Government Data Survey 3.0," OECD, Paris.

Figure 2.4. **Barriers for digital participation by citizens**

What are the main barriers for making use of the digital participation channels available to citizens in areas of public interest? Please arrange the following options such that 1 is the largest obstacle and 5 is the smallest.



Source: OECD (2017c), "Digital Government Review of Colombia: Questionnaire for Colombian state public institutions", OECD, Paris.

Setting the stage for citizen collaboration

From citizen-centred transparency and participation to citizen-driven collaboration

The Colombian government took an important step in redefining its relationship with citizens by shifting from the top-down rationale typical of an e-government approach to a digital government approach, which requires the government to adopt a facilitator role and operate as a platform. In various parts of the digital government ecosystem in Colombia initiatives are being developed that keep a more active role in mind for citizens in the co-creation of public value.

The Transparency Secretariat works on initiatives to foster transparency motivated by the citizens, in addition to public institutions that collect and disseminate data in the interest of transparency. The idea is to encourage and facilitate citizens to monitor and report incidents related to corruption, thereby making them into civic auditors against corruption. After a big media scandal in 2015 and 2016 in which a teacher posted a video online with photographs of school meals that revealed that suppliers were not delivering the food they should have, the Secretariat now wishes to encourage collective action by the parents to send photos of any deficient school meals in order to test the effectiveness of the food delivery system in schools and see how far meals can deviate from the acceptable standards. The aim is for participating citizens/parents to have the opportunity to provide feedback about the food that the children are given. The Secretariat wants to benefit from knowledge collected by the Crystal Urn to determine the best moment to send a message to parents to ensure their response. Although these initiatives envisage an active role for citizens, it still remains unclear how this role can be encouraged. Additionally, there is no clear alignment with MinTIC initiatives aimed at participation and open data, which is why potential synergies are lacking.

Several OECD countries, such as France, South Korea, Mexico and the United Kingdom consolidate their national open data portals to facilitate citizen engagement in the co-creation of public value (OECD, 2015; 2016b). The Public Challenges initiative in ***Mexico*** is useful for connecting developers and public institutions with the aim of fostering collaboration on specific questions and policy sectors (Box 2.3). As a result, private sector organisations have developed web platforms and web and mobile applications to improve the provision of public services or to address the asymmetries in citizen access to information. There are other tools that are good examples of the use of digital technologies and open data for risk management, insofar as they link open data initiatives to the attainment of the Sustainable Development Goals.

Occasionally, apart from the focus on encouraging re-use of government data, the provision of data by citizens and other stakeholders in the open data ecosystem is also facilitated. The ***French*** central open data portal self-promotes itself as the "Open platform for French public data", which indicates that it reaches beyond simply providing government data: it gives citizens, businesses and other non-government stakeholders the option to upload and share their data, making them available and accessible to a wider audience. As the quality of non-government data cannot be guaranteed, the portal warns visitors of this situation. The portal also allows data users to publish and show examples of open data re-use (government and non-government) and to monitor the use of published data sets. Additionally, the French government used the portal to launch the *Base Adresse Nationale* (National Address Base) project. This involved multiple

stakeholders trying to create a single national address database fed by data contributions from private, public and non-profit organisations.

Box 2.3. **Public Challenges in Mexico**

A platform for creating public value

The Mexican Public Challenges initiative (Retos Públicos) was useful as it produced results in the political and institutional spheres, beyond transparency. Through requests for proposals posted online in the central open data portal the Chief Data Officer (CDO), in co-operation with various state secretariats, invited non-government stakeholders to propose projects. The general aim was to collaborate in the ecosystem to develop data solutions (applications) for "public challenges" based on the mobile/web government.

Public institutions defined the challenges and the winners received public funding to develop the project. The secretariats of Transport (SCT), Education (SEP) and Environment (SEMARNAT), together with public organisations such as the National Council for Culture and Arts (CONACULTA) and the Office of Consumer Protection (PROFECO), took part in this initiative. The mobile and web-based applications were developed as a result of the Public Challenges and are on show in the open data portal, where they are available to download free of charge.

The value of such an initiative is that:

- it acts effectively as a mechanism for public-private-social co-operation,
- it contributes to fostering innovation in the country while seeking to improve public sector efficiency,
- it shows the importance of institution data literacy and visionary leaders for value co-creation, and
- it helps public institutions to have a clear vision about the (value) problem that they are trying to address in collaboration with stakeholders.

From Public Challenges to Challenge Mexico

Towards the end of 2016 the Public Challenges initiative transitioned into Challenge Mexico (Reto México). The aim of Challenge Mexico is to be an open innovation platform for multiple stakeholders to create prototypes and jointly design solutions to address public policy challenges. The initiative aims to design scalable and replicable projects with a view to medium-term sustainability.

While the Public Challenges centred on co-designed solutions for public sector challenges, Challenge Mexico widened the collaboration approach to include the needs of the private sector. Challenge Mexico allows private companies to use the online portal retomexico.org to publish project proposals that can benefit from entrepreneurial ideas driven by data. This allows for a bidirectional collaboration platform in which the private sector takes on an active role in digital innovation and allows micro- and small enterprises to connect with potential clients.

Source: OECD (2018), *Open Government Data in Mexico*, OECD Publishing, Paris, forthcoming publication; OECD (2016b), *Open Government Data Review of Mexico*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264259270-en; http://retos.datos.gob.mx/retos; https://retomexico.org.

To enable the necessary engagement of Colombian citizens in rebuilding the country in a period of peace, while overcoming the challenge of low public trust, efforts must be focussed on the creation of tangible value in collaboration with the citizens and civil society organisations, providing the required legal, institutional and technological support to facilitate the collaboration process. For example, ***Latvia*** made it legally possible for citizens to initiate amendments to laws via digital means, and followed this up with a public-private partnership for implementation (Box 2.4). In ***South Korea***, public sector institutions have a legal obligation to issue a decision within 20 working days with regard to requests received through the central open data portal to release government data www.data.go.kr (OECD, 2016b). Such initiatives enhance citizens' standing to mobilize the political agenda and co-create solutions for issues they consider important.

Box 2.4. **Social e-petition platform, "My Voice", in Latvia**

ManaBalss.lv is a social initiative platform and a legitimate way to submit an initiative, gather supporters and present tangible initiatives to Parliament. Each initiative, signed by at least 10 000 citizens, is sent to Parliament to be included in the official agenda of the legislative branch.

Article 1313 of the Law "Rules of Procedure of the Saeima", stipulates that "at least 10,000 Latvian citizens who shall have reached the age of 16 on the day of filing a submission have a right to file a collective submission with Saeima." The collective submission can be submitted electronically ("a collective submission that is filed electronically shall be supplemented with technical information confirming the signing of the collective submission and ensuring the possibility to verify the number of signatories, their names, surnames and ID numbers").

Thus, the social e-petition platform is legally determined and binding to Parliament. From the launch of ManaBalss.lv in 2011, there have been a total of 905,051 votes and 912,000 unique visitors. Of the initiatives that received the necessary votes, 47% were enacted as laws or gave way to other legislative acts. So far, 14 digital petitions have received more than 10,000 votes (and another two reached the Parliamentary agenda) and 8 digital petitions were voted on in Parliament to go up as amendments to a law. More than 71% of the Latvian population has visited ManaBalss. ManaBalss.lv is recognised worldwide as a successful case of citizen engagement.

Source: OECD (2016a), *Digital government toolkit*, OECD, Paris, www.oecd.org/gov/latvia-social-epetition.pdf; complemented by information provided to the OECD by a representative of ManaBalss.lv, January 2018.

Recently, the Ministry for the Interior launched the *Civic Causes* initiative in support of Colombian citizens to propose and promote government attention for public challenges. Citizens can make use of their own social networks to obtain the support of the 20 000 required digital "likes" to secure the commitment of the ministry to "assist them in the process with those in charge."[2] This is a promising initiative with its multichannel approach and proposed institutional support. However, it is still unclear to what extend proposals that receive sufficient votes to be addressed formally will be legally guaranteed.

Colombia has other initiatives that demonstrate the value of greater participation and collaborative action driven by citizens and civil society organisations. The initiative of the Administrative Department of Science, Technology and Innovation (Colciencias),

MinTIC and the Unit for the Assistance and Comprehensive Reparations of Victims "Science and ICT for Peace"[3] is an excellent example of the government providing a platform so that stakeholders in society can jointly devise a digital solution to a problem which they believe is worthwhile addressing. The call for digital solutions not only addresses a wide variety of stakeholders who can jointly offer the necessary knowledge and skills —which the government probably cannot offer— but also that the challenges to be addressed must be defined by the communities that survived the conflict. This guarantees the relevance of the identified problem along with the value of the potential solution, in public terms. Supported by the President of the Republic, "The Biggest Conversation in the World", is a successful civil society organisation managed on a digital platform allowing conversations between Colombians about their role in the peace process.[4] Additionally, initiatives involving user research labs, such as "ViveLab Bogotá"[5] to engage citizens from the very start in the design of digital services are highly valuable for identifying their needs as service users and co-creating solutions meeting those needs.

These approaches are not only important for matters related to peace-building, but also for other problems in society. However, addressing engagement of citizens and civil society organisations in this way has yet to become a common practice in Colombia. In the aforementioned cases, the government provided the platform on which citizens created value via digital technologies. The challenge will be adopting this approach on a larger scale and ensuring that efforts are maintainable and will therefore contribute to public trust. There are also valuable and inspiring initiatives at the local level, such as *Bogotá Abierta* (Open Bogota) (Box 2.5).

Box 2.5. **Bogotá Abierta**

Involving citizens to solve social challenges

Bogotá Abierta https://bogotaabierta.co/ is an open innovation platform for the city of Bogota. It was originally conceived in 2016 by the Peñalosa Administration, through work between the ICT High District Council, the District Planning Secretariat and the District Institute for Participation and Community Action (IDPAC) to jointly develop the district development plan with the residents of Bogota, *Bogotá Mejor para Todos* (A Better Bogota for All). For this proposal alone, *Bogotá Abierta* registered 20,252 ideas from 39,370 residents in three weeks. The most important challenge, which was later awarded a prize, was how to improve school transport. Another topic for consultation was how to improve spaces devoted to public, cultural and sports activities.

Bogota's districts jointly decide on the challenges to be published in *Bogotá Abierta*. Above all, public transport was focused on, paying attention on improving mobility and public spaces, especially for minorities. Each challenge specifies deadlines for receiving ideas and how the contributions from Bogota residents will be used. For example, when asking "What is your proposal for women to feel safe in the city's public spaces?" the platform informs users that the most voted ideas will be reviewed and could be included in the 2018–2020 Local Plans for Safety for Women.

A star system was devised to encourage local residents to participate and brainstorm high-quality ideas. The stars will be used in auctions, which are still under development in the platform. Participants are awarded stars for each idea contributed and each "like" they receive.

Through its Digital Cities Awards, the Inter-American Association of Telecommunication Companies (ASIET) recognised the *Bogotá Abierta* platform as the best digital

government initiative in Latin America.

Source: Interviews during the OECD mission, June 2017; ICT High District Council (2017), ticbogota.gov.co; Bogotá Abierta (2017), bogotaabierta.co.

Leveraging open government data to create economic and social value

In recent years, Colombia has significantly increased the number of open datasets on the Open Data Portal of the Colombian State[6] and has also invested in improving the accessibility of datasets. While these efforts should be continued and expanded, Colombia has much to gain through investment activities aimed at promoting the re-use of open government data. The country boasts several excellent examples, such as the hackathons for entrepreneurs as organised by the Digital Public Innovation Centre, the *ClicSalud* application based on open data of the Ministry of Health for medicine prices and the promotion of data journalism in Tamalemeque.

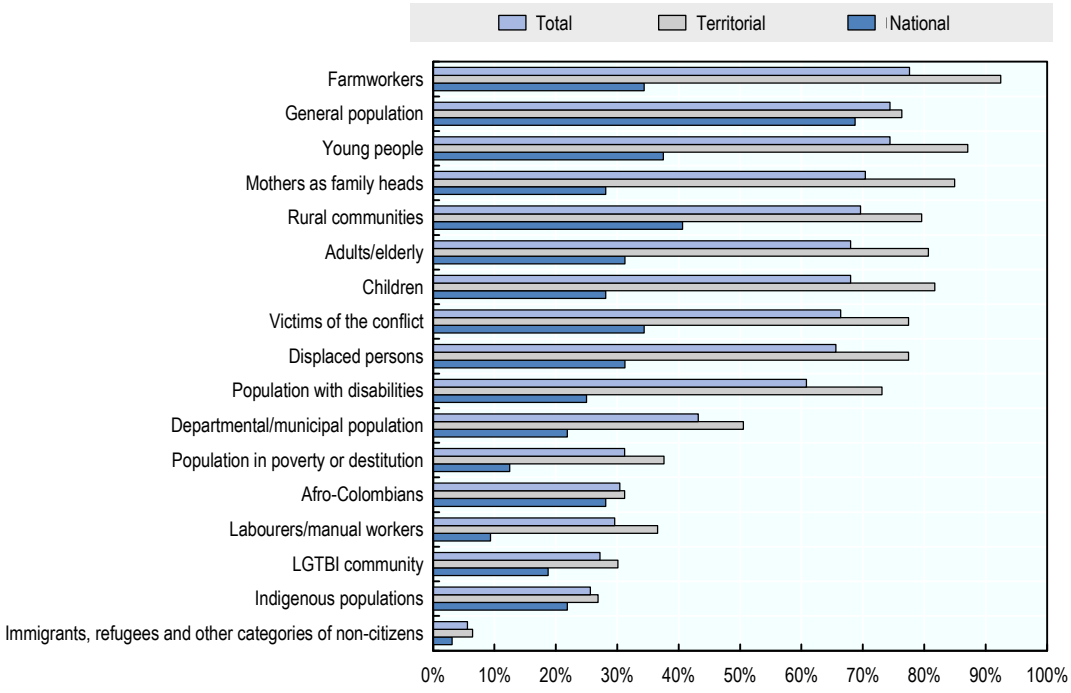
It is also important to ask potential open data users about the data they would like to use so as to identify their needs. Although the underlying principle of open data is to publish all government data in an open format by default, it is unrealistic to believe that this can be easily implemented with all government data. Therefore, it is important to define the priorities for openness based on the needs of end-users. Such examples should be used to promote data re-use as an integral part of every institution's open government data policy, thus enhancing the impact of open data in economic, social and governance spheres. In this context, it is important to remember that open data users are not only found outside of government, but that public organisations themselves are both producers and users of open data. Accordingly, as explained in greater detail in Chapter 3, it is essential to develop a policy aimed at the strategic use of data within the public sector that takes into account open data as an important source.

The open data portal can be used for this purpose and converted into a platform for data requests and co-creation, as in leading countries like France, Mexico and the United Kingdom (OECD, 2016b). The portal would be a bidirectional collaboration platform that would increasingly contribute to fostering a demand- and value-driven approach for disclosing data, led by users and the data ecosystem in general. As noted in the previous section, the portal could also include tools to enable open data and the provision of metadata by non-government stakeholders, as in ***France***. Integrating data request mechanisms in the portal could be equally important, not only to improve user-driven data dissemination, but also to collect information on the *ex ante* expected impact of opening government data, as for example in the ***United Kingdom*** through online data request forms.

When asking Colombian institutions about their main target groups, those at the national level stated that their target population was the public at large. Several national institutions also identified specific social groups, but it was clearly territorial institutions that identified specific groups most of the time (Figure 2.5). Nine groups stand out as key target groups for more than 70% of territorial institutions, with farmers (92%), young people (87%) and female heads of household (85%) as the three main groups.

Figure 2.5. **Social target groups for Colombian public institutions**

Which social groups are the main beneficiaries/users of your institution's services?



Note: Total = percentage of the 125 institutions that answered the questionnaire; National = percentage of the 32 institutions that answered the questionnaire; Territorial = percentage of the 93 institutions that answered the questionnaire.
Source: OECD (2017c), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

Establishing partnerships with civil society organisations or supporting their activities can play a key role in successfully developing digital initiatives aimed at vulnerable populations. Some OECD countries state that they support civil society projects and identify policy solutions to challenges faced by marginalised communities by using open government data (Box 2.6).

Box 2.6. **Using open government data to support vulnerable populations**

Finland. A map helps visualise and understand the flow of people that seek asylum in European countries over time; www.lucify.com/the-flow-towards-europe/.

France. The Ministry for Family Affairs is organising a hackathon addressing the inequality between women and men as regards their free time (domestic chores). The winner will receive training and mentoring from specialists (paid by the ministry). The winning project must focus on a solution that reduces the inequalities between women and men, https://hackathon.ogpsummit.org.

Israel. In order to help find missing relatives, the Freedom of Information Office worked with various representative organisations to release data collected by three government committees over several decades to investigate the claims that Yemeni children were covertly taken away from their parents at the end of the 1940s and beginning of the 1950s.

Japan. Some projects focus on identifying policy solutions to challenges faced by social groups, www.soumu.go.jp/menu_news/s-news/01toukei09_01000010.html. Additionally, the "Open Data App Contest" in the city of Ube, supported by the Ministry of Internal Affairs and Communications, http://opendata.city.ube.yamaguchi.jp/contest2016/index.html, is an initiative to develop applications that aid regional revitalisation and support communities in business development. A member of the ICT National Strategy Office and an open data evangelist attended the event as facilitators.

United Kingdom. The Government Digital Service focuses on several projects to identify solutions to challenges faced by marginalised communities. One of these concentrates on developing a user-centred tool to include data from the ongoing race disparity audit. The aim is to understand the scale and nature of these disparities, and provide evidence to politicians with the decision-making powers to address them, www.gov.uk/government/news/prime-minister-orders-government-audit-to-tackle-racial-disparities-in-public-service-outcomes. Some projects received funding from the Release of Data Fund; www.gov.uk/government/publications/breakthrough-fund-and-release-of-data-fund.

Source: OECD (2016c), "OECD Open Government Data Survey 3.0", OECD, Paris.

Demonstrating the impact of citizen engagement

A key element in regaining the trust of the population is reinforcing the government's ability to demonstrate the results of public participation exercises; to show Colombian citizens that they are being heard, taken seriously and that their efforts to participate are not in vain.

The Crystal Urn portal devotes a section to showing the results of all participation exercises carried out on the platform. Notwithstanding an excellent section in the website where the results of participation exercises and awareness campaigns are presented systematically, there are other ways to produce a more valuable experience for citizens. This goes beyond informing on levels of participation (for example, number of participants or comments), but rather expanding on the policy implications of this participation. This aspect is related to the communication strategy needed to guarantee the successful implementation of the Digital Government Policy, as specified in Chapter 1.

The *Public Challenges* initiative (Box 2.3) in ***Mexico*** is a good example of providing information to the public both about the process and the results of public-private partnerships. Not only does it show the results, but also the website functionalities that allow stakeholders to follow the progress in the resolution of a given challenge. For each challenge a webpage includes features providing transparency on the process and results, such as:[7]

- **Status bar**. Shows the stages of the process: four phases (ideas, idea selection, prototypes and prototype assessment) and five moments (launch, closing of ideas, finalist announcement, closing of prototypes and challenge conclusion).
- **Key points**. Important features and dates provide a quick overview of challenge content.
- **Evaluation methodology**. How were the proposed solutions evaluated?
- **Data**. Data used/generated for the solution.
- **Comments**. Website visitor comments and government replies are recorded.

As regards digital interactions with vulnerable groups, only a minority of Colombian public institutions fail to monitor or evaluate them at all (Box 2.7). In general, questionnaires are still the preferred method for collecting feedback, along with web statistics, focus groups and suggestions inboxes. These results indicate that public institutions collect a large volume of citizen data. However, it is unclear what information is extracted in reality from this data to adequately evaluate the digital initiatives that involve vulnerable populations.

This is not only about increasing the transparency of these processes and allowing engaged citizens to monitor the results of their collaboration. It also concerns changing the way in which these results are measured and how the Colombian government addresses the issue of monitoring and evaluating digital government, as set out in the report entitled *Assessing the Impact of Digital Government in Colombia* (OECD, 2017b).

In other words, government-driven indicators could be complemented by user-driven indicators and thus leverage innovative data sources. The Government of the ***United Kingdom***, for example, uses data request forms in the open data portal to evaluate the *ex ante* impact of the value created (OECD, 2016b). Information is collected on the potential use and users (i.e. for research, commercial and personal use, among others), and on the general benefits users expect to receive as a result of data access and re-use. Additionally, the British government evaluates the expected economic and financial benefits resulting from access to these data sets (new jobs, expected income, among others). Collecting such data is useful for strengthening the business case for open data in the United Kingdom, as it is the users who share information on data re-use 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 "access to information" and "open data", and the different purposes of their respective access mechanisms.

Social networks are another important channel that could be used both to reinforce the user-driven approach in collaboration processes, as well as to obtain data to evaluate the impact of digital government. The analyses of citizen data published in social networks can be used as an indicator for the government to monitor social problems that may be on the rise. The extracted data from social networks offer new opportunities to reduce political exclusion, for example, by allowing diffuse and *ad hoc* stakeholders to propose topics for the political agenda, and by "sharing" ideas, suggestions and comments critical of the government (Mickoleit, 2014). An example is GitHub, an open code platform for collaboration with reusable source code for www.data.gov (United States), www.gov.uk (United Kingdom) and many other projects. The "government" category of the repository platform experienced rapid growth since 2011 (OECD, 2016b).

With a strong focus on the governance of the government data value chain, a data-driven public sector (Chapter 3) can support a sustainable impact assessment methodology for digital government.

Box 2.7. **Measuring interactions with digital groups**

Digital transactions and participation by vulnerable groups in Colombia

Select the way in which your institution collects/generates data on the online transactions of vulnerable groups (afro-descendants or indigenous population, displaced population, population living in poverty).

Select the way in which your institution collects/generates data on online participation of vulnerable groups (afro-descendants or indigenous population, displaced population, population living in poverty)

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

Notes

1. http://estrategia.gobiernoenlinea.gov.co/623/articles-7941_manualGEL.pdf (in Spanish).
2. www.mininterior.gov.co/el-ministerio/viceministerio-para-la-participacion-e-igualdad-de-derechos/causas-ciudadanas (in Spanish).
3. www.ideasparaelcambio.gov.co/node/604 (in Spanish).
4. www.laconversacionmasgrandedelmundo.com (in Spanish).
5. www.vivelabbogota.com (in Spanish).
6. www.datos.gov.co/en/.
7. http://retos.datos.gob.mx/retos (in Spanish).

References

Mickoleit, A. (2014), "Social media use by governments: A policy primer to discuss trends, identify policy opportunities and guide decision makers", *OECD Working Papers on Public Governance*, No. 26, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jxrcmghmk0s-en.

OECD (2018), *Open Government Data in Mexico: The Way Forward*, OECD Publishing, Paris, forthcoming.

OECD (2017a), *OECD Integrity Review of Colombia: Investing in Integrity for Peace and Prosperity*, OECD Public Governance Reviews, OECD Publishing, Paris, www.oecd-ilibrary.org/governance/oecd-integrity-review-of-colombia_9789264278325-en.

OECD (2017b), *Assessing the Impact of Digital Government in Colombia: Towards a new methodology,* OECD Publishing, Paris, www.oecd-ilibrary.org/governance/assessing-the-impact-of-digital-government-in-colombia_9789264283282-en.

OECD (2017c), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

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

OECD (2017e), *Government at a Glance 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/gov_glance-2017-en.

OECD (2016a), *Digital Government Toolkit*, OECD, Paris, www.oecd.org/governance/digital-government/toolkit/goodpractices.

OECD (2016b), *Open Government Data Review of Mexico*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264259270-en.

OECD (2016c), "OECD Open Government Data Survey 3.0", OECD, Paris.

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

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

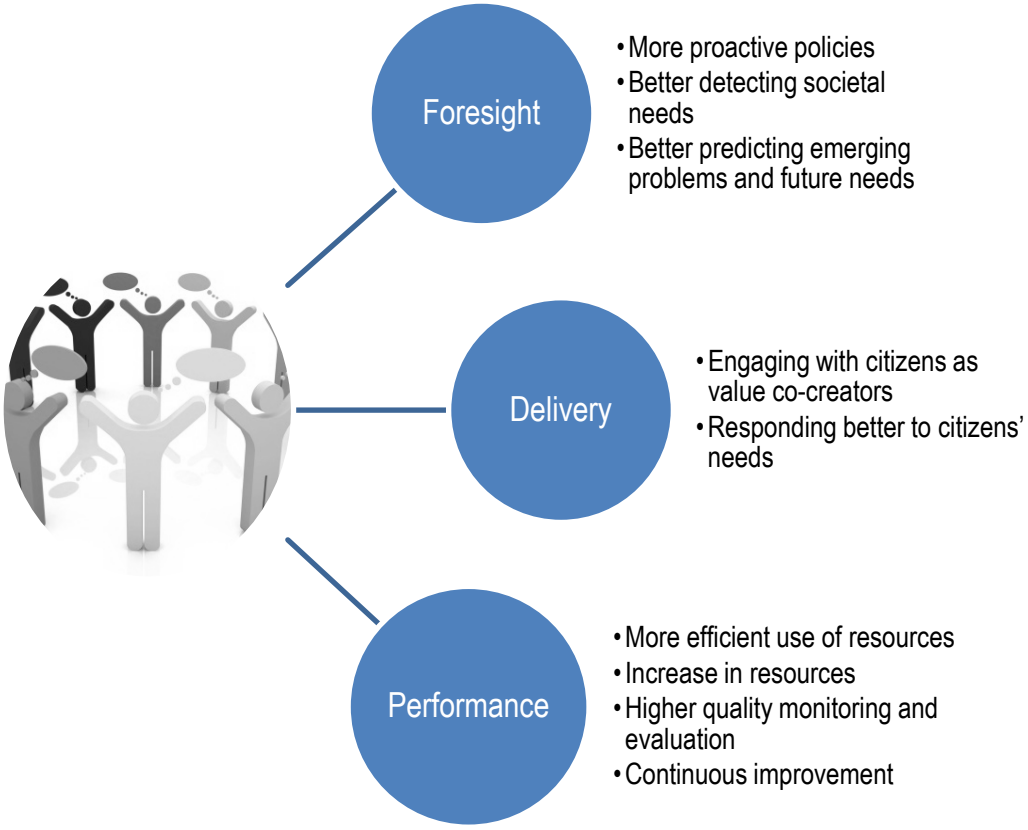
Policy makers and public servants can leverage data to better identify current public policy problems, foresee new events and needs, design innovative approaches to public policy formulation and monitor activities undertaken and the management of resources (financial, time, human and material) mobilised 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

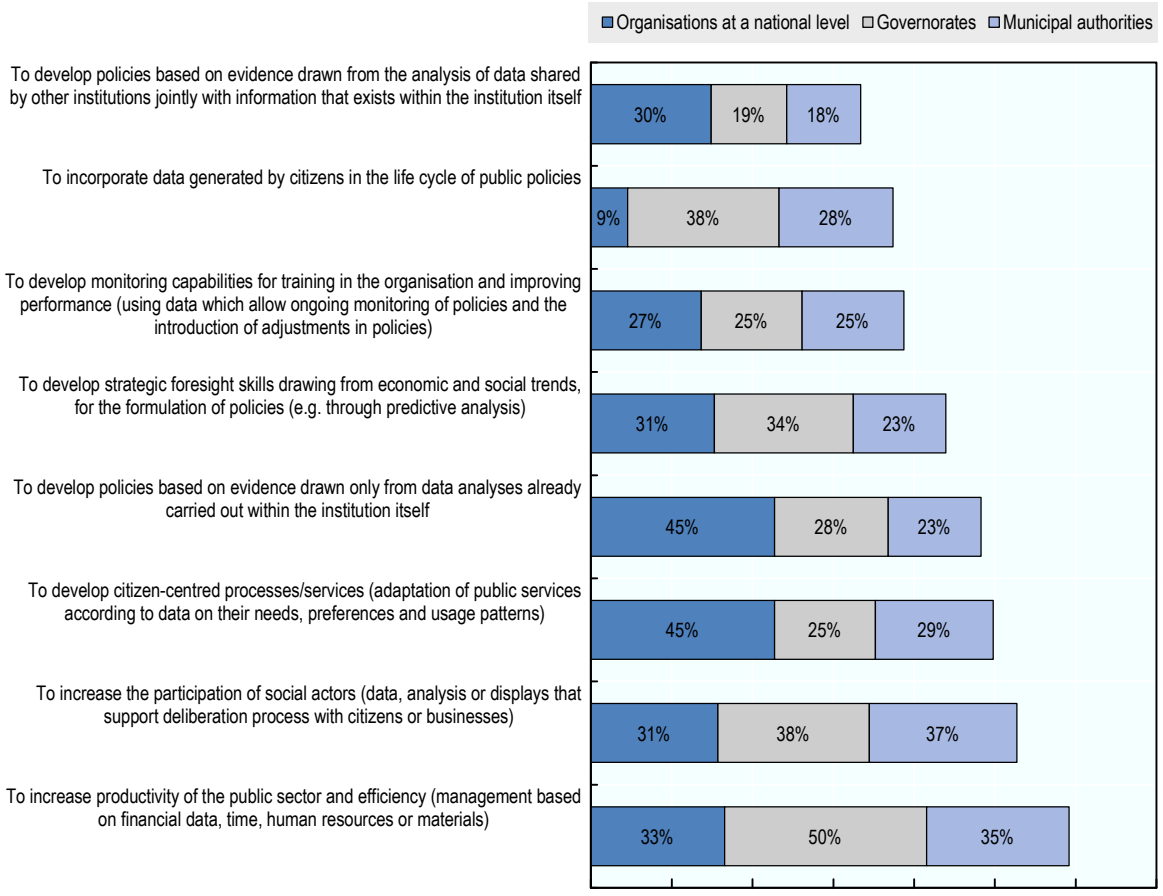
With the purpose of fostering the more extensive exchange and use of public sector data, it would be useful to establish a common agenda on the value that is sought. When institutions were asked about the reason they had undertaken projects in which data was re-used, the most common purpose in Colombia 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 co-ordinate 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.

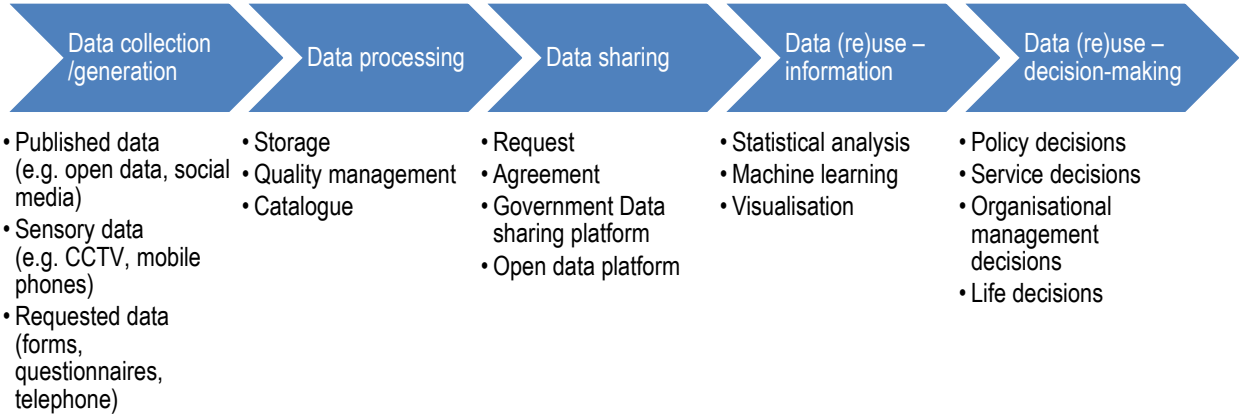
Colombian data-driven initiatives can be considered advanced not only from a technical perspective but also from the perspective of its approach based on multiple stakeholders interested in solving social challenges. However, even though promising, initiatives are generally limited to the local context 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

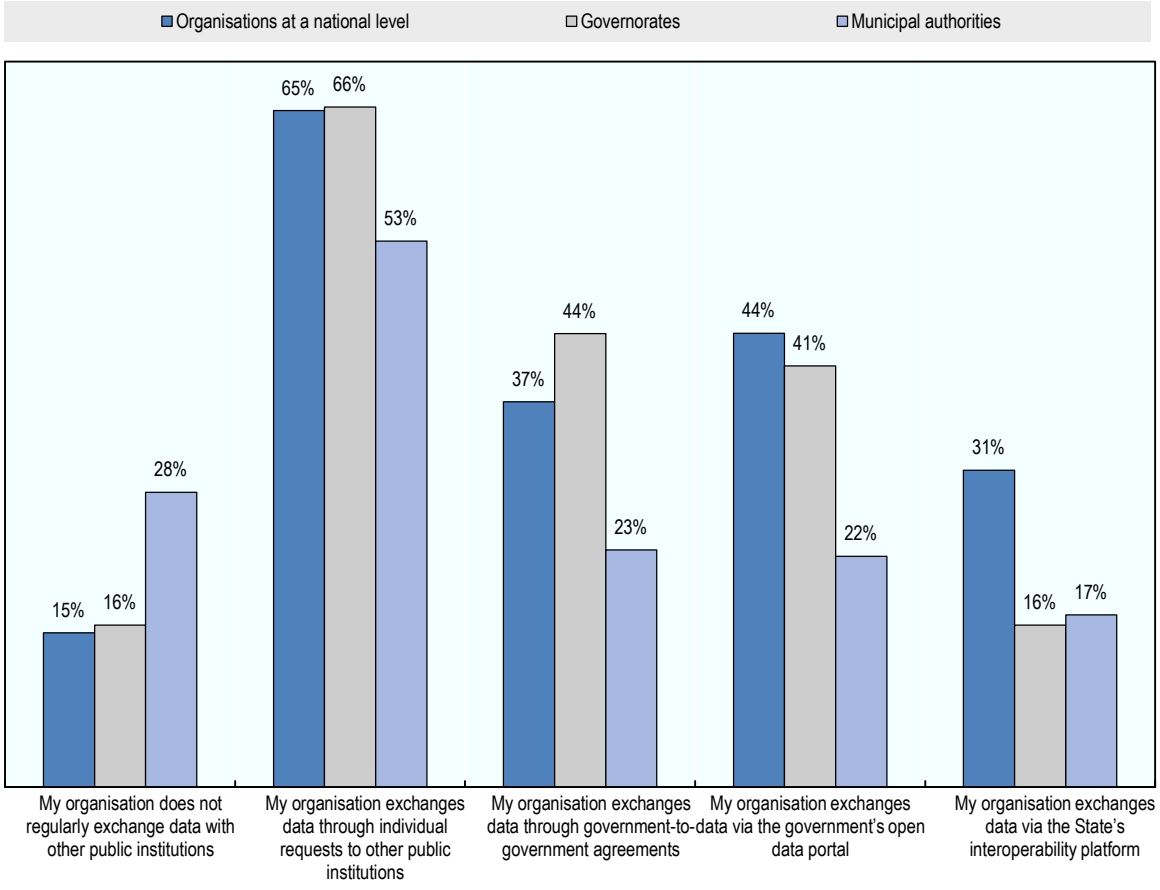
(undertake an action) (OECD, 2015a). Although described in linear fashion, driving public sector intelligence and creating public value involves feedback loops in various phases of the value creation process. Data can inform and affect the nature of decision-making processes, which in its turn can generate 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.

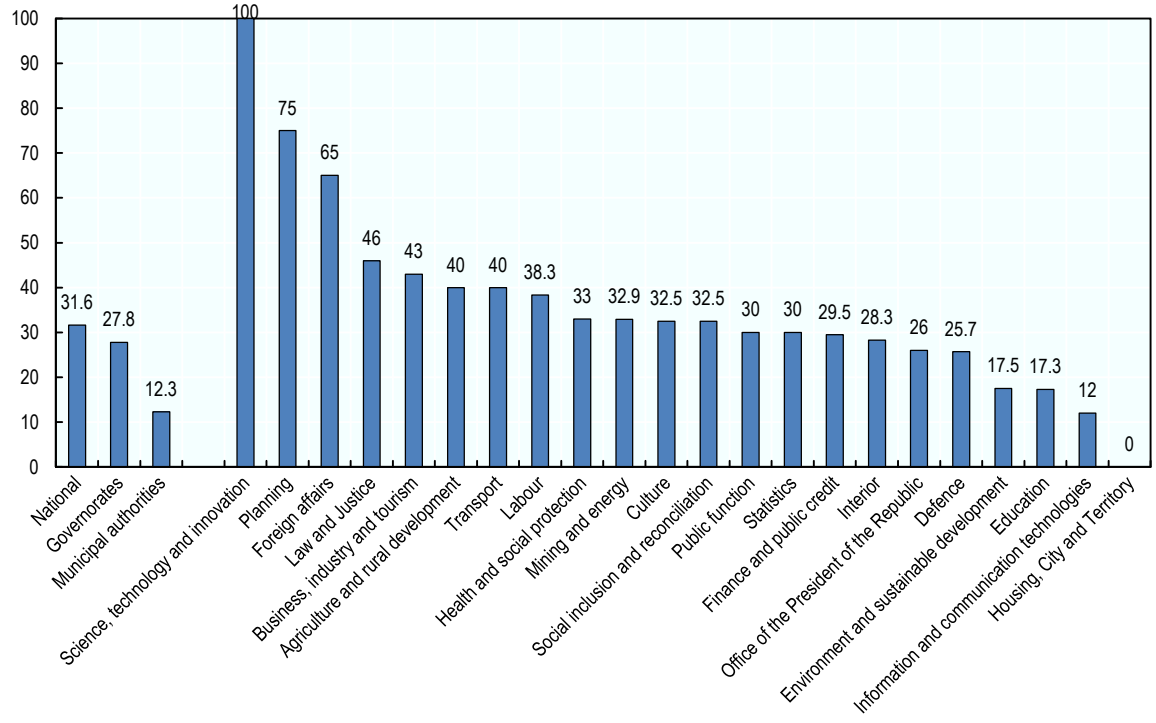
Institutions must be fully aware of the data at their disposal and data alteration processes in use to manage data as an asset during their life cycles, and must ensure that the data is recognisable within and between government institutions; otherwise the enormous potential of data will become very 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**

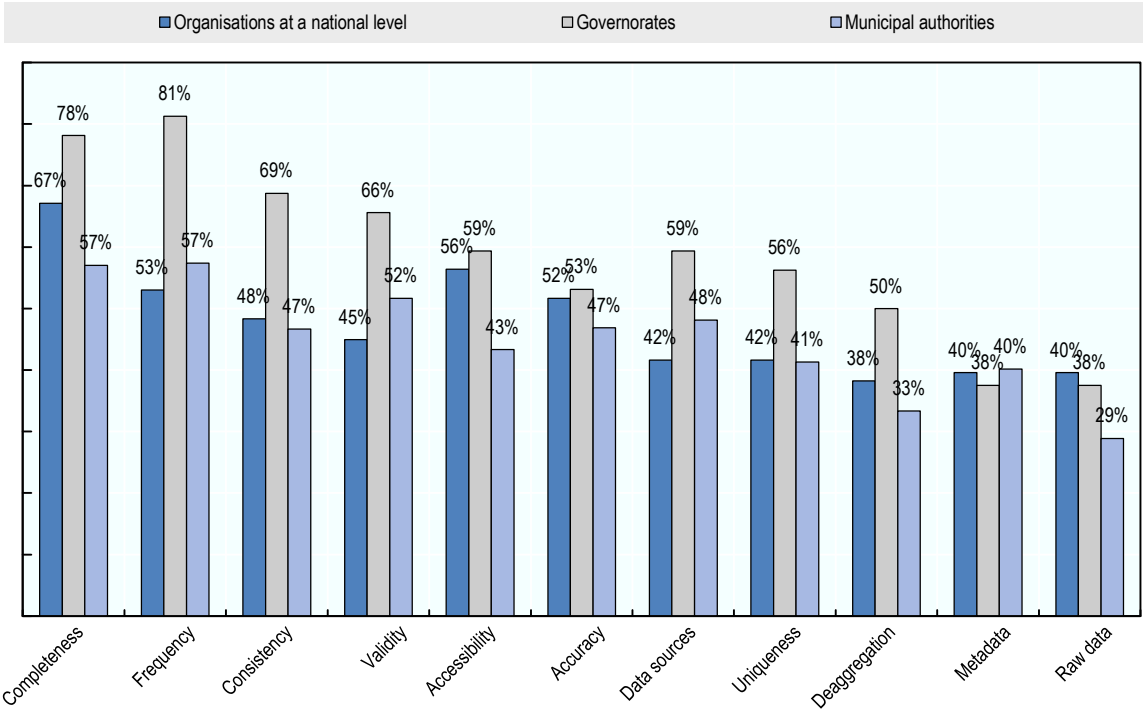
OUP 11 indicator. Data and information catalogues



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).

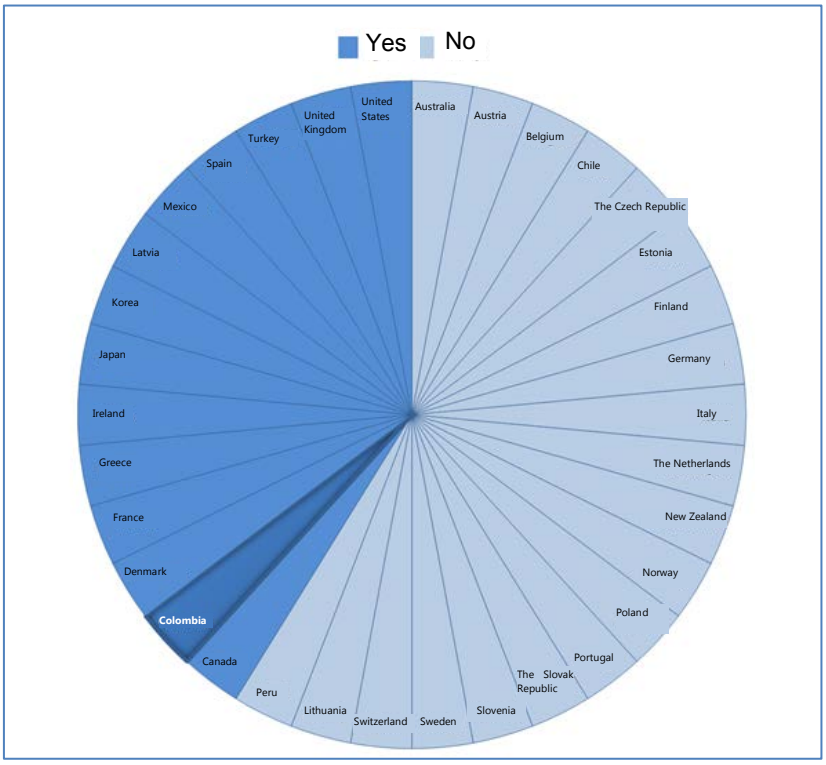
Although the Chief Data Officers (CDO) are responsible for translating national and international goals in open data policy into strategic actions and co-ordinating central institutions towards a synchronised and well-structured implementation, the role of institutional data stewards is focused on turning 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.

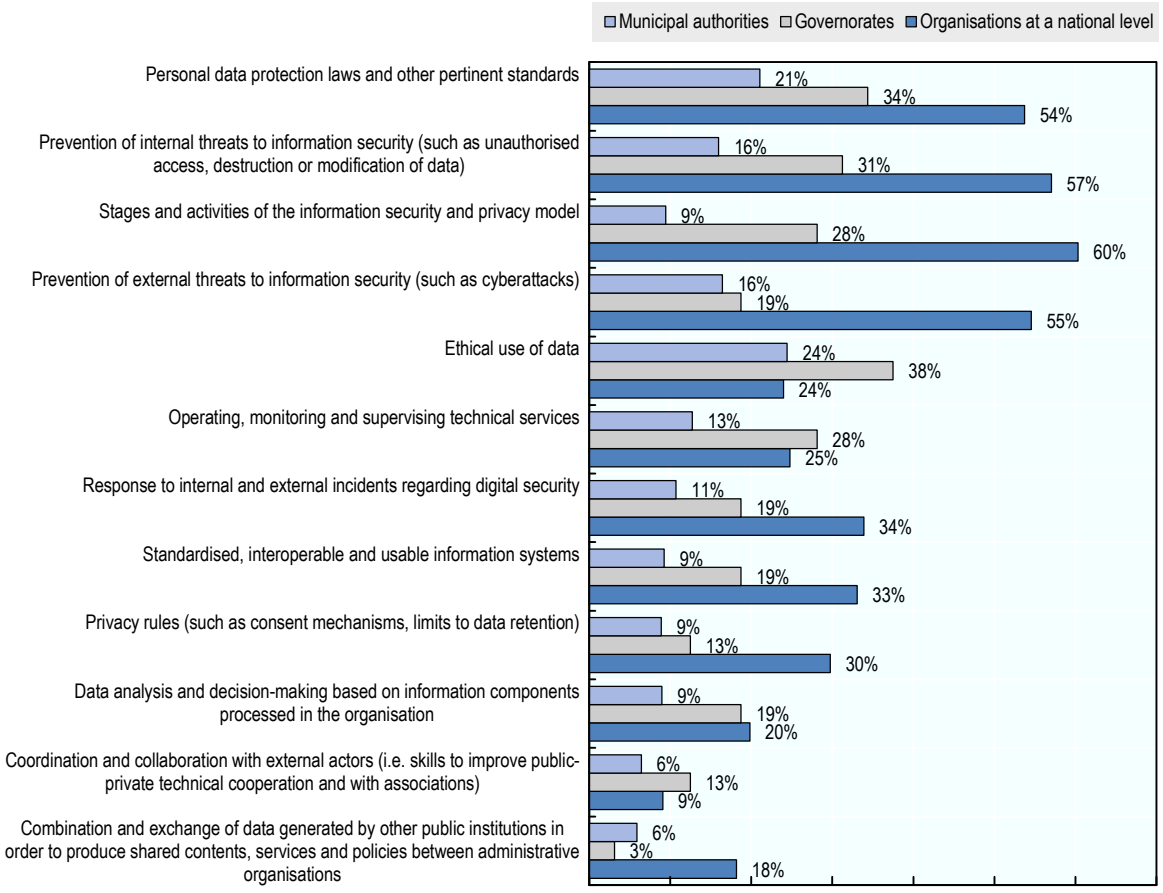
Senior executives across the APS will encourage employees to take advantage of these learning and development opportunities.

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.

References

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

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

OECD (2017b), *Assessing the Impact of Digital Government in Colombia: Towards a new methodology,* OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264284272-es.

OECD (2018), "A Data-Driven Public Sector: for Sustainable and Inclusive Governance", *OECD Working Papers on Public Governance*, OECD Publishing, Paris, in preparation.

OECD (2017a), *Compendium of good practices on the use of open data for Anti-corruption: Towards data-driven public sector integrity and civic auditing*, www.oecd.org/gov/digital-government/g20-oecd-compendium.pdf.

OECD (2017b), *Digital Government Review of Norway: Boosting the Digital Transformation of the Public Sector*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264279742-en.

OECD (2016a), *Open Government Data Review of Mexico: Data Reuse for Public Sector Impact and Innovation*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264259270-en.

OECD (2016b), "OECD Open Government Data Survey 3.0", OECD, Paris.

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

OECD (2015b), *OECD Public Governance Reviews: Estonia and Finland: Fostering Strategic Capacity across Governments and Digital Services across Borders*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264229334-en.

OECD (2015c), *Open Government Data Review of Poland: Unlocking the Value of Government Data*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264241787-en.

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

OECD/International Telecommunication Union (2011), *M-Government: Mobile Technologies for Responsive Governments and Connected Societies*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264118706-en.

Tamkivi, S. (2014), "Lessons from the world's most tech-savvy government", *The Atlantic*, 24 January 2014, www.theatlantic.com/international/archive/2014/01/lessons-from-the-worlds-most-tech-savvy-government/283341/.

Chapter 4

Coherent implementation of digital government policies in different contexts in Colombia

This chapter analyses different mechanisms for a coherent implementation of digital government policies according to specific conditions in a local context. Firstly, the need to ensure a coherent and holistic strategic vision for the whole government and society in Colombia is assessed. Secondly, processes to build human and institutional capacities are explained, the aim of which are to guarantee the availability of skills and resources needed for the satisfactory execution of projects and effective adoption of the developed solutions.

Introduction

The economic and social development of a country is conditioned by a range of multiple and diverse issues. In the case of Colombia, the current peace process, the governance of said process, addressing the needs of the victims of armed conflict and the process to restore land are just some of the pressing needs. At the same time, the Colombian government must address urgent problems in education, health, environment, justice and migration, among others. Although, for administrative reasons, the government is addressing these problems area by area —depending on the responsible ministry— the reality is that each of these problems is directly or indirectly connected to various others, and the solution to one can have a positive or negative impact on others. Even so, the solution to many of these problems can only be found through collaboration between stakeholders, public policies and various areas of government. Thus, policies defined in one area of government must be coherent with those in other areas.

Digital technologies are essential tools for designing and providing solutions to the problems described above. And the technical solutions provided can, in turn, have a significant and profound impact on government as well as on society. Therefore, and to support the efforts to ensure consistent policies, digital technologies must be used as an integral part of modernisation strategies implemented in the different sectors and at different levels of government (OECD, 2014). In this regard the OECD has issued specific recommendations, as shown in Box 4.1.

Box 4.1. **Key Recommendation 6 - Coherent use of digital technologies**

In developing their digital government strategies, governments should ensure coherent use of digital technologies across policy areas and levels of government, by:

- engaging relevant stakeholders and other levels of government to provide input to the development of the digital government strategy;
- integrating the digital government strategy in overall public administration reforms;
- identifying the complementarity, alignment and mutual reinforcement between the digital government strategy and other relevant sector strategies;
- providing the institution formally responsible for digital government co-ordination with the mechanisms to align overall strategic choices on investments in digital technologies with technological deployment in various policy areas.

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

The Colombian government is aware of the importance of guaranteeing policy coherence and has demonstrated, in some cases together with territorial governments, important achievements in different areas. For example, Box 4.2 shows details of the formulation of the *Development Plan–Ahora Puedes Más 2016-2019* compiled by the municipal authority of Floridablanca, in the department of Santander. The plan follows the four recommendations of the OECD to ensure coherence of public policies:

- **Participation**. The plan was drawn up on the basis of citizens' opinions collected from 85 working groups and sectoral meetings, with the participation of

1 203 citizens. Furthermore, a web application was created to facilitate online participation, which allowed citizens abroad to voice their opinions.

- **Integration with administrative reform**. The need has been identified to develop a strategy of science, technology and innovation to support the city's vision of development through ICT in new specific areas: 1) education, 2) culture and tourism, 3) entrepreneurship, 4) productivity, 5) innovation, 6) electronic democracy, 7) health, 8) good government and 9) connectivity. It also states that "Floridablanca, a digital ecosystem, will be a tool to support the plans for social development of public administration".
- **Alignment and articulation**. It was created together with regional policies for the department of Santander, plans for national and sectoral development as well as with international policies.
- **Mechanisms to align investment decisions**. The plan defines a methodological framework for evaluation and monitoring which includes the definition of objectives, identification of actions and functions, the provision of tools for management and the definition of results-based budgets.

Box 4.2. **Floridablanca Development Plan**

Floridablanca is a municipality in the department of Santander in the north-east of Colombia. Covering 98.68 km^2, it has 265 407 inhabitants, 96% of whom live in urban areas and 4% in the rural zone. The urban area is divided into eight administrative units (comunas) and the rural zone is composed of three counties (corregimientos), divided into eight rural districts (veredas).

Floridablanca had seven mayors in 10 years, who were replaced because of corruption. The current mayor, Héctor Guillermo Mantilla Rueda, 22 years old, drew up a development plan based on citizen participation, integrated with development of the community and adapted to national policies.

The Development Plan was based on citizen participation and facilitated by sectoral working groups and meetings with specific groups. Five sectors were identified: 1) Natural habitat and the built environment 2) Comprehensive training, education, culture and sports 3) Dynamics of assistance, prevention and social inclusion 4) Dynamics of the economy and business and 5) Justice, citizen co-existence and good government. 17 working groups were organised per sector, resulting in a total of 85 work groups. In addition, separate meetings were organised with the education sector, young people, churches, businesses, the rural sector, culture, sports, vulnerable population (Afro-Colombians, victims, displaced residents), and civil servants. The working groups were convened through written notifications, invitations, websites, Facebook, announcements in urban districts and local radio stations. A total of 1 203 people attended these work groups.

In order to facilitate the participation of those who were unable to attend, an application was made available on the town hall website and large urns were placed at various strategic points of the municipal administration. The online application meant citizens living abroad could send in their ideas.

The plan was characterised by its alignment with national and international policies, in particular with the National Development Plan 2014-2018 "Todos por un Nuevo País" (national level), the Departmental Development Plan 2016-2019 "Santander Nos Une" (departmental level), the vision of the future Santander 2030 (departmental level), the Live Digital Plan for the People 2014-2018 (sectoral level national ICT) and SDGs (international level).

Lastly, the Development Plan addressed five thematic divisions: 1) Natural habitat and the built environment 2) Assistance, prevention and social inclusion 3) Education, culture and sports 4) Economy and business and 5) Institutional, driven by citizens. The plan is based on two principles: Customer service, effective communication and transparency, and citizen participation and community leadership. Furthermore, the appropriate use of ICT was identified as a cross-cutting component through all five divisions.

Source: Floridablanca National Development Plan - Ahora Puedes Más 2016-2019, www.siipe.co/wp-content/uploads/2014/08/Plan-Floridablanca.pdf (consulted on 11 October 2017). Interview with the ICT advisor to the Floridablanca municipal authority, OECD mission in Bogota, 13 June 2017.

As the implementation of a digital government policy should attempt to be coherent throughout, in Colombia an approach adapted to the different sectors and levels of the State is required, bearing in mind capacities, the level of technical maturity and the appropriateness of IT infrastructures of individual organisations. For this reason, a broad and coherent national strategy must be defined which sets out the main national objectives, while considering the different visions and specific needs of sectors and regions throughout the country. Likewise, a shared understanding of the type of initiatives to be implemented among government officials across government levels and sectors is recommended.

Different contexts in the sectors and territories of Colombia

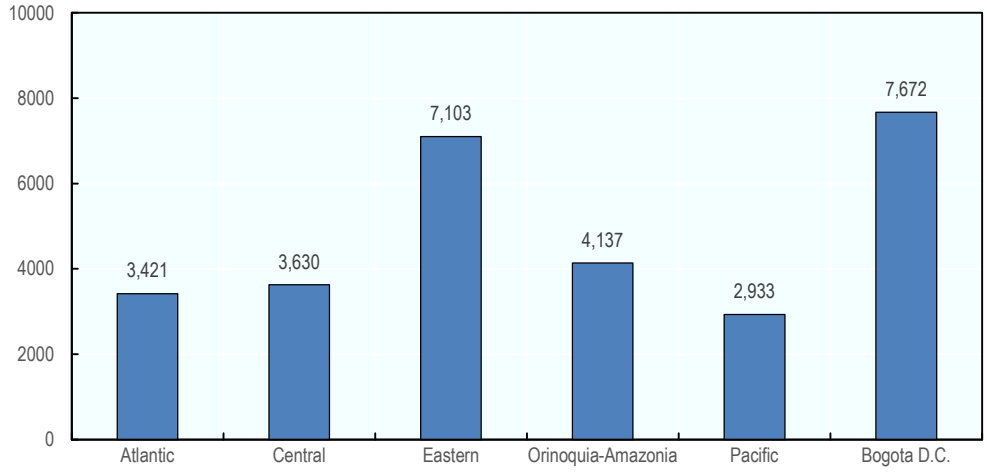
Territorial differences

Colombia is divided into 32 departments located in five regions: Atlántica, Central, Oriental, Orinoquía-Amazonia and Pacífica. These regions and departments have highly varied characteristics.

In order to illustrate territorial differences, according to the Regional Economic Report 2015 (DANE, 2015) GDP per capita in the Eastern region, the richest in Colombia, was COP 22 371 118 (based on the US dollar exchange rate in December 2015[1] this is equal to USD 7 103); and in the Atlántica, Central, Orinoquía-Amazonia and Pacífica regions, GDP per capita was 48%, 51%, 58% and 41% respectively of the GDP per capita of the Eastern region. However, in Bogota D.C., it was COP 24 163 912 (USD 7 672). The GDP per capita per region, including Bogota D.C., can be seen in Figure 4.1.

Territorial differences can be seen not only in the economy. In order to improve connectivity in Colombia, the national government, through MinTIC, in collaboration with the private sector, made significant investments in ICT infrastructure from 2010 to 2017. Some national achievements include: 1 075 municipalities connected by fibre optic cable and 768 with access to 4th generation technology, 10 submarine cables, 639 Wi-Fi zones, 6,885 Vive Digital Kiosks, 887 Vive Digital Access Points and 136 000 homes connected with social pricing for internet access.[2] Another example is the Vive Digital Access Points initiative (Box 4.3).

Figure 4.1. **Gross domestic product (GDP) per capita per region**

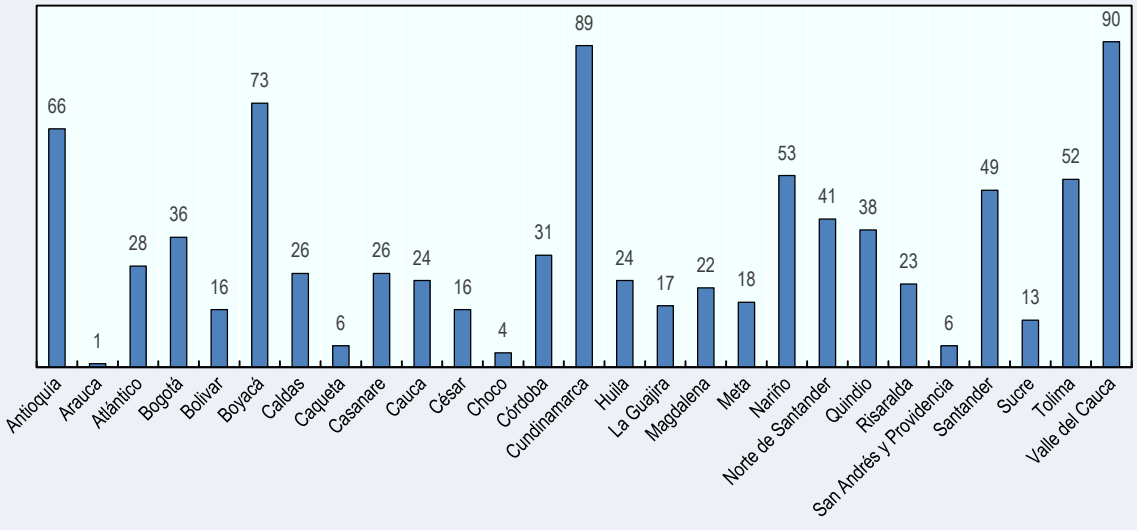


Source: DANE (2015), *Regional Economic Report (ICER)*, www.dane.gov.co/index.php/estadisticas-por-tema/informacion-regional/informe-de-coyuntura-economica.

Box 4.3. **Initiative for Vive Digital Access Points**

MinTIC, via the Infrastructure Directorate, encouraged the creation of 888 Vive Digital Access Points, installed in municipal capitals and in areas of socio-economic groups 1, 2 and 3 (1 being the lowest). The Vive Digital Access Points encourage the use and mastery of ICTs through the provision of general access to functional areas for the use of the internet, entertainment, training and online government processes. One precondition for their installation was that regional stakeholders had to show interest in participating and that they could also rely on a connection to the terrestrial broadband network, such as fibre optics, ADSL networks and cable, among others.

Distribution of Vive Digital Access Points by department



Source: Vive Digital Access Points, www.mintic.gov.co/portal/vivedigital/612/w3-propertyvalue-669.html; http://micrositios.mintic.gov.co/vivedigital/mapas/mapa_4_municipios_puntos_vive_digital.php (in Spanish, consulted on 12 October 2017).

Despite the efforts made, in future some municipal authorities might be faced with major challenges to guarantee the sustainability of current connectivity, above all because of their lack of financial resources or the capacity to develop business models which help them to exploit the potential of the installed infrastructure. Furthermore, there is a risk that the digital gap can get worse if the Colombian government does not guarantee the provision of financial resources to maintain and extend the current ICT infrastructure. Apart from financial resources for connectivity, because of a lack of capacities in municipal authorities and their communities, investments are needed to develop the necessary capacities to allow the use and ownership of digital technologies and services so that they can create public value. So new approaches to public-private partnerships related to ICT must be developed to create and develop new business models and define and provide innovative digital services.

Despite the investments made in infrastructure, and in the same way that socio-economic indicators show differences in the five regions of the country, there are still distinct differences in terms of connectivity and accessibility throughout the whole of the country. Table 4.1 shows the number of subscribers with fixed internet access, differentiated by the download speeds which telecommunications network and service providers offer. There are six download bands (less than 1 Mbps, between 1 and 2 Mbps, between 2 and 5 Mbps, between 5 and 10 Mbps, greater than 10 Mbps).

Table 4.1. **Number of subscribers with fixed internet access**

DEPT	REG	< 1 Mbps	1-2 Mbps	2-5 Mbps	5-10 Mbps	> 10 Mbps	Total users	Total population	%pop. w/access
Bolívar	AT	600	10 493	87 312	51 071	18 527	168 003	2 146 696	8%
Sucre	AT	1 706	9 278	17 446	12 480	2 998	43 908	868 438	5%
Bogotá	D.C.	849	111 226	427 081	690 853	535 265	1 765 274	8 080 734	22%
Antioquia	CE	7 605	107 429	535 754	317 828	81 056	1 049 672	6 631 118	16%
Caquetá	CE	106	1 105	6 451	8 807	1 554	18 023	490 056	4%
Meta	OR	261	8 545	38 394	49 282	9 430	105 912	998 162	11%
Santander	OR	897	35 939	165 661	91 442	21 980	315 919	2 080 938	15%
Amazonas	OA	260	99	64	6	2	431	77 948	1%
Casanare	OA	199	3 409	11 665	13 583	2 896	31 752	368 989	9%
Chocó	PA	334	4 598	5 940	6 899	1 656	19 427	510 047	4%
Nariño	PA	301	7 835	28 995	40 184	7 183	84 498	1 787 545	5%

Source: MinTIC;[3] DANE.[4]

Also shown are the total number of users with this type of connection, the total population of the region and, based on these two figures, the percentage of the population with this type of access. The box shows the data of the two departments by region: Atlántica (AT), Central (CE), Oriental (OR), Orinoquía-Amazonia (OA) and Pacífica (PA), as well as Bogota D.C. As illustrated, there are significant differences between the population which has fixed internet access in Bogotá compared with other regions; furthermore, significant differences can be seen between regions, for example, 15% and 11% in the Eastern region compared with 1% and 9% in Orinoquía-Amazonia, and 4% and 5% in the Pacific region.

Connectivity is essential in the post-conflict regions to create opportunities for equal personal development from an economic and social perspective. Connectivity and accessibility policies and regulations could address the specific needs of these regions and of vulnerable groups and could be drawn up with a differentiated territorial focus. In

particular, Colombian legislation determined that access to telecommunications services is a right and an important tool for economic and social development, as it defines *universal access* to *universal services*. Decree 899/1999 established the right of all homes to have basic telecommunications services. At the time it referred to basic telephone services and, for the future, other services depending on technological advances and the availability of resources. In this context, universal access refers to a minimum set of services available to citizens, at any geographic location and at a reasonable price. Although the law referred only to fixed telephony, and the law can only be amended by Congress, the implementation of policies to guarantee this right is the responsibility of MinTIC. Consequently, MinTIC implemented different programmes to comply with the decree, such as the creation of a public fund and subsidy programmes, allowing for different conditions per region and social stratum (OECD, 2014).

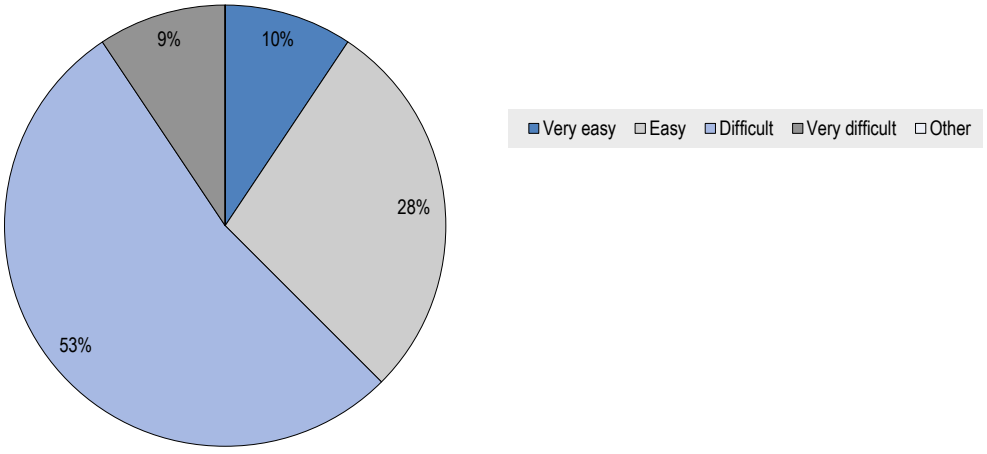
In addition to the differences identified in territories, according to the OECD questionnaire for the digital government review of Colombia, national and territorial institutions expressed the difficulty of be able to align the Online Government Strategy with their development or institutional plan. In particular, 62% of national institutions evaluated alignment as difficult (53%) and very difficult (9%). Similarly, 55% of territorial institutions evaluated it as difficult (38%) and very difficult (17%). As shown, territorial institutions found the process of alignment with the Online Government Strategy much more difficult than national institutions.

Based on the differences observed, it would be preferable if the basic concerns on a territorial level would be addressed and prioritised in some key objectives of the national government's strategies so as to guarantee a minimum level of preparation throughout the whole country for the transformations needed for digital government.

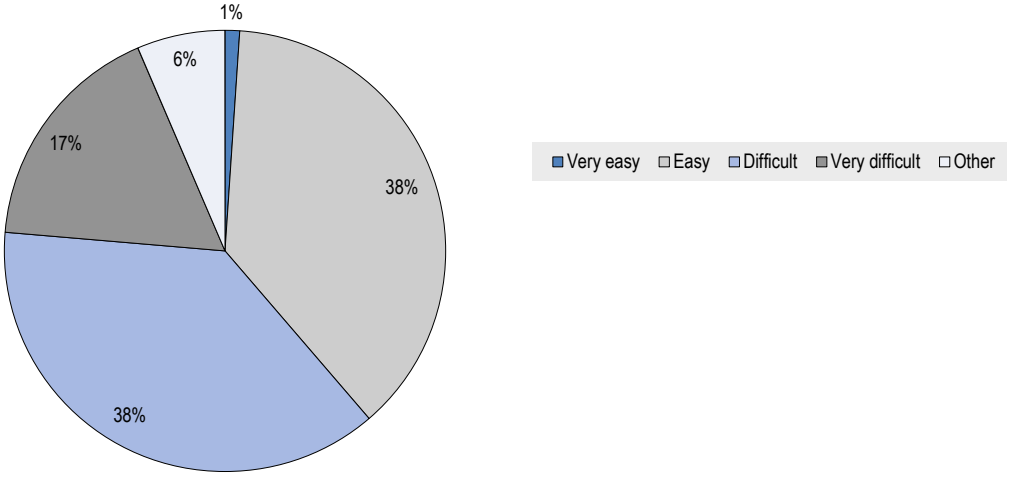
Considering the differences observed and the capacities of MinTIC, there is a risk that the progressive approach of MinTIC could become disconnected from needs at a local level, which perhaps may result in a discrepancy between a strong political will and the implementation with a vision for the future at a national level, and the more basic concerns and pressures which face local authorities throughout the country, such as the need to resolve questions of connectivity, accessibility and interoperability. A new institutional framework, of governance, and an effective communications strategy, as defined in Chapter 1, could help to alleviate such scenarios.

Figure 4.2. Degree of difficulty/ease for institutions to align the Online Government Strategy with their strategy or main plan

National institutions



Territorial institutions



Source: OECD (2017a), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

Sectoral differences

The Colombian government currently has 16 ministries.[5] Some of these ministries use digital technologies strategically to transform their processes, structures and the ways in which they offer procedures and service, with significant degrees of progress. For example, in Chapter 1 the major transformations carried out by MinSalud (see Box 1.1) were described, where health records of citizens are being consolidated using digital solutions, integrating the information stored in different systems and processed by institutions of the public and private sectors. Another ministry which has made important changes to its administration and provision of services is the Ministry for National Education (MinEducación). MinEducación is also aligning its policies and programmes efficiently with MinTIC and other areas of government (Box 4.4).

Box 4.4. **Transformation and co-ordination in the National Education Ministry**

MinEducación is responsible for 44 000 public establishments (schools and administrative centres). Currently 50% of them are connected, which covers 82% of students enrolled with internet access. Other programmes are:

Content database. For the past three years digital content has been compiled for pupils from first grade up to 11 years of age to learn mathematics, science and language. Contents include a teacher's guide, activities and tasks for pupils. Contents are also available without an internet connection on a hard disk with 180 GB of information. It currently contains more than 100 000 videos, exercises, books and digital material.

CreaTIC teachers. This programme was devised to train teachers in ICTs and to motivate them to innovate through them. 63,000 teachers received training in 2016.

Centres of Educational Innovation. Five regional centres were created throughout the country and are managed by universities to develop digital content for education. The aim is to encourage regional capacities to be created for use in ICT education and help to reduce the educational gap between the different regions.

School Plus. This is an educational TV project, aiming to enrich and supplement educational content for primary and secondary schools. The project is being implemented in collaboration with DIRECTV and uses its technology; the contents are being developed by partners of the project, such as Discovery en la Escuela, National Geographic, Microsoft and Fundación Torneos. 2015 saw it established in 1 561 education centres and training provided for 2 792 teachers and managers.

The systems at MinEducación interoperate with those of the Institute for Social Economy (IPES) and of the Colombian Institute of Educational Credit and Technical Studies Abroad (ICETEX) to monitor credits acceptable in education, and with the Ministry of Foreign Affairs for legalising procedures.

MinEducación is working on the identification of citizens, in particular those underage so that they can monitor citizens throughout the whole educational cycle. To this end they have sought advice and are working in collaboration with MinTIC to define methodologies and standards, and with the Administrative Department of Public Function (DNP) regarding the regulation of processes.

Source: Interview with a representative of MinEducación in Bogota, 12 June 2017; http://aprende.colombiaaprende.edu.co/es/bancodecontenidos; http://creatic.colombiaaprende.edu.co (consulted on 19 October 2017); www.colombiaaprende.edu.co/html/micrositios/1752/w3-propertyname-3020.html.

As shown above, some ministries are displaying leadership and making significant progress in the strategic use of ICT; however, the level varies from one area of government to the next. Similarly, the good practice shown by Floridablanca in compiling a development plan is not common practice in all territorial governments.

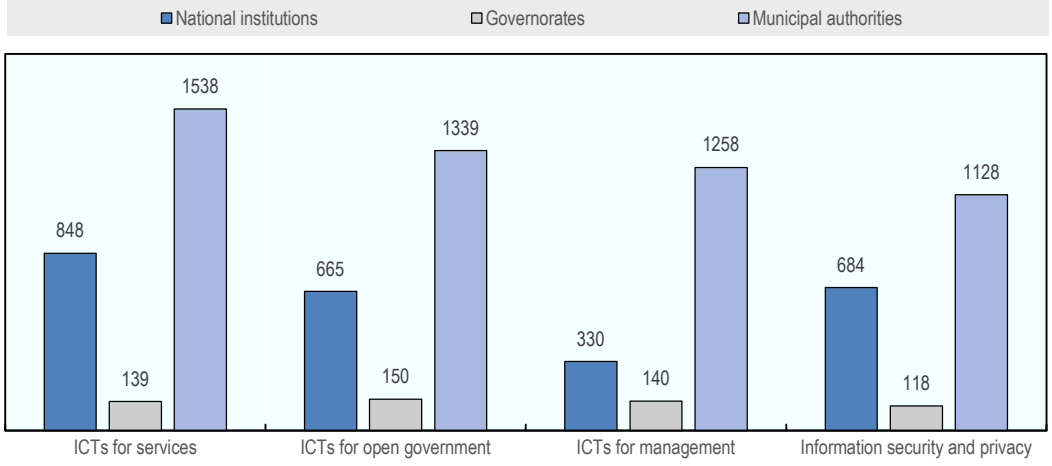
Going forward using existing support mechanisms

MinTIC has successfully implemented various types of programmes to build up human capacities in public institutions at a national and territorial level. In particular, public institutions in 24 sectors of national government and 32 departments were given support, training and access to IT tools to implement the Strategy (Ministry of Information and Communication Technologies, 2016). Via the Cooperative University[6] programmes were compiled for theoretical, experiential and virtual training to help improve the skills of civil servants. In 2015 and 2016 eight new diploma courses were created and financed: state supervision and recruitment, IT management for CIOs in the public sector; IT leadership for the State; IT architecture and management; human capital development in public institutions; relationship management; editing and spelling; information security.

Similarly, as part of the efforts to qualify personnel, MinTIC has made significant efforts to raise awareness among public servants regarding the Online Government Strategy and these efforts are recognised. In accordance with the OECD questionnaire for the impact assessment of the Online Government Strategy, the 1 280 institutions which participated stated that in 2016 their public servants had participated in a total of 8 337 sessions to raise awareness or for training on topics related to the strategy, with an average of almost 21 sessions per national institution, 18 per government and 5 per municipal authority. Data on the number of sessions per areas of the strategy can be found in Figure 4.3.

Figure 4.3. **Sessions to raise awareness/training of public servants by strategy area**

How many awareness and/or training sessions did civil servants in your organisation attend related to the following topics?



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

As illustrated, MinTIC is driving and supporting most efforts to train staff in public institutions to implement digital government initiatives. In the future it is hoped that

public institutions will allocate part of their IT budget to increase the capabilities of their personnel in the development of digital government.

In addition to offering training, MinTIC's role vis-à-vis territorial entities has been mainly one of counsellor and communicator, defining and giving guidelines and standards for these policies. It has also supported local authorities in developing capacities at a local level and has provided specific tools and support mechanisms to territorial institutions, such as web platforms, the open data platform, face-to-face workshops and webinars (Box **4.5**).

Box 4.5. **Support mechanisms provided by MinTIC to government institutions**

MinTIC has developed and provided national and territorial government institutions with different types of capacities. Some of them are described below:

Territorial platforms. A website is being provided and managed by MinTIC for municipal authorities, governorates, city councils, departmental assemblies, decentralised institutions, health institutions, educational institutions and other organisations. These web platforms are those being used by 2 434 territorial organisations (990 municipal authorities, nine governorates, 21 departmental assemblies, 500 city councils, among others) to interact with their users via the internet.

Open data platform. Data published by the public institutions of Colombia are being provided in an open format for developers, companies, public institutions and citizens so that anyone can develop applications, perform analyses and searches, carry out monitoring or any other type of activity. To date 6 097 datasets have been published by 795 organisations; 1 273 graphic representations and analyses have been created using these data.

Online Government Excellence Programme. This was implemented in collaboration with the United Nations Development Programme (UNDP) in Colombia. This programme aims to develop capabilities in terms of e-government through training public servants. This was done through face-to-face workshops, webinars, online courses and postgraduate grants for subjects related to e-government.

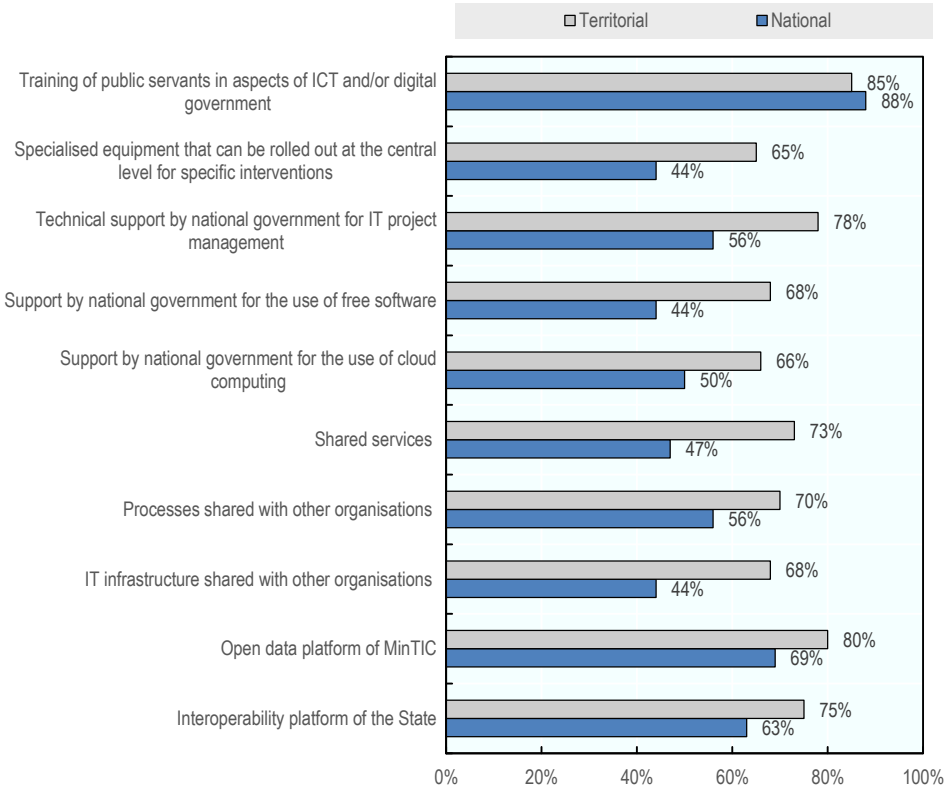
Source: http://estrategia.gobiernoenlinea.gov.co/623/w3-article-9410.html; www.datos.gov.co/en/; http://estrategia.gobiernoenlinea.gov.co/623/w3-propertyvalue-8018.html (in Spanish, consulted on 11 October 2017).

In other words, in the OECD questionnaire for the digital government review of Colombia, organisations were given a list of resources and tools available in Colombia to support technical capacities or management in each organisation to implement the Online Government Strategy and ICT initiatives, asking them to evaluate their degree of usefulness. The results are given below.

Figure **4.4** shows the resources and tools classified as being of the greatest use (the figure shows the aggregated results for "very useful" and "useful" for each resource and tool according to the classification given by national and territorial organisations). As can be seen, training for public servants in ICT and/or digital government aspects is the resource which is most useful for these organisations: 88% of national organisations and 85% of territorial ones; this is followed by MinTIC's open data platform: 80% of territorial organisations and 69% of national ones; and the State's interoperability platform: 75% of

territorial organisations and 63% of national ones. Other useful tools for territorial organisations include technical support provided by the national government for IT project management (78%) and shared services (70%), while for national institutions it is the processes shared with other organisations and technical support provided by the national government for IT project management (both at 56%).

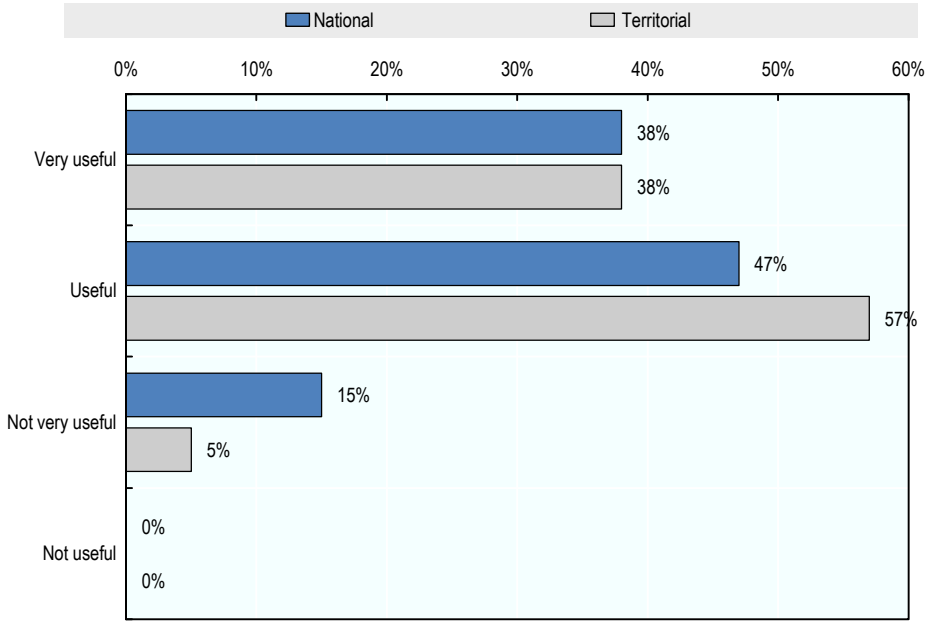
Figure 4.4. **Most useful tools and resources to support technical capacities or management of offices**



Source: OECD (2017a), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

The provision of these tools, as well as the policy defined by MinTIC to support public institutions, was well received by the latter. According to the results of the OECD questionnaire for the digital government review of Colombia, the majority of institutions, both national and territorial, consider the MinTIC's Online Government policy to be useful or very useful in helping to achieve the strategic objectives of their organisation. Territorial organisations evaluated the usefulness of policies at 95% (38% very useful and 57% useful), while national institutions evaluated them at 85% (38% very useful and 47% useful). The results are shown in Figure 4.5.

Figure 4.5. **Evaluation of the usefulness of MinTIC's Online Government policy in achieving the strategic objectives of national and territorial organisations**



Source: OECD (2017a), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

Despite the efforts of MinTIC, there is a gap between the level of implementation which national and regional institutions achieve compared with the level achieved by the smaller municipalities. This is because there are no clear support mechanisms which departments and municipalities can use to facilitate implementation, such as sharing software infrastructure which facilitates the shared use of tools for IT management and governance (such as ICT project management tools, tools for managing business cases and other federal software which can be re-used); furthermore data infrastructure, systematic training of personnel, implementation of stand-alone models and integration of a more efficient use of economic and technical resources at a territorial levels are missing, amongst other examples. This approach, which describes in detail some of the ways in which MinTIC can support territorial governments, must be integrated in the system of the Colombian government, while respecting the autonomy of territorial institutions.

Although local authorities recognise the efforts made by MinTIC, there are still opportunities to help these authorities to improve their capacities, structures and infrastructure so it becomes easier for these institutions to implement strategy defined in their specific contexts. Therefore, it is important that MinTIC continues on its path, defining support mechanisms for territorial institutions and investing in shared infrastructures and in personnel training; for example, in facilitating the exchange of experience and learning in pairs (i.e. facilitating a local authority learning from the experience of another) and so help to create capacities at a local level. This is likely to foster a successful implementation of the Digital Government Strategy across the whole public sector.

Because of the differences described, both at the territorial and sectoral levels, central government must consider the specific needs of each situation, as it must the needs at an institutional level, with which a Digital Government Strategy can be defined, aligned and

co-ordinated with an IT infrastructure strategy, which will take into account the needs of each institution. This will allow a sense of commitment, accountability and relevance to the public sector and to the different levels of governments to be generated. The strategies for institutional digital government must follow and be adapted to the strategy defined at the centre by MinTIC.

Alignment of institutional digital government strategies with the national digital government strategy requires MinTIC to assume a key role as co-ordinator. Generally, co-ordination can be facilitated by creating collegiate bodies. Box 4.6 shows institutional co-ordination mechanisms in the experience of ***Denmark*** and ***Norway***.

Box 4.6. **Inter-institutional co-ordination mechanisms: the experience of Denmark and Norway**

In Denmark, the Steering Committee for Joint-Government Cooperation (STS) was created in 2005 as a result of an agreement between the government, regions and local authorities in Denmark. STS is a joint-government co-ordinating body with the objective of creating a shared space for working on digital government. The general framework for co-ordination focuses on the annual negotiations on the following year's budget between the government and the representatives of regions and municipalities. STS is composed of top-level representatives (permanent secretaries/directors general) from the five most important ministries of central government and the associations which represent municipalities and regions for the implementation of digital government. STS is responsible for determining the general principles and conditions for a coherent reference framework for digital government and for co-ordinating initiatives using public resources so they are used better, deciding how to allocate them and determining models for operations and maintenance of digital government projects.

In Norway, SKATE was devised as a horizontal co-ordination forum to identify needs, actions and joint solutions for the whole public sector and focuses on the prioritisation and coherence of ICT investments. Its objective is to advise organisations in the public sector on ICT projects. The participation of various stakeholders, including representatives from the public sector, private sector and the tertiary sector, has proved useful in creating a solid foundation with which shared synergies can be capitalised on, applying efforts and ensuring greater coherence in terms of priorities, standards and objectives.

Source: OECD (2016), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258013-en OECD (2017), *Digital Government Review of Norway: Boosting the Digital Transformation of the Public Sector*, OECD Digital Government Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264279742-en consulted on 11 December 2017).

The institutions have specific expectations of the role of MinTIC in the development of digital government. Furthermore, MinTIC can play a strategic role in helping to ensure consistency in policies in all areas and levels of government, while it satisfies the expectations of organisations.

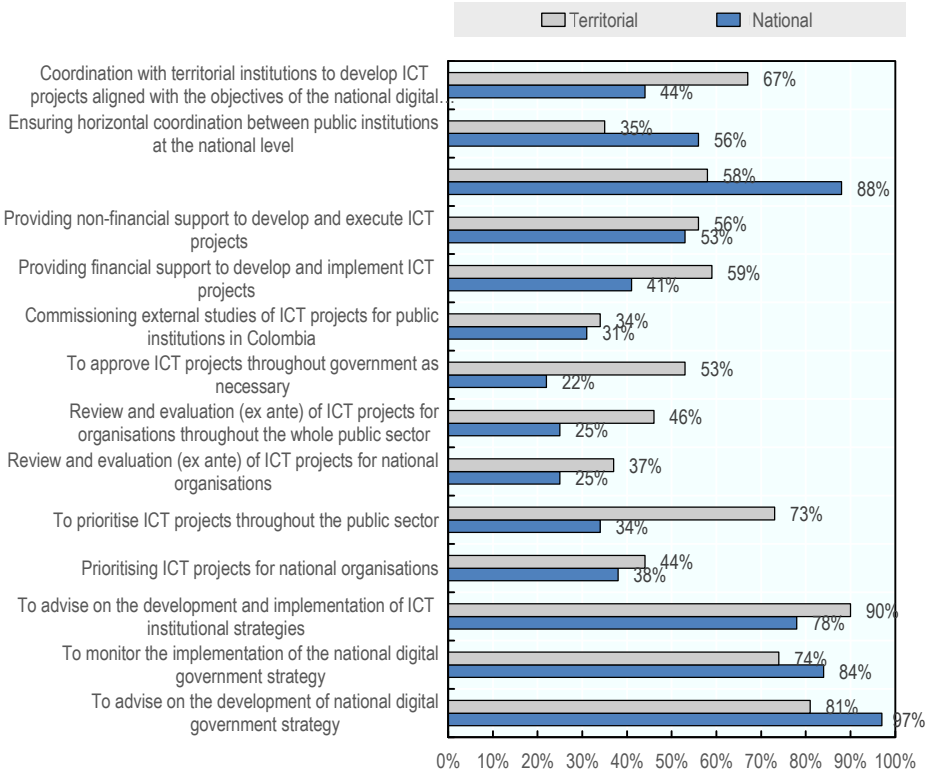
Based on the answers to the OECD survey reviewing digital government in Colombia, 90% of territorial institutions hope that MinTIC will advise them on developing and implementing institutional ICT strategies; 67% hope it will work with them to co-ordinate the development of ICT projects aligned with the objectives of the national strategy for

digital government; and 58% hope that it will draw up technical guidelines for developing ICT architecture throughout the public sector in a standardised manner; they also hope that it will provide financial support (59%), as well as non-financial support (56%) to develop and implement ICT projects.

However, the national institutions which answered the survey have different expectations regarding MinTIC's role. In particular, 88% have the expectation that it will prepare technical guidelines for developing ICT architecture throughout the public sector in a standardised manner; 78% that it will advise them on the development and implementation of institutional ICT strategies; 56% that it will ensure horizontal co-ordination between public institutions at a national level; and 53% that it will provide non-financial support to execute ICT projects.

The expectations of national and territorial institutions regarding the responsibilities of MinTIC in its role as co-ordinator for the Online Government Strategy are shown in Figure 4.6. Seeing the different expectations of national and territorial institutions regarding MinTIC, it would be preferable for MinTIC to offer differentiated strategies to accommodate both.

Figure 4.6. **Expectations of national and territorial institutions regarding the responsibilities of MinTIC in its role as co-ordinator for the Online Government Strategy**



Source: OECD (2017a), "Digital Government Review of Colombia: Questionnaire for Colombian public institutions", OECD, Paris.

To ensure that the efforts of institutions are in line with the strategic objectives defined in central government, the unit responsible for the national implementation of digital government should define mechanisms to offer incentives to public institutions. In the

case of Colombia, MinTIC has created good incentive mechanisms. One example is the Seal of Excellence, which certifies the quality of digital public services via a virtual community; it includes citizens and interacts with the Seal of Excellence web portal using a gamification approach (Box 4.7).

Box 4.7. **Seal of Excellence programme - system of incentives**

The Seal of Excellence attempts to motivate public institutions to have their processes, services and products certified in accordance with quality standards. Being awarded the Seal allows them to show the public that the services they provide satisfy quality standards as well as their ability to discharge their functions.

Method. 1) The institution proposes a process, service or product; 2) MinTIC approves the request; 3) with its approval, MinTIC grants access to the platform so that the institution can present the process and show that it complies with all the requirements to obtain the Seal; and 4) a virtual community is used for demonstration purposes, composed of citizens, users of the services and third parties who are expert in matters of digital government.

Benefits for institutions. 1) Improvement in the quality of services offered; 2) improvement in the efficiency and effectiveness of its products and management systems; 3) creation of an internal culture of continuous improvement.

Benefits for citizens. 1) Creating confidence in public institutions and their management; 2) learning to access and use public e-services, and 3) participating and expressing their opinions on their needs and preferences in relation to public services.

Source: http://sellodeexcelencia.gov.co/banner/4; http://sellodeexcelencia.gov.co/banner/5 (in Spanish, consulted on 3 December 2017).

Another example of incentives is the Excellence Route programme. Individuals and institutions are rewarded who demonstrate outstanding commitment and achievements regarding implementation of the Online Government Strategy (Box 4.8).

The recommendation is to create a culture of non-remunerative incentives based on this good practice. An incentives system specifically devised for public servants would result in more motivated personnel who are committed to the digitisation process. Incentives could be professional, such as scholarships and certificates, as well as public recognition awarded by the authorities of the country where the efforts and dedication of personnel are rewarded. In addition, it would be advisable to devise incentive mechanisms that are creative like the existing ones, with the object of recognising institutions and stakeholders who demonstrate efforts through collaboration to ensure the consistency of policies in the various areas and levels of government.

Box 4.8. **Excellence Route programme - system of incentives**

The system of incentives is based on T-shirts for individuals and institutions.

Proactive 	**People** People who stand out because of their commitment, dedication, delivery and persistence in order to achieve the objective of their work (project).
Climber 	**Institutions** Participants in the Grandes Vueltas, i.e. projects of greater complexity; for institutions which stand out for their ability to adapt and interact with other institutions which are involved in the same processes (projects).
Runner 	**Institutions** For institutions which stand out for their participation and support for the leader organisation for each process (project).
Classicist 	**People** For processes (projects) with medium or low requirements; for participants who stand out for their ability to adapt and interact with other institutions which are involved in the same processes (projects).
Packer 	**Institutions** For leading institutions which have made the most progress in implementing their portfolio of projects.

Source: www.rutadelaexcelencia.gov.co/634/w3-propertyvalue-14756.html (consulted on 12 October 2017).

Building the necessary human and institutional capacities

Strategic management of financial resources

Generally speaking, one obstacle which could arise in the implementation of a digital government strategy is the lack of financial resources. In the Colombian Government, the Ministry of Finance draws up policies to implement the different strategies and manages the financial resources for each ministry and institution according to the previous budget law.

Each of these institutions has to prepare an annual budget and submit it to the Ministry of Finance. Finally, the government's total budget is approved by law according to the resources available. In general, the budgets prepared by institutions include recurring ICT costs —expenses for buying equipment, licences, cabling, networks, internet, among others— which, if not paid, would impact daily operations; the same institutions prioritise the manner in which to implement the budget. On the other hand, institutions can have investment costs, which must be approved by the National Planning Department (DNP).[7] Financial long-term projects, which exceed the current government's term in office, must be declared of strategic importance, and the availability of future resources must be guaranteed by a regulatory instrument of the National Council for Economic and Social Policy (CONPES).

In order to ensure successful implementation of the Digital Government Strategy, public institutions are responsible for ensuring the availability of the necessary resources. It can be seen that public institutions use a large part of their IT budget for recurring costs, such as software licences, and only 20% for ICT investment projects. Government institutions should consider a more appropriate redistribution of their IT budget, above all in view of the investments needed for digital government projects.

Recently, Decree 1414/2017[8] stipulated that the Department for Development of Information and Communication Technologies should recommend the investment priorities of the Information and Communications Technologies Fund to promote and manage the sector in terms of information technologies, to concentrate resources on those areas considered as a priority and important for the IT industry (Art. 33 (6)). This decree supports the need to introduce reforms of budgetary structures and mechanisms, to ensure that part of the IT budget of each institution is allocated to ICT investment projects, as well as to create financial mechanisms that can function as policy instruments (levers) to facilitate budget allocations to strategic projects (for example, inter-institution projects and projects which extend beyond the annual cycle of government budgets).

As well as allocating the necessary financial resources for ICT investment projects, an appropriate approval process for ICT projects is needed which guarantees that investments are efficient and agree with the general strategic objectives of digital government, as well as to guarantee quality control and compliance with standards throughout the whole government. The co-ordination body proposed in Chapter 1 could act as the appropriate forum to carry out these functions, since an inter-ministerial body with a secretariat would be more efficient and would have more power than a dedicated team within MinTIC.

On the other hand, and in relation to investment, the lack of a government-wide ICT procurement strategy offers great flexibility for ministries, but it has many drawbacks:

- ministries with low capacity do not have support to make purchases efficiently;
- no one can get an overall view of what the government is buying;

- the bargaining power of the government weakens; and
- there is a high dependence on IT providers, who in some cases take advantage of their privileged situation vis-a-vis government institutions.

Colombia Compra Eficiente[9] is a good practice which consolidates and standardises the ICT procurement process . The centralised framework could be strengthened and could lead to efficiency gains and cost savings through central co-ordination of procurement.

Ensuring adequate leadership capacity

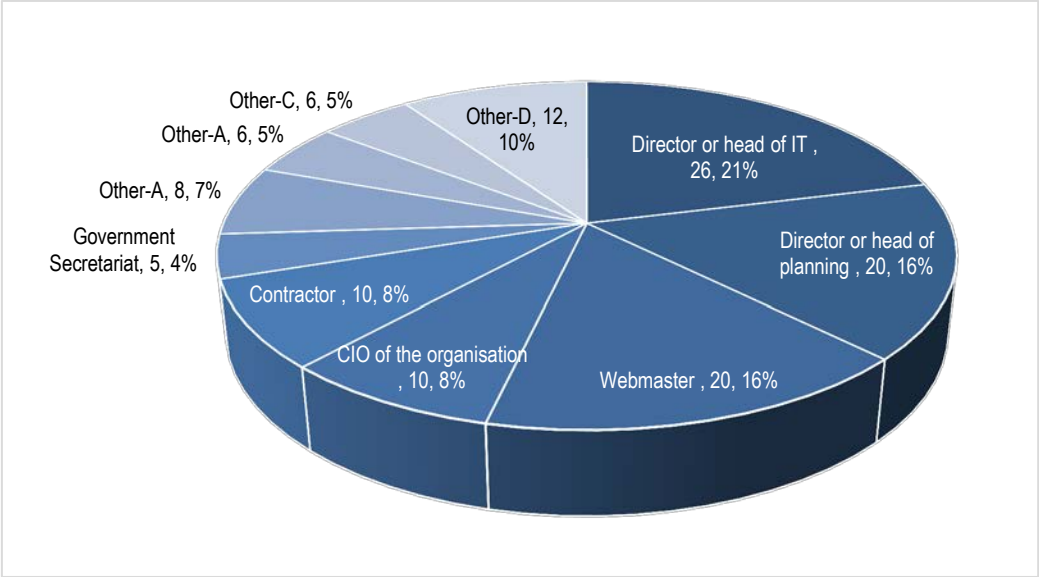
Given the regulatory framework and related policies and compliance with them, many public institutions at the national or territorial level dedicate most of their resources to the implementation of the Online Government Strategy, and they are not focussing on providing support to enact the strategic shift towards digital government. In these organisations, the shift from e-government to digital government is not a reality. Government CIOs and IT leaders need to have a broad vision of their institutional and territorial context and work closely with top management of the institution to focus on delivering public value through IT initiatives, for example, initiatives related to the public sector that are driven by data and open government data to strengthen basic initiatives in health, education, agriculture and peace, among others.

There is a need for government organisations to have more technology-oriented leadership, both in IT and non-IT leadership functions, so as to define and maintain a more systematic evolution towards digital government.

In the OECD questionnaire for the digital government review of Colombia, 123 institutions were asked who was responsible in their organisation for the development, implementation and monitoring of the strategy. Out of the institutions that responded, only 8% (10 institutions) said that the person responsible was the CIO; and 21% (26) said it was the IT director or head. It is interesting that in 32% of the institutions the person who had this responsibility did not appear to have the necessary skills: in 16% of institutions (20), the responsibility lay with the director or head of planning, and in another 16% with the webmaster. Furthermore, in 8% of institutions (10), a contractor was responsible. Figure 4.7 shows the profile of those responsible for implementation of the Online Government Strategy.

As can be seen in the figure, in 8% of institutions there is a CIO in charge of implementation of the strategy and it is understood that, in various cases, these professionals could be trained to direct the transformations towards digital government. Nevertheless, in 21% of institutions, responsibility for implementation of the Digital Government Strategy lay with the IT director or head. This percentage is worrying because it is difficult to confirm that these persons have the necessary skills to recognise the strategic relevance of digital government and the use of technology. Considering that in the remainder of institutions (71%), responsibility lies with another type of professional, the need is obvious for this task to be headed by someone with strategic leadership, who concentrates on technical issues but also on the value of the reforms carried out for digital government to ensure the provision of better services, the efficiency of the public sector, participation of citizens and improvements to forms of governance.

Figure 4.7. **Responsibility for the Online Government Strategy**



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

CIOs and IT managers must be empowered to direct the strategic application of digital technologies in an effective manner, to bring about the necessary transformations in their own governmental sectors, and apply holistic approaches to the main strategic issues, such as access, cost of access, skills, security (for example, protecting privacy and identity), inclusive design and accessibility, among others. Investments in training human resources are needed to increase IT leadership capacities.

Furthermore, it would be advisable for top and middle management in public institutions to have the potential to be key catalysts for the shift to digital government, if they are sufficiently supported and accept the idea of the essential role which digital technologies play in the transformation of government. In order to support IT managers and ensure the existence of necessary regulations, national legislators must be aware of the strategic use of technology.

Developing digital skills among civil servants

MinTIC developed an effective programme for the adoption of the Online Government Strategy by public institutions. However, these efforts rest entirely on the "shoulders" of MinTIC, which threatens their sustainability as well as the potential for capacity-building among public employees at a local level so as to support the development of skills among public servants in local authorities in an independent manner.

Consequently, public institutions must develop the required digital skills among their employees so as to ensure that they can contribute to building interoperable systems and sharing data across organisational borders and regions of the country, an essential condition for the shift to a data-driven public sector. In particular, it is hoped that, with the development of these capacities, public servants will understand the strategic use of technology to develop more effective ways of working and help to provide public value for citizens, their territory and their institution.

Developing digital skills among citizens

From 2013-2014, MinTIC certified 194,000 microenterprises in ICT skills[10]. In 2016, with the Digital Citizens Programme,[11] a literacy and awareness-building programme for citizens in different areas, and certified by MinTIC, trained 1 392 000 citizens. The Programme promotes training in nine areas, with different courses for each. The areas and courses can be seen in Table 4.2. In addition, more than 19,000 people were trained in Vivelabs[12] on animation, videogames, and developing mobile applications; and from June to December 2016 6,383 businesspeople received face-to-face training and 5,016 virtual training (Ministry of Information and Communication Technologies, 2017).

Table 4.2. **Digital Citizens Programme in Colombia**

AREA	COURSE
Digital literacy	Digital ecosystem: devices, operating systems and resources for digital communication
	Participation and inclusion in the digital ecosystem
Digital label	Digital communities: responsible administration of online interaction
	Netiquette: behaviour and good use of language in virtual environments
	Digital etiquette to reinforce networking
	Digital participation to establish peace
Digital communication	Online communication tools for businesses
	Principles of digital citizen journalism
	Citizen journalism: resources for digital communication
Digital health and well-being	Spaces and talents prepared for work using technology
	Balance between health and psychological well-being in digital life
	I can't live without the internet
	Digital citizens protecting the environment
E-commerce	Conditions of sales and after-sales processes in e-commerce
	Principles of e-commerce
	e-Business models
	Consumption of goods and services via e-commerce
Online security	Social networks and digital media, an opportunity for young people
	Be cautious to be safe online
	Safe online experiences
Digital rights and responsibilities	The digital citizen creating peace
	Security on online transactions
	Platforms to exercise citizen participation
	Preparing for my life as a digital citizen
Digital laws	Laws applicable to interaction using digital media
	Cybercrime: a latent threat
Digital access	Accessibility for the acquisition of ICT contents
	How to encourage equitable access to digital tools within the community?

Source: www.ciudadaniadigital.gov.co/627/w3-propertyvalue-12315.html (in Spanish, consulted on 19 October 2017).

The Digital Citizens Programme is good practice implemented by MinTIC, which can act as a foundation and motivation to create other programmes. Citizens must be able to attend digital literacy training and digital training so they can become completely involved with the government in searching for solutions which contribute to the sustainable development of their communities. In particular, trained and empowered citizens could participate in the formulation of policies, projects and other types of initiatives that impact them directly, participate in designing and developing services

which the State offers them, and also contribute, with the State and other social stakeholders, to co-create new services. These are essential requirements to make progress in the development of a citizen-driven digital government.

Based on the multiple efforts of MinTIC to provide training, the definition of a holistic capacity-building strategy is required to underpin the implementation of digital government initiatives that is long-term and coherent throughout all levels of government. The strategy needs to consider the various stakeholders: citizens, civil servants, government leaders, politicians, policy-makers and other social stakeholders, and the skills required for each of them, in particular respect for the new needs generated in terms of capacities for the digital transformation of the public sector and so collectively achieve the vision defined for Colombia within 10 years from now.

Developing digital capacities among organisations

Municipal governments in Colombia are part of the Colombian Federation of Municipalities.[13] The Federation is an institution of a professional, private and not-for-profit nature which represents municipalities, districts and their associations in the formulation, agreement, and evaluation of public policies. As part of its mission, it brings together international, national, territorial, public and private efforts in order to strengthen the management of municipal and district authorities and their associations. Although the Federation brings together authorities of municipal governments, in practice it has not proved an effective mechanism to share IT-related good practices between municipalities.[14]

There are untapped opportunities to create networks with the aim of sharing good practices and experiences between municipalities. Such networks could help to create a more collaborative culture in public institutions, which, in turn, would facilitate the execution of joint inter-institution projects, as well as knowledge management for local government and learning to share experience.

As the results of the OECD questionnaire for the digital government review of Colombia showed, related to the question on who is responsible for implementing the Online Government Strategy (Figure 4.7), in 87 institutions (almost 71%) implementation of the strategy was the responsibility of a person who is not manager or head of IT, nor the CIO of the organisation; and in 10 institutions (8%) responsibility was actually assigned to a contractor. Public institutions must develop the internal capacity to supervise IT projects. Outsourcing such functions to providers creates problems when defining objectives and the objectivity to evaluate and develop projects.

As can be concluded from the above, MinTIC covers the missing capacities in public institutions to implement the Online Government Strategy and carries out activities, such as building human capacities and providing financial resources, which other stakeholders should be performing in view of their own mandates, but do not. Institutions should have sufficient organisational capacity and resources to implement the Digital Government Strategy in a sustainable manner and without having to rely on the constant support of MinTIC. For example, in ***Norway***, the Programme for Improvement in Governance and Leadership in the Public-Sector concentrates on strengthening capacities in top management in order to translate high-level political objectives into co-ordinated activities at an institutional level and for them to take on responsibility for the results (OECD, 2017). The programme identifies the strategic use of ICT as a cross-cutting work area, beside areas with greater support for decision-making, better management, better governance and better co-ordination.

Standardising IT management tools and reusing software infrastructure

As good international practices show, a centralised actor, MinTIC or the new digital government agency, should define and provide standards for IT governance, the definition and use of shared business cases, accessibility, website design, project and programme management practices and tools, as well as other common standards and IT tools to be uniformly adopted across the whole government and at the same time adapted to the different ecosystems.

Box 4.9. Portal of the Government of the United Kingdom

The portal of the Government of the United Kingdom illustrates good practice for the integration and standardisation of services. Services are offered by topics, for example, business and self-employment, driving and transport, services for the disabled, upbringing and care of children, among others.

The portal is an example of a single infrastructure for the whole government which offers standardised look and feel standards and usability for the services of 25 ministries and 376 public institutions and institutions.

Source: Portal of the Government of the United Kingdom, www.gov.uk (consulted on 3 December 2017).

Important savings could be achieved by public institutions if a common software infrastructure, services for the use of digital identity (eID) and data infrastructure were created and provided centrally, and reused across the whole of government. Similarly, the use of free software and the creation of a public software archive could be considered. Said infrastructure would include services and a shared reference framework applicable to various solutions, for example, structural components for the development of websites, authentication services, standards for website design, among others. Public institutions should have the capacity to personalise components of the software infrastructure according to their specific needs.

Strengthening capacities through legal and regulatory frameworks

A study carried out by TICjobs.co[15] shows that Colombia is in seventh place in Latin America regarding ICT professionals' salaries. According to this study, the United States is the country with the best paid ICT professionals, with an average salary of USD 84 400 p.a. It is followed by Chile, Peru, Argentina, Costa Rica, Mexico, Brazil and Colombia (USD 15 390 p.a., equivalent in May 2017 to a monthly salary of COP 3.65 million). According to the study, 47% of ICT companies in Colombia claim they will increase their task force during 2017, while 18% estimate that they will hire the same number of professionals as in the previous year. The study also states that the profile most in demand in 2017 was data analyst (big data), with an increase of 300% compared to 2016.

Given the situation for labour in the ICT sector in Colombia and the expected growth in employment in the private sector, public institutions could face difficulties in retaining qualified IT personnel.

MinTIC is encouraged to explore, in collaboration with the Administrative Department of Public Function (DAFP), new policies and regulations so that government institutions can benefit from their capacity-building efforts and can retain a qualified and very much needed IT workforce in the public sector. Current arrangements only enable the building of capacities among employees, while most IT staff are contractors.

Ensuring connectivity to contribute to territorial equity

As shown in Table 4.1, in some territories and rural areas, including those in the proximity of Bogota, connectivity and accessibility are still an issue for local communities and authorities. Resources should be dedicated to strengthen the efforts related to the current programme on access to infrastructure and to be strategic in promoting the territories and cities who are ready for benefitting from access to digital technologies.

The National Fibre Optics Project (PNFO) was part of the National Development Plan 2010-2014, one of the objectives of which was to install a fibre-optic connection in 700 cities. In order to award project implementation, in July 2011 the ICT Fund (FONTIC)[16] implemented a tender process. A bidder was selected who committed to planning, installing and bringing into service of an optical transport network to connect 753 cities (to which 35 cities were later added) and offer broadband connectivity to 2 000 public institutions. As the result of the tender process, in November 2011 a contract was signed between FONTAC and the Unión Temporal Fibra Óptica Colombia (UTFO), where FONTIC "would contribute resources for development and UTFO itself would develop, operate and maintain a fibre optics network and would manage services". The regulation also determined that UTFO was obliged to offer services "for the fifteen (15) years of operation scheduled in the project timeline as well as providing broadband connectivity for five (5) years to the 2 000 public institutions included in the project" (Communication Regulation Commission, 2014). After 15 years, and despite the investment made by the State via the Development Resources, the infrastructure will remain in the hands of the private sector.

Based on the contract to roll out fibre optic networks in the country used in the National Fibre Optics Project and the experience of other countries, the business model to develop infrastructure should be revised. The government must ensure that it does not lose out on its investments in infrastructure; for example, large investments of public resources in underground cables which, after a certain period, will remain in the hands of private companies. That is why, although the Colombian government needs to initiate public-private alliances and promote collaboration with the private sector, business models must be defined which create win-win scenarios for both parties, and where investments from the public sector are protected when rolling out fibre optics.

Continuing with the government's progress with public-private partnerships for infrastructure projects, similar partnerships must be facilitated and developed for ICT related projects. Special attention must be paid to investments by the State in public-private partnerships to roll out infrastructure (for example, underground cables and installing fibre optic cables throughout the country) and to correctly evaluate the impact of who will be the owner of such infrastructure in the long term.

Notes

1. The US dollar exchange rate of the Banco de la República Colombia was used. Technical Bureau, "Development of the US dollar", end of month value, December 2015, www.banrep.gov.co/es/trm, information extracted from the -Serankua- database (consulted on 3 December 2017).
2. MinTIC, www.mintic.gov.co/portal/604/w3-propertyvalue-546.html (in Spanish, consulted on 19 October 2017).
3. Number of subscribers with fixed internet access MinTIC, http://colombiatic.mintic.gov.co/602/w3-article-60285.html (consulted on 19 October 2017).
4. Population data for the departments obtained from the Population clock, DANE, www.dane.gov.co/reloj/, and data for Bogota from population trends, www.dane.gov.co/files/investigaciones/poblacion/proyepobla06_20/Municipal_area_1985-2020.xls (in Spanish, consulted on 19 October 2017).
5. The ministries are: Interior; Foreign Affairs; Finance and Public Credit; Justice and Law; National Defence; Agriculture and Social Development; Health and Social Protection; Labour; Mining and Energy; Business, Industry and Tourism; National Education; Environment and Sustainable Development; Housing, City and Territory; Information and Communication Technologies; Culture; and Transport.
6. www.ucc.edu.co/Paginas/inicio.aspx (in Spanish, consulted on 19 October 2017).
7. Interview with the adviser to the Planning Secretary, Ministry of Finance, OECD mission in Bogota, 13 June 2016.
8. Decree 1414/2017, http://es.presidencia.gov.co/normativa/normativa/DECRETO%201414%20DEL%2025%20DE%20AGOSTO%20DE%202017.pdf (in Spanish, consulted on 19 November 2017).
9. www.colombiacompra.gov.co/.
10. MinTIC, www.mintic.gov.co/portal/vivedigital/612/w3-propertyvalue-6109.html (consulted on 19 October 2017).
11. Digital Citizens Programme, www.ciudadaniadigital.gov.co/627/w3-channel.html (in Spanish, consulted on 19 October 2017).
12. Vivelab is a centre for entertainment and learning aimed at developing digital content and applications.
13. Colombian Federation of Municipalities, www.fcm.org.co/mision/ (in Spanish, consulted on 19 October 2017).
14. In interviews with representatives of municipal governments, who said they were not familiar with the practices which colleagues shared during the meeting, OECD mission in Bogota, 13 June 2017.
15. Study carried out by the company TICjobs.co, www.larepublica.co/internet-economy/colombia-septimo-en-ranking-de-salarios-de-ti-2508356; www.eltiempo.com/tecnosfera/novedades-tecnologia/sueldo-de-los-profesionales-tic-en-colombia-97042 (in Spanish, consulted on 19 October 2017).
16. "The Information and Communications Technologies Fund - FONTIC - is an organisation affiliated with MinTIC, with administrative and financial autonomy and its own assets; its representation, management and administration is the responsibility of the Minister of MinTIC, who is its Director and is empowered to delegate functions to other civil

servants at MinTIC, as well as to assign ministry personnel to the Fund to take charge of technical and administrative tasks", www.mintic.gov.co/portal/604/w3-propertyvalue-6171.html (in Spanish, consulted on 19 October 2017).

References

Communication Regulation Commission (2014), *"Capacidad de Transmisión en las Redes de Fibra Óptica: Documento Soporte Regulación de Infraestructura"* [Transmission capacity in fibre optic networks: Supporting document for infrastructure regulation], www.crcom.gov.co/uploads/images/files/2014/Actividades_Regulatorias/FibraOptica/Documento_soporte_fibra_optica.pdf.

DANE (2015), *"Informe de Coyuntura Económica Regional (ICER)"* [Regional Economic Report (ICER)], www.dane.gov.co/index.php/estadisticas-por-tema/informacion-regional/informe-de-coyuntura-economica (consulted on 19 October 2017).

Ministry of Information and Communication Technologies (2017), *"Informe de Gestión al Congreso de la República 2017 - Sector TIC"* [Management report to the National Congress 2016 - ICT sector], www.mintic.gov.co/portal/604/articles-54877_doc_pdf.pdf.

Ministry of Information and Communication Technologies (2016), *"Informe de Gestión al Congreso de la República 2016 - Sector TIC"* [Management report to the National Congress 2016 - ICT sector], www.mintic.gov.co/portal/604/articles-15817_doc_pdf.pdf.

OECD (2017a), "Digital Government Review of Colombia: Questionnaire for Colombian state public institutions", OECD, Paris.

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

OECD (2017), Digital Government Review of Norway: Boosting the Digital Transformation of the Public Sector, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264279742-en.

OECD (2014a), *Recommendation of the Council on Digital Government Strategies*, www.oecd.org/gov/digital-government/Recommendation-digital-government-strategies.pdf.

OECD (2014b), *OECD Review of Telecommunication Policy and Regulation in Colombia*, OECD Publishing, Paris, www.oecd-ilibrary.org/science-and-technology/oecd-review-of-telecommunication-policy-and-regulation-in-colombia_9789264208131-en.

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