OECD Digital Government Studies

Digital Government Review of Brazil

TOWARDS THE DIGITAL TRANSFORMATION OF THE PUBLIC SECTOR

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Foreword

The *Digital Government Review of Brazil* assesses the federal government's digital government policies, programmes and projects, and provides concrete policy recommendations for their improvement, drawing on practices and experiences of the OECD. The analysis focuses on how to strengthen the efficiency and effectiveness of Brazil's Digital Governance Strategy, connecting it with the broader objectives and programmes of the country's public sector reform agenda. The targeted and practical policy recommendations aim to help the Brazilian government capitalise on its digital government achievements and strategically plan and implement a shift from e-government to digital government.

In recent decades, the government of Brazil has increasingly used digital technologies to render its public institutions more functional, agile and responsive to citizen and business demands. However, the complexity of Brazil's public sector demands state-of-the-art approaches that ensure co-ordination and accelerate capacity-building processes across agencies and levels of government. To take digital government efforts to the next level of maturity, the government of Brazil will have to navigate increasingly complex technology-related choices.

The main challenge facing the Brazilian public sector is how to use technologies effectively across policy areas to remain competitive in a globalised world and to deliver convenient and efficient services to citizens. Like other governments worldwide, Brazil needs to find ways to embed innovative solutions into procedures for both internal and external use. This will entail better governance, the right capacities and skills, and citizen and data-driven approaches to service delivery.

To continue in its evolution towards digital government, the Brazilian government asked the OECD to identify the strengths and weaknesses in its current policies and programmes. The review drew on the OECD knowledge base and exchange of good practices, visions and strategies developed through the work of the OECD Working Party of Senior Digital Government Officials (E-Leaders). The review also builds upon the analytic framework provided by the OECD Recommendation of the Council on Digital Government Strategies (2014) and on the experience of the Reform of the Public Sector Division of the OECD Public Governance Directorate through the development of similar projects over the last 15 years across OECD countries and other countries. A digital government survey was administered to both central agency and federal public sector organisations. Finally, the review brought together several experts and policy practitioners from other countries to provide peer insights.

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This review was produced under the supervision of Barbara-Chiara Ubaldi, heading GOV's work on Digital Government, Open Government Data and Data-Driven Public Sector. Strategic directions were provided by Edwin Lau, Head of the Public Sector Reform Division in GOV, and Marcos Bonturi, Director of the Public Governance Directorate.

Chapter 1 was written by Alison Rygh, Digital Government Secondee in the Public Sector Reform Division. Chapters 2, 3 and 4 were written by João Ricardo Vasconcelos, Digital Government Policy Analyst in the Public Sector Reform Division. Chapter 5 was jointly written by Alison Rygh and João Ricardo Vasconcelos. All chapters benefited from contributions and revisions provided by Barbara-Chiara Ubaldi. João Ricardo Vasconcelos served as the lead co-ordinator of the review.

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The OECD Working Party of Senior Digital Government Officials that brings together the government chief information officers (CIOs), senior digital government policy and decision makers, along with representatives of the private sector, civil society, academia and international organisations to reflect upon and discuss the challenges and opportunities of the digital transformation of the public sector, provided the essential knowledge-based background for the development of the current review. The OECD is especially grateful to the following national peer reviewers from Canada, Italy and Mexico who provided valuable contributions and orientation to the review:

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Executive summary

Digital technologies are radically changing how citizens live, work, consume services and interact. The capacity of governments to respond to the digital transformation underway, and produce more inclusive, convenient and collaborative processes and services, is crucial for securing citizen's trust.

The Brazilian government has been iteratively moving towards digital government by prioritising policy issues such as connectivity, interoperability, open government data and citizen-driven service delivery. The recent launch of the revised Digital Governance Strategy (2016-19) reflects the Brazilian government's commitment to advance toward a digitally transformed public sector. There is an opportunity, however, to amplify this commitment through joint communication efforts on other strategic initiatives such as the Strategy for Digital Transformation and Efficient Brazil Programme. Nonetheless, it provides the momentum for developing a stronger governance framework for policy implementation. The identification of a clear institutional function – e.g. a Chief Digital Transformation Officer (CDTO) – to lead and steer strategic co-ordination would help deliver on current goals and priorities. Brazil would also benefit from a co-ordination process and mechanisms that allow public institutions to better communicate with each other, share resources and work together.

Competencies and skills are also fundamental pillars of a digitally enabled state. Brazil faces challenges not only related to attracting and retaining the best information and communication technology (ICT) professionals in the public sector but also to developing digital skills and growing awareness among leaders, decision makers and policy implementers about the challenges and opportunities of digital transformation. Brazil should prioritise the development of digital skills in four key areas: user, professional, complementary (the application of skills such as communications or project management in a digital environment) and leadership. The increasing share of ICT expenditures in the public sector budget also calls for strategic planning and policy mechanisms to improve the return rate on investments in digital technology. Mechanisms such as the pre-evaluation of ICT expenditures, business cases and project management standards could strengthen the leadership and co-ordination capacities of the Secretariat of Information and Communication Technologies, and improve the coherence and sustainability of Brazil's public sector ICT investments.

In order to build on existing efforts in integrated, multi-channel and inclusive digital service delivery, Brazil should continue prioritising interoperability frameworks and digital identity systems, which not only lay the foundations for improving communication and interaction between the public administration and citizens and businesses, but provide building blocks for the use of emerging technologies. Ongoing efforts to update the legal and regulatory frameworks should also continue to ensure that digital technologies are recognised and incorporated into existing frameworks.

Brazil has several powerful examples of civil society organisations using ICT to promote more openness, transparency and citizen engagement with government. Yet, the

government could better seize the opportunities offered by digital technologies to make the public sector more open, promote integrity and more actively engage with digital government stakeholders to co-design and co-create services. Harnessing digital technologies and making better use of data both within and outside the public sector would help Brazil develop more efficient, collaboration-based and citizen-driven digital services.

As the Brazilian public sector evolves from e-government to digital government, a holistic and strengthened government-wide approach will be required to ensure a public sector capable of using technology and data not only to increase efficiency but also to develop more open, inclusive and innovative services and policies.

Main policy recommendations

The Brazilian government is encouraged to:

- strengthen its communication efforts around the Digital Governance Strategy and its relation with the Strategy for the Digital Transformation and Efficient Brazil
- reinforce the role of the Secretariat of Information and Communication Technologies (SETIC) as the federal public sector organisation responsible for leading and standardising the development of digital government
- consider institutionalising the role of a CDTO, supported by a clear and high-level political mandate and with responsibilities for ensuring co-ordination across sectors and levels of government
- consider adopting the pre-evaluation of ICT investments, business cases and project management standards, which can help SETIC co-ordinate public ICT expenditures across the public sector to optimise investments and promote a coherent and sustainable implementation of digital government
- ensure coherency in digital government policies across the public sector by strengthening the communication in the ISP (Sistema de Administração dos Recursos de Tecnologia da Informação)
- establish an inter-federative policy articulation to promote the expansion of a consistent digital offer to states and municipalities
- include specific actions to develop digital skills within the new skills framework to promote the coherent development of user, professional, complementary, and leadership digital capabilities among public servants
- consider strengthening the conditions for retention and remuneration of IT analyst career members
- update the Brazilian ICT procurement policy, promoting a shift towards a digital commissioning approach
- continue investing in the development of important digital enablers such as digital identity and interoperability, and strengthening the foundations for coherent and integrated service delivery
- consider bringing in expertise from outside the public sector to update the existing open source software policy in line with digital government needs

- continue updating the digital government legal and regulatory framework to incorporate emerging technologies, to ensure that it enables and drives the digital transformation of the public sector while protecting citizens' digital rights
- continue and strengthen an integrated digital service policy, linked to the Digital Governance Strategy, to reinforce the coherence, effectiveness and commitment of the Brazilian public sector to delivering high-quality services to citizens
- take a multi-channel approach to public services that includes mobile access to prevent the creation of new forms of digital divide
- continue to promote the openness, auditability and accessibility of digital services, including transparency via the use, reuse and exchange of open government data
- consider developing an action plan on the use of emerging technologies to promote inclusive and improved service design and delivery as a complement to the current Digital Governance Strategy
- consider leading and actively supporting other Latin America and Caribbean countries' efforts on cross-border service delivery, given the political and economic relevance of Brazil in the region as well as its experience in promoting interoperability across different federation levels.

Assessment and recommendations

Strengthening the governance framework for digital government in Brazil

A comprehensive policy framework

Brazil's **Digital Governance Strategy** (2016-19) is the main strategy on digital government policy providing a framework for programmes and actions. Approved in 2016, the strategy is aligned with the desired goal to shift from e-government to digital government. Updated in 2018, the strategy defines priorities such as promoting the availability of open government data, boosting the use of digital technologies for transparency purposes, improving the delivery and use of public digital services, securing the take-up of digital identity, developing evaluation and services' satisfaction mechanisms, integrating digital services through interoperable public information technology (IT) systems and data, and increasing citizen participation through digital platforms.

In addition to the Digital Governance Strategy, two parallel policy initiatives contribute to the digital transformation of the Brazilian public sector:

- **Brazilian Digital Transformation Strategy**: Designed in 2017 and officially presented in March 2018, the strategy focuses on the development of a digital economy and society in Brazil. The strategy sets objectives for the transformation of the economy through a data-based economy, the potential of the Internet of Things and new business models.
- **Efficient Brazil**: This federal government programme gathers measures to simplify, modernise and improve the delivery of services to citizens and businesses. Several measures have a deep connection with digital government policies.

Besides these strategies, the Brazil's Third Action Plan for Open Government (2016), the Cyber-defence Strategy and the Information Security Policy are also relevant policy documents for the Brazilian digital government panorama, prioritising policy areas that require government cross-sector co-ordination.

Together, the above strategies represent the level of priority assigned by the Brazilian federal government to mobilise the public sector, the private sector and civil society to strategically embrace the benefits of digital technologies to advance a digital government and public administration capable of serving an increasingly digitalised economy and society.

Nevertheless, the existence of several policies can weaken efforts to ensure a whole-of-government vision to co-ordinate and ensure the alignment of actions implemented by public, private and civil society stakeholders. The existence of multiple strategies can blur the institutional governance (see Chapter 2) and limit the efficient allocation of resources to support effective policy implementation.

Insights and evidence gathered within the framework of this review point to a general agreement among key stakeholders on the risks of confusion in relation to targeted objectives, goals and leadership as a result of the proliferation of strategies.

Leadership and institutional set-ups

A clear, coherent and effective digital government policy requires adequate institutional arrangements to support its effective and efficient implementation. The Brazilian **Secretariat of Information and Communication Technologies** (Secretaria de Tecnologia da Informação e Comunicação, SETIC), reporting to the Ministry of Planning, Development and Management (Ministério do Planejamento, Desenvolvimento e Gestão) is responsible for leading and co-ordinating the digital government federal policy. SETIC is namely responsible for leading the Digital Governance Policy and implementing the Digital Governance Strategy (Estratégia de Governança Digital, EGD).

Additionally, the SETIC leads some exemplary initiatives at the federal level. These include the System of Administration of Information Technologies Resources (SISP) (see Chapter 4), the national Open Data Policy (Política de Dados Abertos), the Platform of Data Analysis of the Federal Government (Plataforma de Análise de Dados do Governo Federal), GOV Data, and the Digital Citizenship Platform (Plataforma de Cidadania Digital) (see Chapter 4).

Also responding to the Ministry of Planning, Development and Management, the **Secretariat of Management** (Secretaria de Gestão, SEGES) also plays a significant role in implementing the digital government policy given some of its responsibilities to lead projects of innovation and cross-cutting modernisation of the federal public sector. The Department of Modernization of Public Services and Innovation (Departmento de Modernizacão de Serviços Públicos e Inovação) also has dedicated responsibilities with regard to the digitalisation of public services.

Playing primarily a co-ordination-oriented role, the **Civil House of the President of the Republic of Brazil** (Casa Civil da Presidência da República) is expected to provide political support and sponsorship to strategic projects and initiatives being implemented to modernise the Brazilian public sector. In strong co-ordination with the Ministry of Planning, Development and Management, the Civil House supports the implementation of public sector reform policies, including digital government, across different sectors of the Brazilian government.

The number of initiatives developed by the Ministry of Planning, Development and Management, with the active support of the Civil House of President of the Republic of Brazil, reflects the government's commitment to improving the policies and practices that can enhance digital government development. Nevertheless, some key challenges remain in terms of leadership and institutional set-up.

The existence of different bodies with responsibilities in terms of digital government blurs clarity on strategic leadership, thereby having an impact on the definition of common policy goals and priorities, and on coherent and co-ordinated policy implementation.

Although the SETIC and the Ministry of Planning, Development and Management are generally recognised as the main federal institutions responsible for the digital government policy area, SETIC appears to lack the necessary institutional

resources and capabilities needed to enforce the Digital Governance Strategy across the government.

Additionally, uncertainty in sustained high-level political support and cross-cutting leadership is recognised by Brazilian stakeholders as a key challenge limiting improvements in policy performance and the strategic use of digital technologies within the public sector. Addressing this uncertainty, along with the need to secure funding mechanisms, provide effective authority and capacities for policy operationalisation, and reinforcing SETIC's monitoring and evaluation responsibilities could also contribute to securing a stronger governance framework (e.g. through reinforced policy and an institutional basis) and improve co-ordination across the federal government.

The need to identify a clear institutional role supported by and an adequate institutional set-up, mandate and resources to strengthen the leadership and steering the Brazilian government's efforts towards the digital transformation of the public sector.

Several Brazilian stakeholders interviewed during the OECD peer review mission to Brasilia in July 2017 also highlighted how this institutional figure could assume an important co-ordinating role of the chief information officers (CIOs) leading digital efforts in different sectors and across levels of government. With the adequate mandate, resources and tools for oversight, monitoring and evaluation of the progress made in the implementation of the strategy, this institutional position could contribute to improving the impact of decisions made on the use of digital technologies in the Brazilian public sector.

However, the institutional establishment of a role in charge of the digital transformation of the public sector should not be considered as a unique solution to the numerous challenges that Brazil faces in this policy area. The adoption of several policy levers – from digital key enablers to funding and evaluation mechanisms – are required to guarantee sound policy implementation of digital government in Brazil (see Chapters 3 and 4).

Towards co-ordination and a culture of co-operation

Given the horizontal nature of digital government, the existence of collective institutional co-ordinating mechanisms (e.g. steering committees, councils) that support policy coherency across sectors and levels of government is fundamental to ensuring the efficiency, effectiveness and sustainability of government efforts.

In Brazil, the System for the Administration of Information Technologies Resources (Sistema de Administração dos Recursos de Tecnologia da Informação, SISP) acts as the main institutional co-ordination mechanism across the different sectors of the executive branch of the Brazilian government. Established by Decree in 1994[1] and updated in 2011,[2] the SISP provides institutional mechanisms to organise the operation, control, supervision and co-ordination of the information technology (IT) resources of the Brazilian government.

Yet, the Digital Governance Strategy foresees an additional mechanism for transversal co-ordination across the federal government. In fact, while the monitoring and evaluation of the Digital Governance Strategy is the responsibility of the Ministry of Planning, Development and Management, the strategy also foresees that each entity of the public administration at all levels should have a

Direction Plan for Information and Communication Technologies (Plano Diretor de Tecnologia da Informação e Comunicação). Public entities should also put in place a Digital Governance Committee (Comitê de Governança Digital), bringing together senior officials from the top management and IT branches (Decree no. 8,638 of 15 January 2016).

These institutional mechanisms are important to improve co-ordination across sectors and levels of government, but additional efforts could also be undertaken in this area. The absence of a co-ordinating body to provide guidance and leadership, gathering efforts and building consensus on digital government priorities is a gap in the current governance for digital government in Brazil. Although it may be argued that such a co-ordination role is provided by SISP, its mandate and composition (mainly technical officials) are directed mostly to technological and/or technical issues, therefore missing out on the opportunity to provide the necessary strategic directions for digital government. The National Debureaucratization Council can contribute to improved cross-cutting co-ordination of the digital transformation of the public sector. Yet, its broader mandate (mainly focused on administrative modernisation) and composition (not representative of all government sectors) (see Chapter 2) hinder this body's effective capacity to co-ordinate digital government efforts.

Proposals for action In light of the key assessments above, which draw on the main findings and analysis included in Chapter 2 of this review, the Brazilian government could consider implementing the following policy recommendations:	Level of priority
1. Clarify the policy framework for digital government reinforcing the alignment of multiple public strategies underway, namely through better communication efforts around the Digital Governance Strategy and its linkages with the Brazilian Digital Transformation Strategy and the Efficient Brazil programme. The improved communication efforts should namely focus on: a. Underlining the role of the Digital Governance Strategy (EGD) as the main policy instrument to guide the digital transformation of the public sector in Brazil. b. Clarifying that the Brazilian Digital Transformation Strategy and the Efficient Brazil programme have broader scopes that also include some of the projects and initiatives of the EGD. c. Highlighting the synergies in place between the above-mentioned policy instruments, and how they contribute to sound digital government implementation.	Short term
2. Reinforce the role of SETIC as the federal public institution of the Executive Branch responsible for leading and co-ordinating the development of digital government, streamlining and strengthening the coherency of the institutional governance set-up. The following measures could be considered: a. Establishment of a federal agency or authority with the mandate to support SETIC in the implementation of the federal digital government policy. b. Strengthening the responsibilities for the development and enforcement of technical guidelines and standards to be implemented across the public sector. c. Attributing co-funding functions in order to better promote coherent digital government development across sectors and levels of government. d. Adopting policy levers co-ordinated by SETIC to optimise public IT expenditures, namely through the mandatory evaluation of digital investments (Action 2) above a certain threshold (Action 1 – definition of the threshold). The adopting of common business cases and project management models/methodologies for public sector projects should support this policy. e. Allocating the proper human and financial resources that can enable SETIC and the new federal agency or authority to effectively co-ordinate and monitor the implementation of digital government policy.	Short term

3.	Consider the institutionalisation of the role of a Chief Digital Transformation Officer (CDTO), supported by a clear and high-level political mandate and assigned clear responsibility to ensure cross-sectoral and cross-level co-ordination for digital government in Brazil. The following possibilities should be considered to enable the CDTO to carry out his/her function: a. Attribution of the role of CDTO to the Secretary of Information and Communication Technologies, as a federal digital champion responsible for mobilising, involving and leading the ecosystem of public, private and civil society stakeholders towards digital government. b. Direct reporting of the CDTO to the President of the Republic, and to the Minister of Planning, Development and Management.	Short term
4.	Improve the co-ordination of digital government policies across the public sector, strengthening the relevance of SISP (Sistema de Administração dos Recursos de Tecnologia da Informação), namely considering: a. Establishing a high-level mechanism able to gather ministers or senior officials with a strategic orientation and oversight role. This co-ordinating mechanism would be able to improve the culture of inter-ministerial and cross-level co-operation and co-ordination, as well as boost the external communication necessary to create awareness among decision makers and politicians. This mechanism should be chaired by the CDTO. b. Maintaining an operational and technical co-ordination mechanism with representatives from different public sector organisations to synchronise actions, projects and possible synergies on digital government. This co-ordinating process and/or mechanism would be a fundamental instrument to sustain a systems-thinking approach to the development of digital government, able to make public institutions better communicate with each other, share resources, such as data, move towards real interoperability of processes in the public sector, and scale up what works. This would also contribute to creating learning organisations capable of innovating based on shared knowledge. This mechanism should be chaired by the CDTO. c. Institutionalising the representation of SISP in broader co-ordination bodies such as the Interministerial Committee of Digital Transformation and the National Debureaucratisation Council. This should be carried out by the CDTO.	Short term

Strengthening institutional capabilities for the sound implementation of digital government policy in Brazil

Building digital capacities and skills

As in many OECD countries, even though the majority of Brazilian stakeholders from the public and private sectors recognise the urgency to prioritise the development of a strategy to address digital skills gaps and spread digital literacy and culture among public officials, few specific policy initiatives have been put in place.

An inadequate supply of skills remains a critical issue to be addressed in the Brazilian public sector: people are insufficiently skilled in data analysis, and there is a lack of personnel within the individual Brazilian public sector organisations to implement the policies outlined in the Digital Governance Strategy, despite growing efforts to provide capacity-building programmes and training activities at several levels. Digital skills are still generally assumed by most as technical ability, and not as a fundamental asset for most professional profiles, namely those with considerable levels of seniority. Thus, the CIO position in public sector organisations is typically not a top management or strategic position, but rather a middle management post, still in many cases perceived as the one responsible for handling operational and technical issues. Insights gathered within the frame of this review highlight that frequently the position was not covered by officials with the necessary combination of skills (e.g. leadership, technical and management skills).

Streamlining digital technology investments

The digital transformation of the public sector requires strategic planning and investments in digital technologies across sectors and levels of government. This implies being able to reap the full benefit of the digital transformation through the adoption of policy mechanisms that prioritise, structure, co-ordinate and evaluate expenditures on digital technologies across the public sector.

The analysis of the insights, evidence and data gathered for this review point to the following assessment:

- In Brazil, the Direction Plan for Information and Communication Technology (ICT) and the digital governance committee that each public entity should have in place can be important mechanisms to streamline digital technology investments. On the other hand, the fact that ICT expenses are labelled in a specific way for budgetary purposes reflects the government's acknowledgement of the need to better monitor and co-ordinate these public investments.
- There appears to be a need to better co-ordinate digital technology investments across different sectors and levels of government.
- A lack of a cost-benefit approach was identified by most Brazilian federal government institutions during the review. Business case methodologies and specific project management models exist and are considered a best practice, but are not regularly and consistently used.
- The absence of a budget threshold for digital technology expenses was recognised as a limitation for the improved cross-sectoral and multi-level co-ordination of digital technology investments.

From ICT procurement to digital commissioning

The Brazilian ecosystem of stakeholders recognises the existence of room for improvement in ICT public procurement. Public sector representatives, the private sector and civil stakeholders seem to agree on the absence of a strategic policy for digital government procurement. ICT investments are mostly driven by an agency-thinking approach, rather than by a systems-thinking approach, leading to clear inefficiency disadvantages, missed opportunities for synergies and avoidable overlaps.

This review also underlines the need to improve the transparency and accountability of ICT public procurement, to support more optimisation, coherency and synergies of ICT investments. In response to this, an online interactive dashboard on ICT Spending in the Federal Government (Painel Gastos de TI) was launched in September 2017 by the Comptroller General of the Union (Controladoria Geral da União), reflecting the Brazilian government's commitment to improving the transparency of ICT procurement.

The existence of two public companies – Serpro and Dataprev - developing specific solutions for the public sector has several advantages. The products are designed from the start based on public sector requirements, and additional coherence is expected from the provided solutions. Nevertheless, this has seemingly led to several situations of vendor-locked service provision, as well as non-competitive offers when compared with the prices available in the market.

Proposals for action In light of the key assessments above, which draw on the main findings and analysis included in Chapter 3 of this review, the Brazilian government could consider implementing the following policy recommendations:	Level of priority
5. Prioritise the inclusion of digital skills development actions in any skills policy or framework for the public sector to better promote user, professional, complementary and leadership digital capabilities of public servants and ensure the attractiveness of ICT careers in the public sector. The following measures could be considered: a. Updating the responsibilities of SETIC of the Ministry of Planning, Development and Management with regard to promoting digital skills across the Executive Branch of the federal government, attributing the necessary mandate as well as the human and financial resources to properly lead this policy to the recommended new federal agency or authority responsible to implement the federal digital government policy. in order (see Recommendation 2). b. Undertaking a mapping of the existing digital skills, and assessing the short, medium and long-term needs across the Brazilian public sector. c. Developing an IT professional framework for the public sector, establishing clear IT professional roles and paths. d. Based on the framework suggested above, revising the conditions of the IT careers in the public sector, creating relevant profiles and paths to ensure its attractiveness and adequacy for the newly defined IT professional roles. e. Updating the recruitment process of IT professionals for the public sector, making it more agile and capable of selecting the best talent for the required IT professional roles. f. Reinforcing digital skills training programmes for national public officers, focussing on user, professional and complementary digital competencies.	Medium term
6. Consider establishing policy levers that enable SETIC to co-ordinate the optimisation of public IT expenditures across the public sector and ensure a coherent and sustainable digital government. These mechanisms would thus become strategic policy levers that could improve the governance for digital government for a more efficient and effective digital transformation of the public sector in Brazil. The following levers could be prioritised: a. Institutionalising the pre-evaluation phase of digital technology investments through two distinct levels of budget thresholds: a first level directed at projects of medium ICT budget where the pre-evaluation would be considered best practice; a second level focused on strategic ICT projects with higher budgets where the pre-evaluation phase would be mandatory. b. Defining a standardised business case methodology, aligned with the suggested budget thresholds, to be used as a mechanism of *ex ante* cost-benefit analysis by public sector institutions across the government. c. Updating the project management methodology to move towards more agile project management approaches, and involving the ecosystem of stakeholders and ensuring its alignment with the suggested budget thresholds and with the main priorities of the Digital Governance Strategy (EGD). d. Attributing co-funding responsibilities to SETIC in order to promote strategic and coherent digital government investments across sectors and levels of government.	Medium term
7. Prioritise the update of the Brazilian ICT procurement policy to enable more efficient spending, encourage innovative approaches, contribute to reinforcing overall transparency and anti-corruption efforts and promote a shift towards a digital commissioning approach. The following actions could be considered: a. Improving the alignment of digital technology investments with the strategic priorities defined by the Digital Governance Strategy. b. Updating the regulation that frames the processes of IT procurement, simplifying it, balancing its focus on efficiency gains with the promotion of public sector agility and innovation. Additionally, promoting the progressive adoption of open contracting standards in the public sector. c. Generating savings through demand aggregation procedures and overlapping clearance. d. Encouraging the use of digital standards in ICT acquisitions, promoting interoperability in the public sector. e. Taking actions to promote the shift towards a digital commissioning approach by increasing and institutionalising the involvement of the suppliers and users in the ICT public procurement lifecycle. f. Working with Serpro and Dataprev to reach an agreement on an action plan to address the problems identified by the Brazilian Federal Court of Accounts - low levels of efficiency, non-transparent and non-competitive prices, low levels of service satisfaction and lack of	Medium term

	economic-financial sustainability (applicable only to Serpro). In the case of non-accomplishment, the Brazilian government should reconsider the favourable competition conditions attributed to both companies on public IT procurement.
g.	Considering the development of a digital marketplace in Brazil, building on the experience of the United Kingdom, allowing simpler, agile and collaborative ways of developing procurement processes.

Strengthening the foundations for integrated, citizen-driven, digital service delivery in Brazil

Key enablers for the integrated development of digital government

Brazil has made efforts in recent years to promote the development, use and reuse of digital key enablers across the public sector. However, according to the ecosystem of public stakeholders interviewed during the OECD fact-finding mission in July 2017, as well as the data collected from the Digital Government Survey of Brazil, the efforts appear to be insufficient. The following achievements and opportunities can be highlighted, however:

1. Digital electronic procedures

The Ministry of Planning, Development and Management leads the initiative named Electronic National Procedure (Processo Electrónico Nacional, PEN). The system's main goal is to provide society with an additional channel for consulting and accessing information on the evolution of electronic procedures in the Brazilian public sector.

2. Interoperability

The ePing architecture – Standards of Interoperability of Electronic Government – reflects a Brazilian interoperability policy for the public sector. ePing defines a set of minimum requirements, policies and technical specifications governing the use of ICT in the public sector, establishing the basis for interoperability across public sector institutions. The Secretariat of Information and Communication Technologies also launched in 2018, in the context of the Efficient Brazil programme – the National Debureaucratization Council, a new interoperability platform called Conecta GOV, which makes available a catalogue of application programming interfaces (APIs) to be used by public sector organisations. Nevertheless, due to the inexistence of the proper policy levers that can make data exchange among public sector entities mandatory, the connection and integration of central databases is still a problem in Brazil. Legal constraints, silo-based mindsets, technical legacies and lack of political support are commonly identified by stakeholders as the main obstacles for an effective interoperability policy in Brazil.

3. Data governance

Mechanisms like the Global Model of Data and Processes Integration (modeloglobaldados.serpro.gov.br), the National Infrastructure of Open Data (dados.gov.br) and the relaunch in 2018 of a platform for data analysis - GovData - reflect the recognition of data as a strategic asset for the digitalisation of the public sector in Brazil. Nevertheless, the absence of data governance from the areas covered by the federal Digital Governance Policy may limit the type of management of government data lifecycles required to support the development of the necessary data architecture as an essential enabler of the

establishment of the necessary data infrastructure. Despite the development of legal instruments (such as Decree no. 8,789 of 26 June 2016) aimed to support streamlining of data-sharing practices within the public sector, there is still room for improvement with regard to public sector data governance and a clearer linkage with the several priorities, initiatives and projects listed in the Digital Governance Strategy.

4. Digital basic registers

The Brazilian infrastructure of key basic registers is in development. Several registers are being digitised. For instance, the National System of Civil Registry Information (Sistema Nacional de Informações de Registro Civil, SIRC) was created in 2014, ensuring that all new entries in the register are digital while the remaining records are being digitised progressively. The Brazilian government's commitment to standardising the information to be presented in registers should be noted, and a cross-cutting initiative is underway to promote the integration of the information systems. However, the insufficient infrastructure connectivity of the registers creates serious obstacles for digital government development. Additionally, the governance model and some institutional legacies in place pose challenges. For instance, Brazil has a mixed public-private system for the management of the civil register. Since the full digitisation of the civil registry could affect the business model that guarantees the private involvement in the process, some change resistance has been found to efforts to reform the current model.

5. Digital identity

In Brazil, diverse public identification documents have been digitalised (e.g. electronic version of the driver's licence, the electronic payment card of the Bolsa Familia programme and several other labour and health documents). This is evidence of the federal government's efforts to increasingly use digital technologies to promote efficiency across the public sector and raise the convenience of citizens' interactions with government institutions. However, the development of a digital identification system, considered one of the central key enablers for digital government development, is delayed due to the complex digital and institutional environments and requirements to implement such a system, and the preponderance of other identity numbers used across the public sector to identify citizens. The mandate to develop a national digital identity framework has been recently attributed to the Supreme Electoral Court, which is also responsible for managing Brazil's electronic voting system. The National Identification Document (Documento Nacional de Identificação, DNI) is currently being developed, bringing together different registers into one single document. The DNI will be integrated with Brazil Citizen (Brasil Cidadão), a system of single sign-on (or single login) for digital services.

The lack of development of most of the above-mentioned key enablers results in inefficiencies and lost opportunities for collaboration and prevents the development of more integrated service delivery approaches.

Boosting an open and collaborative culture

In Brazil, the potential for digital technologies to spur more open and collaborative processes with civil society was always assumed as one of the main assets of the

digital revolution. The digital openness footprint can indeed be found in all structural policy programmes since 2000. Access and reuse of data and information, and citizen engagement through digital technologies, are central priorities of the current Digital Governance Strategy (EGD).

Several recent exemplary projects and initiatives reflect the Brazilian government's commitment to using digital technologies to boost a culture of openness and engagement. For instance, the Brazilian Internet Bill of Rights (Marco Civil da Internet) institutionalises a large group of rights, duties and principles for the development of the Internet in Brazil (Law no. 12,965 of 23 April 2014). The bill is the result of wide public consultation and collaborative process. Topics such as net neutrality, privacy, personal data management, freedom of expression and knowledge sharing are addressed in the bill.

Brazil has strong experience in the adoption of open standards in the public sector, as well as in the development of open public software with the purpose of being freely reused across different sectors and levels of government. For instance, through the portal www.softwarepublico.gov.br, public entities, the private sector and civil society are invited to share and reuse software without any associated cost.

Brazil was also one of the first countries in the world to run elections totally based on an electronic voting system that has been used since 2000 by all voters. A biometric system of identification was added to all electronic ballot boxes - more than 500 000 units - by the Electoral Justice (Justiça Eleitoral).

Brazil has several examples that demonstrate the dynamism of its civil society in using ICT to promote more openness, transparency and citizen engagement regarding government activities. For instance, the Participa.br platform was developed as a portal for public discussion and consultation on policy issues. The platform has been used by different public sector institutions at the federal level to crowdsource inputs from citizens on initiatives relevant to digitalisation, such as the Internet of Things plan, the Digital Governance Strategy (see Chapter 2) and open data initiatives. Brazil also benefits from the availability of the National Policy on Social Participation and the National System on Social Participation, created and established in 2014.

According to some civil society representatives interviewed during the peer review mission, as well as data collected from the Digital Government Survey of Brazil, the country's digital society movement resulted from the efforts of former public officials. Efforts in areas such as public software and open government data are clear examples of how policies of openness are at the top of the Brazilian government's digital transformation agenda. Brazil was one of the co-founders of the Open Government Partnership (OGP), building on the well-grounded openness movement within the government and across civil society.

Although Brazil has several good examples of digital openness and collaboration in the public sector, and the Digital Governance Strategy attributes relevance to the topics, further efforts are required to drive co-creation of public value with civil society and to create a widespread culture of sharing and reuse of government data. As public sector trust is a recognised asset nowadays for better policies, civil society and other key actors like journalists should be considered as partners to promote integrity, fight corruption and spur the reuse of open government data and public sector information for value co-creation.

Greater pressure from civil society and within the administration could trigger the Brazilian government's responsibility to properly seize the opportunities of the digital transformation for public sector openness and integrity and to prevent and fight corruption.

For instance, the Presidential Decree no. 8,777 of 11 May 2016 established the Brazilian national Open Data Policy. Among other provisions, the decree identified a set of public sector information categories to be prioritised for publication in open and machine-readable formats in an effort to fight corruption in Brazil, including the:

- names of civil servants in managerial and directive positions in state-owned enterprises and subsidiaries
- data from the Integrated Financial Management System (Siafi)
- information on the corporate structure and ownership of companies collected by the National Register of Legal Entities
- public procurement information collected through the Integrated General Services Administration (Sistema Integrado de Administração de Serviços Gerais, SIASG)
- cadaster and registration information related to the control of the execution of parliamentary amendments.

The Ministry of Transparency and Office of the Comptroller General (CGU) released data on the assets of state-owned companies' directors and managers as a result of the provisions stated in the decree. The Ministry of Finance is also expected to release the registry of businesses' beneficial ownership as open data. By releasing these datasets, the Brazilian government aims to reduce the risk of conflicts of interest with regard to partnerships between private sector organisations and civil servants, but the role and engagement of civil society and the media will be key in the actual co-creation of public value beyond data publication.

Transforming digital service delivery

In Brazil, the amount of services provided by the federal government is not substantial when compared with services provided by the states and the municipalities. The Services Portal (Portal de Serviços) (www.servicos.gov.br) is the main online one-stop shop for public service access and delivery at the level of the federal government. Citizens can access structured information about services provided by the government, grouped in large categories like education, health, economy and finance.

Even though several examples of transactional services provided entirely on line can be found (e.g. Criminal Record Certificate) the above-mentioned portal is mostly a single point of access to other federal government portals where the services are actually provided. This reflects a segmented approach to digital service delivery, organised according to the institutional set-up of the government, and not in line with the needs of citizens that should be driving how services are provided (e.g. according to life events approach).

The fragmentation of the digital service delivery context is also rooted in governance issues discussed in this review. On the one hand, the lack of a clear and

solid digital government leadership with a mandate to steer digital service policies influences the fact that the delivery of public services mostly follows agency-based approaches, which is typical of an e-government - rather than a digital government - approach. On the other hand, the underdevelopment of digital key enablers contributes to the lack of integration in digital service delivery. Since the norms and/or incentives to better promote integration are not in place, public entities opt for institution-specific solutions and approaches that are easier to implement.

Aware of the need to improve the coherence of digital services provision across the federal administration, the Brazilian government launched the Platform of Digital Citizenship (Plataforma de Cidadania Digital) in December 2016. The cross-cutting initiative is focused on transforming the delivery of public services on line through: the improvement of the Services Portal (Portal de Serviços); the development of a unique digital authentication system; and an increase in the number of fully transactional services. This will better allow the evaluation of citizens' satisfaction with digital services and improve the global monitoring of digital service delivery.

The prioritisation underway of key actions aimed to provide a sound framework and context for digital service delivery will enable the Brazilian government to shift from being mainly institution-centred in its service delivery practices to becoming more citizen-driven.

Proposals for action In light of the key assessments above, which draw on the main findings and analysis included in Chapters 4 and 5 of this review, the Brazilian government could consider implementing the following policy recommendations:	Level of priority
8. Continue investing in the development of digital key enablers as one of the most critical requirements on which the government should focus its efforts to achieve the shift from e-government to digital government, namely through: a. Reinforcing the connection with the digital government policy levers to be developed in order to promote coherency, efficiency and sustainability of digital government efforts and investments (see Recommendation 6, above). b. Investing in the effective use of the digital key enablers by public sector institutions, demonstrating its value and supporting its implementation at the agency level. c. Reinforcing the role of the platform Conecta GOV, the federal government's new interoperability platform, by considering making the use of its APIs mandatory to share and consume information among public sector institutions.	Short term
9. Continue and reinforce public efforts for the development of a digital identity framework, namely by: a. Encouraging the adoption of the National Identification Document (Documento Nacional de Identificacão, DNI) by the Brazilian population, promoting broad information campaigns about its utility and liability, and providing incentives. b. Prioritising the connection between the new DNI and Brazil Citizen (Brasil Cidadão), the public single authentication mechanism. c. Securing equitable and inclusive digital service delivery by making sure that the segments of the population that do not have smartphones will not suffer from exclusion to improved access to public services.	Short term
10. Consider reinvesting in open source software (OSS) as a strategic key enabler, building on Brazil's experience and legacy and adding value to the digital government policy. The following actions could be considered: a. Prioritising involvement and collaboration with the ecosystem of stakeholders, promoting shared policy ownership and responsibility. b. Setting concrete and realistic goals and objectives connected to the implementation of OSS. c. Introducing an open-source-by-default recommendation on the development of digital services. d. Creating a monitoring and knowledge-sharing mechanism, such as an observatory, in order to improve the collaboration, awareness and understanding of OSS at the federal, state and local levels.	Medium term

11. Keep the digital government legal and regulatory framework constantly updated as a key component of the governance framework and an essential mechanism to enable and drive the digital transformation of the public sector. Simultaneously, the government should also promote a cultural change across public sector organisations to attenuate a strong legalistic tendency through the promotion of more innovative, iterative and agile approaches to service design and delivery.	Long term
12. Establish an integrated digital service policy, linked to the Digital Governance Strategy to reinforce the coherence, effectiveness, and commitment of the Brazilian public sector to delivering high-quality services to citizens. The specific policy for service delivery could include actions with regard to: a. User engagement and citizen-driven approaches, establishing standards for example on specific actions for higher and proactive engagement of users as core to service design, development and delivery processes. b. Increased use and development of a one-stop-shop by default policy (known as a "single point of entry"), prioritising access to services for citizens and businesses through single platforms as a way to favour synergies in the delivery of public services; increase users' convenience; and promote a unified and equal interface between the government and users. c. Life events approach, ensuring that services are always displayed and provided in an integrated way based on citizens' and businesses' needs and according to life situations (the so-called "life events approach", e.g. having a child, losing and finding a job, creating a company). This should be conciliated with other approaches such as presenting services by thematic area, alphabetical other, etc. d. Multi-channel imperative, guaranteeing that services are provided through several channels (e.g. online platforms, mobile apps, kiosks, APIs, face-to-face or telephone). e. Once-Only Principle, establishing the normative conditions for the principle to be adopted and become a mechanism to increase users' convenience and to promote the reuse of data and information across sectors and levels of government. f. Digital service standard to focus on processes integration, exchange and reuse of data across sectors and levels of government. g. Establishing a federative cross-level co-ordination policy to expand the offering of digital services to states and municipalities in a consistent manner.	Medium term
13. Continue efforts to advance proactive openness, transparency and the accessibility of digital services in an effort to maintain public trust in the government. Transparency and accountability should, for example, go beyond enhanced traceability of replies to access to information requests, as a broader understanding and approach to transparency and accessibility to government actions can develop a more user-driven and data-driven public sector. To advance and build on existing efforts, the government can consider: a. Enforcing and enhancing existing guidelines and standards around accessibility to build a digitally inclusive society. The involvement of public, private and civil society stakeholders in service design can ensure that different needs and perspectives will be reflected in the approach and will create or reinforce the accountability and sense of ownership in the development of a systems-thinking culture. b. Institutionalising an agile approach for service delivery that includes collaborative design, testing through user engagement and monitoring for continuous improvement. c. Ensuring that solutions are digital by design, which would promote data access, interoperability, exchange, sharing and reuse across and within public sector institutions. Additionally, leveraging digital technologies where possible. For example, incorporating open-by-default approaches to support the publishing of information and open government data (OGD) on the central federal government portal, which will, in turn, raise the level of trust between citizens and the government. d. Focusing on better delivering the benefits of digitally transformed services to the least advantaged segments of the population. Given the high penetration of mobile technologies in Brazil, it is suggested that the government prioritise the mobile channel for new digital service delivery. Some concrete actions, to begin with, could include: promoting inclusive mobile services delivery through higher user engagement (different users groups by age, gender, socio-economic status, etc.) in the design phase; increasing the availability of mobile government applications and solutions; establishing a mobile applications service catalogue accessible via mobile technology.	Medium term
14. Consider the development of an action plan on the use of emerging technologies, namely artificial intelligence (AI), to improve inclusive and improved service design and delivery, a complement to the current Digital Governance Strategy. The action plan could foresee: a. Co-ordination by the System for the Administration of Information Technologies Resources (Sistema de Administração dos Recursos de Tecnologia da Informação, SISP) and	Medium term

executive leadership by the Secretariat of Information and Communication Technologies (SETIC) of the Ministry of Planning, Development and Management. b. Allocation of funding for research and development (R&D) on innovative service delivery solutions for the public sector. c. Development of transparency mechanisms and ethical frameworks to enable a responsible and accountable adoption of emerging technologies solutions by public sector organisations. d. Establishment of a task force for guiding the government's decision on the application of AI to specific services and areas, inclusive of representatives from all levels of government and from the ecosystem of stakeholders more broadly (e.g. academia, the private sector, user groups).	
15. Consider leading and actively supporting the Latin America and Caribbean region efforts on cross-border service delivery, given the political and economic relevance of Brazil in the region, as well as its experience in promoting interoperability across different federation levels.	Long term

Notes

1. Decree no. 1,048 of 21 January 1994.
2. Decree no. 7,579 of 11 October 2011.

Chapter 1. Brazil's path towards a digital government for a digital economy and society

This chapter introduces the Digital Government Review of Brazil *in terms of both a background of the analysis of the review and the contextual factors that will influence the Brazilian government in its digital transformation. It takes into consideration both social and economic factors in Brazil before looking at where the government is today in terms of digitalisation. The chapter provides a substantive introduction for the following chapters of analysis.*

The framework for the *Digital Government Review of Brazil*

Brazil is one of the OECD's key partners,[1] contributing to OECD's work in a substantive manner through participation in OECD bodies, adhering to OECD instruments, and integrating statistical reporting and information systems. Brazil has been invited to participate in all OECD meetings at ministerial level since 1999. Following more than 20 years of mutually beneficial co-operation, Brazil presented its application for OECD membership at the Ministerial Council Meeting (MCM) of May 2017 (OECD, 2018[1]).

Given the digital transformation of its economy and society, the Brazilian government is increasingly challenged to use digital technologies in effective and coherent ways across the different sectors and levels of the public sector and to use data as a strategic asset to provide efficient, convenient and high-quality public services to citizens and businesses.

The public sector in Brazil has made substantial progress in the last few decades, progressively integrating digital technologies so as to improve the efficiency and agility of its internal processes. The increasing availability of digital services has also upgraded the government's capacity to interact with its constituents. These public efforts allow the Brazilian government to look forward to and further promote the digital transformation of the public sector.

Nevertheless, taking digital government efforts to the next level requires building on the complexity of the Brazilian public administration and securing the necessary capacity-building processes across the public sector, to develop the critical and system-thinking approach to face complex institutional and technological choices. The questions become:

- How to rethink public sector organisations, capacities and relationships with citizens based on problem-driven approaches that leverage the opportunities brought by digital technologies from the early stages of policy and service design (digital by design)?
- How to steer information and communication technology (ICT) investments across the public sector, to secure alignment with overarching strategic priorities and reform agendas, compliance with common technical standards, and to avoid overlaps and spread a shared service culture widely?
- How to progress from coexisting government-centred or citizen-centred approaches to a real citizen-driven paradigm of digital service delivery?

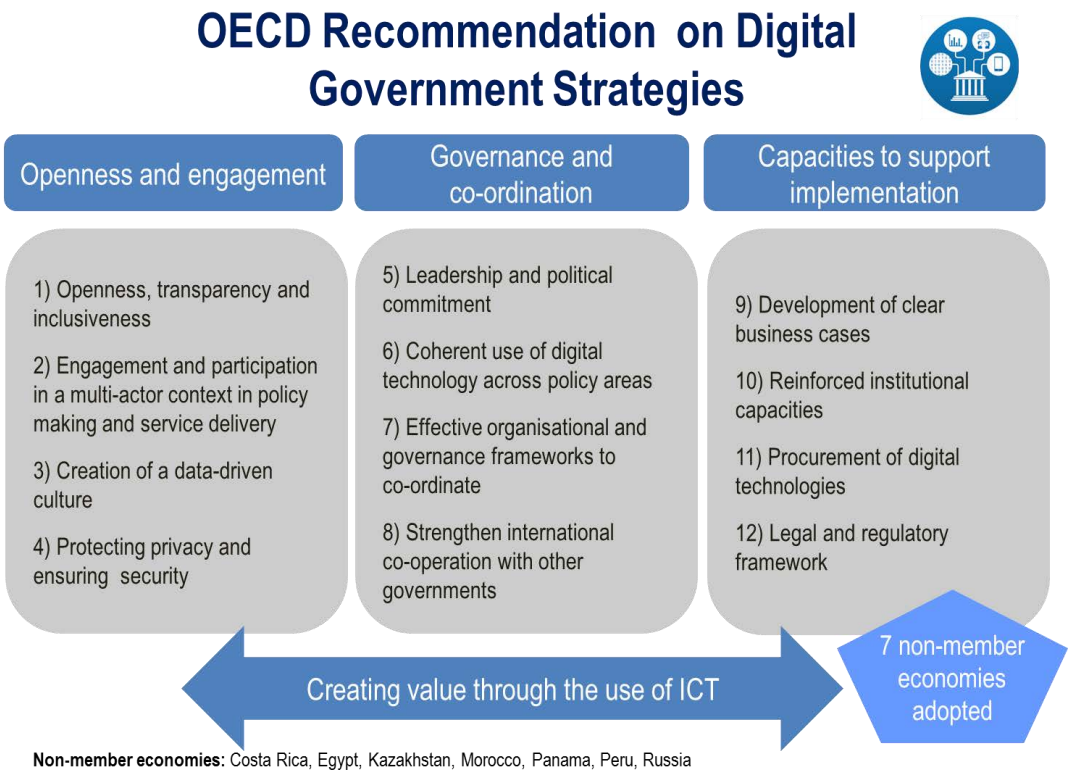
In order to advance further towards digital government, the Brazilian government requested OECD support to identify the strengths and weaknesses in its policies and programmes.

The *Digital Government Review of Brazil* builds on the experience and knowledge acquired by the Reform of the Public Sector Division of the OECD Directorate for Public Governance through similar projects conducted over the past 15 years in a number of OECD and other countries. It also draws on several years of bilateral co-operation between the OECD and the Brazilian government.

The OECD Recommendation on Digital Government Strategies (hereafter, the "OECD Recommendation"), adopted by the Council in 2014, was used to conduct this review. It comprises 12 key recommendations grouped in 3 pillars that support the integration of decisions on digital technologies in the shaping of all-encompassing, overarching strategies in the modernisation of the public sector and public sector reform (Figure 1.1). The adoption of the OECD Recommendation helps governments to make the most out of technological change and digital opportunities to foster more open, innovative and

participatory governments, without creating new forms of digital divides. It promotes a whole-of-government approach that recognises the use of technologies as a cross-cutting agent in the design and implementation of public policies.

Figure 1.1. OECD Recommendation on Digital Government Strategies, 2014



Source: Based on OECD (2014[2]), "Recommendation of the Council on Digital Government Strategies", OECD, http://www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm.

The implementation of the OECD Recommendation by OECD member countries and non-member economies highlights the endorsement and commitment of governments to drive the digital transformation of the public sector. This paradigm shift builds on six key dimensions (see Box 1.1) identified by the OECD as policy fundamentals for a digital government.

Box 1.1. The six dimensions of digital government

1. From a user-centred to a **user-driven** administration:

A government that adopts approaches and takes actions to let the citizens and businesses determine and communicate their own needs to drive the design of policies and public services.

2. From reactive to **proactive** policy making and service delivery:

A government that designs policies and services in anticipation of societal and economic developments and around related users' needs and brings a service to users before it is requested. Same applies to the release of data as open data (proactively) rather than reacting to a request for access to public sector information.

3. From an information-centred government to a **data-driven** public sector:

A government that is capable of anticipating societal trends, understanding users' needs and transforming the design, delivery and monitoring of public policies and services through the management and use of data.

4. From the digitalisation of existing processes to **digital by design**:

A government that takes into account the full potential of digital technologies and data right from the start when designing policies and services, thereby mobilising new technologies to rethink, re-engineer and simplify internal processes and procedures in order to deliver the same efficient, sustainable and citizen-driven public sector, regardless of the channel used by the user to interact with public authorities.

5. From government as a service provider to **government as a platform** for public value co-creation:

A government that uses digital technologies and data to enable collaboration with and between societal stakeholders in order to harness their creativity and capacities to address challenges facing a country.

6. From access to information to **open by default**:

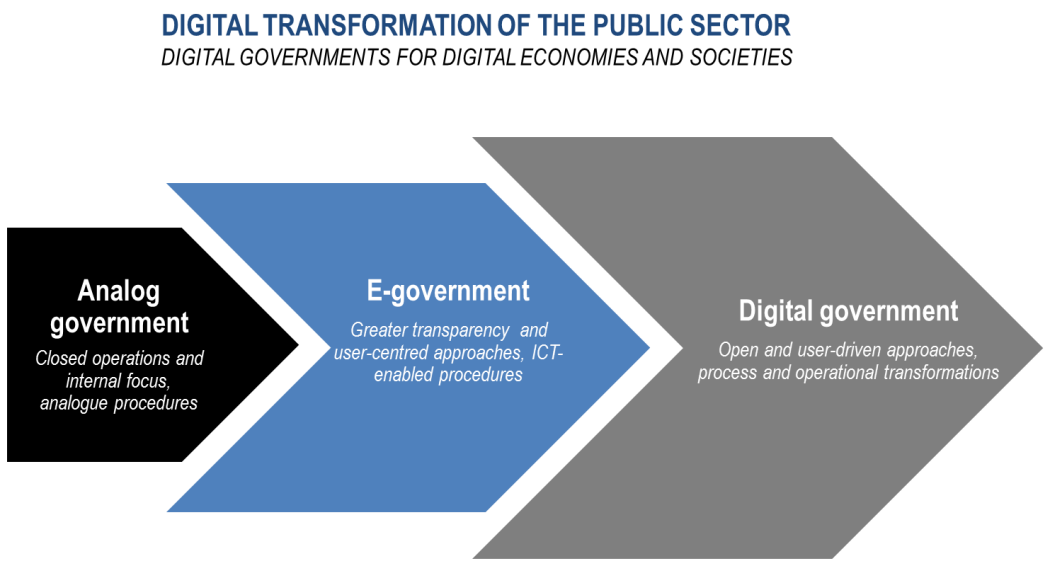
A government that has committed to proactively disclosing data in open formats and to opening up its processes supported by digital technologies, unless there is a legitimate reason not to.

Source: OECD (forthcoming[3]), "The Digital Government Framework", Issue Paper, OECD Publishing, Paris.

This review benefits from the OECD knowledge base and exchange of best practices, visions and strategies deriving from the work of the OECD Working Party of Senior Digital Government (E-Leaders). The Working Party brings together government chief information officers (CIOs) (or equivalent positions) and senior digital government decision makers in order to discuss and reflect on how to better address the digital transformation of the public sector and create smarter, inclusive, productive, more innovative and responsive governments.

The *Digital Government Review of Brazil* aims to assist the country's federal government in improving its digital government policies, programmes and projects by providing actionable policy recommendations based on the practices and experiences found in OECD countries. The targeted and practical advice will focus on how to strengthen the efficiency and effectiveness of Brazil's digital policy achievements and strategically plan future policy development and implementation. In particular, this review will help the government of Brazil in its efforts to shift from an e-government to a digital government approach, treading the path towards the sustainable digital transformation of its public sector (see Figure 1.2).

Figure 1.2. Digital transformation of the public sector



Source: Based on OECD (2014[2]), "Recommendation of the Council on Digital Government Strategies", OECD, http://www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm.

The process and timeline for the *Digital Government Review of Brazil*

The *Digital Government Review of Brazil* assesses the level of digital government development in the public sector in Brazil. The analysis framework is focused on capturing the Brazilian digital government context, the policy vision that sustains it, the achievements, implementation gaps and overlaps, and guiding the collection of evidence to support and formulate key policy findings and policy recommendations (see Figure 1.3).

Figure 1.3. The *Digital Government Review of Brazil* framework of analysis

Source: Author.
Icons sourced from http://www.onlinewebfonts.com/icon. Icon Fonts is licensed by CC BY 3.0.

One of the first important steps for this review took place in April 2017 with a preliminary visit by the OECD to Brazil to articulate the planning of the review, the scope and the framework of analysis, the main activities foreseen and the next steps. A high-level workshop involving different stakeholders took place at this time.

The OECD fact-finding peer-review mission in Brazil – a cornerstone of the review process - took place in July 2017. The mission involved the participation of peers from Canada, Italy and Mexico that, together with the OECD Secretariat, held interviews with stakeholders from the public, private and civil society to identify opportunities and challenges for digital government development in Brazil.

Later in September 2017, Brazilian government representatives from the National School of Public Administration (Escola Nacional de Administração Pública, ENAP) and of the Ministry of Planning, Development and Management (Ministério do Planejamento, Desenvolvimento e Gestão) participated in the meeting of the Working Party of Senior Digital Government Officials (E-Leaders) in Lisbon, Portugal, where they shared their ongoing experience with the digital government review with other countries. After benefiting from comments from their above-mentioned international peers from Canada, Italy and Mexico, the preliminary findings of the review were shared with the Brazilian government.

Assuming a central role in the methodology of the review for fact-finding purposes, a survey was shared among the digital government ecosystem of public stakeholders in

September 2017. The survey provided valuable evidence from federal and local government institutions that was used in the drafting of this report.

In May 2018, the "Key Findings of the Digital Government Review of Brazil" were launched in a high-level event in Brasilia, hosted by ENAP and the Ministry of Planning, Development and Management. Subsequent to this event the report analysis was completed. Figure 1.4 summarises the full timeline of the review.

Figure 1.4. The timeline of the *Digital Government Review of Brazil*

Source: Author.

Brazil's economic and social contexts

Governments operate in ecosystems created by the convergence of citizen needs, business needs, technologies and infrastructures. There is a context of geography, society, economy and history that defines how and why governments exist as they do in any given country. As this review looks at digital government, it is understood that the digital transformation of economies and societies has a significant impact on, and a large role to play in, the transformation of government as digital societies and economies require digital governments and vice versa. It is therefore fundamental to better understand the Brazilian digital context as a whole that illuminates a convergence of citizen needs, technologies and infrastructures, private and public sector settings and priorities. Analysis of this digital context will provide a background for the following chapters of analysis and assessments of the Brazilian digital transformation of the public sector.

Brazil, officially known as the "Federative Republic of Brazil," is the world's fifth-largest country in terms of surface area, and has a population of 209.3 million people (Instituto Brasileiro de Geografia e Estatística, 2018[4]). It is one of the largest and most populated countries in the world. The country is uniquely complex in terms of geography, cultural, social and economic norms. A brief background of these country norms will be beneficial to understand the context that informs the basis of the government.

Brazil's economic context

Brazil is one of the world's leading economies, showing both strong economic growth and social progress (OECD, 2018[5]). Table 1.1 depicts the country's principal economic indicators.

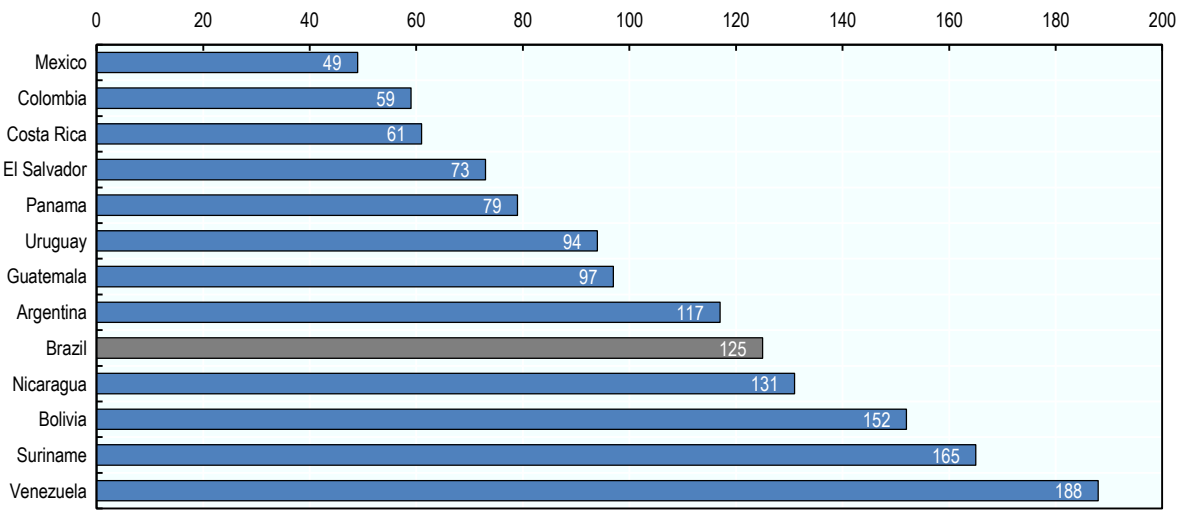
Table 1.1. Principal economic indicators of Brazil

Population (millions, 2013)	209.3	**GDP** in current prices (billion USD)	1 796.2
Employment rate for 15-64 year-olds (%)	54	**GDP per capita** (th USD, Parity of Power Purchase [PPP])	15.2
Men	64.3		
Women	44.5	**Real GDP growth** (%, 2016)	2.2
Income inequality (Gini coefficient, 2013)	0.47	**Budget balance** (% of GDP, 2016)	-8.9
Relative poverty rate (%, 2013)	20	**Current account** (% of GDP, 2016)	-1.3

Source: OECD (2018[5]), Economic Surveys: Brazil 2018, OECD Publishing, Paris, http://dx.doi.org/10.1787/eco_surveys-bra-2018-en and Instituto Brasileiro de Geografia e Estatística (2018[4])

However, Brazil's economy is also very internally focused. Brazil ranks 125th overall in the world in "Doing Business" rankings (see Figure 1.5), which provides room for improvement even within just the Latin American business environment. Even though Brazil is Latin America's largest economy, the country does not participate in vast amounts of trading within the region. In fact, within Latin America, Brazil's trade is centred on Argentina and globally, Brazil's number one trading partner is China (OECD, 2018[5]).

Figure 1.5. Doing Business rankings (2018), selected Latin American economies

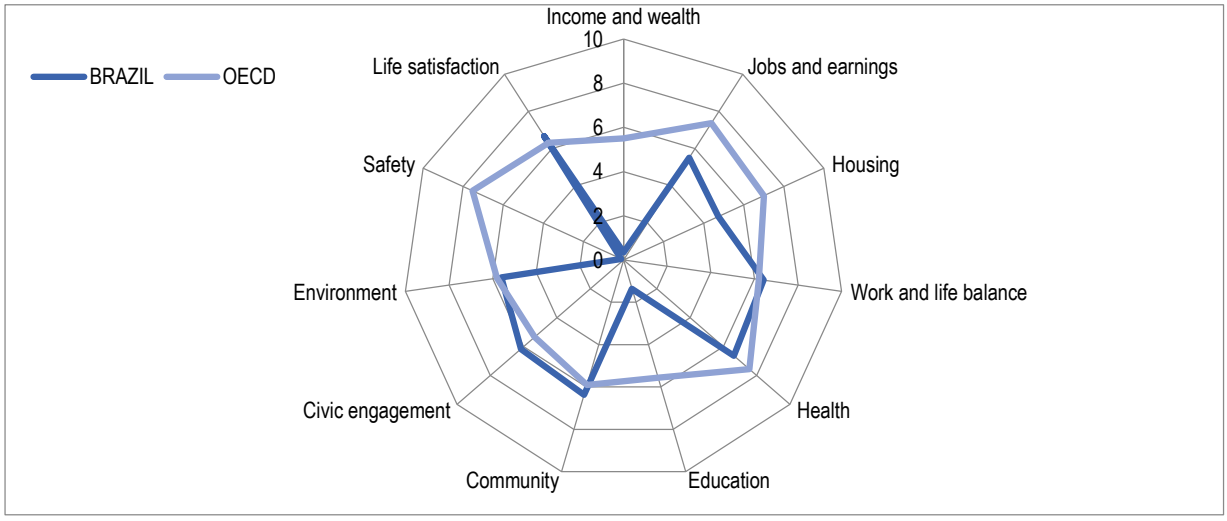


Source: World Bank (2018[6]), *Doing Business 2017*, World Bank, Washington, DC, http://www.doingbusiness.org/rankings?region=latin-america-and-caribbean.

Brazil's social context

The OECD Better Life Index compares well-being across countries (OECD member countries and partner and other countries) based on 11 topics identified as essential in the areas of material living conditions and quality of life. Brazil performs well in some indicators of well-being, including subjective well-being and social connections. Brazil is below average, however, in income and wealth, jobs and earnings, housing, environmental quality, health status, safety, education and skills (see Figure 1.6).

Figure 1.6. OECD Better Life Index: Brazil



Note: Each well-being dimension is measured by one to four indicators from the OECD Better Life Index set. Normalised indicators are averaged with equal weights. Indicators are normalised to range between 10 (best) and 0 (worst) computed over OECD countries and other countries according to the following formula: (indicator value - minimum value) / (maximum value - minimum value) x 10.
Source: OECD calculations based on OECD (2017[7]), OECD Better Life Index, http://www.oecdbetterlifeindex.org.

The progress that Brazil has made in terms of becoming one of the world's leading economies has been linked to its social progress. Tackling the complexity of improving outcomes and providing citizens with a better life is a demanding policy task. The United Nations (UN) Sustainable Development Goals (SDGs) provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The government of Brazil has utilised the SDGs to create strategies to eradicate poverty and promote a more prosperous and sustainable Brazil (Government of Brazil, 2017[8]). It is interesting to note how the government is considering the use of digital technologies to implement the SDGs. The vision of the National Commission for the SDGs is "To induce the implementation of the SDGs, through a cooperative and participative process in order to reach all goals and targets of the Brazilian 2030 Agenda" (Government of Brazil, 2017[9]).

To implement the SDGs, it is critical to work with civil society and the private sector. With this in mind, the Brazilian government is moving towards adopting a user-driven approach to implementing the SDGs. Civil society and private sector stakeholders are being given a platform to express their needs. Brazil is not only actively engaging civil society in its 2030 Agenda, but engaging it digitally.

Many new platforms have been co-created to better communication between the government and citizens. For example, the National System of Social Participation (SNPS) was created by Decree no. 8,243 of 23 May 2014 with the objective of strengthening and articulating mechanisms and democratic instances of dialogue and joint action between the federal public administration and civil society. The main digital instrument of SNPS is "Participa.br".

One of the strategic initiatives found in the Brazilian Digital Governance Strategy, recently revised, is the publication of an overview of the evolution of Participa.br, with the purpose of facilitating the involvement of Brazilian society in the development of public policies. In addition, another initiative in this strategy aims to increase the number of public consultations (*consultas públicas*) via digital platforms, thus promoting social participation in public policies.

Brazil's progressive digital change

The fast-paced development of digital technologies has brought new opportunities for citizens and businesses globally. Brazilians today operate in a digital landscape similar to other countries the world over. Digital technologies are ubiquitous in urban areas. Yet, the digital transformation varies from region to region. This section will briefly look at the evolution of digitalisation in Brazil.

How Brazil has approached digitalisation

The Brazilian government has been both innovative and collaborative in its efforts to promote the digitalisation of its economy and society. As far back as 1995 Brazil began a collaborative effort to understand and implement digital connectivity.

The Brazilian Internet Steering Committee (Comitê Gestor da Internet no Brasil) (CGI.br) was created in 1995 with the purpose of providing strategic guidelines related to the use and development of the Internet in Brazil, including the guidelines for the execution of domain name registration, Internet protocol allocation and administration pertinent to the domain of first level ".br". Continuing to do so today, CGI.br also promotes studies and recommends procedures for Internet security and proposes research and programmes that allow for the maintenance of an appropriate level of technical quality and innovation in the use of the Internet. Composed of public institutions as well as representatives from access or information providers, users, and the academic community, the Committee co-ordinates cross-cutting standards and services for citizens and is an important foundational block. It creates the foundations for an ecosystem between citizens, the private sector and the public sector.

One of Brazil's most forward-thinking initiatives is the Information and Communication Technology (ICT) Households Survey, which has been conducted annually since 2005 by the Regional Centre for Studies on the Development of the Information Society (cetic.br). It has become an effective tool for monitoring the expansion of broadband and other technologies in the country, including their use by Brazilians for online activities related to communication, education, leisure, electronic commerce and electronic government. This survey connects with citizens and taps into their ICT needs. The data collection and dissemination practices have provided Brazil an immeasurable amount of capacity building in data, data visualisation and statistical expertise, as recognised globally by international organisations (Comite Gestor da Internet no Brasil (CGI), 2017[10])

With regard to investing in infrastructure, the Brazilian government established the National Broadband Plan (Plano Nacional de Banda Larga, PNBL) in 2010. The PNBL consisted of expanding the fibre network to the interior regions of the country, installing submarine cables and a South American optical ring, and reducing tariffs on networks and access terminals (OECD, 2015[11]).

Brazil offers tax breaks to investors who have bought debt issued by telecommunication operators to finance broadband infrastructure projects, as well as to the operators themselves who have investment projects to expand or modernise telecommunication networks (OECD, 2018[5]).

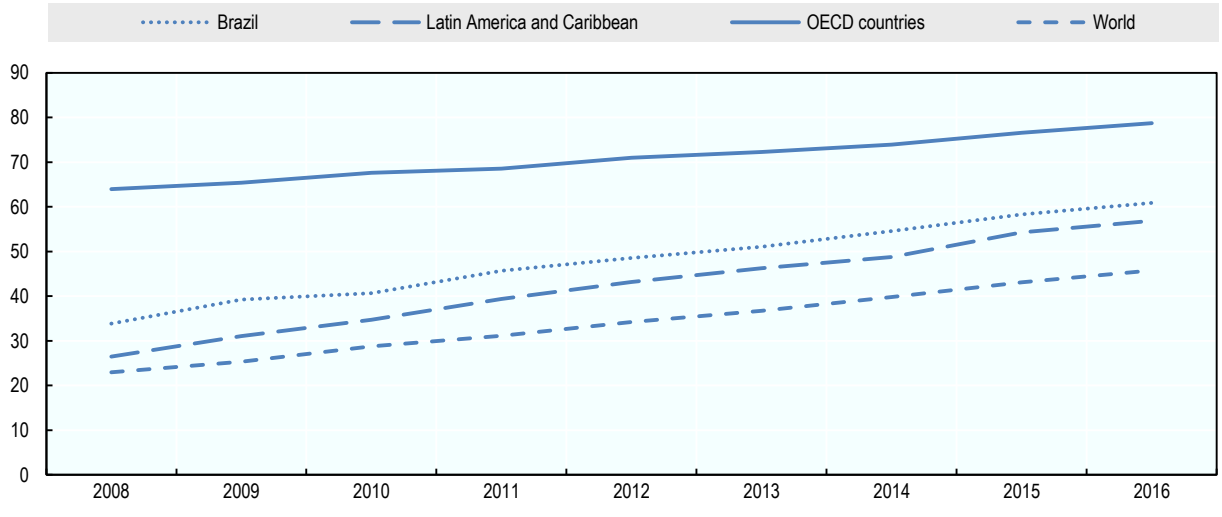
Today, as reported by the International Telecommunication Union's (2017[12]) *Measuring the Information Society Report* in analysing the state of ICT across 176 countries, Brazil ranks 66th overall and 10th in the Americas, behind other Latin countries such as Argentina, Chile and Uruguay. Country performance is measured by the ICT Development Index (IDI), a combination of 11 indicators including access to tools, use and skills. The biggest gain seen in Brazil was in the ICT skills indicator, which has risen from 92nd to 71st place worldwide (ITU, 2017[12]).

Brazil's rapid digital growth

As seen in many emerging economies, the digitalisation of the Brazilian economy in the last decade progressed quickly. For instance, with the exception of 2009 when it grew 2%, the Brazilian ICT sector sustained levels of growth of 12% and 13% between 2008 and 2012 (OECD, 2015[11]).

Internet use rates in Brazil have also shown steady growth (see Figure 1.7), increasing from 34% of the total population in 2008 to over 60% in 2016. While citizen Internet usage has remained above the average in the Latin American and Caribbean region, it is roughly 20% below the OECD average. This demonstrates Brazil's significant potential for improvement in regard to digitalisation and digital inclusion in coming years.

Figure 1.7. Percentage of the world population using the Internet, 2008-16



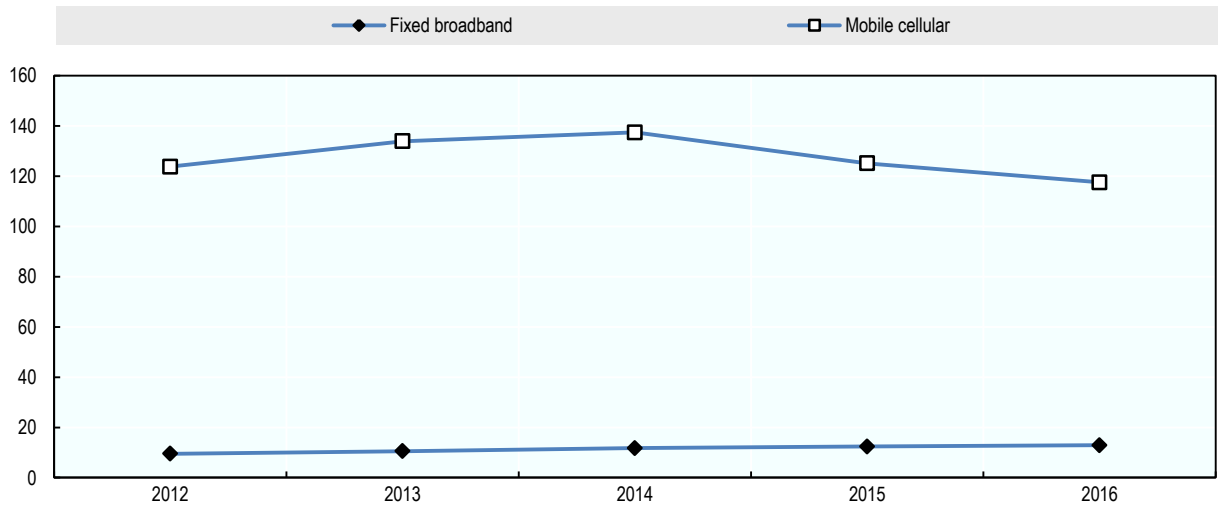
Source: International Telecommunication Union, *World Telecommunication/ICT Development Report and Database*, available at World Bank ((n.d.)[13]) "Databank, World Development Indicators", http://databank.worldbank.org/data/source/world-development-indicators# (accessed 15 July 2018).

Fixed Internet connectivity vs. mobile subscriptions

Though fixed broadband connectivity and mobile telephony are complementary to one another, it is interesting to note how the two are evolving in a country such as Brazil. Across OECD countries, fixed broadband subscriptions continue to rise, albeit slower than in past years. This is due primarily to already high penetration rates (OECD, 2018[5]). Mobile subscriptions, however, have grown very rapidly and outstrip the rates at which fixed broadband subscriptions are increasing.

According to the *OECD Digital Economy Outlook 2017*, from 2010 to 2014, Brazil achieved a 79% increase in fixed broadband subscriptions, that is, from 12.9 million to 23.1 million subscriptions. However, growth in fixed broadband has been stagnating over the last few years in Brazil and its penetration is 12.9 per 100 inhabitants (see Figure 1.8).

Figure 1.8. Fixed broadband vs. mobile cellular subscriptions per 100 people in Brazil

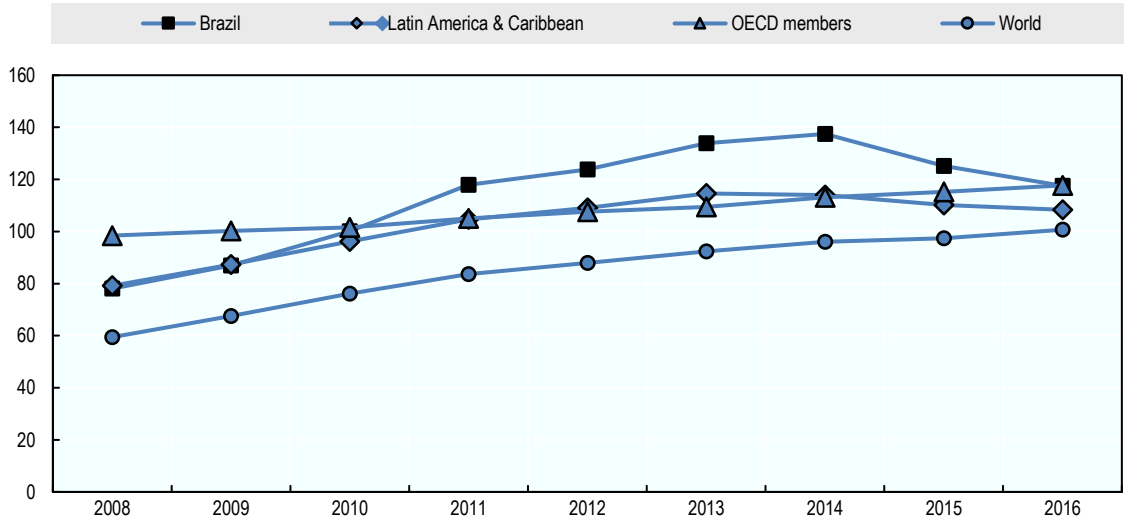


Source: International Telecommunication Union, *World Telecommunication/ICT Development Report and Database*, available at World Bank ((n.d.)[13]) "Databank, World Development Indicators", http://databank.worldbank.org/data/source/world-development-indicators# (accessed 15 July 2018).

Over the same period, mobile broadband access rose 825%, reaching 123.6 million. As can be seen in Figure 1.9, Brazil's mobile subscriptions are higher than the average for Latin America and the Caribbean region and were above the OECD average during a significant period.

While fixed broadband connections are on the rise, it is not at the same pace as mobility connections. Part of this may be due to the already present penetration in Brazil. However, affordability remains the most relevant barrier to connectivity in households. This is consistent with research that shows that Internet access prices in Latin America are expensive, particularly when taking into consideration income levels and wealth distribution (OECD/IDB, 2016[14]).

Figure 1.9. Mobile cellular subscriptions per 100 people worldwide



Source: International Telecommunication Union, *World Telecommunication/ICT Development Report and Database*, available at World Bank ((n.d.)[13]) "Databank, World Development Indicators", http://databank.worldbank.org/data/source/world-development-indicators# (accessed 15 July 2018).

Affordability is in fact one of several factors that explain that approximately 200 million people remain off line throughout Latin America. And given the socio-demographic characteristics of this population, the private sector may not see the profitability of participating in a solution (Galperín, 2017[15]) .

One of Brazil's primary concerns is whether or not the government is adequately positioned to develop an ICT-skilled ecosystem that can leverage the digital inter-connectedness of its citizens. Aligned with the fact that education is an area of focus for Brazil's SDGs Action Plan, the government proposed a policy for bringing broadband to rural public schools: to obtain spectrum for commercial operation of mobile 4G services, companies must provide free broadband Internet access (wired, wireless or via satellite) to rural schools (OECD, 2017[16]). Though the policy of digital inclusion in Brazil falls under the responsibility of the Ministry of Science, Technology, Innovation and Communication (MCTIC), some ministries have complementary initiatives. The initiative mentioned above, under the responsibility of the Ministry of Education, is a good example of cross-government collaboration, as it deals with improving the infrastructure and connection of schools, which includes the expansion of the terrestrial broadband network, connectivity services, Wi-Fi infrastructure and the acquisition of a satellite with 10 Mb of speed connectivity. It involves also MCTIC, the National Bank for Economic and Social Development (BNDES) and the Brazilian Internet Steering Committee. It brings together a set of national guidelines that aims to ensure the implementation of innovative actions in the classroom, using technology, in all states and municipalities.[2] It is worth noting, though, that at the federal level there is a strategic initiative that provides for the promotion of the connection of 22,000 urban and rural public schools with broadband of high speed, terrestrial or satellite networks.

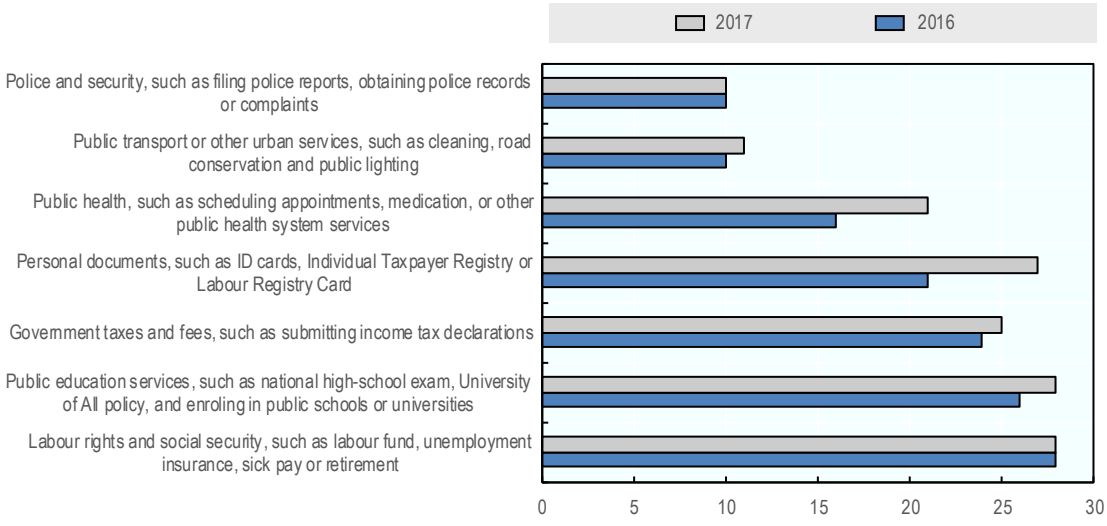
Reaching remote regions and connecting communities further away from major telecommunications infrastructures are the goals of major public initiatives. "Connected Amazon", for example, deploys telecom cables in riverbeds of the Amazon basin to form a backbone of fibre optics for remote areas of the country's northern region.

Side by side with connectivity, affordability and digital literacy, content is considered one of the largest barriers to Brazilians using the Internet (Burger, 2016[17]). Language plays a significant role in the content available to Brazilians. Brazil is the world's largest Portuguese-speaking country and Portuguese is the primary language in Brazil. Yet, English accounts for an estimated 52% of all Internet content (W3Techs, 2018[18]). If an individual in Brazil does not speak English, there will be significantly less content accessible to that individual on the Internet and therefore less incentive to use the Internet.

Digital technologies and access to public services

An increased citizen uptake of digital services shows that the Brazilian government is seeing dividends in investing in digital literacy initiatives and providing incentives for Brazilians to use the Internet. Over a period of six years from 2010-15, individuals' use of e-government services in Brazil doubled, rising from 12% to 24% (OECD, 2017[16]). A more complete picture of how Internet users used or sought public services is presented in Figure 1.10, which compares use between 2015 and 2016.

Figure 1.10. Brazilian citizens' use of the Internet to access public services



Source: Brazilian Internet Steering Committee ((Comite Gestor da Internet no Brasil (CGI), 2018[19]), TIC DOMICÍLIOS, Survey on the use of information and communication technologies in Brazilian households 2017.

The government is proceeding with digital projects that are evolving Brazil's digital public service delivery. Several digital identity projects have been recently completed, e.g. Brazilian drivers' licenses, Brazilian voting IDs (*Título Eleitoral*), workers' IDs (*Carteira de Trabalho*), the electronic version of the National ID Card and Registry (enacted by Law no. 13,444/2017). Brazilian government digital service delivery has also been largely improved with the implementation of a services portal aggregating information (or e-services) from most (or all) Brazilian federal entities (https://www.servicos.gov.br/) (see Chapter 4).

To a certain extent, citizens' needs and their using digital to voice their needs, seems to have produced very positive results in Brazil. The government has provided the foundational elements (e.g. through laws and regulations) for citizens to engage with the public sector and for the digital economy to operate. Nevertheless, further advances are

needed to ensure the development of an integrated and cohesive digital ecosystem of citizens, private business and government.

As will be assessed in the following chapters, the Brazilian government is moving towards a digital transformation of the public sector. Digital technologies are being mobilised to rethink services, re-engineer business processes and simplify procedures to make sure they are up to the expectations of digital economies and societies. The government should be careful in the transformation to ensure a cohesive and government-wide approach is taken to avoid repeating silo-based actions and agency thinking that can generate infrastructure and data redundancies. Instead, widely adopted shared-service approaches together with a citizen-driven policy mindset should be incorporated to ensure that an entire ecosystem is brought into the model.

Notes

1. The other OECD partner economies are the People's Republic of China, India, Indonesia and South Africa. For more information, see http://www.oecd.org/about/membersandpartners/.
2. Information provided directly by the Brazilian government.

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Chapter 2. Strengthening the governance framework for digital government in Brazil

This chapter analyses and assesses the governance and institutional frameworks for digital government currently in place in Brazil. It reviews the current Digital Governance Strategy meant to set the country's path towards the digitalisation of the public sector. It then focuses on the configuration and institutional set-up of the unit in charge of leading and co-ordinating digital government in Brazil. Finally, it discusses the existing co-ordination mechanisms meant to ensure the necessary alignment across sectors and levels of government, so as to ensure the coherent and sustainable development of digital government in Brazil.

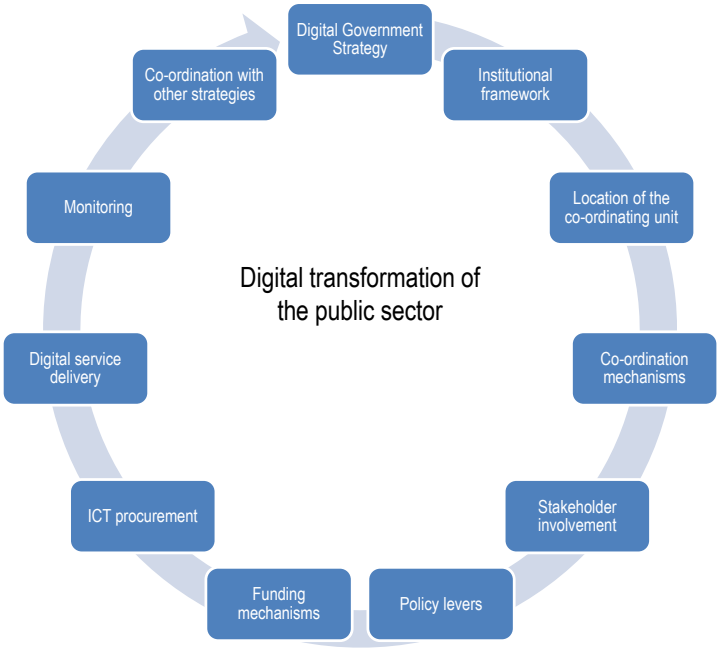
Introduction

Economies and societies worldwide are going digital. People and businesses are changing not only how they interact, but how they access services and consume information, forcing governments to rethink and change the ways in which they serve their constituencies.

Governments today must demonstrate that they are up to the digital transformation underway. They need to prioritise mobilising digital technologies to link strategic goals (e.g. efficiency, inclusiveness, openness, sustainability) across different sectors and levels of their administrations, and to ensure policy coherence and long-term sustainability. Institutional set-ups need to be reconsidered and adjusted to support a whole-of-government transformation able to better deliver results, responding to citizen's increasing expectations (OECD, forthcoming[1]). Improved governance frameworks, based on clear mandates and political support, are required for a coherent and strategic digital government to succeed. The design, development, implementation and monitoring of policies supporting digital transformation require sound co-ordination among the ecosystem of stakeholders to deliver the expected policy results.

Considering that there is no one-size-fits-all approach applicable to all contexts, the OECD Recommendation on Digital Government Strategies (OECD, 2014[2]) highlights several dimensions that can contribute to a sound governance ecosystem. Some of the variables that contribute to the analytical framework underlying this Digital Government Review include collaboration and the mobilisation of stakeholders, co-ordination mechanisms in place, policy levers required to push strategic goals and synchronisation with other reforms of public sector agendas (see Figure 2.1).

Figure 2.1. Governing the digital transformation of the public sector: Dimensions of analysis



Source: Author, based on OECD (2016[3]), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264258013-en.

A comprehensive policy framework

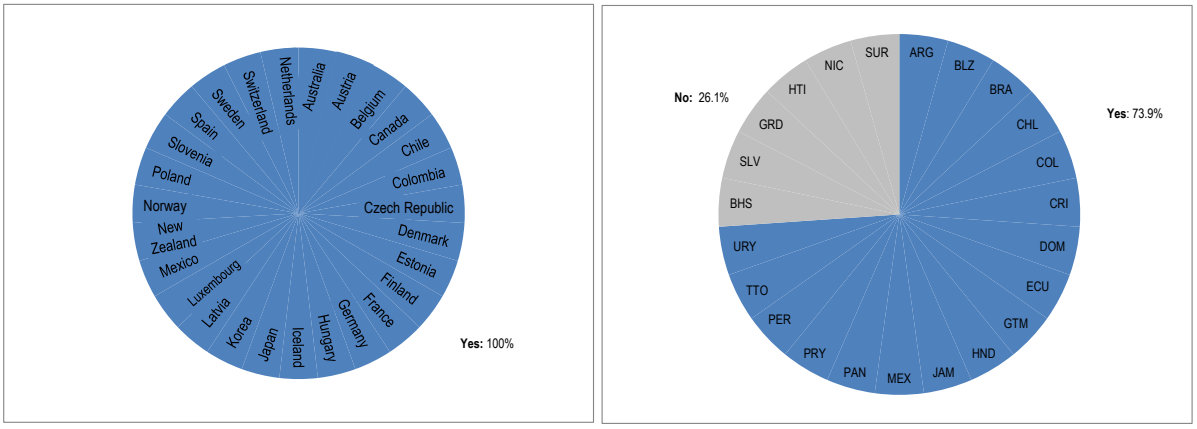
Strategies to lead the digital change in the public sector

A digital government strategy is a critical policy mechanism used to define and align objectives, priorities and lines of action across sectors and levels of government. The strategy should embody the views of the ecosystem of stakeholders, so as to count on their collective willingness to support the digital change across the whole administration. The governance that supports the implementation of the strategy, i.e. the institutional set-up, leadership, co-ordination mechanisms, policy levers and monitoring tools, are critical elements to consider when analysing experiences in other countries.

The openness and inclusiveness of the design, implementation and monitoring of the strategy are also relevant dimensions of analysis. Involving and collaborating with stakeholders from the public and private sectors, academia and civil society can help build consensus and develop joint ownership and shared responsibility for the successes or failures in the implementation of the strategy.

The existence of a digital government strategy is a common policy pattern in both OECD countries and the Latin America and the Caribbean region (LAC). By 2014, all OECD countries that completed the OECD Digital Government Performance Survey (OECD, 2014[4]) reported having a digital government strategy. Furthermore, results from the 2017 OECD Government at a Glance survey show that 17 out of 23 countries (73%) in the Latin America and the Caribbean region (LAC) (including Brazil) have developed a digital government strategy (Figure 2.2).

Figure 2.2. Existence of a national digital government strategy in OECD countries and the Latin America and the Caribbean region



Source: OECD (2014[4]), "Survey on Digital Government Performance", https://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796; OECD (2016[5]), *Government at a Glance: Latin America and the Caribbean 2017*, OECD Publishing, Paris, https://doi.org/10.1787/9789264265554-en.

Brazil started treading a more consistent path towards digital government in 2000 (Casa Civil, 2000[6]) when it approved an E-government Policy Proposal for the Federal Government (Proposta de Política de Governo Eletrônico para o Poder Executivo Federal), foreseeing cross-sector synergies on information technology (IT) infrastructures, rationalisation of information and communication technology (ICT) expenditures, promotion of online availability of services and implementation of digital inclusion

measures (Grupo de Trabalho Novas Formas Eletrônicas de Interação, 2000[7]). The Executive Committee for Electronic Government (Comitê Executivo do Governo Eletrônico, CEGE) was also created in 2000. Chaired by the Civil House of the Presidency of the Republic, it brings together representatives from several ministries to formulate new policies, establish guidelines and co-ordinate actions for the implementation of e-government (Casa Civil, 2000[8]).

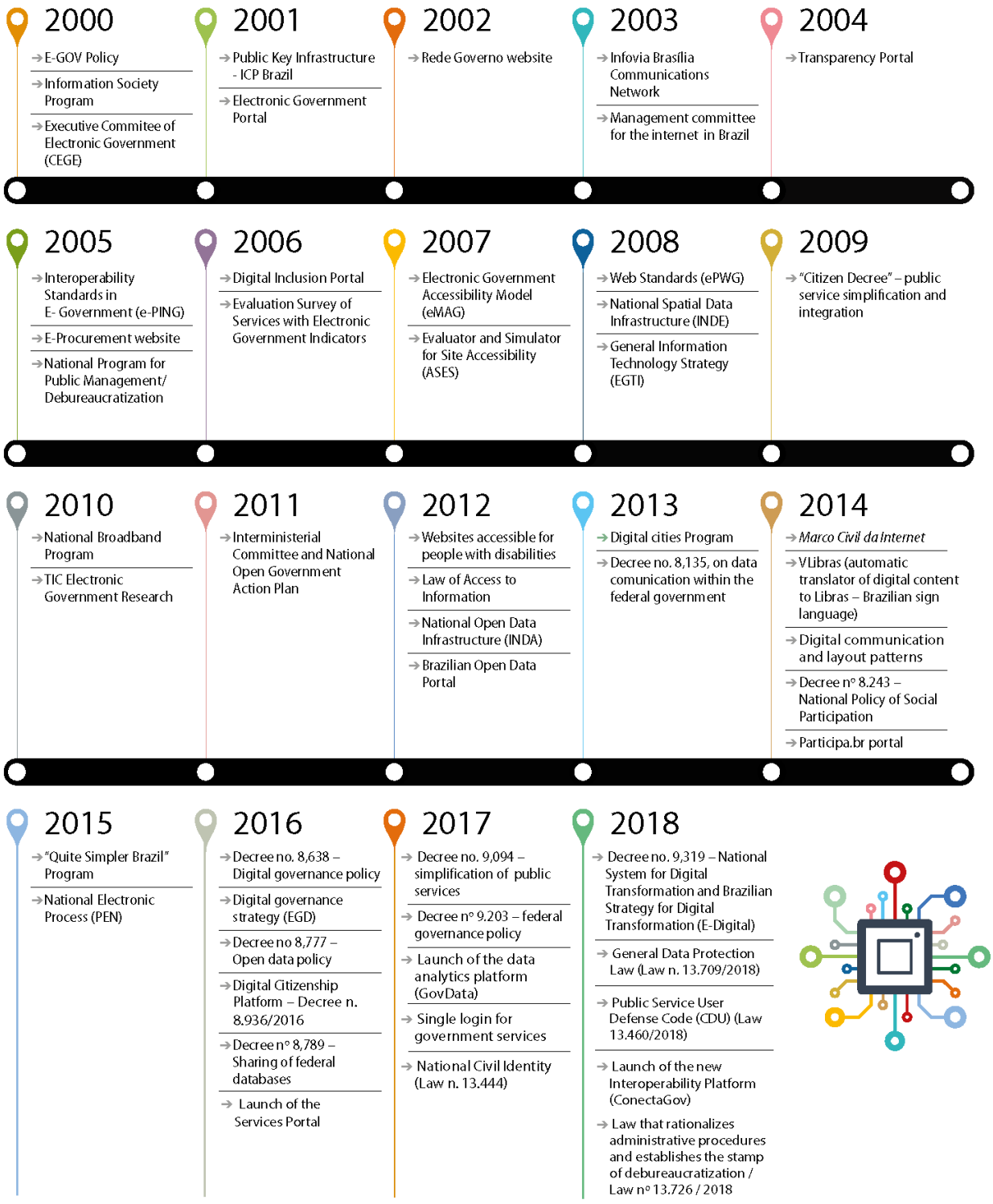
In 2004, new guidelines were defined to realign the E-government Policy with priorities such as the promotion of public participation and engagement of citizens through ICT, digital inclusion, open source software, knowledge management and integrated governance. In 2005, the Interoperability Standards of E-government (Padrões de Interoperabilidade de Governo Eletrônico, e-PING) were approved, reflecting the Brazilian government's commitment to improving the connectivity between the information systems of the different sectors of government (Secretário de Logística e Tecnologia da Informacão, 2005[9]).

In 2008, the government of Brazil approved the first version of the General Strategy for ICT (Estratégia Geral de TIC), focused on setting goals for the improved management of public ICT resources in 2009. From 2010 to 2015, the General Strategy was consecutively updated, setting new goals for periods of one, two or three years around topics such as ICT management, better human resources, improved ICT procurement, adoption of standards, promotion of information security, better governance of ICT in the public sector and the alignment of the IT development plan of each public sector organisation (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[10]).

The consecutive versions of the General Strategy for ICT led the way to several exemplary projects. For instance, in 2008 the public sector prioritised digital service delivery with the approval of the Web Standards on E-government (e-PWG), including clear recommendations on usability, online communication and the information architecture of public websites. In 2012, the Brazilian Open Data Portal was launched, reflecting the government's efforts to promote the access to, and reuse of, public sector data for the purposes of transparency and economic value creation. In 2013, the launch of the Digital Cities Programme underlined the country's efforts to promote digital government, a digital society and a digital economy at regional and local levels. In 2014, with the Participa.br portal, a website dedicated to online public consultations, the federal government demonstrated its commitment to mobilising digital technologies for improved public sector collaboration with citizens.

The Brazilian programmes on e-government and digital government (see Figure 2.3) reflect the country's path, its main priorities and goals in different periods, and most of all, it shows Brazil's progressive policy consolidation and growing maturity in addressing key issues associated with the digitalisation of the public sector. Figure 2.4 illustrates the main strategies currently underway that frame the policy action for the development of digital government in Brazil.

Figure 2.3. Brazil's evolution towards e-government and digital government



Source: Adapted from Ministério do Planejamento, Desenvolvimento e Gestão (2018[11]), "Estratégia de Governança Digital (EGD) — Versão Revisitada", https://www.governodigital.gov.br/EGD.

Figure 2.4. The programmatic context for digital government in Brazil

Source: Author.

Brazil's Digital Governance Strategy (2016-19)

Brazil's current Digital Governance Strategy (Estratégia de Governança Digital, EGD) was approved in 2016 (Portaria no. 68, of 7 March, following Decree no. 8,638, of 15 January) and is the result of a wide consultation and engagement process across the public sector. Covering the timeframe 2016-19, the goal of the strategy is to be more than an ICT strategy for the public sector. In line with the OECD Recommendation on Digital Government Strategies (OECD, 2014[2]):

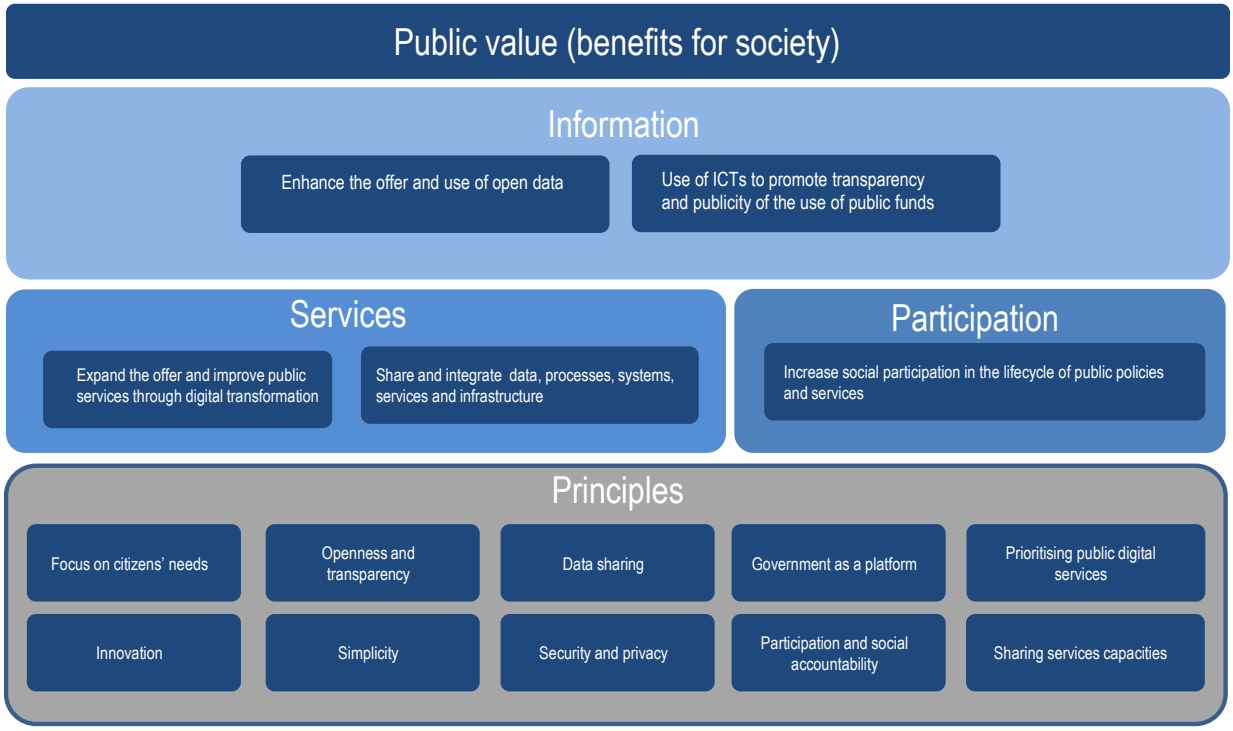
> *"The purpose of EGD is to guide and integrate transformation initiatives of agencies and entities of the Federal Executive Branch, contributing to increasing the effectiveness of benefits generation for Brazilian society through the expansion of access to government information, improvement of digital public services and increased social participation." (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[11])*

A first version was in place for two years to steer policy actions on digital government (Ministério do Planejamento, Orçamento e Gestão, 2016[12]). A revised version of the Digital Governance Strategy was presented in May 2018; its main objective is to simplify the strategy and reinforce the focus on the digital transformation of the public sector throughout 2019. The new version considers:

- the principles, directives, guidelines and governance structures defined in Decree no. 9,203 of 22 November 2017 that provides general rules for governance in the public federal administration (Casa Civil, 2018[13])
- the establishment of the Efficient Brazil Programme in March 2017
- the launch of the Brazilian Digital Transformation Strategy, publicly presented in March 2018
- the key findings of the OECD *Digital Government Review of Brazil* shared in advance with the Brazilian government and publicly presented in May 2018 (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[11]).

Grouped around three main pillars (access to information, service delivery and social participation), the revised Digital Governance Strategy defines five strategic objectives, namely: 1) promoting open government data availability; 2) promoting transparency through the use of ICT; 3) expanding and innovating the delivery of digital services; 4) sharing and integrating data, processes, systems, services and infrastructure; and 5) improving social participation in the lifecycle of public policies and services. The strategy assumes nine cross-cutting principles that guide the implementation of each strategic objective. Government as a platform, focus on citizen needs, simplicity and innovation are examples of these principles (see Figure 2.5).

Figure 2.5. Brazil's revised Digital Governance Strategy (2018)



Source: Ministério do Planejamento, Desenvolvimento e Gestão (2018[11]), "Estratégia de Governança Digital (EGD) — Versão Revisitada", https://www.governodigital.gov.br/EGD.

Each one of the three axes of the Digital Governance Strategy is more specifically connected with a government stakeholder and has a dominant digital platform:

- The axis **Access to Information** has the General Comptroller of the Union (Controladoria Geral da União) as its main stakeholder. The federal open data portal (dados.gov.br) and the federal transparency portal (transparencia.gov.br) are the main platforms identified in this axis.
- The axis **Delivery of Services** falls under the responsibility of the Ministry of Planning, Development and Management and is supported by the Digital Citizenship Platform (Plataforma de Cidadania Digital, PCD), including the services portal (https://www.servicos.gov.br) and the Kit for the Transformation Public Services.
- The axis **Social Participation** has the Government Secretariat of the Presidency of the Republic as its main public stakeholder and the federal public participation and consultation portal (participa.br) as its central digital platform.

In order to facilitate the impact assessment and the transparency of the implementation of the Digital Governance Strategy, the five strategic objectives are attached to concrete goals to be achieved between 2016 and 2019, monitored and measured through specific indicators evaluated on a yearly basis. The level of detail dedicated to the monitoring mechanisms of the strategy shows the Brazilian government's commitment to transparency and shared accountability by providing support for horizontality and cross-cutting implementation. This joint and shared commitment is critical to the long-term sustainability of the digital government strategy and its results.

The Brazilian Digital Transformation Strategy

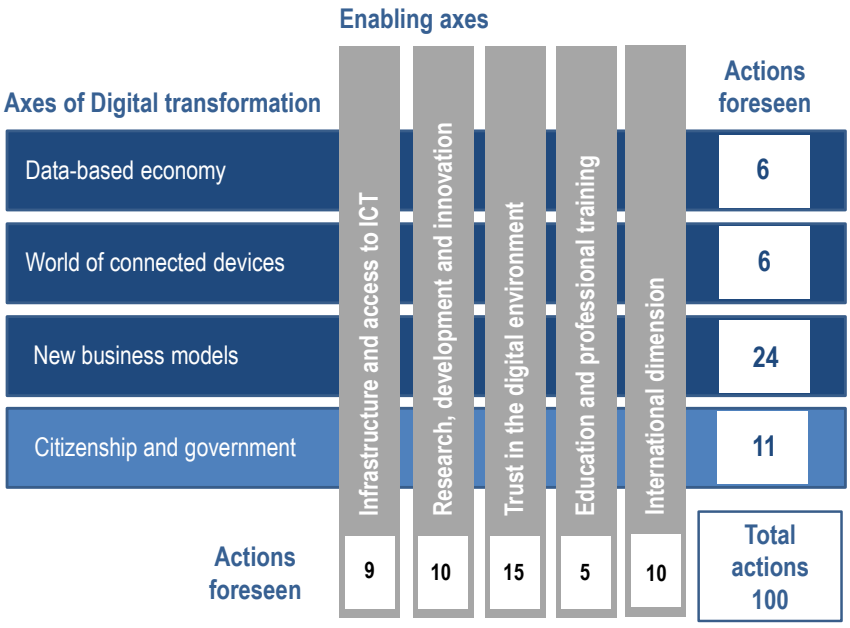
The Brazilian Digital Transformation Strategy (Estratégia Brasileira para a Transformação Digital, "E-Digital") is another relevant policy instrument that demonstrates the willingness of the federal government to benefit from digital change in order to promote economic and social development in the country (Grupo de Trabalho Interministerial, 2017[14]). Led by the Ministry of Science, Technology, Communications and Innovations and officially presented in March 2018, the strategy results from the work of several inter-ministerial working groups and sub-groups dedicated to specific topics and focused on sharing knowledge and the development of synergies among public initiatives targeting digitalisation. Representatives of the private sector and civil society were also consulted through a digital public consultation process conducted during August 2017.

The strategy defines the following axes of intervention: infrastructure and access to ICT; research, development and innovation; trust in the digital environment; education and professional training; international dimension; data-based economy; world of connected devices; citizenship and government (see Figure 2.6).

The axis "citizenship and government" results from a joint effort between the Ministry of Planning, Development and Management and the Ministry of Science, Technology, Communications and Innovations, synthesising the main initiatives of the Digital Governance Strategy.

An important result of the E-Digital strategy was the creation of the National System for Digital Transformation and the Interministerial Committee of Digital Transformation (CITDigital) by Decree no. 9,319 of 21 March 2018. The decree establishes the E-Digital as a guide for the co-ordination of digital policies inside the federal government, and the CITDigital as the branch of the Casa Civil responsible for supervising the implementation of these policies. Initiatives such as the Digital Governance Strategy are debated and shared with the CITDigital (see the next section).

Figure 2.6. Main axes of the Brazilian Digital Transformation Strategy



Source: Ministério da Ciência, Tecnologia, Inovações e Comunicações (2018[15]), "Estratégia Brasileira para a Transformacão Digital", http://www.mctic.gov.br/mctic/export/sites/institucional/estrategiadigital.pdf.

Other relevant strategies for the transformation of government

The **Efficient Brazil** programme (Brasil Eficiente) promotes administrative simplification, modernising management and improving the delivery of services to businesses, citizens and civil society. Created in 2017 and co-ordinated by the National Debureaucratization Council, the Efficient Brazil programme aggregates measures of all federal public service agencies, including ministries and the presidency.

The federal government established relevant priorities within the framework of the Efficient Brazil programme in areas related to digital government, such as the integration and connection of public registers with the purpose of reducing fraud, and providing more efficient and convenient public services to citizens and businesses. For instance, Decree no. 9,094 of 17 July 2017 states that public entities from the federal government should not request documents or information from citizens that are already in federal public administration databases (the "once-only" principle). With this in mind, the Simplify initiative (Simplifique!) was implemented, which entails citizens filling out an online form to request a service simplification (Casa Civil, 2017[16]).

Some of Efficient Brazil's measures are linked to the Digital Governance Strategy. One of the responsibilities of the Debureaucratization Council is to recommend to the Ministry of Planning, Development and Management the "adoption of priorities and targets in the updating and elaboration of future versions of the Digital Governance Strategy" (Casa Civil, 2017[17]). This demonstrates the Brazilian federal government's commitment to ensuring proper co-ordination between the digital governance strategic objectives and Efficient Brazil, which reflects the awareness of the need to link and create synergies between administrative simplification and digital government.

The **Brazilian Action Plan for Open Government** can also be considered a strategic institutional instrument, conceived to promote the use of digital technologies to improve communication and develop collaborative approaches between the government and civil society. Based on the co-ordination of the Interministerial Committee for Open Government since 2011, Brazil is currently elaborating the fourth edition of its Open Government Action Plan, developing it in a collaborative way through workshops (*oficinas de cocriação*) involving public officers and civil society representatives (Controladoria-Geral da União, 2018[18]).

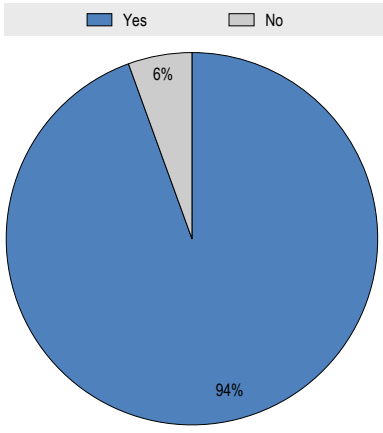
Furthermore, the **Cyber-defence Strategy**, published in 2015, provides guidelines for the strategic planning of information and communications security, and cybersecurity. These guidelines apply to agencies and entities at the federal level. Brazil also has an **Information Security Policy** (Política de Segurança da Informação) that regulates and establishes institutional mechanisms to guarantee the security of data and information managed by the federal public administration (Casa Civil, 2000[19]). The Department of Communications and Information Security of the Institutional Security Cabinet of the Presidency of the Republic is the federal institution responsible for the Information Security Policy.

Perceptions of the digital government policy framework across government institutions

Beyond the existence and configuration of a national/federal digital government strategy, the perceptions of government institutions are critical to understanding if and how the strategy is being used as a policy lever to effectively guide its implementation across the administration. A strategy can only be considered relevant if the ecosystem of stakeholders acknowledges its existence, importance and shares ownership and responsibility for its implementation.

In line with the perceptions recorded during the OECD peer review mission to Brasilia in July 2017, 94% of the Brazilian public sector organisations that answered the Digital Government Survey of Brazil recognised the existence of the Digital Governance Strategy (see Figure 2.7). This high percentage of recognition reflects the good work of the Brazilian government in communicating about the strategy and keeping the stakeholders involved in its implementation.

Figure 2.7. Recognition of the existence of a digital government strategy among Brazilian public sector organisations



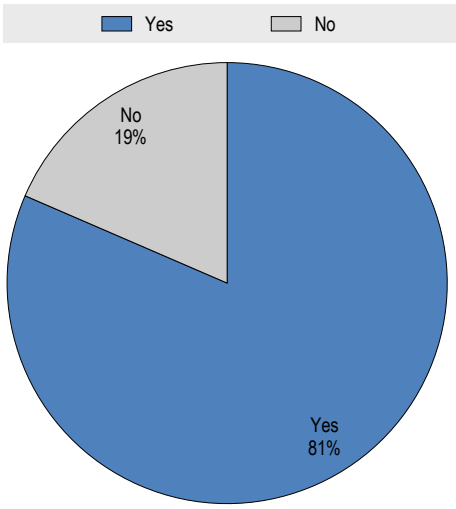
Note: The figure shows the percentage of participating public sector organisations that responded yes or no to the question, "Do you know if there is a national/federal digital government strategy in place developed and implemented by the federal government?"
Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

Furthermore, 81% of the public sector organisations that answered the survey confirmed that the strategy was developed as a result of a co-ordinated process across sectors of government (see Figure 2.8). The original version of the strategy (2016-17) benefited from preparatory meetings involving public sector officials, a seminar with the participation of more than 250 people and three thematic workshops that allowed for the integration of more than 1 000 suggestions (Ministério do Planejamento, Orçamento e Gestão, 2016[12]). The updated version of the strategy followed the same pattern of collaborative development.

The capacity to involve stakeholders in the development of a digital government strategy is critical to ensuring its recognition among the ecosystem of stakeholders, as well as its strong alignment with the various expectations and different needs existing within the public administration. This engagement culture is also fundamental to strengthening perceptions about the importance of the strategy for the activities of public sector organisations.

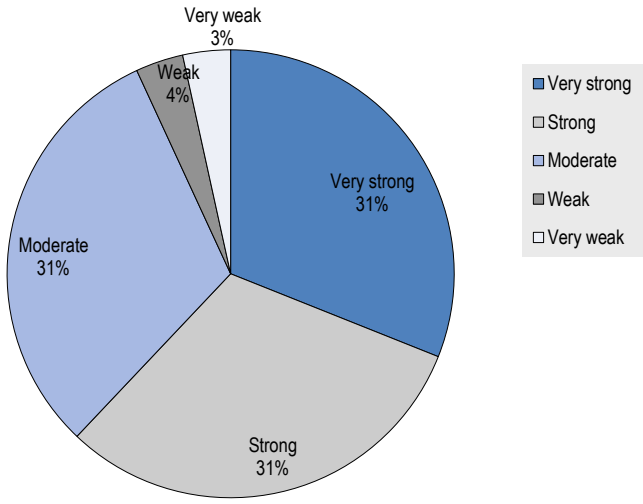
According to the results from the Digital Government Survey of Brazil (OECD, 2018[20]), 62% of public sector organisations consider the relevance of the Digital Governance Strategy (EGD) as "very strong" or "strong", 31% consider it "moderate" and 7% indicated that it is "weak or "very weak" (see Figure 2.9). These positive results underscore the fact that the EGD is considered a relevant policy instrument, and demonstrates its influence across different sectors of government, a crucial requirement for the development of a co-ordinated digital government.

Figure 2.8. Co-ordinated development of the digital government strategy/policy with Brazilian public sector organisations



Note: The figure shows the percentage of participating public sector organisations that responded yes or no to the question, "Was the current federal strategy/policy developed as a co-ordinated process between public sector institutions, e.g. ministries?"
Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

Figure 2.9. Relevance of the digital government strategy for Brazilian public sector organisations

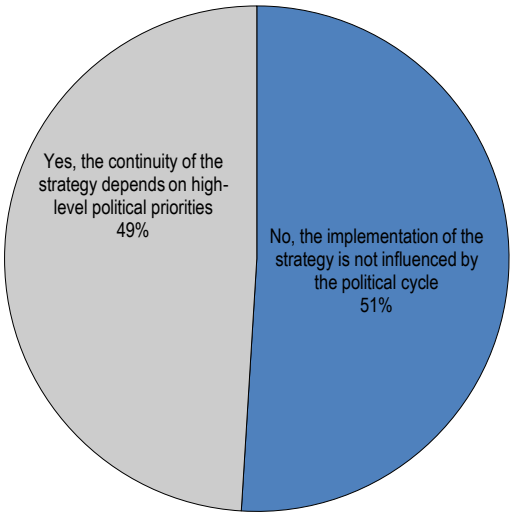


Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

The influence of political cycles on the development of a digital government strategy is also considered a relevant dimension of analysis as most senior officials in OECD countries generally recognise the negative impacts of changes in government for the continuity of projects and initiatives. Political elections often result in a sudden change of political priorities, which may negatively affect efforts underway and can even lead to the abrupt abandonment of projects. Nevertheless, on the positive side, changes in government can also determine the acceptance and creation of updated priorities and policy topics, necessary to complement the work developed by previous administrations.

The stakeholders that answered the Digital Government Survey of Brazil were highly divided regarding the influence of political cycles on the Digital Governance Strategy (see Figure 2.10). This reflects a hybrid context, where changes in the administration affect the efforts underway in some sectors of the government, but in others do not seem to have negative impacts on the projects and initiatives underway. This can also be explained by the fact that, although some alignment can be observed between the launch/update of the digital government strategy and some changes in the administration, there is also considerable government effort to ensure some continuity in the policy goals.[1]

Figure 2.10. The influence of policy cycles on the digital government strategy according to Brazilian public sector organisations



Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

Streamlining policy guidance

Digital government has considerable policy relevance in Brazil, demonstrated not only by the specific strategy in place dedicated to this policy area – the Digital Governance Strategy (EGD) – but observable also by the fact that several other policy instruments highlight and refer to digital government goals, initiatives and projects (e.g. the Strategy for the Digital Transformation, Efficient Brazil). The fact that these policy instruments are well disseminated and recognised by stakeholders reflects the communication and collaboration efforts in place across different sectors of government.

Nevertheless, during the OECD peer review mission in Brasilia on July 2018, several stakeholders showed some difficulty in accurately identifying the central digital government policy strategy in place. Some pointed to the EGD, but others referred to the Strategy for the Digital Transformation or the Efficient Brazil programme.

Given this, the Brazilian government should consider improving efforts to better communicate the different scopes of the three strategies/programmes underway, the role each plays, and how they connect and co-ordinate with each other. The clarification of the scope of each of the strategies can help support improved alignment for the ecosystem of stakeholders, which will be required for sound and sustainable policy implementation.

Leadership and institutional set-ups

Governance for the digital transformation of the public sector

A clear definition of roles and responsibilities is a critical institutional requirement for sound, digital government governance. The OECD (2014[2]) Recommendation on Digital Government Strategies underscores the importance of "identifying clear responsibilities to ensure overall co-ordination of the implementation of the digital government strategy." A clear governance framework has strategical value to steer actions to ensure synergies,

guarantee coherence and avoid overlaps on government efforts to digitally transform the public sector.

Considering its cross-cutting nature and the horizontal involvement required for successful implementation, a government's priorities to digitally transform its public sector require the existence of an institution with a clear mandate to lead and co-ordinate policy design, implementation, delivery and monitoring across different sectors and levels of government. This institution, which should rely on necessary political support thanks to its organisational set-up, is required to ensure leadership, promote co-operation and enable a shift from an agency-driven mindset centred on government priorities and ways of working to a systems-thinking culture able to develop citizen-driven approaches.

Institutional leadership of digital government

The **Secretariat of Information and Communication Technologies** (Secretaria de Tecnologia da Informação e Comunicação, SETIC) of the Ministry of Planning, Development and Management leads the co-ordination efforts to develop digital government in Brazil. Its main responsibility is to define "public policies related to the use, management and governance of technology in the federal public administration."[2] (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[21]).

In line with the above, SETIC is the public body of the Brazilian federal administration responsible for leading the Digital Governance Strategy:[3]

> *"The Secretariat of Information Technology of the Ministry of Planning, Budget and Management is responsible for coordinating the formulation, monitoring, evaluation and review of the Digital Governance Strategy, with the participation of the other units that act as the central body of the structural systems of the Federal Executive Branch." (Ministério do Planejamento, Orçamento e Gestão, 2016[22])*

In addition to the Digital Governance Strategy, SETIC is responsible for several projects and initiatives in place that structure the Brazilian digital government policy framework, namely the:

1. **Digital Citizenship Platform** (Plataforma de Cidadania Digital), committed to promoting the Portal of Services of the Federal Government (servicos.gov.br) as the main and integrated channel for public digital service delivery.
2. **Platform of Data Analysis of the Federal Government** (GovData) (Plataforma de Análise de Dados do Governo Federal) that allows access to different databases within the public sector for data analytics and data-driven policy making and analysis.
3. **Platform Conecta.GOV**, which provides a catalogue of the federal government application programming interfaces (APIs) in order to promote data sharing, integration and interoperability for improved government processes and services (see Chapter 4).
4. **System of Administration of Information Technologies Resources** (SISP), the structure within the federal government responsible for the planning, co-ordination, management and control of ICT resources across sectors and levels of government (see the section above).

Brazil's federal government model comprises a federal district, 26 states, and 5,570 municipalities. Local governments benefit from large, political, administrative and

financial autonomy, therefore leading to multi-level governance challenges in terms of cross-level co-ordination of digital government policies. Yet, SETIC's policy definition and co-ordination role were clearly acknowledged by all stakeholders met during the OECD peer review mission to Brasilia. The importance attributed to the digital transformation of the public sector and the willingness found across the ecosystem of stakeholders to support public sector change through digital technologies are important pillars that can sustain effective and action-oriented digital government policies going forward.

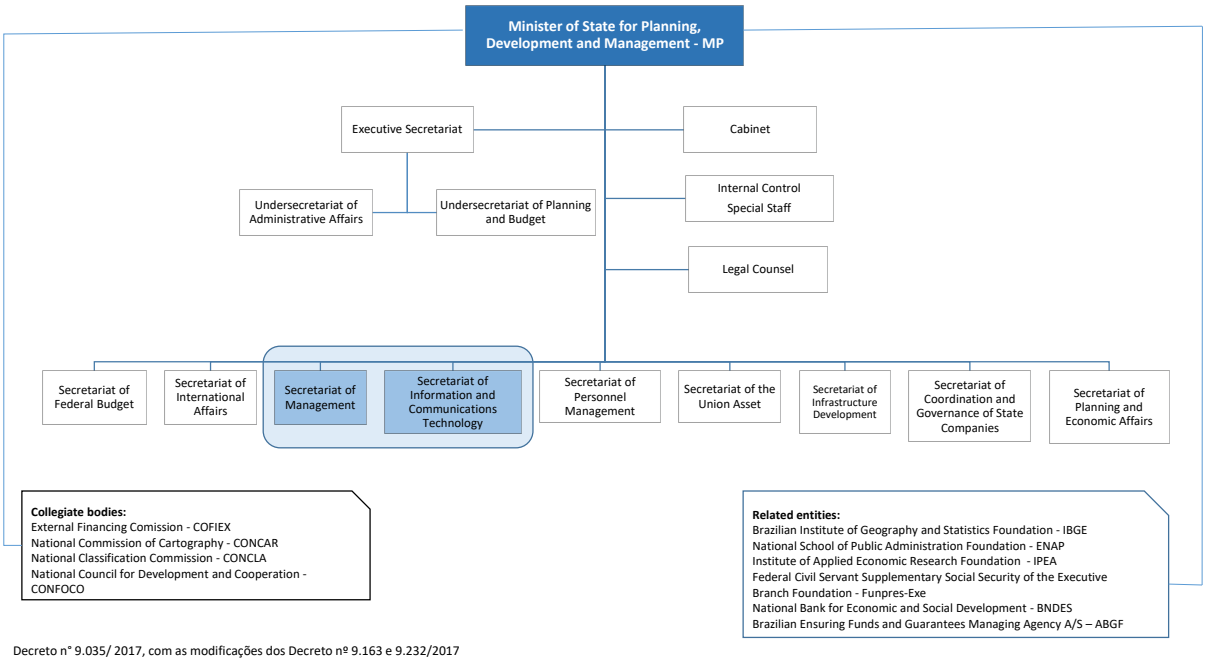
The **Secretariat of Management** (Secretaria de Gestão, SEGES)**,** a body within the Ministry of Planning, Development and Management (see Figure 2.11), also has significant relevance in the federal steering of the digital government policy in Brazil. SEGES is the unit that:

> *"…proposes, coordinates and supports the implementation of strategic plans, programs, projects and actions for innovation, modernization and improvement of public management, promotes knowledge management and cooperation in public management, coordinates, manages and provides technical support to special projects of modernization of the public management related to themes and strategic areas of government." (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[23])*

Although SEGES has a mandate significantly different from that of SETIC, it has significant responsibilities in the development of digital services. Through its Department of Modernization of Public Management, SEGES pursues the simplification and full digitisation of public services. These efforts are implemented in co-ordination with SETIC, demonstrating the joint complementarity of these two secretariats of the Ministry of Planning, Development and Management.

In addition to the two above-mentioned bodies within the Ministry of Planning, Development and Management, the **Civil House of the President of the Republic of Brazil** also has a central role in sponsoring the development of digital government in the federal government, at a political level. The Sub-branch of Analysis and Monitoring of Government Policies (Subchefia de Análise e Acompanhamento de Política Governamentais, SAG) is responsible for supervising strategic federal government cross-sectoral policies in the areas of public management. The Sub-branch of Articulation and Monitoring (Subchefia de Articulação e Monitoramento) is responsible for overseeing and co-ordinating government activities, namely providing high-level sponsorship for the country's digital transformation. To this end, there is strong co-ordination with the Ministry of Planning, Development and Management in order to support the implementation of digital government policies across the sectors of government.

Figure 2.11. Organigram of the Brazilian Ministry of Planning, Development and Management

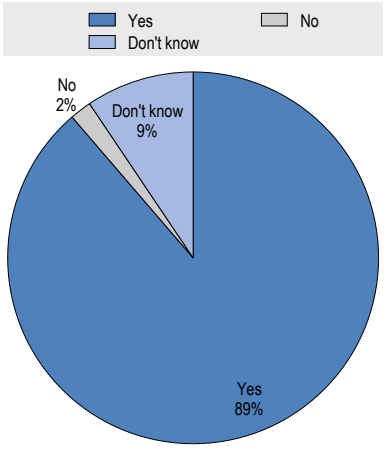


Source: Ministério do Planejamento, Desenvolvimento e Gestão (2018[24]), "Estrutura Organizacional — Ministério do Planejamento, Desenvolvimento e Gestão", http://www.planejamento.gov.br/acesso-a-informacao/institucional/estrutura-organizacional.

Perceptions regarding the co-ordinating body responsible for Brazil's digital government policy

Public stakeholders' perceptions regarding the co-ordination of digital government are critical to understanding the context and institutional environment for the digital transformation of the public sector. Of the Brazilian public institutions that participated in the Digital Government Survey of Brazil, 89% responded positively when asked if there were a public sector organisation responsible for the co-ordination of the Digital Governance Strategy (EGD) and for leading the country's digital government policy (see Figure 2.12). Respondents identified the Ministry of Planning, Development and Management, or more specifically the Secretariat of Information and Communication Technologies (SETIC), as the public sector organisation responsible for the digital government policy.

Figure 2.12. Recognition of the existence of a co-ordinating body responsible for Brazil's digital government policy

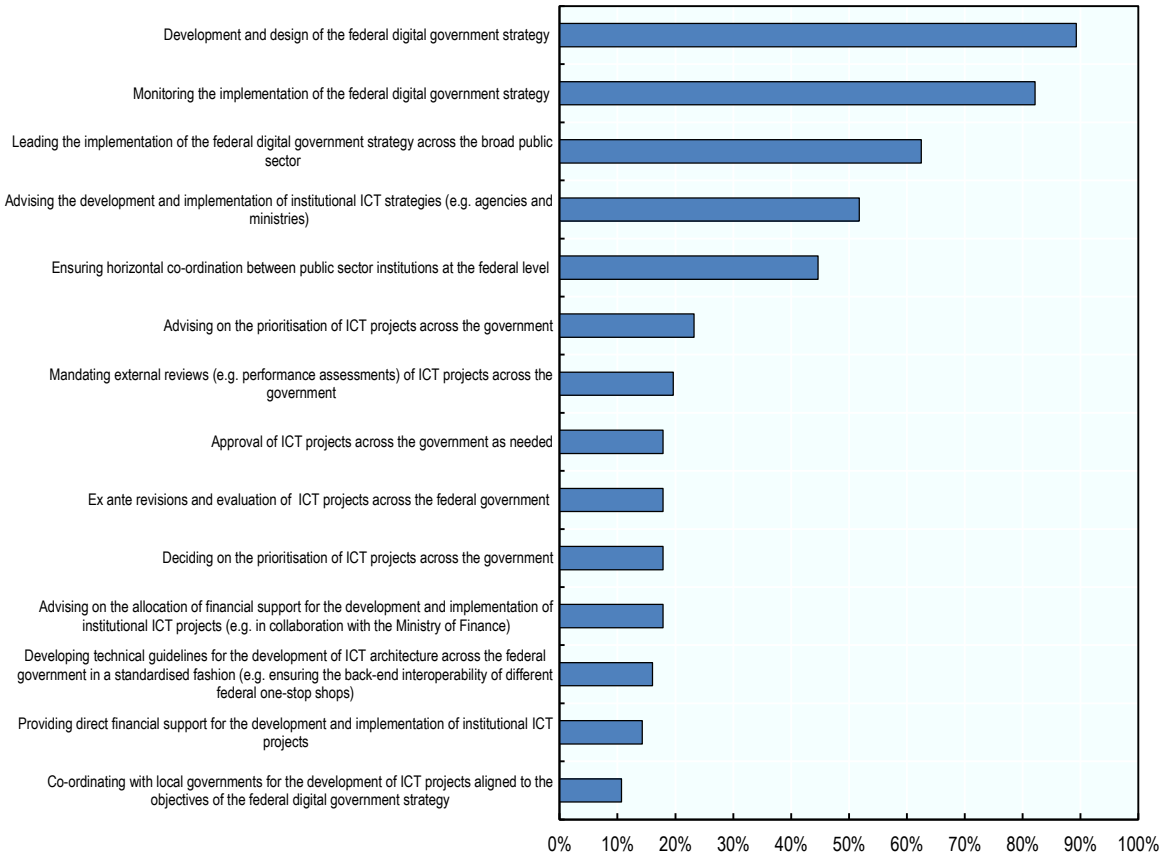


Note: The figure shows the percentage of participating public sector organisations that responded yes or no to the question, "Is there a leading public sector institution at the federal government level responsible for designing and setting the federal digital strategy and leading and co-ordinating the decisions on the strategic use of IT in the federal government?"
Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

When inquired about the main responsibilities of the public sector organisation responsible for the digital government policy, the development (89%) and monitoring (82%) of the digital government strategy were the main functions attributed to SETIC and to the Ministry of Planning, Development and Management (see Figure 2.13). A not so large, but significant, percentage of the participating public institutions also attributed the responsibility of leading the implementation of the strategy (62%), advising the implementation of the institutions' level strategies (52%) and ensuring the horizontal co-ordination between public sector institutions at federal level (45%). The remaining possible responsibilities presented in the survey that would require a stronger political and institutional mandate – mandating external reviews, evaluation of ICT projects or advice on the allocation of financial support for the development of ICT projects – were very remotely attributed to the SETIC. Even the responsibility for the development of technical guidelines for the development of a common ICT architecture in the public sector was only recognised by a minority of institutions as a responsibility attributed to SETIC and the Ministry of Planning, Development and Management.

The public organisations that participated in the Digital Government Survey of Brazil clearly attribute the role of developing, leading and monitoring the implementation of the Digital Government Strategy to the co-ordinating body. Nevertheless, there is a clear understanding that SETIC and the Ministry of Planning, Development and Management do not have enforcement policy tools that can drive a strong and streamlined co-ordination of digital government development in Brazil. In fact, this perception is aligned with SETIC's own perspective regarding the limitations of its mandate and how it determines some lack of institutional co-ordination in the development of digital government in Brazil (OECD, 2018[25]).

Figure 2.13. Main responsibilities attributed to the co-ordinating body responsible for Brazil's digital government policy



Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

Improving governance for better co-ordination and more effective implementation

The institutional set-up for the governance of digital government in Brazil has significant potential. SETIC's responsibilities for defining the policies to use digital technologies in the federal public administration are complemented by an interesting cross-cutting mandate assigned to SEGES for modernising the public sector. SEGES' mandate has the fundamental political support of the Civil House (Casa Civil) of the Presidency of the Republic. The number of strategic cross-cutting projects, initiatives and lines of action promoted by the two secretariats of the Ministry of Planning, Development and Management, with the important support of the Casa Civil, also demonstrates the Brazilian government's current willingness to drive the digital transformation of the public sector.

Nevertheless, there are some central challenges for better governance that should be considered. The existence of different public sector organisations with leading or co-ordinating responsibilities can cloud a clear leadership for the implementation of common and cross-cutting policy goals. The launch of the updated version of the Digital Governance Strategy and the renewed leadership role attributed to SETIC can further contribute to streamlining governance.

Yet, one of the biggest challenges for improved governance of digital government in Brazil is the lack of institutional resources and capacities attributed to SETIC. In this sense, policy levers such as the responsibility to pre-evaluate ICT expenses, lead the ICT procurement strategy, fund or manage the funding of digital government projects across the administration, could have a determinant effect on SETIC's capacity to effectively lead and co-ordinate the federal digital government policy (see Chapter 3 and Box 2.1).

Box 2.1. Examples of digital government leadership in OECD countries

Norway

The co-ordination of digital government policies and public sector reform in Norway is a responsibility of the Ministry of Local Government and Modernisation (KMD), namely the Department of ICT Policy and Public Sector Reform. The KMD exerts its digital government co-ordination role namely through a digitalisation memorandum that provides a set of strategic actions to be implemented by ministries during a 12-month period in line with the objectives of the national digital government policy.

Responding to KMD, the Agency for Public Management and eGovernment (Difi) is the Norwegian public sector agency responsible for the executive management and implementation of the digital government policies. Created in 2008 and with more than 250 staff members, the agency has the following areas of focus:

1. management development, organisation, management, innovation and skills development
2. digitisation of public services and work processes
3. development and management of common solutions
4. public procurement
5. preventive ICT security
6. universal design of ICT solutions.

The development of common guidelines and assuring the horizontal co-ordination are among the main responsibilities attributed to Difi.

United Kingdom

The Government Digital Service (GDS) was founded in December 2011. It is part of Cabinet Office, the United Kingdom's centre of government, and works across the whole of the UK government to help departments meet user needs and transform end-to-end services.

GDS' responsibilities are to:

1. provide best practice guidance and advice for consistent, coherent, high-quality services
2. set and enforce standards for digital services
3. build and support common platforms, services, components and tools

4. help government choose the right technology, favouring shorter, more flexible relationships with a wider variety of suppliers
5. lead the digital, data and technology function for government
6. support increased use of emerging technologies by the public sector.

GDS builds and maintains several cross-government platforms and tools, including GOV.UK, GOV.UK Verify, GOV.UK Pay, GOV.UK Notify, and the Digital Marketplace. It also administers a number of standards, including the Digital Service Standard, the Technology Code of Practice and Cabinet Office spend controls for digital and technology.

In 2013, less than two years after its launch, GDS had over 200 staff. Today GDS has more than 500 staff.

Source: OECD (2017[26]), *Digital Government Review of Norway: Boosting the Digital Transformation of the Public Sector*, OECD Digital Government Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264279742-en; Government Digital Service (2018[27]), "About us", Gov.uk, https://www.gov.uk/government/organisations/government-digital-service/about.

Brazil could also benefit from the institutionalisation of a role with a mandate to lead the digital transformation of the public sector (e.g. a government Chief Digital Transformation Officer [CDTO]) that should be able to count on the right political support. The institutionalisation of the new role should be considered as part of a broader institutional effort to provide clear and sound leadership for the digitalisation of the public sector. For instance, a real change in this policy area will depend on the capacity of this role to conciliate a high-level supported mandate with the ability to involve the ecosystem of digital government stakeholders. This new institutional role should have the capacity to mobilise and build consensus, namely among the chief information officers (CIOs) of all ministries. These consensuses, aligned with the proper policy levers (see Chapter 3) and key enablers (see Chapter 4), could bring significant positive changes to the dynamics of digital government development in Brazil.

Developing co-ordination and a culture of co-operation

Institutional co-ordination is one of the critical challenges countries face to ensuring the coherent and sustainable development of digital government. The digital transformation of the public sector requires a shift from an agency-driven to a systems-thinking mindset, where synergies across sectors and levels of government, the private sector and civil society are understood as critical for efficient, inclusive and mature digital government policies. Policy co-ordination mechanisms are required to ensure regular exchange of data and information and consensus on policy priorities that can enable co-ownership and co-responsibility for the implementation of a digital government strategy (OECD, 2016[3]).

Policy co-ordination mechanisms also favour better monitoring capacities, allowing policy makers to more easily have an overview of projects and initiatives being implemented across the administration. The regular exchange of knowledge and data on policy implementation and the co-operative environment sustained by regular meetings among stakeholders can also promote improved accountability on policy action, allowing governments to put transparency mechanisms in place to improve citizen trust.

In Brazil, two important policy instruments contribute across the federal government to improved co-ordination among public stakeholders. The Digital Governance Strategy (EGD) results from a wide consultation and engagement process across the public sector and provides guidance for coherent, cross-cutting digitalisation efforts in the public sector. Formulated between 2017 and 2018, the Brazilian Strategy for Digital Transformation - E-Digital – gathered different public organisms and civil society stakeholders with the purpose of identifying current challenges and opportunities for digital transformation in the government and the economy at large.

The **System for the Administration of Information Technologies Resources** (Sistema de Administração dos Recursos de Tecnologia da Informação, SISP) is the main institutional co-ordination mechanism in place promoting the necessary alignment among the federal-level public sector organisations concerning digital government policies and practices. The SISP is co-ordinated by SETIC and brings together over 200 representatives of public bodies from the federal government. The system has a transversal convening role, but limited enforcing capacities. The SISP's objectives are to:

1. promote the "integration and co-ordination among government programs, projects and activities, envisaging the definition of policies, directives and norms for the management of information technologies resources"
2. encourage the "development, standardisation, integration, interoperability, normalisation of services of production and dissemination of information"
3. define the strategic policy for the management of ICT of the federal government (Casa Civil, 2011[28]).

The SISP also contributes to knowledge exchange, peer-to-peer learning and promoting innovation among its members. Through a virtual community, SISP members are invited to interact and share knowledge. SISP expert groups also bring together some of its members to discuss and agree common actions on: 1) strategic human resource management; 2) IT procurement; 3) information and communication security; and 4) electronic services and accessibility.

The **Economic and Social Development Council** (Conselho de Desenvolvimento Econômico e Social, known as Conselhão, CDES), created in 2003, is composed of civil society representatives that directly advise the President of the Republic. The Council should:

> *"… advise the President of the Republic on the formulation of specific policies and guidelines for economic and social development, produce normative indications, political proposals and procedural agreements that aim at economic and social development; and consider proposals for public policies and structural reforms and economic and social development submitted to by the President of the Republic, with a view to articulating government relations with representatives of organized civil society." (Casa Civil, 2017[29])*

CDES is one of the main governing bodies of the Federal Executive, whose diverse themes also include digital government and digitalisation, contextualised by a broad perspective of social development.

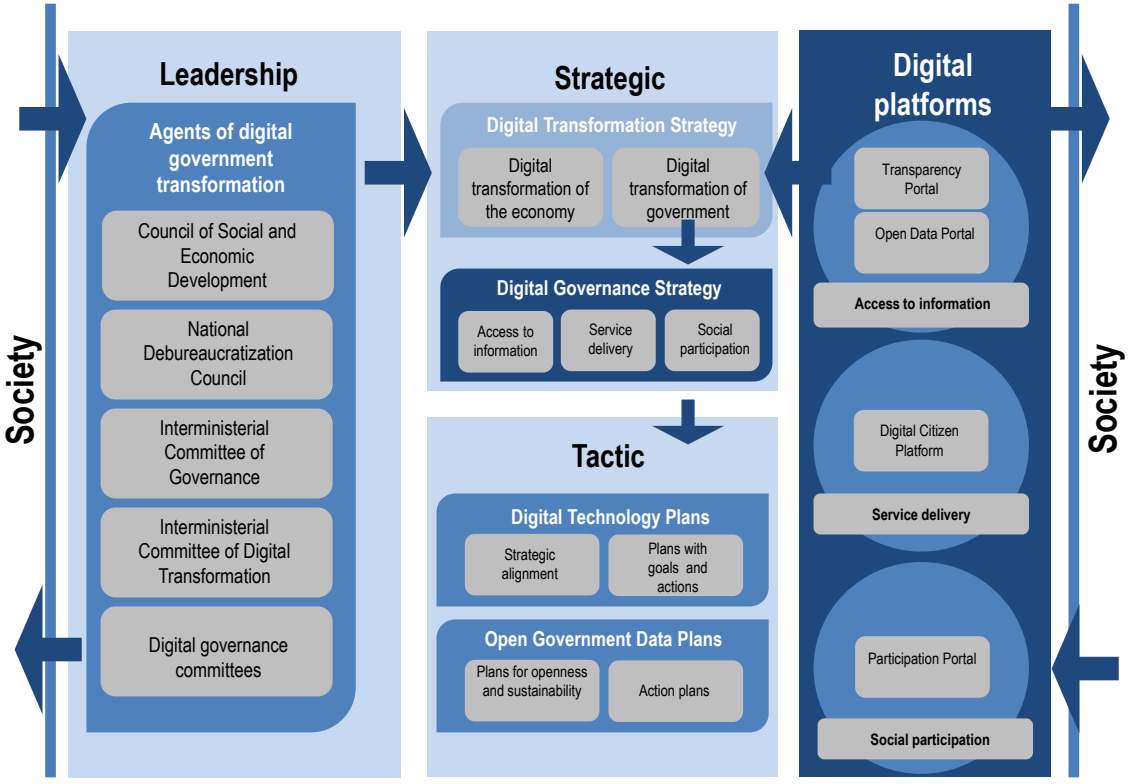
The **Interministerial Committee of Digital Transformation** (Comitê Interministerial para a Transformação Digital, CITDigital) was created in March 2018 and is co-ordinated by the Ministry of Science, Technology, Communications and Innovations (MCTIC) to oversee the implementation of the Strategy for the Digital Transformation. The CITDigital

leads the Brazilian digital transformation policy of the economy and society, where the public sector plays a fundamental role. The committee is chaired by the Civil House of the President of the Republic and brings together representatives from the Ministry of Finance; Ministry of Education; Ministry of Industry, Trade and Services; Ministry of Planning, Development and Management; and the Ministry of Science, Technology, Communications and Innovations (Casa Civil, 2018[30]).

Yet, the institutional governance of digital government in Brazil builds on several other bodies with roles relevant to the co-ordination of digital government. These include:

1. **National Debureaucratization Council** (Conselho Nacional para a Desburocratização), accompanying the work to modernise the public administration. As a result of a recommendation issued by the Economic and Social Development Council, the National Debureaucratization Council was created with the objective to advise the President of the Republic in the "… development of policies aimed at sustainable development, to promote administrative simplification, modernization of public management and improvement of the provision of public services to businesses, citizens and civil society" (Casa Civil, 2017[31]). The council holds trimestral meetings that bring together the Minister of the Civil House of the Presidency; the Minister of Finance; the Minister of Planning, Development and Management; the Minister of Science, Technology, Innovations and Communications; the Minister of Transparency and Control; and the Minister of the Government Secretariat. The Executive Committee of the Council joins senior representatives of the mentioned ministries and also includes representatives of civil society (Casa Civil, 2017[17]).
2. **Interministerial Committee of Governance** (Comitê Interministerial de Governança, CIG) advises the President of the Republic in driving the governance policy of the federal public administration according to principles of responsiveness, integrity, reliability, regulatory improvement, accountability and transparency. Created in 2017, the committee brings together the Minister of the Civil House of the Presidency of the Republic (who co-ordinates); the Minister of Finance; the Minister of Planning, Development and Management; the Minister of State for Transparency; and the Comptroller General of the Union. The committee is responsible for suggesting measures and practises, approving manuals and guidelines and issuing recommendations that contribute to the principles set by the policy of governance of the Brazilian public administration. (Casa Civil, 2018[13]).
3. **Digital governance committees** of the federal public administration bodies, established in 2016 bring together top senior officials from the management and digital technology branches of each institution to manage and monitor the Direction Plans for Information and Communication Technologies (Plano Diretor de Tecnologia da Informação e Comunicação) (Casa Civil, 2018[32]).

Figure 2.14. The general structure of digital governance in Brazil

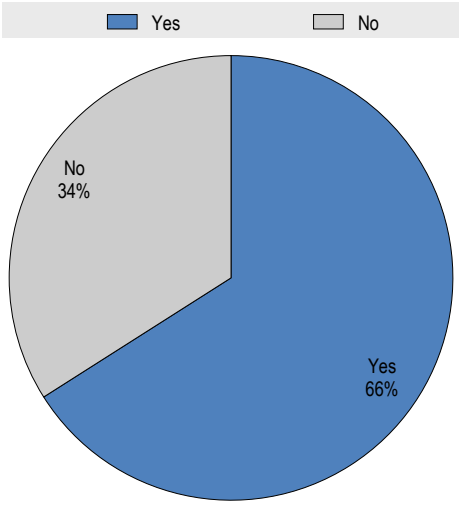


Source: Ministério do Planejamento, Desenvolvimento e Gestão (2018[11]), "Estratégia de Governança Digital (EGD) — Versão Revisitada", https://www.governodigital.gov.br/EGD.

As Figure 2.14 shows, Brazil benefits from a wide number of governance bodies that contribute to the management of the digital government policy. The leadership is spread among several committees or councils with complementary responsibilities, each with different goals and varied composition. Although this diversity of collegial bodies with an oversight role is not a problem in itself, it can contribute to a lack of clarity, gaps and overlaps. In fact, during the OECD peer review mission in Brasilia in July 2017, several public stakeholders had difficulty indicating the collective body responsible for overseeing the implementation of the digital government policy.

Additionally, lack of clarity regarding the governance structure can create a serious obstacle to building the necessary culture for co-operation and collaboration among sectors and levels of government, jeopardising the necessary co-ordination among public sector organisations and the co-ordinating body leading the digital government policy (see Figure 2.15).

Figure 2.15. Regular co-ordination with the co-ordinating body responsible for Brazil's digital government policy



Note: The figure shows the percentage of participating public sector organisations that responded yes or no to the question, "Does your institution regularly co-ordinate with the federal unit or agency responsible for leading and implementing the decisions on the use of IT in the federal government?"
Source: OECD (2018[20]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

Considering the context presented above, the Brazilian government could consider prioritising the reinforcement of the co-ordination processes among sectors and levels of government, namely evaluating the possibility of reinforcing the role and attributions of SISP. An update of its functions and its clear connection to the digital governance committees should be promoted. The government should also consider subdividing this body into a high-level mechanism able to bring together ministers or senior officials, hand in hand with an operational and technical co-ordination mechanism (see Box 2.2. for examples of other co-ordination mechanisms in OECD countries). These two complementary levels of co-ordination could represent a very positive contribution to the coherence and sustainability of Brazil's digital government efforts (OECD, 2016[3]).

Box 2.2. Examples of co-ordination mechanisms in OECD countries

Australia

In Australia, there is a strategic-level committee, the Digital Transformation Committee of Cabinet, which sits under the Cabinet and is chaired by the Prime Minister.

The Service Delivery Leaders is a steering committee comprised of senior public servants from major government departments. The Service Delivery Leaders is an early consultation point for Digital Transformation Office activities with a whole-of-government impact, including advice on strategy and co-ordinated service delivery activities across government. The Service Delivery Leaders may also create subordinate boards, working groups or other bodies to undertake specific work.

Spain

The ICT Strategy Commission (CETIC), an inter-ministerial body at the highest political level comprising senior officials from all ministries, defines the strategy that once approved goes to the Council of Ministries. The CETIC also defines the services to be shared and determines the priorities for the investments, reports on draft laws, regulations and other general standards with the purpose of regulating ICT matters for the general state administration. Furthermore, the CETIC promotes collaboration with the autonomous regions and local authorities for the implementation of integrated inter-administrative services.

The Committee of the Directorate for Information Technologies and Communication includes 25 chief information officers of the different ministries (13) and agencies (12), and the deputy directors for ICTs of all ministries and units. This committee leads the co-ordination of the implementation of ICT projects.

Source: OECD (2016[3]), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264258013-en.

Notes

1. For instance, the Digital Governance Strategy (EGD) was launched in the beginning of 2016, during the second mandate of President Dilma Rousseff. The Secretary of Information Technology in the Ministry of Planning, Budget and Management was Mr. Cristiano Heckert. The updated version of EGD was launched in May 2018, during the mandate of President Michel Temer. The current Secretary of Information Technology is Mr. Luís Felipe Salin Monteiro.

2. SETIC results from an integration process involving the former Information Technology Secretariat (STI) with the Information Technology Directorate (DTI) (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[21]).

3. Law no. 13,341 of 29 September 2016 transforms the Ministry of Planning, Budget and Management into the Ministry of Planning, Development and Management (Casa Civil, 2016[33]).

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Chapter 3. Strengthening institutional capabilities for the sound implementation of digital government policy in Brazil

This chapter takes a look at the institutional capacities required for the sound implementation of the Brazilian digital government policy, in line with Pillar 3 of the OECD Recommendation of the Council on Digital Government Strategies. It starts by focusing on the digital skills panorama in Brazil's federal public administration. It then assesses the institutional mechanisms in place to streamline information and communication technology (ICT) investments in the public sector, namely cost-benefit analysis, business cases and project management standards. The chapter closes with a section dedicated to the analysis and discussion of the ICT procurement context in Brazil, focusing on the institutional tools in place to reinforce the coherency of ICT spending in the country's federal government.

Introduction

As the digital transformation reaches more policy areas and government sectors, effective, coherent and sustainable implementation requires alignment among policy planning, design, development, implementation and monitoring. Governments are required to adapt their models of leadership, institutional set-ups and co-ordination (see Chapter 2) as well as their policy capacities to support the transformation across sectors and levels of the public administration (OECD, forthcoming[1]).

This chapter focuses on the analysis of the digital government context of Brazil in light of Pillar 3 of the OECD Recommendation on Digital Government Strategies, which invites governments to build and/or strengthen the institutional capacities required to seize the opportunities and tackle the challenges of a progressive digitalisation of the public sector (OECD, 2014[2]). A set of key recommendations calls on governments to ensure their capabilities to implement projects and initiatives through strategic building blocks and policy levers that can promote co-ordinated and coherent policy actions.

The chapter starts by examining and discussing the digital skills panorama in the Brazilian civil service. It then analyses the policy mechanisms and tools in place to streamline information and communication technology (ICT) investments in the public sector. The third section and final section of this chapter discusses the ICT procurement context in Brazil, and in particular, the existence of a strategy and guidelines that can reinforce the coherency of ICT spending in its public sector.

Building digital capacities and skills

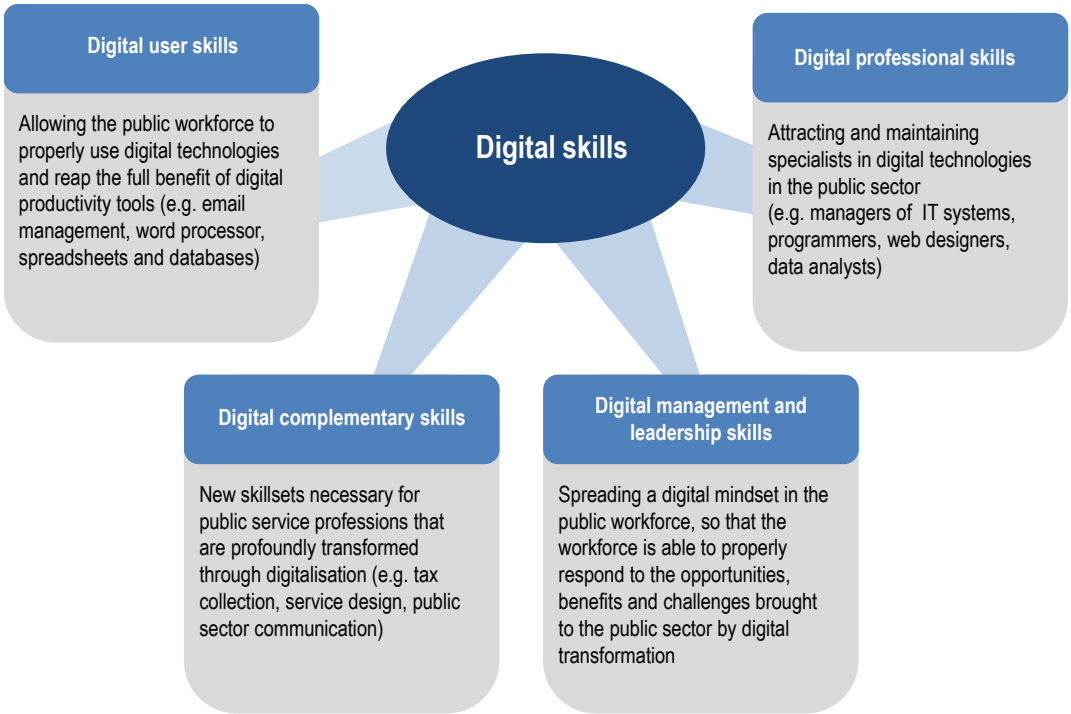
Transforming governments through skills

Increasing citizens' expectations on efficiency, openness and inclusiveness of the public sector and the services delivered demands new skills across all sectors and activities, which requires governments to strongly invest in civil service talent, capacities and competences for a sustainable digital transformation.

Nevertheless, the discussion on the skillsets required for a digital government to be fully functional remains open, and governments worldwide continue to be deeply involved in the debate around the actions they can take to be prepared for the digital transformation. What capabilities do public sectors require to shift from an e-government approach to a digital government imperative? What are the consequences for a strategic management of public employment? What role should civil servants play in a digitally transformed public sector and what will the civil service look like in the future (OECD, forthcoming[1])?

Assuming the digital disruption underway is an irreversible process, public servants will be required to obtain and maintain digital skills that can allow them to be part of a digital economy and a digital government.

Figure 3.1. Types of digital skills required by civil servants in the context of a digital transformation of the public sector



Source: Author, based on OECD (2017[3]), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris, https://doi.org/10.1787/9789264276284-en.

The types of skillsets presented in Figure 3.1 reflect the necessary change of paradigm when considering the competences and abilities that civil servants will need in the context of digital transformation. The majority of civil servants' profiles require more or less developed digital user skills, as being productive increasingly implies using specific information technology (IT) tools. On the other hand, in the context of the digital transformation of public sectors, the wide use of technology (including emerging technologies such as artificial intelligence [AI]) and data means the introduction of new specialised IT roles. Establishing new professions to bring in the right capabilities (or retraining existing staff) therefore becomes a requirement for governments to be able to count on a public sector workforce ready to adjust and leverage the opportunities brought about by rapid technological evolution (see the section on "ICT career paths and other instruments to attract and retain ICT professionals", below).

A third group of digital skills is increasingly considered essential. Digital complementary skills based on strong digital awareness and dexterity are now required in diverse professional roles. For example, core government functions such as communications, tax collection, project management, audit, and citizen engagement (to name just a few) are being fundamentally transformed to take advantage of new digital technologies, and each of these areas will require new skills and competencies to perform these functions effectively in a digital environment. This gets to the heart of a digital transformation culture, which recognises the broad impact of digital disruptive trends and positions the public sector to better seize its innovative potential and tackle its risks.

Establishing such a culture is an urgent challenge for organisational leadership, suggesting a fourth group of digital skills. Senior level public servants do not need to be digital experts, but it is clear that traditional notions of public service leadership, based on legal compliance and bureaucratic process management, will need to be updated in light of the digital transformation. In a parallel project, the OECD is working with senior officials in the federal government of Brazil to identify the kinds of leadership competencies and skills needed to strengthen a culture of innovation, and to lead a successful digital transformation (OECD, forthcoming[4]).

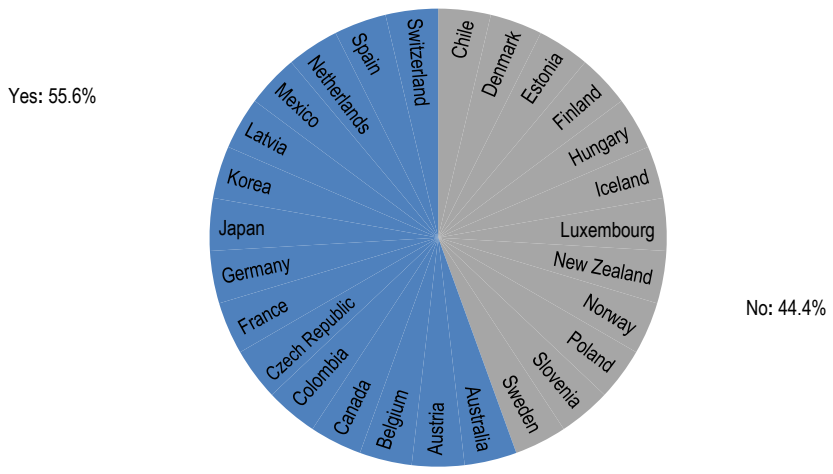
The strategic investment in digital complementary skills and digital leadership skills among public officials should reflect governments' clear recognition that the digital transformation is not a technical issue, but also contains a cross-cutting people-management challenge that needs to be addressed with skills that go far beyond technical domains.

Policies to cultivate a culture of digital skills in the public sector

Although the context presented above demonstrates the importance of strategic policies to promote digital skills and adjust job profiles in the public sector, almost half of OECD countries confirmed not having strategies to attract, develop or retain ICT-skilled public servants (see Figure 3.2). Digital skills are, in this sense, a policy issue that deserves increased attention and support from governments.

In Brazil, evidence gathered for this review points to the fact that skills are generally considered a key requirement for the implementation of a bold and sustained digital government policy. Different actors interviewed in the context of this review recognised that civil servant capacities to properly work in digital transformation contexts are critical.

Figure 3.2. Existence of strategies to attract, develop or retain ICT-skilled civil servants in government



Note: The figure shows the percentage of participating countries that responded yes or no to the question, "Do you have a dedicated strategy to attract, develop or retain ICT-skilled civil servants in government?"
Source: OECD (2014[6]), "Survey on Digital Government Performance", OECD, https://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796.

A vast majority of Brazilian federal and state government employees uses the Internet in their activities. Data show that 85% of federal government institutions report that 76-100% of their employers used the Internet in the last 12 months and 77% of state institutions report the same range of use (see Table 3.1). Similarly, 100% of federal-level public sector organisations report having an IT department or sector, and 83% at the state level also report having one (see Table 3.2).

Table 3.1. Civil servants using the Internet in Brazil

Federal and state government organisations by percentage range of employed persons who used the Internet in the last 12 months

	Percentage (%)	Up to 25%	26-50%	51-75%	76-100%	Does not know
Branch	Executive	3	6	12	77	1
	Legislative	0	9	16	68	7
	Judiciary	1	1	10	83	5
	Public Prosecutor's Office	0	0	14	83	3
Level of government	Federal	1	1	9	85	4
	State	3	6	13	77	1

Source: CETIC (Brazilian Internet Steering Committee) (2017[7]), "ICT Electronic Government 2017 - Survey on the Use of Information and Communication Technologies in the Brazilian Public Sector", http://cetic.br/publicacao/pesquisa-sobre-o-uso-das-tecnologias-de-informacao-e-comunicacao-tic-governo-eletronico-2017/.

Table 3.2. Public sector organisations with an IT department in Brazil

	Percentage (%)	Yes	No
Branch	Executive	81	19
	Legislative	100	0
	Judiciary	100	0
	Public Prosecutor's Office	100	0
Level of government	Federal	100	0
	State	83	18

Source: CETIC (Brazilian Internet Steering Committee) (2017[7]), "ICT Electronic Government 2017 - Survey on the Use of Information and Communication Technologies in the Brazilian Public Sector", http://cetic.br/publicacao/pesquisa-sobre-o-uso-das-tecnologias-de-informacao-e-comunicacao-tic-governo-eletronico-2017/.

Digital complementary and leadership skills were also widely recognised during the fact-finding interviews for this review as a requirement for more effective and co-ordinated development of digital government in Brazil. The stakeholders underlined the need to cultivate and spread a digital transformation culture across the public sector, namely in leadership positions across the Brazilian federal administration. Policy makers, decision makers and policy implementers should have the digital mindset that would allow government to reap the full benefits of digital technologies in the design and implementation of policies, initiatives and projects.

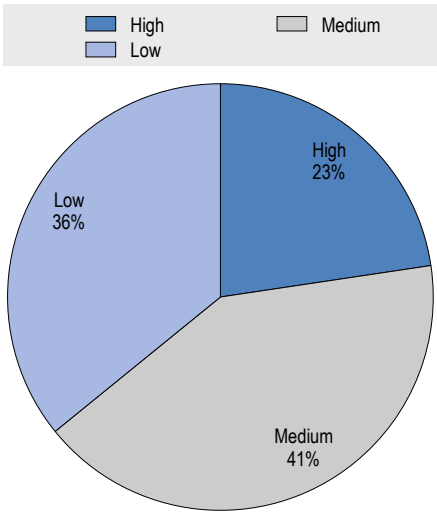
Despite the fact that the data and stakeholder perceptions mentioned above show the relevance and need for strategic digital skills in the Brazilian public sector, the Digital Governance Strategy (Estratégia de Governança Digital, EGD) doesn't foresee any specific actions to reinforce the digital capabilities of Brazilian civil servants. Furthermore, when questioned about the level of priority given to the improvement of digital skills in Brazil's digital government policy, 77% of the public sector organisations that responded to the

OECD Digital Government Performance Survey consider it a low or medium priority (see Figure 3.3).

Although the Digital Governance Strategy (EGD) fails to include actions related to building digital skills, some initiatives highlight the Brazilian government's willingness to reinforce digital skills capabilities in the public sector.

The Information Technology Servants Improvement Programme (Programa de Aperfeiçoamento dos Servidores de Tecnologia da Informação, PROATI) provides training courses to public sector IT professionals in order to keep up to date and improve their digital skills. The programme is an initiative of the Secretariat of Information Technology (SETIC) of the Ministry of Planning, Development and Management, which provides a wide range of courses focused on areas such as IT procurement, management of IT systems, information security management and data and information governance (Ministério do Planejamento,(n.d.)[10]) (SISP, 2018[11]). In the same line, the National School of Public Administration (ENAP), in partnership with SETIC, also provides several training programmes to improve the skills of IT public servants, including post-graduate courses (OECD, 2018[12]).

Figure 3.3. Perceptions about the priority attributed to digital skills in the digital government policy of Brazil



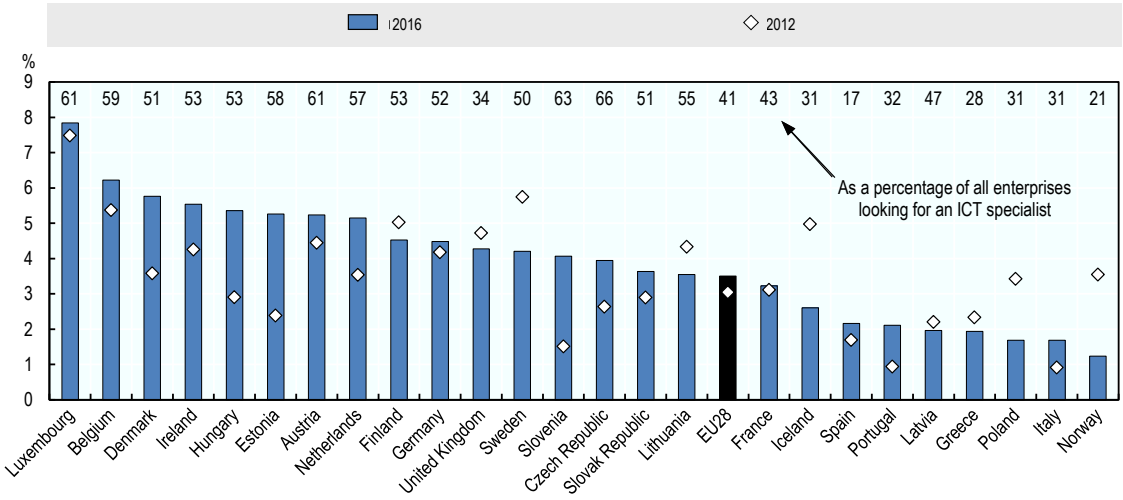
Note: The figure shows the percentage of participating public sector organisations that responded High, Medium or Low to the question, "How would you classify the level of priority given to the improvement of digital skills and competencies in Brazil's digital government agenda?"
Source: OECD (2018[9]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

ICT career paths and other instruments to attract and retain ICT professionals

As previously mentioned, the rapid uptake and the growing diversity and complexity of digital technologies required across different sectors and levels of government pose increasing challenges for public sectors to attract, retain and keep updated IT professional civil servants (see Figure 3.4).

Figure 3.4. Firms that reported hard-to-fill vacancies for ICT specialists in OECD countries

As a percentage of all firms



Source: Eurostat, Digital Economy and Society (database), http://ec.europa.eu/eurostat/web/digital-economy-and-society/data/comprehensive-database (accessed June 2017), in OECD (2017[3]), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris, https://doi.org/10.1787/9789264276284-en.

A specific and clear career path can be a strategic instrument to attract, retain and develop skilled IT professionals in the public sector. Managing the careers of ICT professionals as a group can help to establish appropriately competitive conditions in terms of salaries and career progression, and help set expectations and opportunities for continuous lifelong skills development. This reinforced attractiveness of IT posts can contribute to improved recruitment and upgraded conditions to retain these professionals in the public sector.

In Brazil, there is a specific public administration job profile for IT professionals within the federal government called an IT Analyst (Analista em Tecnologia da Informação). Created in 2006, the job profile covers professionals focused on "planning, supervision, coordination and control of information technology resources related to the operation of the federal public administration" (Ministério do Planejamento, Desenvolvimento e Gestão, 2018[13]).

Through evidence gathered for this review and from the results of the Digital Government Survey of Brazil, it appears that compensation offered by this career path makes it difficult to retain IT professionals Additionally, in the context of this review, the following concerns emerged:

1. Similarly to what happens in other career paths in the Brazilian public administration, the recruitment process of these professionals lacks the necessary accuracy and flexibility to attract and retain the best professionals, as well as the ability to respond rapidly and with agility to dynamic IT demands.
2. Due to a general lack of IT professionals in the federal government, most of them are not mobilised for specialised IT functions that might be more relevant to fostering a modern public sector (e.g. software development, user design, data analysis).
3. Given that other comparable careers in the public sector have better compensation packages, there is high mobility. This can be positive both from an individual, as

well as an institutional, perspective (e.g. to share knowledge and foster horizontality), but it can jeopardise the institutions' stability and capacity to retain knowledge.

An earlier OECD (2010[14]) review of human resource management (HRM) systems in the federal government of Brazil found that the career system, which regulates job professions, is highly rigid and limits job mobility, performance management processes and professional development opportunities. Given the cross-cutting and multi-faceted challenges posed by the digital transformation, efforts should be taken to ensure that ICT professionals are highly mobile and agile, and encouraged to upgrade their skillsets regularly to keep up with the fast pace of change. This may suggest a need to thoroughly revisit the career system as it functions in the Brazilian public administration.

Transformative skills for a 21st-century public sector in Brazil

Counting on adequately skilled public servants is critical to seizing the opportunities and tackling the challenges of the digital transformation of the public sector.

Considering its strong commitment to developing a robust digital government, the Brazilian government could consider prioritising the inclusion of digital skills development in future skills policies or frameworks for the public sector. If properly aligned with the Digital Governance Strategy (EGD), this would allow the government to better co-ordinate goals, initiatives and projects and develop the necessary digital capacities across the Brazilian public sector that would support the goal to transform its way of functioning. This would help the Brazilian administration better respond to the expectations expressed by the digital government ecosystem and to citizens' increasing demands for efficiency, quality, openness and inclusiveness of the public sector.

In this respect, any updated skills policy for the public sector could benefit from input from the Secretariat of Information Technologies (SETIC) of the Ministry of Planning, Development and Management. The necessary human and financial resources should also be in place to properly support the updated skills policy.

Given the assessment presented above, future-oriented skills policies should prioritise the development of digital skills based on the four types of digital skills presented in Figure 3.1 (user, professional, complementary and leadership). A mapping of the existing skills and of the short, medium and long-term needs for the Brazilian public sector would allow the government to take proper actions considering the present and avoiding future shortages.

Additionally, an IT-profession framework building on OECD country experiences (see Box 3.1), establishing clear IT professional roles in the public sector, could help update the IT careers framework in the public sector, and structure a future training strategy to support this. With an improved recruitment process and better career management, the Brazilian government would be better able to attract the best candidates available in the market and better adapt the diverse roles foreseen to the growing demands in the digital economy. This would also provide a basis to review compensation conditions to ensure that they are adapted, so as to attract the best professionals in the public sector and promote continuous career development.

Box 3.1. The Digital, Data and Technology Profession Capability Framework and the Government Digital Service in the United Kingdom

Two interesting initiatives from the UK government focus on the active promotion of digital skills in the public sector.

The Digital, Data and Technology Profession Capability Framework

Within the United Kingdom's Civil Service, the Digital, Data and Technology (DDaT) function supports all departments across government to attract, develop and retain the people and skills to understand and contribute to government transformation. The function works namely on career management, attraction and recruitment, learning and development, and pay and reward. The Digital, Data and Technology Profession Capability Framework describes the roles of the DDaT profession, helping civil servants and civil society understand the required skills for certain jobs and also work on career progression. A data engineer, IT service manager, delivery manager or software developer are examples of the more than 30 roles identified. The DDaT Profession Capability Framework provides a good example of how a government can better manage digital professional skills in the public sector.

The Government Digital Service Academy

The Government Digital Service (GDS) Academy offers digital skills courses for specialised and non-specialised professionals. User research, user-centred design, and digital and agile awareness for analysts are some of the courses provided in the academy for civil servants and local government employees. The academy acts as an important instrument to disseminate digital skills across the public sector.

Source: GOV.UK (2017[15]), "Digital, Data and Technology Profession Capability Framework", https://www.gov.uk/government/collections/digital-data-and-technology-profession-capability-framework; GDS (2018[16]), "GDS Academy", https://gdsacademy.campaign.gov.uk/.

Last but not least, building on the needs identified during the review, a clear priority should be attributed to the promotion of digital leadership skills, namely for top-level civil servants and decision makers. Supporting public sector leaders' better understanding of the digital transformation underway is a strategic objective to support digital-by-design policies in the Brazilian public sector, able to integrate the benefits of digital technologies from the start in public sector initiatives and projects. This is a particular challenge in Brazil, where public sector leadership is mostly politically appointed, and there are no minimum criteria to ensure that leaders have the necessary skills. The OECD is currently working with key stakeholders to better assess the leadership skills necessary to drive innovation and the systems that need to be in place to support them.

Initiatives to build digital skill capacity among top-level civil servants have begun, however. ENAP has partnered with American institutions such as Harvard and Georgetown University. In 2018, ENAP offered a course for top-level civil servants on Digital Transformation in Government, in partnership with the University of Harvard. An annual course directed at top-level civil servants focusing on Innovation, Leadership and Digital Government has been offered by ENAP with Georgetown University.

Streamlining digital technology investments

Cost-benefit analysis

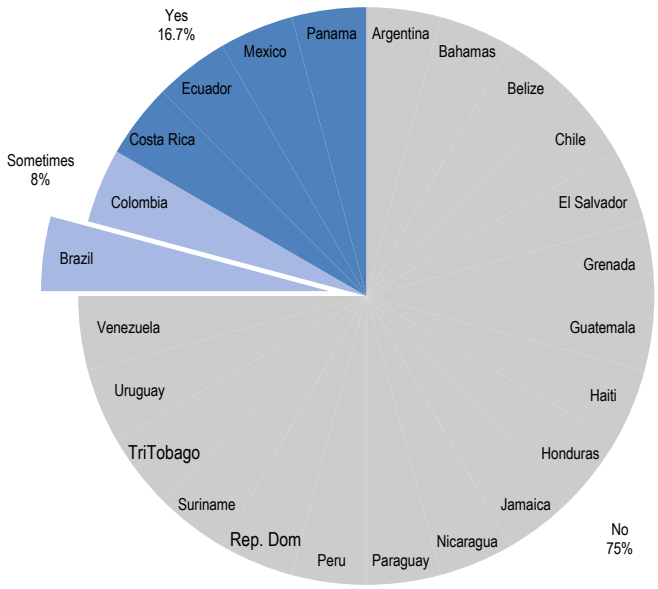
The rapid penetration of digital technologies in all sectors of government, streamlining internal processes and improving service delivery, means that the acquisition of IT goods and services assumes an increasing role in public procurement. Strategic and dynamic planning of the procurement of digital goods and services is required to ensure the efficiency, effectiveness and sustainability of investments and to avoid gaps and overlaps, as outlined in the principles of the 2015 OECD Council Recommendation on Public Procurement (OECD, 2015[17]). Strategic planning can also help overcome agency-thinking approaches that anchor silo-driven decisions and often do not consider interoperability requirements or common standards for improved integration and sharing (e.g. data exchange) across different sectors and levels of government.

ICT investments are also becoming increasingly complex. Governments today face multifarious choices due to the constant evolution of technologies that require different domains of expertise to be properly installed and managed. Additionally, governments need to be able to make critical decisions about opting among different alternatives, e.g. governments find themselves having to choose between the internal or external development of systems and tools, open or proprietary software, local or cloud-based hosting, etc. Different cost structures also need to be considered (e.g. specialised human resources, specific hardware, development of tailored software, security tests, usability tests, load tests, legal consulting services) to address dependencies on multiple variables (e.g. economic or social sector to be applied, profile of final users, expected demands, foreseen technological evolution, national or international regulations) (OECD, 2017[19]).

As highlighted in Chapter 2, the existence of an adequate digital government strategy, of proper institutional leadership and effective cross-sector co-ordination committees or steering groups are important requirements to guarantee the effective implementation of a digital government policy. Nevertheless, in line with Pillar 3 of the OECD Recommendation on Digital Government Strategies, governments across OECD countries and partner economies increasingly report the need to have policy levers - including the pre-evaluation of ICT expenses, business cases and project management models – to ensure a coherent and sustainable digital transformation of the public sector. These policy tools can support governments to better plan, manage and monitor IT investments.

According to the OECD Digital Government Performance Survey, 33% of participating countries reported measuring the financial benefits of ICT projects in the central government, against 52% that reported doing it “sometimes” and 15% that reported not having this policy practice (OECD, 2014[6]). In the Latin America and the Caribbean (LAC) region, 17% of countries reported measuring the financial benefits of ICT projects in the central government, 8% reported doing it “sometimes”, but the vast majority (75%) reported not doing so (see Figure 3.5).

Figure 3.5. Cost-benefit assessment of ICT investments in the LAC region

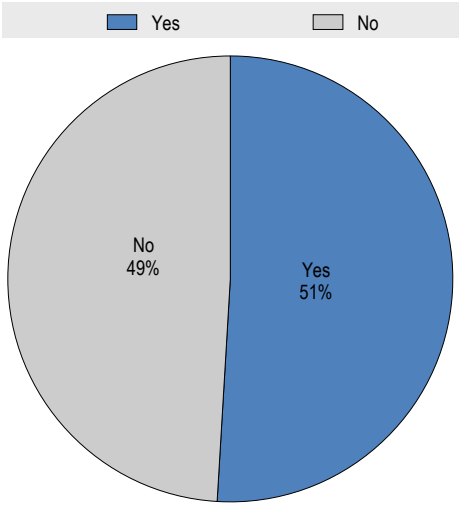


Source: OECD (2016[18]), *Government at a Glance: Latin America and the Caribbean 2017*, OECD Publishing, Paris, https://doi.org/10.1787/9789264265554-en.

In Brazil, measurement of financial benefits for ICT projects in the federal government does not happen on a regular basis. It depends mostly on the practices of project development within each federal institution (see Figure 3.6). The same applies to the measurement of the financial benefits of ICT investments to citizens, businesses and specific population groups (OECD, 2018[12]).

The Ministry of Planning has defined a method for calculating services called the "Modelo de Levantamento de Custos do Usuário de Serviços" (Standard Cost Model), which is a methodology that measures the (often hidden) costs of using public services "with the objective of the model considering some variables, such as: time and resources spent to fulfill the requirements (multiple visits, queues, absences at work); diversity of documents and forms requested (xerox, endorsements, notary's office); and, production and maintenance of records / information[1].

Figure 3.6. Estimation of financial benefits of ICT projects within the Brazilian public sector



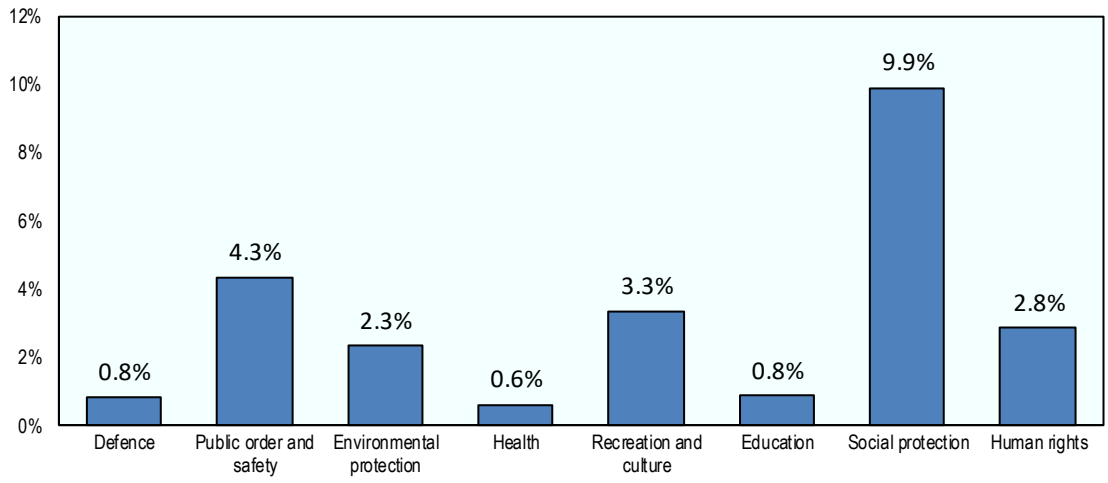
Note: The figure shows the percentage of participating public sector organisations that responded yes or no to the question, "Does your institution estimate (*ex ante*) the direct financial costs and benefits of ICT projects?"
Source: OECD (2018[9]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

However, given the increasing volume of ICT expenses - due to the pervasive and progressive digitisation of several sectors of activity (see Figure 3.7) - there seems to be significant room for improvement in measuring financial benefits When questioned about the main challenges to the full realisation of direct financial benefits, the Brazilian public institutions that responded to the survey identified the following (OECD, 2018[9]):

- insufficient knowledge of the final benefits expected when budgeting
- insufficient political or high-level attention to the realisation of financial benefits
- different objectives and priorities across the parts of the public administration engaged in the projects.

Although ICT expenses are typically around 3% or 4% when considering the total budgets per government sector in Brazil, their absolute value shows that strategic policy action is required to spread a culture of cost-benefit analysis.

Figure 3.7. Estimated breakdowns of federal government ICT spending in Brazil



Source: OECD (2018[12]), "Digital Government Survey of Brazil", Central version, unpublished.

Pre-evaluation of ICT expenses and business cases

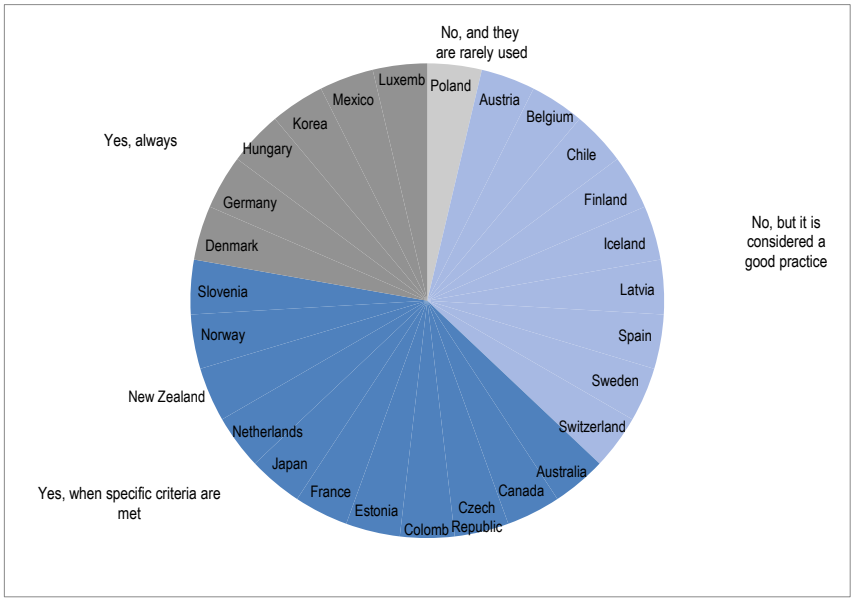
In line with the experience of some OECD countries (e.g. Australia, Denmark, New Zealand, Portugal), the establishment of budget thresholds for digital technology projects above a determined budgetary value can be used as a strategic policy lever for improved coherence and sustainability of ICT expenses. Budget thresholds can help promote a culture of cost-benefit evaluation and serve as critical policy instruments to enable leadership to ensure proper co-ordination and coherent decisions across sectors and levels of government.

Budget thresholds requiring the pre-evaluation of ICT expenditures can also help avoid overlaps of ICT investments, encourage synergies and improve co-operation among public sector organisations (e.g. demand aggregation, shared services culture). They can also help monitor and closely follow how digital governments and ICT-related priorities are being targeted by public sector organisations.

Frequently associated with the existence of budget thresholds, the mandatory use of standardised business case methodologies for ICT investments also contributes to streamlining public financial efforts in this area. Key Recommendation 9 of the OECD Recommendation on Digital Government Strategies (OECD, 2014[2]) highlights the importance of this institutional policy tool to improve the planning, management and monitoring of digital technology expenditures in the public sector.

The majority of OECD countries that participated in the 2014 OECD Digital Government Performance Survey reported having mandatory business cases for ICT, whether applicable to all ICT projects or when specific criteria are met (e.g. above a certain threshold) (see Figure 3.8).

Figure 3.8. Use of business cases for ICT in OECD countries



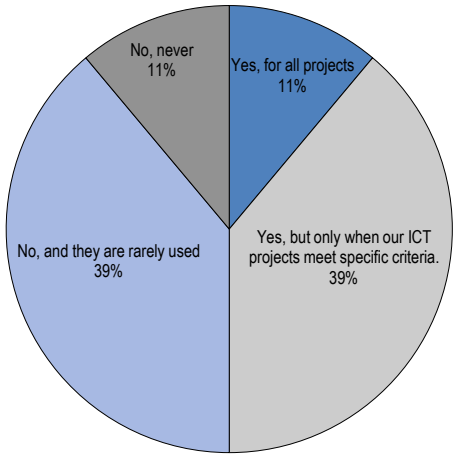
Source: OECD (2014[6]), "Survey on Digital Government Performance", OECD, https://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796.

In Brazil, there isn't an established budget threshold for ICT investments and the use of business case methods is not mandatory, even though 39% of surveyed institutions claimed they had business cases for ICT investments under certain criteria (see Figure 3.9) (OECD, 2018[12]). Nevertheless, when questioned, half of the public sector organisations that participated in the Digital Government Survey of Brazil stated that overall, they regularly use business cases or similar value proposition methods to assess ICT projects (see Figure 3.9). This reported practice reflects a significant level of maturity of the Brazilian public sector organisations when planning ICT investments.

Although a budget threshold for ICT investments is not in place and a standard and mandatory business case methodology is not currently being adopted by the Brazilian federal government, Brazil does have some general instruments of budget control and monitoring also applicable to ICT investments in place (OECD, 2018[12]):

- The Secretariat of Federal Budget (Secretaria do Orçamento Federal) of the Ministry of Planning, Development and Administration is in charge of controlling the budget of the entities of the federal public administration, including the budget for ICT projects.
- The Secretariat of the National Treasury (Secretaria do Tesouro Nacional) of the Ministry of Finance is in charge of defining norms related to the management of public investments, which includes the funding of ICT projects.
- The Civil House of the President of the Republic is responsible for evaluating and monitoring government action as it oversees federal-level entities, including the monitoring of the execution of ICT projects.

Figure 3.9. Use of business cases in Brazil's central government



Note: The figure shows the percentage of participating public sector organisations that responded to the question, "Does your institution regularly develop business cases or similar value proposition assessments for ICT projects?"
Source: OECD (2018[12]), "Digital Government Survey of Brazil", Central version, unpublished.

Building on their current budget control and monitoring instruments, Brazil may wish to take example from OECD country best practices in this field as well, as presented in Box 3.2 below and Box 3.4 later in the chapter.

Box 3.2. ICT project assessment in Portugal

The Portuguese Agency for Administrative Modernisation (AMA), an executive agency located at the Presidency of the Council of Ministers, has substantive powers in terms of the allocation of financial resources and approval of ICT projects.

The AMA manages the administrative modernisation funding programme, which is composed of EU structural funds and national resources (SAMA2020). These funds are an attractive source of funding for agencies planning to develop ICT projects. This gives the agency important leverage as the approval of funding for digital government projects through this programme is conditioned on compliance with existing guidelines.

Similarly, every ICT project of EUR 10 000 or more must be pre-approved by AMA, which verifies compliance with guidelines, the non-duplication of efforts, and compares the prices and budgets with previous projects in order to ensure the best value for money.

Source: OECD (2016[20]), *Digital Government in Chile: Strengthening the Institutional and Governance Framework*, OECD Digital Government Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264258013-en.

Project management standards

As previously mentioned, the coherent and sustainable implementation of digital government policies requires institutional instruments that can ensure co-ordinated public sector efforts across sectors and levels of government. Following some OECD country experiences (e.g. Denmark, Norway) (see Box 3.3) and in line with Key Recommendation 10 of the OECD Recommendation on Digital Government Strategies (OECD, 2014[2]), the

availability and effective use of ICT standardised project management models can strategically promote technical, financial, legal and institutional alignment across the public sector.

Standardised ICT project management methods, properly combined with the identification of budget thresholds and standardised business case methodologies (see the above section), can become strategic policy instruments to ensure alignment of initiatives with the digital government strategy and help public sector organisations to organise and administrate their projects in a more coherent and streamlined way (OECD, 2015[17]). Within agile and dynamic central monitoring platforms, project management standards can contribute to improved performance and comparability across the administration. Provided that a wide stream of management information related to project implementation is collected, transparency and accountability platforms can also be put in place to promote better knowledge exchange and peer-learning processes across the public sector, alongside with increased openness to citizens.

Box 3.3. Project Wizard in Norway

In 2016, the Norwegian government established the mandatory use of a best practice project management model for ICT projects over NOK 10 million, in order to maintain high levels of performance in the development of digital government, providing new opportunities for coherence and promoting synergies across the administration.

The Agency for Public Management and eGovernment's (Difi) Project Wizard is the recommended (although not mandatory) project management model (www.prosjektveiviseren.no). Understood and conceived as a shared service, this online tool directed to project managers aims to reduce complexity and risks in public ICT projects. Based on the internationally renowned PRINCE2® (PRojects IN Controlled Environments) projection method, Project Wizard describes a set of phases that projects must go through, with specific decision points. It covers full-scale project management, including benefits' realisation.

Although its implementation across the Norwegian public sector is still very recent, the way the platform is structured and the fact that its adoption benefits from substantial institutional support, it appears that Project Wizard has become a strategic tool to improve the development and monitoring of digital government projects across the Norwegian government.

Source: OECD (2017[19]), *Digital Government Review of Norway: Boosting the Digital Transformation of the Public Sector*, OECD Digital Government Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264279742-en.

According to the 2014 OECD Digital Government Performance Survey, 59% of the respondents confirmed that they had a project management standardised model for the central government (OECD, 2014[6]), demonstrating the relevance of this kind of policy instrument for the coherence of ICT projects across the public sector.

In Brazil, although its use is not mandatory, public sector organisations are recommended to use a project management methodology. The SISP Project Management Methodology (Metodologia de Gerenciamento de Projetos do SISP, MGP-SISP) is a set of good practices and steps to be followed in the project management of ICT projects in public sector organisations. It aims to assist public organisations involved in the System for the Administration of Information Technologies Resources (Sistema de Administração dos Recursos de Tecnologia da Informação, SISP) (see Chapter 2).

Very detailed, the SISP Project Management Methodology, guides users on the steps for the correct development of IT projects and initiatives. Nevertheless, as stated in its online presentation, "the adoption of the methodology will depend on some factors, such as: reality, culture and maturity in project management, organizational structure, size of projects, etc." In this sense, the processes and procedures described in MGP-SISP are recommended to be customised to each organisation's situation (SISP, 2011[21]). To facilitate its use, SETIC has designed diagrams and made available a set of templates such as a demand formalisation document, a project measurement worksheet, a project opening term, a project management plan, a schedule and a risk sheet, among others (SISP, 2018[22]).

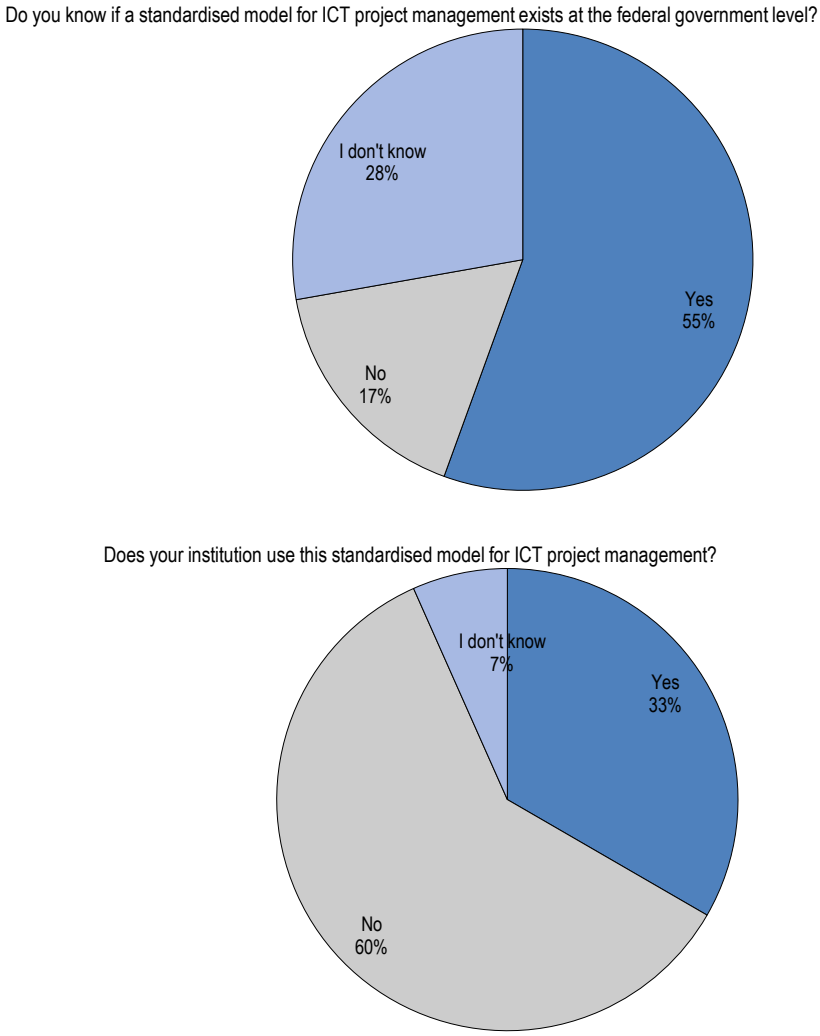
When questioned about the existence of a standardised model for ICT project management within the federal government, 55% of the Brazilian public sector organisations that participated in the Digital Government Survey responded positively. However, of those organisations, only 33% confirmed using the model, which clearly demonstrates room for improvement to better inform and involve Brazilian federal government stakeholders around the importance of having a co-ordinated project management approach (see Figure 3.10).

Management of ICT investments as a strategic policy lever

The existence of a project management methodology in Brazil, aligned with the main digital government co-ordination body - System for the Administration of Information Technologies Resources (SISP) – demonstrates that important foundations are already in place to adopt a systems-thinking approach when developing ICT projects in the federal administration. The several steps for the development of an ICT project foreseen in the SISP Project Management Methodology and the available templates reflect the willingness of the Brazilian government, namely the Ministry of Planning, Development and Management, to promote a strategic planning culture around ICT investments.

Yet, in line with the assessments presented in the previous sections, the Brazilian government could consider taking some additional measures to further improve the streamlining of ICT investments. In line with relevant practices in some OECD countries (e.g. Denmark, Norway, Portugal), the Brazilian government could consider establishing budget thresholds for the pre-evaluation of ICT investments at the level of federal government. The budget threshold would have to be connected with a standardised business cases methodology to facilitate and ensure the cost-benefit analysis of IT investments. This institutional co-ordination mechanism should be comprised of two distinct levels: a first level directed to projects of medium ICT budget where the pre-evaluation should be considered a best practice; a second level focused on ICT projects with a larger budget for which the pre-evaluation should be mandatory.

Figure 3.10. Existence and use of a standardised model for ICT project management in the Brazilian public sector



Source: OECD (2018[9]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

The establishment of a budget threshold should also be considered as an opportunity to properly update the SISP Project Management Methodology, namely ensuring:

- the involvement of the digital government stakeholders, promoting co-ownership and shared responsibility in the design of the new methodology
- alignment with the objectives and priorities of the Digital Governance Strategy (EGD)
- synchronisation with legal, institutional and technical guidelines and requirements (e.g. interoperability, digital identity, open government data, data protection)
- a web-based platform where federal public sector organisations could manage their projects according to simple and standard requirements and guidelines.

The Brazilian government could also consider establishing co-funding mechanisms for ICT projects to enable prioritisation and coherence of efforts and investments made by the federal government (see Box 3.4). This kind of policy tool would function as an important incentive for an effective and co-ordinated implementation of the digital government strategy.

Box 3.4. Developing the strategic assessments in New Zealand's Better Business Cases Methodology

New Zealand has developed a robust and structured approach to the development of business cases for large public investments. The strategic assessment of the typical investment project follows the following steps:

1. Initiate the investment proposal and appoint the senior responsible owner to take the leadership role in the development of the strategic assessment.
2. Identify key stakeholders, analyse their interest and influence, and complete a stakeholder management plan. This will inform the choice of attendees for the initial stakeholder workshops required to identify investment drivers.
3. Describe the proposal and draft the strategic context. Use this as the basis for briefing workshop attendees.
4. Arrange facilitated workshops with key stakeholders to identify and agree on investment drivers (problems/opportunities).
5. Finalise the workshop outputs and draft the strategic assessment document.
6. Present the final draft strategic assessment (and any supporting documentation required) for review, including a Gateway Review Panel where required. Incorporate feedback.
7. Finalise the strategic assessment, seek final signature.

Source: Treasury of New Zealand (2015[23]), "Better Business Cases: Guide to Developing the Strategic Assessment".

The suggested establishment of a budget threshold, the development of a standardised business case methodology and the update of the standard project management methodology would help improve co-ordination and coherence across the different policy sectors, and contribute to reinforcing the leadership and co-ordination capacity of the Secretariat of Information Technology (SETIC) of the Ministry of Planning, Development and Management. The attribution of the responsibilities for the development and management of the above-mentioned policy tools to SETIC would set important and useful conditions for reinforced and co-ordinated implementation of the country's digital government strategy.

From ICT procurement to digital commissioning

Better procurement for better government

In line with the recognised importance of better planning ICT investments in the public sector, ICT procurement is a critical element for the coherent and sustainable development

of digital government. Key Recommendation 11 of the OECD Recommendation on Digital Government Strategies (OECD, 2014[2]) underscores the importance of this policy dimension to better sustain overall objectives for the modernisation of the public administration.

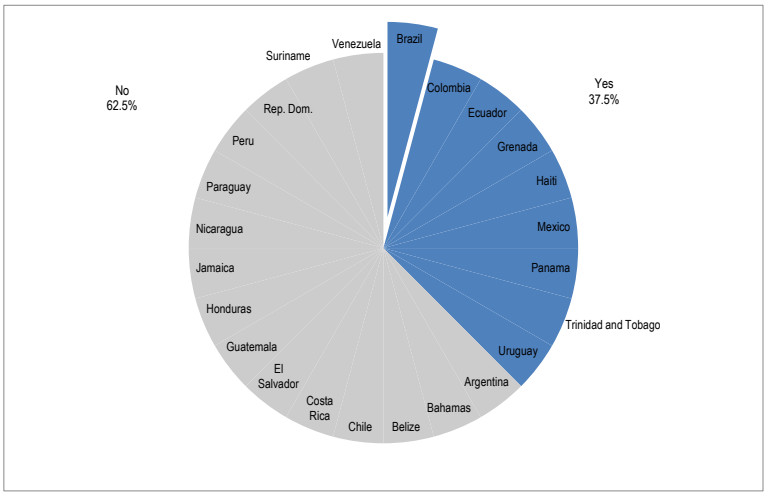
The benefits of a strategic and co-ordinated approach to ICT procurement are very diverse:

- Through demand aggregation and framework agreements, important efficiencies can be obtained in ICT investments.
- There can be reinforced alignment of ICT investments with the digital government strategy, namely by enforcing overall objectives, technical standards and guidelines (e.g. digital identity, interoperability, open standards).
- Improved oversight capacities can help avoid gaps and overlaps of ICT acquisitions.
- There can be strengthened capacity to monitor and access the impacts of ICT investments made across the public sector.
- There can be enhanced conditions to increase the transparency and accountability of ICT investments through the possible publication of structured information and data on public tenders and on the entire procurement process.

New topics such as data ownership and sovereignty or transition from legacy systems pressure public sectors around the world to respond to the new demands of the digital economy. Given the rapid development, diversity of trends and the high complexity of digital technologies nowadays, governments face the challenge of ensuring agility and adaptability within their regulatory procurement frameworks.

According to the OECD Digital Government Performance Survey, 52% of OECD countries have an ICT procurement strategy applicable to the central government (OECD, 2014[6]). Although that percentage decreases when analysed in the Latin America and Caribbean context, where 37% of countries report having such a strategy (Figure 3.11), it reflects a substantial commitment of the governments of the region to use ICT procurement as a relevant mechanism for the implementation of digital government policies.

Figure 3.11. Existence of an ICT procurement strategy in LAC countries



Source: OECD (2016[18]), *Government at a Glance: Latin America and the Caribbean 2017*, OECD Publishing, Paris, https://doi.org/10.1787/9789264265554-en.

Efforts underway for co-ordinated ICT procurement

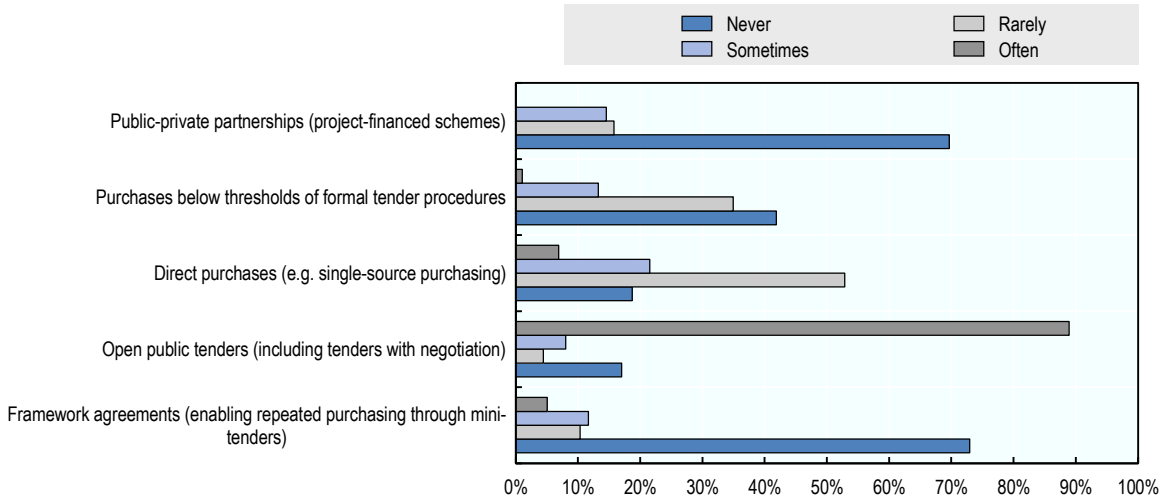
Brazil has an ICT procurement strategy for the whole federal government. The strategy is defined by a regulation approved in 2008 (IN no. 4/2008) and is updated periodically that normalises the processes of acquisition of ICT solutions by all the members of the System for the Administration of Information Technologies Resources (SISP) (Secretaria de Logística e Tecnologia da Informação, 2014[24]). The regulation determines the main stages of the procurement process (e.g. planning, selection of the supplier, contract management) and details the mandatory procedures to be followed in each one of the procurement phases.

According to the Ministry of Planning, Development and Management, the strategy is mainly focused on efficiency gains through the use of standardised solutions. Demand aggregation is also one of the priorities, together with the use of off-the-shelf solutions, as opposed to the development of in-house solutions or outsourcing new development. The strategy also prioritises the acquisition of solutions to small- and medium-sized enterprises (OECD, 2018[12]).

In line with the priority attributed to demand aggregation and shared services approaches, the Secretariat of Information Technology (SETIC), in partnership with the Procurement Unit of the Ministry of Planning, Development and Management, centralises the procurement process of some services that are of mutual use to the many federal-level institutions, such as telecommunications services, network equipment, personal computers, security equipment or cloud storage (OECD, 2018[12]).

When questioned about the main methods used to procure ICT goods and services, the public sector organisations that participated in the Digital Government Survey of Brazil reported using open public tenders (including tenders with negotiation) the most (see Figure 3.12), reflecting strong compliance with the regulations in place.

Figure 3.12. ICT procurement methods used in the federal government of Brazil



Source: OECD (2018[9]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

Although the Brazilian public sector context benefits from clear and specific regulations on ICT procurement, public stakeholders interviewed during the OECD fact-finding mission to Brasilia in July 2017 and the Ministry of Planning, Development and Management agree that the strong focus of the current framework on efficiency limits the public sector's capacity to innovate and disrupt existing practices and forms of collaboration. The strict configuration of the current regulation to prioritise options based on the "lowest price" criteria limits the willingness of public institutions to assume the risks of procurement processes focused on innovation (OECD, 2018[12]). Recently, providing for more simplified means of purchasing technology, there has been significant progress in this area with the new Innovation Legal Framework. The Federal Decree no. 9,283/2018, which regulates Law no.. 10,973/2004, acknowledges the inherent risks in the procurement of innovative goods and services while providing simpler and more streamlined instruments of procurement and partnership in such cases.

In order to promote openness and accountability in federal government public procurement, the Secretariat of Management of the Ministry of Planning, Development and Management (SEGES) is responsible for a repository of contracts in the public sector - the Procurement Panel of the Federal Government. Although the platform is not focused specifically on ICT contracts, it provides relevant information about ICT procurement dynamics in Brazil (e.g. main services procured, main providers). However, a federal database presenting previous ICT contractors' performance evaluations is not available as a reference for future ICT procurement decisions (OECD, 2018[12]).

Additionally, in order to better monitor ICT spending in the public sector, the Comptroller General of the Union launched in 2017 an online interactive dashboard on ICT Spending (Painel Gastos de TI). The online tool allows the user to access information on IT expenses in the federal government, presenting the budgets, previous procurement processes and the corresponding costs. Given its interactive functionalities, the user can use different indicators and filters to compare the expenses of several federal government units. The

initiative is an important practice that reflects the Brazilian government's commitment to transparency in ICT spending through openness and integrity-driven policies.

The role of public IT companies

One of the particularities of the Brazilian public sector IT context is the existence of two state-owned companies that assume a pre-eminent role in the provision of IT services to the public administration: Serpro and Dataprev. According to the Digital Government Survey of Brazil, almost 60% of the purchases of IT services at the federal level are supplied by these state-owned companies, through direct purchase (OECD, 2018[12]).

Serpro (Serviço Federal de Processamento de Dados), created in 1964, and Dataprev (Empresa de Tecnologia e Informações da Previdência Social), created in 1974, are independent state companies. They have a certain amount of autonomy that keeps them at arm's length from any ministry in the federal government. However, the Ministry of Finance, under the terms of Article 20 and 27 of the Law Decree no.. 200 supervises the operations of both companies. Both companies were founded with the purpose of supporting the IT operations of the ministries, but their roles have evolved significantly during past decades. Currently both provide a wide variety of services (e.g. software development, data hosting, operation and support, consultancy and business intelligence) to public institutions across different sectors and levels of government.

Besides providing general ICT services, both companies maintain in their portfolio of operations the management of important public base registers, acting as service providers of different ministries. For instance, Serpro manages several critical taxes and justice registers, and Dataprev is responsible for social security registers. On the other hand, due to their state-owned status, both companies benefit from special public procurement rules that allow public entities to easily contract their services.

The existence of two public companies with the primary mission of providing services to the public sector can bring several advantages to the country's digital government development process. ICT goods and services are developed and delivered based on the public sector's specificities and requirements. This has eventually allowed the government to strategically gear both companies' efforts towards specific goals and demands of the public modernisation agenda. However, the combination of beneficial procurement rules, management of critical base registers and management of structural public ICT legacy systems puts Serpro and Dataprev in a very privileged position with regard to the larger Brazilian ICT market that delivers goods and services to the public sector.

During the OECD fact-finding mission organised in Brasilia in July 2017, several public sector stakeholders raised very concrete concerns about inefficiencies caused by the Brazilian current model of ICT services provision where Serpro and Dataprev have a dominant position. The problems identified by the ecosystem of stakeholders are aligned with the results of the recent inspection of the Brazilian Federal Court of Accounts (Tribunal de Contas da União) (Tribunal de Contas da União, 2018[25]). The following critical aspects were identified with regard to the activities of both companies:

1. low levels of efficiency, with ongoing difficulties responding to services' requests
2. non-transparent and non-competitive prices when considering similar offers available in the market
3. low levels of service satisfaction reported by clients

4. a critical financial situation that required the recent injection of public capital to face sustainability problems (applicable only to Serpro).

Evidence and insights gathered as part of this review seem to point to the fact that both companies also have room for improvement in the use of open source solutions and to reduce vendor-locked situations.

In order to reverse this critical situation, the Federal Court of Accounts recommended that both companies adjust their business models to become more competitive and thus secure efficiency gains to their public sector contractors.

The dominant role played by Serpro and Dataprev in the delivery of IT services to the public sector is not common in OECD country contexts, where free market approaches are conciliated with the provision of shared services by public institutions with associated business models. Although the Brazilian model of two dominant public companies should in principle not be considered problematic for the development of digital government in the country, its maintenance can only be justifiable if Serpro and Dataprev clearly demonstrate their added value. In this sense, both companies should prioritise addressing the four problems identified by the recent report of the Brazilian Federal Court of Accounts and increase the use of open source solutions to address the identified vendor-locked situations.

ICT commissioning as an opportunity

As previously mentioned, the increasing complexity of ICT investments requires agile ICT procurement frameworks capable of responding to governments' specific needs. New digital trends challenge public sectors to consider several cost structures (e.g. specialised human resources, specific hardware and software, usability and security) and diverse variables (e.g. sector of government to be applied, national and international regulations). Additional uncertainties such as dominant standards, vendor-locked concerns, data ownership and sovereignty, are adding extra density to already complex contexts. Last but not least, citizens' rising expectations with regard to efficiency, openness and collaboration create a particularly demanding test to governments' delivery capacities.

Although value for money, integrity and accountability are still fundamental requirements for public procurement, new acquisition approaches are being increasingly required to allow private contractors to partner in developing solutions and services that create public value, as per the principles of the 2015 OECD Council Recommendation on Public Procurement (OECD, 2015[17]). In this context, public sectors are increasingly required to embrace more agile techniques, involving providers and stakeholders earlier in the commissioning process and iteratively throughout delivery, in order to better understand user needs and contexts, and potential benefits and barriers, and to adjust constantly in order to develop more agile solutions to realise benefits. Governments across the OECD are developing and testing new approaches embedded with an ICT commissioning rational of goods and services (see Box 3.5). A shift from closed and strict procurement approaches to commissioning, and collaboration-oriented imperatives, are increasingly perceived as key by the governments of OECD countries and partner economies.[2]

Box 3.5. The United Kingdom's Digital Marketplace

Developed by the Government Digital Service, the United Kingdom's agency responsible for leading digital government policies, the Digital Marketplace is a portal where public sector organisations can find people and technology for digital projects. Three kinds of agreements are available between government and suppliers:

1. **Cloud services**: Around 20 000 cloud services on the Digital Marketplace through the G-Cloud framework (cloud hosting, cloud software and cloud support).
2. **Digital specialist services**: More than 1 000 suppliers provide digital specialist services, including digital outcomes (e.g. booking system or an accessibility audit), digital specialists (e.g. product managers or developers), user research studios, user research participants and data centre hosting services.
3. **Data centre hosting services**: One supplier provides data centre hosting to the government. It offers namely a flexible, pay-for-what-you-use model, and ensures facilities and leading environmental performance.

The Digital Marketplace is considered today a reference due to the amount of government frameworks agreements, making the buying of services faster and cheaper than entering into individual procurement contracts.

Source: GOV.UK (2017[26]), "Digital Marketplace", webpage, www.digitalmarketplace.service.gov.uk.

Given the previously identified need to update and improve the country's ICT public procurement framework, the Brazilian government could consider embedding this commissioning mindset in future reforms, as doing so could help spur more innovative and strategic practices and approaches for the identification of collaboration and solutions that best respond to the needs of the public sector. In addition, understanding user needs as a basis for designing procurements and contracts should be incorporated into procurement regulations. For that, the involvement of the providers should be considered throughout the entire procurement lifecycle.

Notes

1 Information provided by the Ministry of Planning, Development and Management.

2. An OECD E-Leaders Thematic Group co-ordinated by the United Kingdom and gathers representatives of several countries (e.g. Australia, Canada, New Zealand) is currently developing a Playbook for ICT Procurement Reform. The document is closely based on the ICT commissioning rational. Building on the experience of the countries involved in the thematic group, the playbook will present several principles and lines of action to be followed for improved procurement processes.

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Chapter 4. Strengthening the foundations for integrated digital service delivery in Brazil

This chapter analyses and discusses the foundations for digital service delivery policies and practices in the Brazilian federal government. It starts by discussing the importance of digital key enablers required for sustainable and coherent public service delivery. It then focuses on the Brazilian experience in common architectures and standards, open source software and digital identity, as critical facilitators of integrated and coherent service delivery. Finally, the chapter underscores the role of legal and regulatory frameworks in securing the proper adoption of key enablers across the public sector.

Introduction

Shifting from an e-government culture (often determined by the institutional set-up of governments, leading to silo-based efforts and essentially government-centred) to a digital government environment (characterised by whole-of-government and system-thinking approaches) requires the development of key enablers. Their adoption, aligned with the proper governance frameworks and inclusive of the institutional set-ups (see Chapter 2) and policy levers (see Chapter 3), can support the efficiency and coherency of digital government policies. Interoperability frameworks, digital identity systems and data infrastructure are among the most common key enablers mobilised to foster a propitious environment for the dynamics required for digital government to grow.

Key enablers can indeed support the integration and consolidation of public efforts for digital government (as discussed in Key Recommendation 6 of the OECD Recommendation on Digital Government Strategies) (OECD, 2014[1]). When shared across the sectors and levels of government they can help avoid gaps and overlaps in public investments; enable better communication; improve access; encourage sharing and reuse of data and information across public sector organisations; and assist in systems integration. This can provide the basis for advanced user experience in service delivery.

This chapter analyses the digital government key enablers and building blocks that can play a critical role in securing a coherent and sustainable digital transformation of the public sector policy. The analysis starts by presenting the broad Brazilian panorama on the use of enabling frameworks in the federal government. Common architectures and standards, open source software and digital identity are discussed in more detail in the following sections, highlighting the Brazilian government's practice in these critical digital government key enablers. The chapter concludes with a section dedicated to the legal and regulatory frameworks necessary to reinforce the foundations of integrated and coherent service delivery.

Digital enabling frameworks

In Brazil, as in most OECD countries, e-government policies have progressively prioritised the development of key enablers as mechanisms to ensure co-ordination across the different sectors of the federal public administration. Given the country's size and geographical diversity, different levels of government and substantial autonomy (see Chapter 1), the key enablers are also perceived as fundamental mechanisms to consolidate public efforts to drive the digital transformation of the public sector.

Table 4.1 illustrates Brazil's development and use of digital key enablers. Evidence collected during this review shows that some of the most relevant key enablers are available in the country's federal administration: a common interoperability framework, base registries, digital identity, and support for the use of cloud computing or open source software. Some examples of shared services in infrastructure and connectivity are also available (see Box 4.1).

Table 4.1. Digitally enabling frameworks in Brazil

Enabling frameworks	Not available	Available to central government institutions	Available to regional/county level institutions	Available to local/municipal government institutions	Available to private sector institutions
Common interoperability framework		X	X	X	X
Base registries		X			
Shared ICT infrastructure (e.g. shared data centres)	X				
Shared business processes (e.g. common logistics management)		X			
Shared services (e.g. joint software development)	X				
Support for the use of cloud computing		X			
Support for the use of open source software		X	X	X	X

Source: OECD (2018[2]), "Digital Government Survey of Brazil", Central version, unpublished.

Box 4.1. Infovia Brasilia: An optical fibre shared service for the federal government

Infovia Brasília is an optical communications network infrastructure that provides to the federal government agencies located in Brasilia with a set of services and functionalities in a safe, high-performance and high-availability environment. Given its shared service nature, the network promotes the reduction of communication costs and a digital environment capable of supporting the implementation of government public policies.

Under the responsibility of the Secretariat of Information Technology and Communication (SETIC), linked to the Ministry of Planning, Development and Management, the government communication network supports information in the form of voice, data and images at high speed.

Source: Ministério do Planejamento, Desenvolvimento e Gestão ((n.d.)[3]), "Infovia", https://www.governodigital.gov.br/transformacao/orientacoes/infovia (accessed on 8 October 2018).

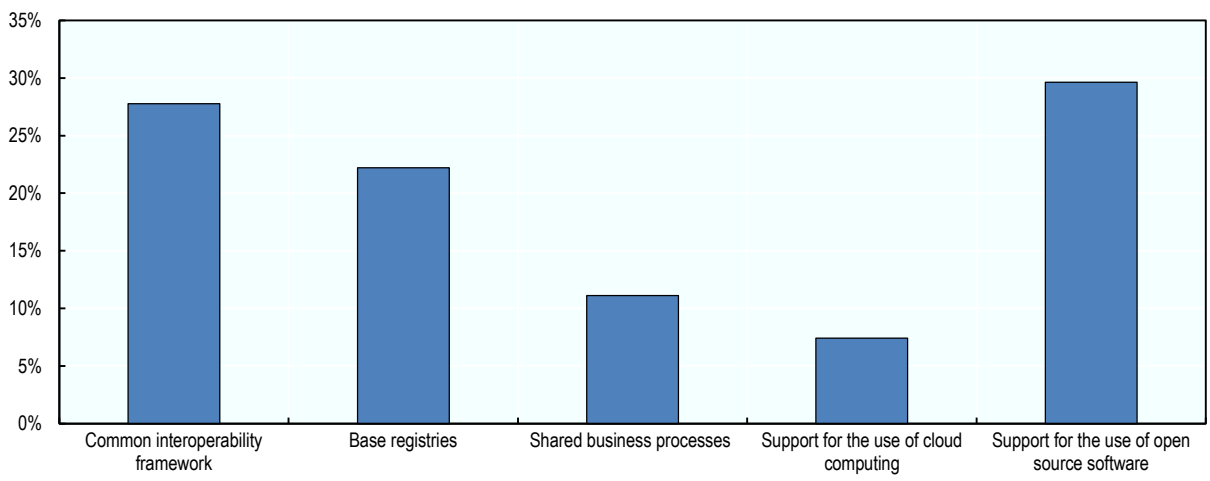
Nevertheless, Table 4.1 reflects some room for improvement in the use of digital key enablers in the following domains:

- The absence of some important key enablers such as shared infrastructures like shared data centres that can lead to the duplication of public efforts for the development of a digital government.
- With the exception of a common interoperability framework and support for the use of open source software, available to different levels of government and to private sector institutions, the remaining key enablers seem to be accessible only by federal level institutions.

Given the importance of key enablers in supporting the consolidation and quality of digital transformation efforts, the government of Brazil should continue prioritising the development of this type of digital mechanism in order to achieve the shift from e-government to digital government. Yet, the development and availability of key enablers is only part of the necessary public effort to reap the full benefit of their potential. The effective use by public sector institutions, recognising their added value for sectoral public sector agendas, is also part of the necessary co-ordinated efforts for digital government development. Based on OECD country experiences, efforts to ensure the uptake and use of existing key enablers by public sector organisations is as important as those undertaken to make them available.

As evidenced in Table 4.1, although several digital key enablers are available to the Brazilian federal administration, their effective use and appropriation could still be significantly improved. None of the available key enablers has levels of adoption above 30% of the federal public sector institutions, demonstrating that significant efforts should be made to improve the current situation of effective use. The results of the Digital Government Survey of Brazil, run within the context of this review, and reflected in Figure 4.1, are aligned with evidence collected though country interviews during the mission to Brasilia in July 2017 where a common consensus was found in the ecosystem of stakeholders about the need to improve the quality of the available key enablers and support their development to improve their effective use across the public sector.

Figure 4.1. Use of digitally enabling frameworks in the Brazilian federal government



Source: OECD (2018[4]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

The following sections will analyse some of the digital key enablers in place in Brazil in more detail.

Common architectures and standards for public sector interoperability

The interoperability of public sector digital systems is one of the most critical key enablers for digital government development. Common architectures and standards for public information technology (IT) systems aid the exchange and reuse of data, with natural benefits in terms of public efficiency, increased knowledge about citizens' needs and

upgraded capacity to improve digital service delivery. Interoperability frameworks are fundamental, in this sense to shift from a silo-based administration with IT systems that do not communicate or exchange data with each other, to an optimised, integrated and data-driven administration.

In Brazil, the e-PING architecture - Standards of Interoperability of Electronic Government - reflects the federal government policy on the current key enabler. Through the definition of requisites, policies and technical standards for the governance and management of digital systems in the public sector, e-PING envisages fostering the use of interoperability standards across the Brazilian public sector. Since 2005, the adoption of the e-PING standards has been mandatory across all the entities of the executive branch of the federal government and optional for the remaining branches (Secretário de Logística e Tecnologia da Informacão, 2005[5]) (Ministério do Planejamento, 2014[6]).

The adoption of e-PING highlights the following general policy orientations:

- adoption of open standards encouraged, except when a transition from a legacy system is underway and when a required open standard doesn't exist
- use of public software or open source software
- availability of technical support in the market, as the digital solutions foreseen on e-PING are broadly used in the market.

Nevertheless, the identified lack of policy levers able to push for strategic policies suggests substantial room for improvement regarding the adoption of e-PING (see Chapter 3). Evidence collected for this review shows that the main reasons impeding a higher uptake of e-PING in the Brazilian public administration include legal constraints, silo-based mindsets, legacies from existing systems and lack of political support.

In 2018, the platform Conecta.gov was launched, reflecting the federal government's commitment to improving interoperability among the different sectors and levels of government (see Box 4.2). Since Conecta.gov was launched during the drafting of this review, the number of application programming interfaces (APIs) available and the level of uptake is still limited. Nevertheless, the use of APIs for the exchange of information within the public sector is among the most agile and innovative models for the creation of an interconnected and data-driven administration, where sharing and integration are a reality. In this sense, the launch of the platform by the Brazilian government positively reflects the country's commitment to reaching the next level for the digital transformation of its public sector.

Nevertheless, the launch of a digital platform represents one of the first steps on a long path to keep stakeholders involved, satisfied and able to feed and consume the platform's information and data. In co-ordination with the proper policy levers and benefiting from the necessary political support, the Brazilian federal government could consider prioritising the release of APIs by public sector institutions for data and information exchange. Doing so would enable Connecta.gov to play a central role in the promotion of the "once-only principle", as well as develop proactive service delivery where the public sector is able to anticipate users' needs and deliver services tailored to their needs, linked to their life events or their living conditions (see Chapter 5).

Box 4.2. Conecta GOV: The Brazilian catalogue of government APIs

Based on the need to improve interoperability, the federal government launched a platform in 2018 called Conecta.gov (www.conecta.gov.br) through Efficient Brazil, a programme of the National Debureaucratization Council.

This new interoperability platform consists of a catalogue of APIs that can be used for the integration of public services and the exchange of information within the administration. The platform enables public institutions to connect their platforms using APIs and release/consume data in a more efficient and effective way.

Source: www.conecta.gov.br.

The Brazilian experience with open source software

Although it cannot be regarded as an emerging trend in the digital government realm, open source software (OSS) continues to gain momentum as a relevant policy lever that can lead to more open, collaborative and efficient public sectors (see Box 4.3). The most evident benefits come from the transparency asset that represents the use of OSS by the public sector, enabling civil society to develop accountability mechanisms to reinforce citizen trust in government institutions. Given the progressive relevance of encouraging citizens to better understand how the government uses their personal data or makes decisions based on algorithms, the use of open source software is an important component of an open state.

Beyond transparency, strategic OSS policies can also support increased collaboration among public sector institutions as well as between the public sector and civil society (e.g. academia, non-governmental organisations, civic tech). This increased co-operation potential can support value co-creation, enabling the development of commissioning practices based on the joint development and reuse of software code. For instance, through the use of open source solutions, the public sector enables the private sector and civil society to reuse and build on public software code, promoting important economic spin-offs and the creation of an economic footprint.

The use of OSS can also support the adoption of common standards across different sectors and levels of government, able to ensure interoperability among public digital systems and avoid vendor-locked scenarios and fragmented contexts where the public sector is unable to exchange data and information due to defensive/closed market strategies followed by software providers. The use of OSS solutions within public administrations can also generate savings and efficiencies since software licencing models can be avoided and the potential of reuse of developed solutions is high, contributing simultaneously to a more coherent and sustainable software policy in the public sector. In addition, promoting more balanced market competition and encouraging the emergence of new market players (e.g. local small and medium-sized enterprises [SMEs]) are among the most relevant and advanced arguments that sustain the use of OSS in the public sector. Through the use of open source approaches, national or local level developers of software are able to better compete with international providers on tenders for the delivery of software to the public administration. This approach can therefore generate a more open, competitive and balanced software market. It also allows governments, through the alignment of policies on open source research and development (R&D), to strategically support the development

of national or local open source market players and reinforce software development sectors in specific national or local contexts.

In line with the experience of some OECD countries (see Box 4.3). OSS is an important component of the development of digital government in Brazil. In fact, Brazil's experience on this topic goes back to at least 2003 when the federal government created a Technical Committee on the Implementation of Open Source Software (Casa Civil, 2003[7]) to promote capacity building for information and communication technology (ICT) professionals in this kind of software, namely reaping the full benefit of online knowledge-sharing tools. This technical committee, responding at the time directly to the Executive Committee on E-Government of the Council of Government (Casa Civil, 2000[8]), prioritised the adoption of OSS solutions, programs and services by the Brazilian public sector to contain the legacy of digital systems based on proprietary software and to promote the migration of proprietary systems to OSS (Ministério do Planejamento, 2018[9]).

Box 4.3. Strategic support for the use of open source in selected OECD countries

Australia

The Digital Transformation Agency of the Government of Australia is responsible for a Digital Service Standard that ensures digital teams build better government digital services. All services that were designed or redesigned after 6 May 2016 fall within the scope of the standard and must be assessed against it.

Principle 8 of the standard highlights that all new source code should be open by default, underlining that OSS helps to:

- reduce costs for projects
- avoid lock-in
- stop duplication
- increase transparency
- add benefits, from improvements by other developers.

France

With the approval in October 2016 of the law on the Digital Republic, the French central government established an ambitious policy to promote the use of OSS in the public sector (Legifrance, 2016[10]). An interdepartmental Open Source Contribution Policy was developed by the Inter-ministerial Directorate of Digital and the State Information and Communication System (Direction Interministérielle du Numérique et du Système d'Information et de Communication de l'Etat, DINSIC) in order to:

- set the rules and principles for opening source codes
- support the ministries and share good practices
- define the governance.

The published contribution policy is focused on new software developments, developed internally by the administration or on behalf of the administration.

United Kingdom

The public sector organisation that leads digital government in the United Kingdom – Government Digital Service (GDS) – maintains several publicly available OSS projects that were used in the country's central digital services portal (Gov.uk). By sharing these projects, the GDS expects to positively contribute to the work of public sector organisations, as well as private and civil society organisations. But GDS also expects to obtain contributions from outside the government to improve the mentioned projects.

In addition, Point 8 of the Digital Service Standard – a set of criteria to help the public sector run good digital services – underlines that all new source code should be made open and reusable, published under appropriate licences.

European Commission

In line with the European Commission's policy of share and reuse, the Open Source Observatory publishes news, studies and best practices on the use of free and open source software solutions in public services. The observatory provides support to public sector organisations in finding OSS made available by other public administrations and solves issues related to its development.

The Open Source Software Observatory shares news, knowledge and solutions from European member countries and also from the European Commission.

Source: Digital Transformation Agency (2018[11]), "Make source code open", https://www.dta.gov.au/standard/8-make-source-code-open/ (accessed on 8 October 2018); DINSIC (2018[12]), "Modalités d'ouverture des codes sources", https://disic.github.io/politique-de-contribution-open-source/en/ (accessed on 8 October 2018); GDS (2018[13]), "Open source software from GDS Operations", http://gds-operations.github.io/ (accessed on 8 October 2018); Joinup (2018[14]), "Open Source Observatory (OSOR)", https://joinup.ec.europa.eu/collection/open-source-observatory-osor (accessed on 8 October 2018).

Another example of the Brazilian government's commitment and innovative role in the adoption of OSS was the creation in 2007 of the Brazilian Public Software Portal (www.softwarepublico.gov.br). The portal is focused on the sharing and development of source code to support the public sector OSS policy (Ministério do Planejamento, 2018[15]). The portal contains a catalogue of OSS submitted to a specific public licencing scheme to be used by the different sectors and levels of government. The portal makes available general management software (e.g. budgeting, planning, project management), as well as specific solutions that can be used in different policy areas (e.g. agriculture, education, social protection). The Brazilian Public Software Portal is a good, concrete example of how a central government is able to build on the potential of open source software for improved collaboration within the public sector and with civil society.

Although these examples demonstrate Brazil's solid experience in the use of OSS, the topic's significance in the country's digital government policy has decreased in more recent years. In the 2016 Digital Governance Policy (Política de Governança Digital) the presence of OSS and public software measures was not core. For instance, although a reference to public software still exists in the first version of the Digital Governance Strategy (Ministério do Planejamento, 2016[16]), the 2018 revised version doesn't mention the topic (Ministério do Planejamento, 2018[17]).

This policy change on the relevance of OSS in the Brazilian public sector reflects several difficulties encountered in earlier years to guarantee the efficiency and sustainability of the

model initially established. During the OECD fact-finding mission to Brasilia in July 2017, the stakeholders were able to express some problems with the government's capacity to leverage the OSS ecosystem and guarantee the efficient support for an efficient and agile adoption of OSS solutions across the public sector. Difficulties in getting assistance for the products made available via the public software portal, and problems keeping them updated and capable of competing with available market solutions seem to have generated some disappointment among public sector stakeholders with regard to the potential to consistently use OSS in the Brazilian public sector. This growing disappointment seems to have encouraged the federal government to reconsider the level of relevance attributed to the use of OSS in the public sector.

The support for a specific policy is normally directly connected to the impact and results of its implementation. In this sense, the negative analysis of the effects of the OSS policy in the public administration over recent years seems to explain the decrease of relevance granted by the Brazilian government to such a policy. Nevertheless, inspired by the benefits produced by open source policies in public sectors worldwide as part of digital government strategies aimed at boosting more open, efficient and innovative administrations, the government of Brazil could prioritise the development and strengthening of an OSS ecosystem able to deliver value and sustainability to the country's digital government policy.

Building on its experience and also building on other country practices (see Box 4.3), the government could consider reinvesting in this policy, namely by:

- prioritising the involvement of and collaboration with the ecosystem of stakeholders, and promoting shared policy ownership and responsibility with civil society as a key approach to ensuring the positive impact of OSS in the public sector
- setting concrete and realistic goals and objectives connected to the implementation of OSS
- introducing an open-source-by-default recommendation in the development of digital services
- creating a monitoring and knowledge-sharing mechanism, such as an observatory, in order to improve the collaboration, awareness and understanding of OSS at federal, state and local levels.

Digital identity for improved public governance

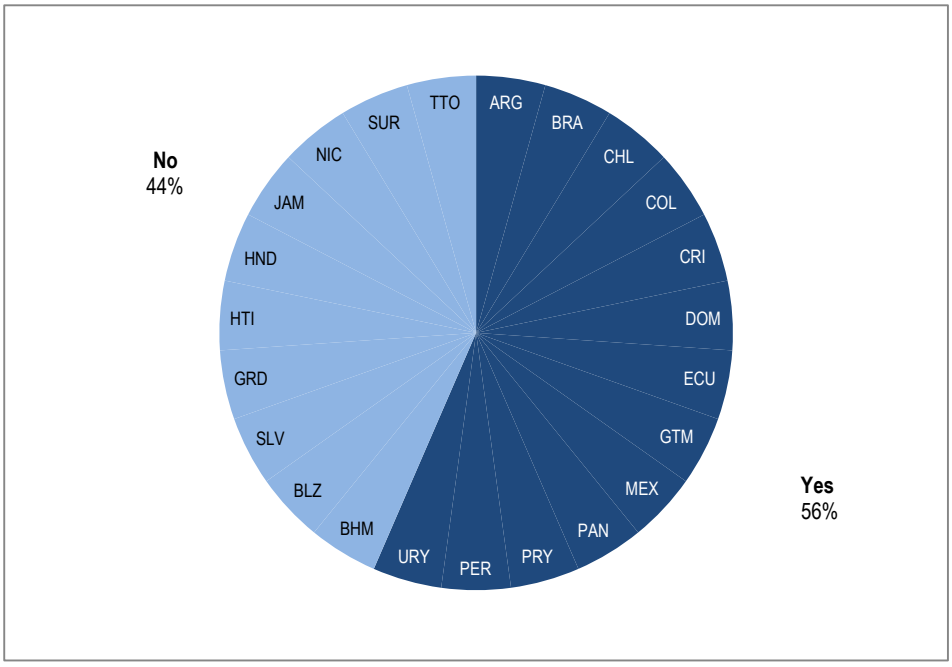
The capacity of the government to identify citizens and businesses requires the development of a digital identity framework able to be adopted as a strategic tool to drive the digital transformation of the public sector. A digital identity framework allows the public sector to have a tool that can provide a reliable, safe and clear identity of its constituents, properly adapted to increasingly digitalised contexts. This leads to the improved management of citizens' and businesses' data and information within the public administration.

Digital identity frameworks also allow citizens and businesses to better interact with the public sector through the use of digital authentication and digital signature mechanisms capable of taking public digital service delivery to a new level. Given its security and reliability, the integration of digital identity mechanisms in public services increases the range and outreach of online service delivery.

When questioned about the existence of a digital identity mechanism, 56% of the countries of the Latin America and Caribbean (LAC) region responded positively, including Brazil (see Figure 4.2), demonstrating the increasing recognition governments attribute to its development. Nevertheless, the following aspects should be considered:

- The existence of a legally recognised digital identification mechanism should not be confused with the existence of a public digital identity framework available to all citizens through a civil identity card (e.g. as in Belgium, Estonia, Portugal, Uruguay) or a publicly recognised strong digital authentication mechanism (e.g. as in Norway, United Kingdom).
- The existence of a digital identity framework is a step and does not guarantee broad adoption and use by citizens and businesses. The uptake of digital identity solutions is one of the most critical aspects of this policy's effectiveness and impact, requiring strategic actions to ensure its utility and integration of services available to citizens and businesses.

Figure 4.2. Existence of a legally recognised digital identification (e.g. digital signature) mechanism in the LAC region



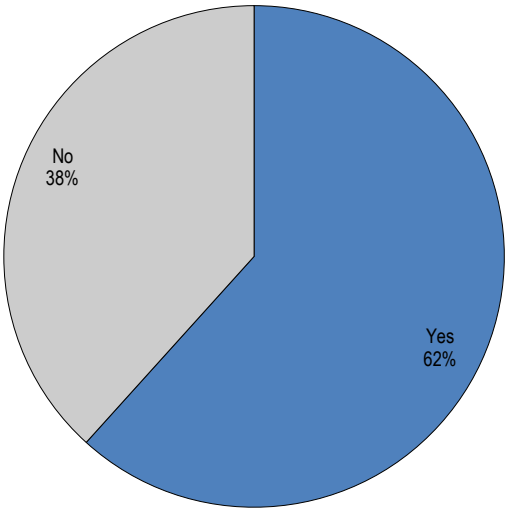
Source: OECD (2016[18]), *Government at a Glance: Latin America and the Caribbean 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264265554-en.

When questioned about using digital signatures for interaction with citizens and businesses, 62% of the institutions that participated in the Digital Government Survey of Brazil responded positively (see Figure 4.3). This reflects a significant openness and willingness of the Brazilian public sector ecosystem to adopt digital solutions to interact with citizens and businesses.

Brazil also has an Infrastructure of Public Keys – ICP-Brasil (Infra-Estrutura de Chaves Públicas Brasileira) since 2001 (Casa Civil, 2001[19]). The infrastructure was created to

ensure the authenticity, integrity and legal validity of documents in electronic form, supporting applications and enabled applications using digital certificates, as well as secure electronic transactions. The Management Committee (Comitê Gestor da ICP-Brasil) is located in the Civil House of the President of the Republic and brings together representatives from several relevant ministries (e.g. Ministry of Justice, Ministry of Finance, Ministry of Planning, Management and Development, Ministry of Science and Technology.

Figure 4.3. Government use of digital identity mechanisms with individuals or businesses in Brazil



Source: OECD (2018[4]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

The establishment of a clear digital identity framework, able to be used by all Brazilian citizens as formal identification in their interactions with the public sector, is delayed, however, due to technical and institutional requirements that have blocked its development.

In Brazil, the main national civil identification document is the identity card (*cédula de identidade* or *carteira de identidade*). Approved in 1983, the document contains basic identification elements such as the citizen's name, date of birth, filiation and photo (Casa Civil, 1983[20]). Since it is considered a weak mechanism for the identification of citizens given its lack of use, other identity documents and numbers have been progressively adopted for civil identification, e.g. the tax number and the driver's licence number.

The progressive digitalisation of public sector interactions with its citizens has determined Brazil's increasing efforts to develop a digital identity system:

- In 1997, a law foresaw a Register of Civil Identity (Registro de Identidade Civil, RIC) (Casa Civil, 1997[21]), regulated by the federal government in 2010 (Casa Civil, 2010[22]).
- Following several setbacks and identified requirements for improvement in the pilot phase, the project developed by the Ministry of Justice was attributed to an academic stakeholder – the Foundation of the University of Brasilia (Fundação

Universidade de Brasília) – in order to analyse the implementation of a single document.

- In June 2015, a proposal was addressed to the federal government (Nexo, 2017[23]).
- In 2017, the National Civil Identification (Identificação Civil Nacional) was created using information from different public registries: the biometrical database of the electoral register and information from the National System of Information from the Civil Register (Sistema Nacional de Informações de Registro Civil). The National Identity Document (Documento Nacional de Identidade, DNI) was also approved. The Superior Electoral Court (Supremo Tribunal Eleitoral), responsible for the country's pioneer electronic voting system, is the entity responsible for co-ordinating the new digital identity framework in Brazil (Casa Civil, 2017[24]).
- The new National Identity Document (DNI) was presented publicly in May 2018 in the Brazilian Senate (OECD, 2014[25]). During the drafting of the current review, the document was being tested and piloted. Access is available through an app to be installed on an Android or iOS smartphone. The document contains a photo, biometrics and the number of the physical person cadastre (*cadastro de pessoas físicas*, CPF). Password-protected, the document cannot be saved in the smartphone and cannot be connected with the phone's chip. The data is based on the National Civil Identification register, managed by the Electoral Superior Court (Senado Notícias, 2018[26]).

Although the creation of a digital identity framework in Brazil has suffered several delays, compromising the country's digital government development, the recent launch of the DNI reflects the government's commitment to overcoming the existing gap. The new public identification mechanism, available only in digital format, allows Brazil to leapfrog the majority of OECD country experiences on digital identity, presenting an innovative solution. Additionally, the fact that the Superior Electoral Court is the public entity co-ordinating the national efforts on this matter supports the credibility of the system, given its experience managing the pioneer and advanced electronic voting system of the country. It should also be stressed that the connection of DNI to Brazil Citizen (Brasil Cidadão), a platform that seeks to provide a single authentication service for citizens to interact and consume governmental services, will also increase the value of the new solution for the digital transformation of Brazil's public sector.

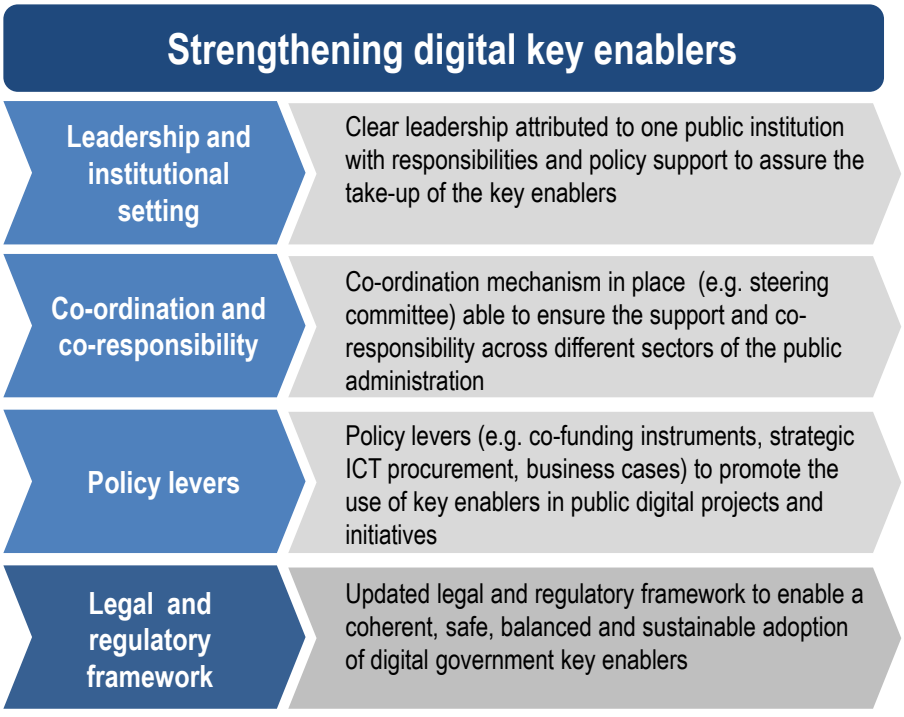
Still, building on the current momentum of broad political and societal support for the topic of digital identity, the Brazilian government could consider:

- taking steps to encourage the adoption of DNI by the Brazilian population, promoting broad information campaigns about its utility and liability
- prioritising the connection between the new DNI and Brazil Citizen, the public single authentication mechanism
- ensuring that the segments of the population that don't own smartphones will not have their rights limited or suffer from any new form of social or economic exclusion.

Updating legal frameworks to strengthen digital key enablers

As mentioned above, and in accordance with Key Recommendation 6 of the OECD Recommendation of Digital Government Strategies which reads, "Ensure coherent use of digital technologies across policy areas and levels of government" (OECD, 2014[1]), the development of interoperability frameworks, a public digital identity system and data-driven approaches are important steps for building an efficient, coherent and sustainable digitally-enabled state. Nevertheless, the development of digital key enablers can only generate value if properly co-ordinated with other elements of the overall digital government governance framework: institutional settings ensuring leadership (see Chapter 2) and facilitating co-ordination and shared responsibility (see Chapter 2), policy levers (see Chapter 3), and legal and regulatory frameworks (see Figure 4.4).

Figure 4.4. Strengthening digital key enablers



Source: Author.

Digital government policies require the development and regular update of the legal and regulatory frameworks as a critical element of the required governance structure for the digital transformation of the public sector (OECD, 2016[28]). In a context of rapid change initiated by the digital transformation underway, a reinforced public commitment for updated regulatory frameworks is required namely to ensure the:

- respect for digital rights (e.g. digital communication, access to information and data, open algorithms)
- institutionalisation of digital procedures, standards and services (e.g. digital identity framework, common architectures)

- attribution of legal value to digital interactions and artefacts (e.g. digital documents, digital certificates, digital signatures)
- adaptability of procurement procedures (e.g. ICT commissioning, pre-market consultation)
- protection of personal data (e.g. data protection laws, consent models)
- security of information systems (e.g. cybersecurity laws).

In Brazil, the government's commitment and efforts to develop digital government can also be observed in the diversity of legislation regulating the use of digital technologies in the public sector, economy and society. In fact, as this review clearly demonstrates, the analysis of regulations issued over the last two decades is undoubtedly a relevant approach to understanding the evolution of Brazil's e-government/digital government policy. Regulation is in this sense a central and critical mechanism assumed by the Brazilian government to promote digital change. Currently, the Brazilian legal framework presents a substantial level of updates on digital government issues, reflecting the level of prioritisation of the topic on the public sector's agenda.

Brazil appears to be characterised by a significant legalistic culture and regulations are regularly pointed to as the most important policy levers to make change happen in the country. Whether to promote the exchange of data within the administration, allow for more agile procurement processes or promote digital inclusion, the stakeholders interviewed during the peer review mission frequently raised the need for new or updated legislation and regulations as the top priority for areas requiring public sector attention and intervention.

Although Brazil should prioritise keeping its digital government legal and regulatory framework updated, the government should also complement the observed legalistic culture with the promotion of a more innovative, piloting and agile-oriented policy mindset, allowing the public sector to better address the digital transformation without permanently considering legal and regulatory actions as the first steps to be taken. An innovative and action-oriented culture, sustained by the permanent involvement of the ecosystem of stakeholders to ensure synergies and joint ownership, is critical to seize the benefits of a transformational context where public sectors are permanently challenged to adapt, manage and lead change.

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Secretário de Logística e Tecnologia da Informacão (2005), *Portaria Normativa n. 5, de 14 de Julho de 2005 - Institucionaliza os Padrões de Interoperabilidade de Governo Eletrônico - e-PING, no âmbito do Sistema de Administração dos Recursos de Informação e Informática – SISP, cria sua Coordenação, definindo a competência de seus integrantes e a forma de atualização das versões do Documento*, https://www.governodigital.gov.br/documentos-e-arquivos/legislacao/Portaria_e-PING_-14_07_2005.pdf (accessed on 16 July 2018). [5]

Senado Notícias (2018), "Documento Nacional de Identidade é lançado no Senado", *Senado Notícias*, https://www12.senado.leg.br/noticias/materias/2018/05/29/documento-nacional-de-identidade-e-lancado-no-senado (accessed on 09 September 2018). [26]

Chapter 5. Towards transformative, citizen-driven digital service delivery in Brazil

The potential of digital technologies to spur more open and collaborative processes was always assumed to be one of the greatest assets of the digital revolution in Brazil. This chapter seeks to explore what can provide a transformative catalyst to digital service delivery beyond technology. The chapter focuses on the digital transformation of public service delivery in Brazil, discussing topics such as the relevance of digital-by-design approaches, the use of emerging technologies and the future development of cross-border services in the Latin America and Caribbean (LAC) region.

Introduction

As governments modernise public operations and processes, they are required to consider how citizens and businesses are increasingly accessing goods and services digitally. In OECD countries and partner economies, the digitalisation of economies and societies is rapidly changing citizens' consumption habits and expectations for service delivery. As analogue processes moved on line, user experiences such as banking on line, making travel arrangements or conducting research on line changed the ways in which services were delivered. More recently, there has been a transformation of the user experience in how goods and services from private sector providers such as Airbnb, Amazon or Uber are delivered. Today's digital economies and societies demand digital governments (OECD, forthcoming[1]). Governments are required to understand the impact that digital has had on their economies and societies in order to understand how to use it to help serve their citizens better.

The use of technology is not the driver of the changes that citizens and businesses are currently experiencing. Digital transformation reflects indeed a broader phenomenon related to how individuals interact and engage with one another, how they access services, how they search, find and use information. Ultimately, economies, societies and governments are experiencing a disruption of how they *function*.

While citizens are increasingly using digital services to fulfil their diverse needs, alternative service deliveries such as telephone, face to face and mail (i.e. paper) remain very relevant for several segments of the population in the majority of the economic and social sectors of OECD countries and partner economies. A policy spurring a *digital-by-design* approach requires building on the full potential of digital technologies, from the start, for improved efficiency and effectiveness of public service delivery to increase citizen satisfaction, while securing the availability of a multichannel approach for service delivery. While *digital-by-default* policies foresee digital as the privileged or unique channel of service delivery – at the risk of engendering new forms of exclusion - in a *digital-by-design* approach, the focus is not on the digital delivery channel. It is rather on securing equal efficiency and effectiveness of service delivery regardless of the channel used to access the service, through use of technology as only an option to run the internal processes, while digital remains just one of the delivery channels (e.g. face-to-face or digitally assisted service delivery (see Figure 5.1).

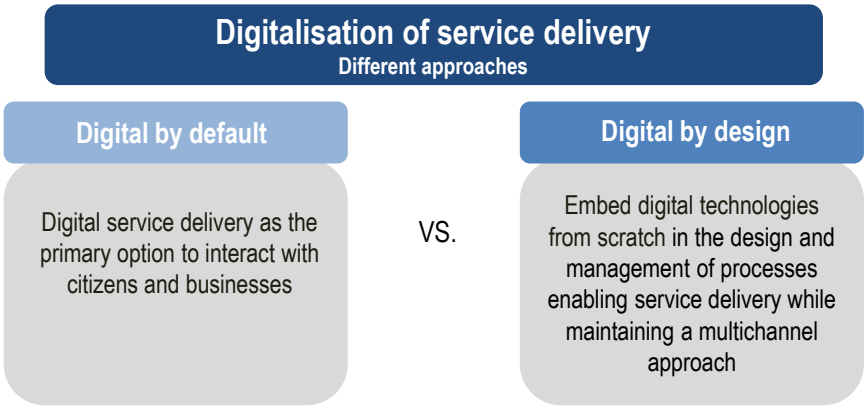
Strengthening a *digital-by-design* approach will require governments to also consider the following priorities:

1. understanding emerging opportunities to enhance citizens' well-being and quality of life
2. mapping the level of digital literacy across societies to leverage the benefits of technology to deliver equitable and inclusive benefits.

Digital service delivery provides governments with the opportunity to simplify and transform the way services have been traditionally delivered. Effective use of digital technologies should become more about learning to find ways to understand and support citizens and less about how to streamline internal government business processes. In fact, a service designed effectively to incorporate citizen needs, by streamlining services and enabling data interoperability between government institutions, will be more effective given the holistic view and system-thinking approach that supported its development. Citizen-driven approaches then push the boundaries of what digital technologies are

capable of to bring citizens and governments closer together. Combining the two concepts of "government as a platform" and "citizen-driven" favours a coherent use of technologies across policy areas and all levels of government, thus drawing the public sector closer to citizens and allowing for the co-creation of public value.

Figure 5.1. Digital by default vs. digital by design



Source: Author.

This chapter seeks to understand the concepts of citizen-driven service delivery along with the key enablers that can help government break down silos and improve the implementation of current digital transformation strategies in Brazil.

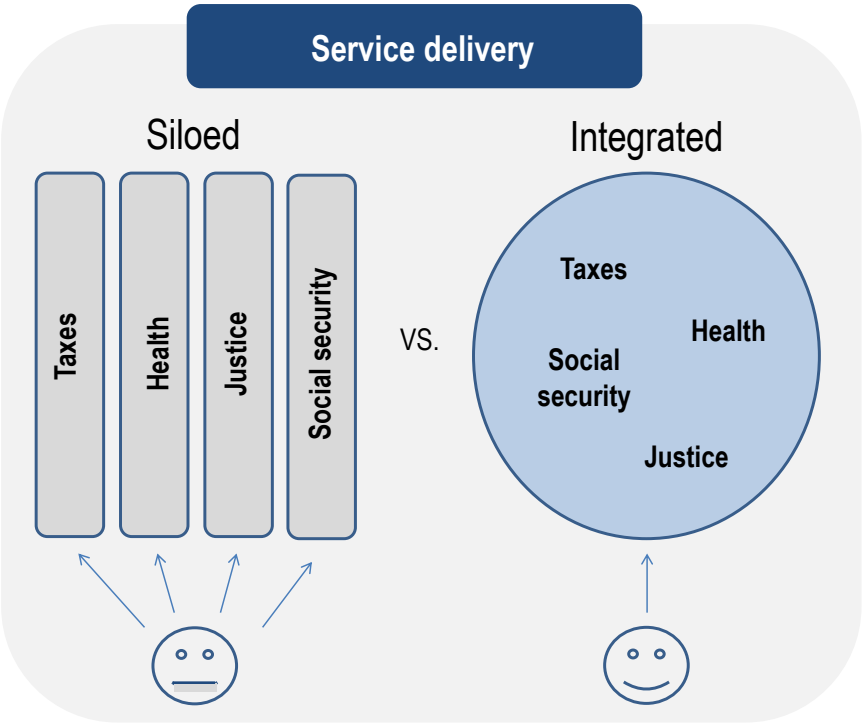
Integrated digital service delivery: Focusing on citizens' needs

In Brazil, public services are mostly provided by the states and the municipalities. Indeed, the amount of services provided by the federal government is not substantial when compared with the other levels of government. Though most public services that citizens receive will be from states and municipalities, and policy directions from the federal level do not always filter down easily to the local level, this should not mean that any less consideration should be made for the delivery of services. The effort to understand citizens in terms of what they need and what provides value to them or what makes their lives better is key at all levels. The need to seamlessly integrate services for the benefit of the user is all the more important and is faced not only by Brazil but by most countries with federated systems.

Progress towards digital government, including reinforcing data interoperability, process-flow mapping and integrated service delivery, is an opportunity for the public sector to improve citizens' experiences of services. Potential gains include improving procedures, avoiding gaps, reducing overlaps and reinforcing simplicity in service delivery. Figure 5.2 illustrates integrated service delivery, where the user experience is put at the centre of service delivery design.

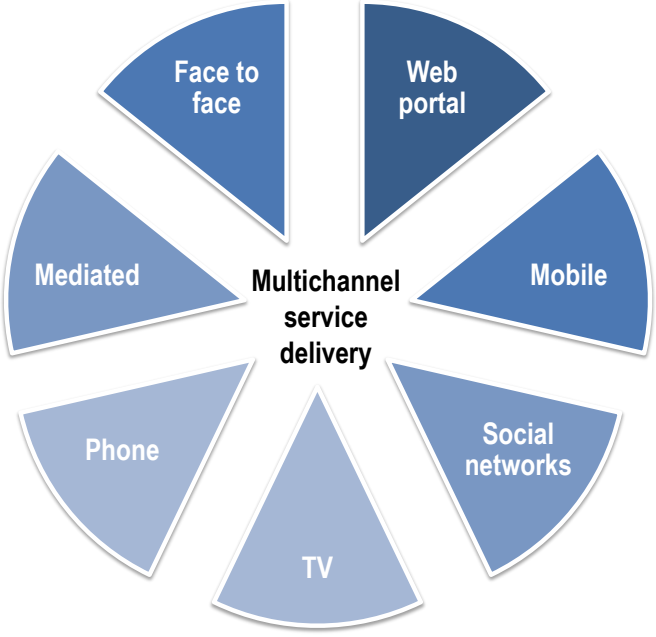
Nevertheless, integrated service delivery in the back end should be embraced together with a multichannel approach in the front end to add convenience and inclusion to benefits offered to citizens through public services (see Figure 5.3).

Figure 5.2. Siloed vs. integrated service delivery



Source: Author.

Figure 5.3. Multichannel service delivery approach

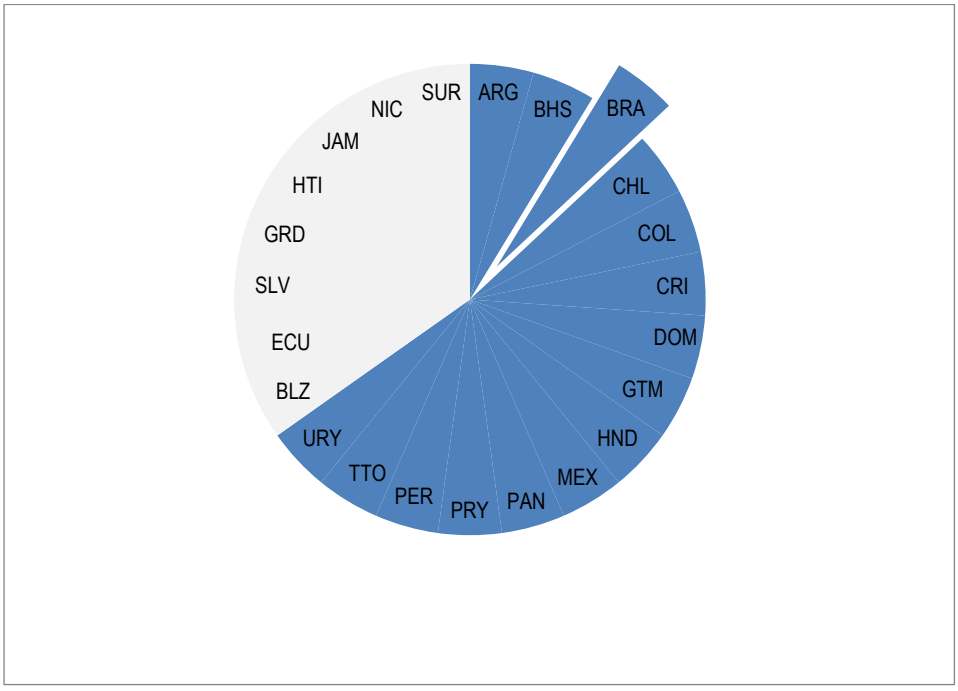


Source: Author.

As is the case in over half of Latin America and Caribbean (LAC) countries, Brazil has a national citizens' portal (see Figure 5.4).With its 700 services, the centralised Services

Portal (Portal de Serviços) (www.servicos.gov.br) is the main online one-stop shop for government services in Brazil. The availability of services in an integrated way provides the citizen with a simplified method for finding and accessing available services. With the Platform of Digital Citizenship (Plataforma de Cidadania Digital) (Casa Civil, 2016[3]), the Brazilian government incorporated a unique digital authentication system into the Services Portal and increased the number of fully transactional services to allow for the evaluation of citizens' satisfaction with digital services and improve the global monitoring of digital service delivery. The cross-cutting initiative is focused on transforming the delivery of public services on line through the improvement of the Services Portal.

Figure 5.4. Existence of a national citizens' portal for government services in LAC countries



Source: OECD (2014[4]), "Survey on Digital Government Performance", https://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796 (accessed on 16 July 2018).

To build on the momentum of a single authentication system for users, coherent decisions on the digital service policy for the government are recommended to ensure the cohesive integration of digital with service delivery with user research. This should be integrated into the Digital Governance Strategy. At the crossroads of interaction with each one of these integral pieces to digital service delivery sits the Information Communications Technology Secretariat (Secretaria de Tecnologia da Informação e Comunicação, SETIC) in Brazil. SETIC is responsible for defining the public policies related to the use of technology in the federal public administration (see Chapter 2). Already the Secretariat holds the pieces that would help create a strong digital service policy with consideration for the existing digital governance policy (Ministério do Planejamento, 2018[5]).

Although the country has several good examples of digital openness and collaboration in the public sector, a cross-cutting digital service approach as a core policy component of the Digital Governance Strategy would help promote collaboration between different sectors and levels of government, foster co-creation of public value with civil society, a cultures

of sharing and reuse of government data, and lead to more inclusive and accessible mechanisms for the entire ecosystem of users.

Harnessing mobile technologies and the potential of social media

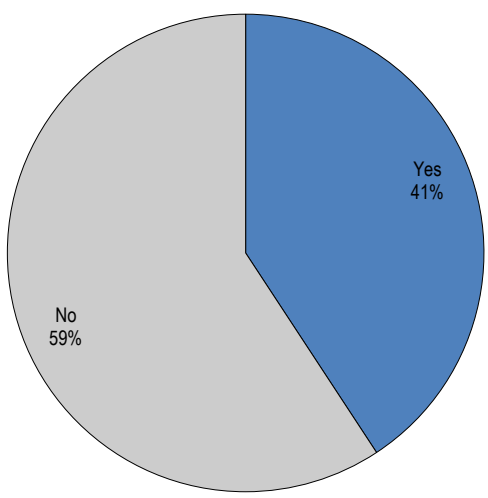
Both mobile and social media technologies provide governments with opportunities to get closer to citizens and collaborate with them directly. Moving from e-government to digital government approaches broadens and expands the notion of how digital technologies can help transform people's interactions with governments and improve their access to goods and services (OECD, forthcoming[1]).

Social media can make communications more effective and provide networked societies with a reach that without compare in the unplugged world. Governments are recognising the power of social media to move beyond communications, to more effectively engage and collaborate with internal and external partners in the digital ecosystem (Mickoleit, 2014[6]).

In line with OECD trends, Brazil has recognised the power that social media can grant a government to connect with its people. It is important to note that Brazil gives thought to the digital rights of its citizens in the Digital Transformation Strategy (Estratégia Brasileira para a Tranformação Digital) by making mention that though the technology is an engaging and collaboration asset, enabling a better understanding of citizens' needs, there is also a need to protect the fundamental rights of citizens.

Of the federal government institutions that answered the Digital Government Survey of Brazil, 41% stated that they use social media to communicate with citizens about their institutional strategy/initiatives, reflecting a culture of progressive use of digital technologies to improve relations between the public sector and the ecosystem of digital government stakeholders (see Figure 5.5).

Figure 5.5. Social media use in the Brazilian federal government



Source: OECD (2018[7]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

The power and reach of mobile technologies, too, cannot be overlooked as their role in the current digital transformation of economies, societies and governments is substantial (OECD/ITU, 2011[8]). Mobile communications devices have been able to reach large parts of populations faster than fixed Internet broadband has been able to. Indeed, they have reached territories that may never have the infrastructure required for fixed Internet or wired phone service. And so by virtue of their ubiquity, mobile communications have offered the opportunity to governments to bring public services in all its machinations closer to citizens, adding mobile to its delivery channels.

As mentioned in Chapter 1, Brazil is a large and geographically diverse country. Fixed broadband access is present in 40% of households, and growth is slow due to regions that are difficult to access, which makes laying the infrastructure for fixed broadband problematic (Government of Brazil, 2018[9]). However, mobile technology is able to leapfrog this infrastructure issue of fixed broadband. For example, in 2014, 76% of users accessed the Internet through mobile, compared to 80% via computer. By 2015, mobile Internet use rose to 89%, while computer access fell to 65% (Comitê Gestor da Internet no Brasil, 2016[10]).

Digital inclusion has improved greatly due to mobile technologies. However, the government will need to consider the spectrum of access when thinking about digital service delivery. To ensure that a digital divide is not created, multichannel access to services will need to include a range of mobile access – from SMS texting to 4G access.

In using new technologies to rethink and re-engineer business processes, simplify procedures and open new channels of communication and engagement with civil society, the government can reinforce user-driven approaches. This will allow Brazil to realise the potential for digital technologies to empower citizens while enabling public authorities to bring citizens' voices and needs to the fore, and use technologies to respond to these needs.

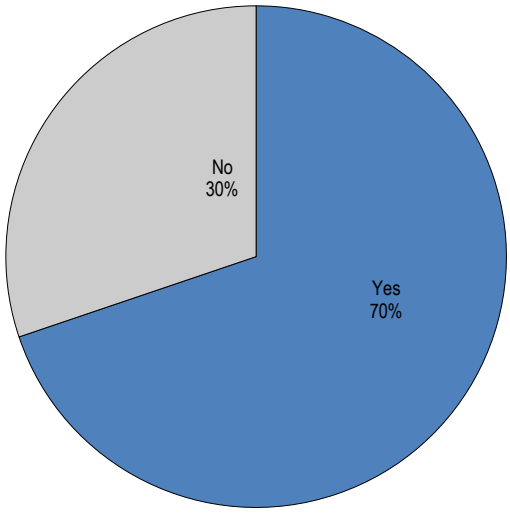
A digital rights culture

For as many potential opportunities and efficiencies that can be realised from digital technologies, important ethical decisions with regard to citizens' well-being need to be at the forefront of governments' efforts to foster the digital transformation of the public sector. Trust in institutions requires that these are competent and effective in delivering on their mandates and that they operate consistently with a set of values that reflect citizens' expectations of integrity and fairness (OECD, 2017[11]). The use of data and algorithms to support the public administration should be framed by highly ethical and transparency requirements, avoiding any doubt in possible biased results arising from opaque policy procedures and services. Consent models, allowing the citizens to have the final word on the use of data and the use of emerging technologies for the production of decisions or the delivery of services, should be in place to build citizen trust in digital change. The involvement of civil society to promote accountability in the use of emerging technologies and investment in transparency procedures and initiatives should be considered by governments as requirements for a digitally transformed public sector. This section will outline how the Brazilian government can build citizen trust more readily through public engagement and incorporating civil society's inputs throughout the transformation process.

Pillar 1 of the OECD Recommendation on Digital Government Strategies (OECD, 2014[12]) highlights the relevance of digital technologies for more open, inclusive, engaging and collaborative government as a means to better support the growth of the economy and improve citizen well-being.

Brazil is in many ways a good example of cultivating this engagement with citizens by having conducted extensive consultation and engagement with civil society, including undertaking a digital public consultation process when developing the Brazilian Strategy for Digital Transformation (see Chapter 2). As reflected in Figure 5.6, 70% of institutions surveyed in the Brazilian federal government for this review have used digital platforms to engage with citizens.

Figure 5.6. Institutional use of digital platforms to engage with citizens in decision-making processes



Source: OECD (2018[7]), "Digital Government Survey of Brazil", Public sector organisations version, unpublished.

In addition, several projects take into account the rights of the citizen in a digital world. For instance, the Participa.br platform was developed as a portal for public discussion and consultation on policy issues. The platform has been used by different public sector institutions at the federal level to crowdsource input from citizens on initiatives relevant to digitalisation such as the Internet of Things plan, the Digital Governance Strategy (see Chapter 2) and open data initiatives.

The Brazilian Civil Rights Framework for the Internet (Marco Civil da Internet) was passed into law in 2014 (Casa Civil, 2014[13]), following a process that began six years prior. The framework institutionalises a set of public policies with a focus on the citizen, covering privacy, record keeping, and net neutrality. As society and businesses in Brazil increasingly operate in the digital sphere, determining the rights of the citizen became a central priority for the government. At the very heart of the law is the promise that Internet access is a requirement for civil rights, reflecting the government's very proactive approach to promoting digital inclusion (see Box 5.1) and protecting citizens' rights as the digital transformation progresses.

Box 5.1. Challenges for digital inclusion in Brazil

The challenges for digital inclusion in Brazil were the subject of a report by the Federal Audit Office (TCU) entitled, *Public Policy on Digital Inclusion* (2015). Contemplating the actions of the last 15 years, the report highlights the creation of the Electronic Government - Citizen Assistance Service (GESAC) Programme in 2002, under the responsibility of several ministries, with the aim of providing connections to the Internet, mostly via satellite, to telecentres, schools, and public agencies located in remote and border regions. Other projects are also mentioned in this report, such as the Digital Inclusion Programme, the Connected Citizen Project, the One Computer Per Student (UCA) Project and the Telecentros.br Programme. Of particular note are the following projects: Broadband Programme in Schools (PBLE), the National Broadband Programme (PNBL), and the Special Taxation Scheme of the National Broadband Programme for the Implementation of Telecommunications Networks (REPNBL).

The programme for launching the Geostationary Defence Satellite Strategic Communications - SGDC is mentioned as the most relevant action of the PNBL in financial terms. In addition, it also makes reference to the international negotiation for the construction of the new submarine cable connecting Brazil and Europe, in order to increase the capacity of traffic between the two continents, to reduce costs of transmission and to provide more security to the data transported.

In addition, the TCU report points to the lack of digital literacy of the population as an obstacle to the full digital inclusion of Brazilian society, as well as the lack of formal literacy on the part of the population. Finally, the TCU report diagnoses the management of public policy, highlighting the difficulty of co-ordination and articulation in different government environments: between federal government agencies that act in some way in digital inclusion, and also between central government and state and municipal agencies.

Source: Government of Brazil (2018[9]), *Estratégia Brasileira para a Transformação Digital E-Digital*, Government of Brazil, Brasilia..

In 2011 Brazil became one of the founding partners of the Open Government Partnership (OGP). This landmark partnership heralded a new public service culture of openness and transparency, demonstrating Brazil's public administration willingness to be not only more open and transparent but also more responsive to its constituents. The Open Government Partnership requires members to publish action plans that are developed with public consultation. These plans must be renewed and updated every two years, providing governments with the opportunity to become closer with their citizens. The Brazilian action plans are published on a centralised portal for open government (http://governoaberto.cgu.gov.br/).

Following adherence with the OGP, Brazil published its first access to information law one month later (Casa Civil, 2011[14]). The law applies to federal, state and municipal levels of government and represented an important move of the government towards openness. Nevertheless, recent assessments of its implementation have raised some critical issues among the ecosystem of digital government stakeholders (Michener, Contreras and Niskier, 2018[15]). The general public does not seem to be aware of the law, nor how citizens can access information. Lack of awareness of laws is a common challenge faced by many governments. However, in the case of access to information, capacity within the

government to administer the law could be increased to address requests by citizens for information through digital-by-design means.

Recently, a bill was passed into law (Lei no. 13,709/2018) on data protection, specifically for the protection of individual citizens' personal data. It is an important landmark bill that covers a wide array of situations. The bill defines personal data as "the information related to a person who is 'identified' or 'identifiable'". The bill also states that given some information on its own does not reveal to whom it would be related (an address, for example), if processed along with other information, could indicate the identity of a person (address combined with age, for example). Children are covered in the bill by identifying parameters for processing information about them. The bill extends to the collection, handling in digital media of personal registration data and the processing of personal data rules for private sector companies as well. International cross-border data collection is also included. With regard to protecting citizens' rights, the key points of the bill are:

- A special register of "sensitive" data covering a citizen's race, political opinions, beliefs, health status and genetic characteristics should be established.
- Use of this special register of "sensitive" data is restricted since it carries risks of discrimination and other damages to the person.
- Authorisation to collect and process data must be requested clearly, in a specific clause, and not in a generic way.
- In case of any security incident that may cause damage to the owner of the information, the company is obliged to communicate to the person and to the competent body.
- An inspection and/or regulatory body should be established for oversight.

When determining how technologies can provide value, governments need to not only determine what efficiencies can be provided internally to create a more efficient bureaucracy but also what value it brings to citizens. The "once-only principle" is one example that provides benefits to both governments and citizens. Essentially, the principle means that the citizens should only have to provide personal data to the public sector once, with governments bearing the burden of establishing the necessary system interoperability that enables the different public sector organisations to access and share citizens' data as needed, so citizens should no longer have the administrative burden of re-submitting personal data for every service needed.

This personal data can be stored in authoritative databases known as base registries. As the authentic sources of data for public administrations, base registries are one of the foundational elements that make the once-only principle a reality. It requires system-thinking and whole-of-government approaches rather than agency-based ones to enable the public sector to make use of the data it already holds. This was the case with the UK Digital Transformation Strategy, which sought to develop the infrastructure of base registries. Norway established four base registries to maximise user-centred services and create a data-driven public sector (OECD, 2017[16]).

The Brazilian government could consider investing in transparency mechanisms and in establishing an ethical framework for the implementation of ethical requirements, building on the recently approved law on data protection (Casa Civil, 2018[17]). This may spur the responsible and accountable adoption of emerging technologies, assisting public sector organisations (see the section above, "Harnessing mobile technologies and the potential of

social media") in reinforcing citizen trust, a critical requirement for the success of decisions on the expanded use of emerging technologies.

It is important to establish legal frameworks and policies to ensure that the government has thoroughly considered the digital rights of its citizens while undergoing a digital transformation (see also Chapter 4). This thoroughness is strengthened in the lengths that Brazil has gone to consulting with citizens and businesses on digital rights. Though setting the foundations for good governance is essential, the Brazilian government will need to ensure that it can demonstrate respect of digital rights so as to ensure that citizens and businesses feel a "return on investment" for their time spent in engagement and consultation with the government. For example, the government should be able to demonstrate that data in a base registry should be auditable and provide assurances to citizens regarding what their personal data is used for. Collaboration and communication are key areas to concentrate on to improve the implementation and enactment of policies and laws.

Open government data for improved service delivery

Digital governments enable policy design to occur in a more coherent and integrated way by using technology to foster collaboration, not only within public institutions but also more broadly with citizens. Governance over public sector (government) data and information and how these can be used is critical. The ability to collect, produce and process massive amounts of data to draw insights and identify trends is a core characteristic of new digital organisations and business models. It is only by leveraging data from traditional and alternative sources that the public administration can proactively gain a better understanding of users' needs, continuously improve its performance and engage external stakeholders in public value creation.

This evolution can be seen in moving from access to information to open data. In 2011, Brazil adopted an access to information law, Lei de Acesso à Informação Pública (Casa Civil, 2011[14]). Even though this important step, taken a month after Brazil became a founding member of the Open Government Partnership, is extremely important (OECD, 2018[18]), the experience across OECD countries and other economies shows that a strong focus on access to information may lead to reactive behaviours more focused on complying with citizens' requests as per the law, rather than proactively providing data and information.

Public bodies produce and commission massive quantities of data and information. By sharing these data in ways that are easily accessible, usable and understandable by citizens and businesses, governments improve access to valuable information with the potential to transform public services. Exposing the data can lead to uses never considered before and therefore spur innovation and support economic and social development. Furthermore, open data opens the government up to scrutiny and grants citizens access to information that effectively allows the public to evaluate the government. This transparency brings government closer to the citizens it serves. Open government data (OGD) refers to data produced or commissioned by government or government controlled entities, and that can be freely used, reused and redistributed by anyone (Ubaldi, 2013[19]).

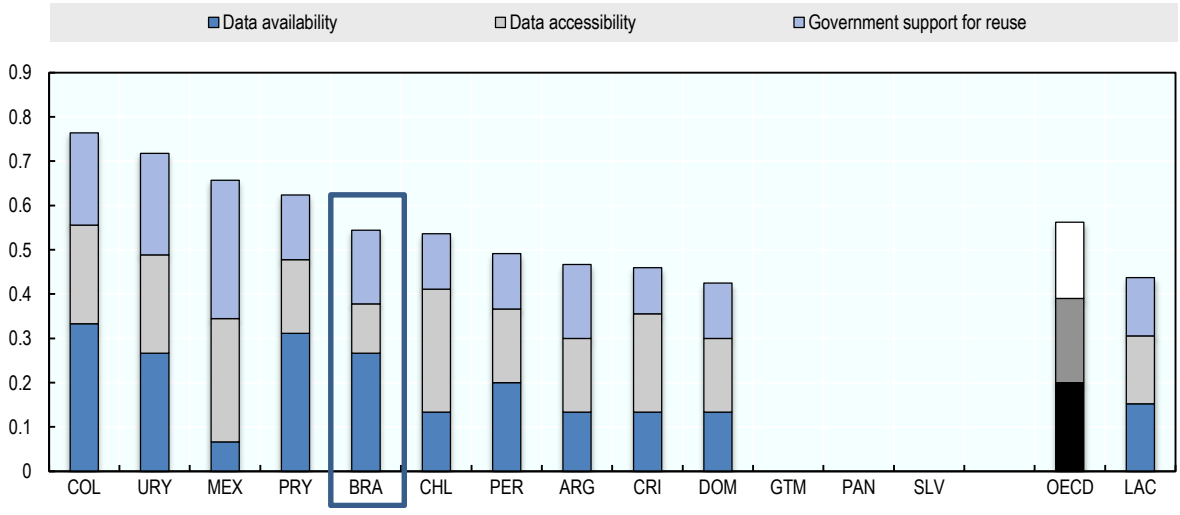
There is significant overlap among access to information (ATI) and open government data (OGD) movements, since both aim to increase the transparency of government so that all members of society can enjoy the inherent social and economic value of information that has been generated and collected with public funds. Nevertheless, there are also differences

in the approaches and strategies employed by ATI and OGD. One of the main differences is that ATI advocates place emphasis on access to qualitative as well as quantitative information, which is often stored in the form of documents, whereas OGD advocates focus on data that is held in government databases, focused on both the technical and legal issues related to the access, use and reuse of these datasets.

As Figure 5.7 illustrates, Brazil compares favourably with other Latin American countries in establishing open, accessible and reusable data.

Figure 5.7. OURdata Index: Open, Useful, Reusable Government Data, 2016

Composite index from 0 lowest to 1 highest



Note: Guatemala, Panama and El Salvador do not have a one-stop-shop portal. Data for Chile, Colombia and Mexico refer to 2014 rather than 2016.
Source: OECD (2016[20]), *Government at a Glance: Latin America and the Caribbean 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264265554-en.

As the OGD movement matures, public sectors seek policy improvements that can be made, namely upon the existing portals and efforts to release data. A leader in the OGD movement, **Mexico** recently undertook a review of the country's policies and initiatives (OECD, 2018[21]). One key finding was that in order for open government data to be sustainable in the long term, building capacities would be required within the public sector and across the ecosystem of OGD stakeholders. Institutions need to be provided with the incentives and the capabilities to exploit the potential of data at the institutional and sectoral level. In line with this, Brazil's federal government will need to emphasise the critical importance of data reuse for value co-creation by institutions and the open data ecosystem at large.

Brazil has many pockets of innovative work on OGD. For example, there is the Global Data Model (Modelo Global de Dados, MGD). In mid-2009, the Interministerial Committee of the Macroprocess of Planning, Budget and Finance (MPOF) was created, formed by the Ministry of Planning, Budget and Management (MP), the Ministry of Finance (MF) and the public information and communication technology (ICT) company, SERPRO. This arose from the need to identify and integrate data between the information systems of the federal government. The elaboration of an integrated and dynamic map of

data was formed by the various information systems that make up the Administrative Management Systems (EMS). These are responsible for a governmental management process such as: monitoring government programmes and actions, financial and accounting administration, procurement and contracting, budget preparation and monitoring, among others. The MGM is a significant form of data governance.

Brazil currently operates two open platforms that reflect the recognition of data as a strategic asset for the digitalisation of the public sector in Brazil:

- Portal Brasileiro de dados abertos (dados.gov.br): A single national portal for OGD at the federal level
- GovData (govdata.gov.br): A platform to cross-check information and produce strategic information, relaunched in 2018.

In 2015, the Association of Audit Courts of Brazil (Associação dos Membros dos Tribunais de Contas do Brasil) ran a hackathon inviting app developers, civil society organisations (CSOs) and members of Brazil's local supreme audit institutions (SAIs) to discuss how open data could specifically contribute to the work of the SAIs, in order to develop more efficient institutional open data strategies that build on the identification of a critical mass of users and demand-driven data disclosure based on users' needs and the context of the national open data ecosystem (OECD, 2016[22]).

Furthering the efforts on OGD and ATI, the Presidential Decree no. 8,777 of 11 May 2016, established the Brazilian national open data policy (Casa Civil, 2016[23]). Among other provisions, the decree identified a set of public sector information categories to be prioritised for publication in open and machine-readable formats, in an effort to fight corruption in the country (OECD, 2016[22]), including:

- the names of civil servants in managerial and directive positions in state-owned enterprises and subsidiaries
- data from the Integrated Financial Management System (SIAFI)
- information on the corporate structure and ownership of companies collected by the National Register of Legal Entities
- public procurement information collected through the Integrated General Services Administration (Sistema Integrado de Administração de Serviços Gerais, SIASG)
- cadaster and registration information related to the control of the execution of parliamentary amendments.

The Brazilian experience clearly demonstrates that data is an asset and needs to be governed as such. Data governance is imperative to ensure a successful digital transformation from different angles: data discovery, common understanding, collaboration, interoperability and an ethical point of view. For example, though open government data recognises data as an asset, the data will not be useful if it cannot be found. If the OGD ecosystem of stakeholders does not have a common understanding of the data through metadata and common vocabularies, and data visualisation techniques are not developed to increase accessibility, the data will not be useful either. Without systems' interoperability, full data interoperability cannot be achieved, and the value of data is not fully exploited (see Chapter 4).

Whereas Brazil has made great strides in trying to cultivate an open environment through changes to laws and introducing bills for open government data, as well as demonstrating

the government's will to innovate change via hackathons or platforms for data analysis, there remains the need for a formal strategy to educate public officials and the general ecosystem about open government data, so as to normalise the innovations that Brazil has put in place.

Emerging technologies for digital service delivery

Emerging technologies (ETs) – also known as disruptive technologies - such as artificial intelligence (AI) and blockchain technology, are progressively penetrating economies and societies, with significant potential for disruption. Governments are not exempt from this digital transformation trend that could reinvent the relationship between public administrations and their constituents. ETs have the potential to generate more informed policy-making processes, creating improved capacities to monitor, manage and forecast to better serve the needs of citizens and businesses. Following the practices of top private service providers such as Google, Amazon or Netflix, which citizens are increasingly used to, public administrations can build on advanced emerging technology tools to develop convenient, tailored and proactive service approaches (OECD, forthcoming[1]). Governments now face the challenge of adapting their governance and institutional frameworks to the digital transformation underway, reinforcing capabilities, prioritising the development of technical and leadership skills and securing the necessary adjustments to legal frameworks. Governments are also required to open new channels of collaboration capable of absorbing the inputs of the ecosystem of digital government stakeholders. Public value can be generated if the opportunities of collaboration and partnerships with stakeholders on the use of AI are seized for improved service design and delivery, benefiting for instance from synergies with academia and the private sector.

Public data is one of the critical assets that ETs, namely artificial intelligence, is required to benefit from. The proper use of data analytics enables the public sector to shift from top-down and government-centred design of public services to the development of user-driven service design, responding to targeted citizens and businesses' needs, bringing the delivery of public services to a new level of sophistication and responsiveness. Integrated cross-cutting services can be designed based on the proper combination of data produced or collected by different sectors of the public administration, enhancing policy effectiveness, reducing the burden on citizens through simplification of procedures and upscaling the efficiency of the use of public resources.

Emerging technologies based on quality public data can also lead to a shift from a reactive service delivery approach where the citizen is always required to start a service to accomplish a public duty or access a public benefit, to a proactive service delivery paradigm where the public administration is capable of anticipating citizens' needs and progress on the provision of a specific service. For the development of this paradigm, public services are required to use ICT to improve understanding citizens and businesses, anticipating citizens' services requests through the proper use of emerging technologies such as artificial intelligence (OECD, forthcoming[25]).

Furthermore, in a data-driven public sector, citizens can influence and contribute directly to the design and development of public service, as their data helps governments to understand their life situations and needs better, allowing for the development of more responsive, inclusive and profile-based services. Through proper data processing and analytics, the usage of digital services by citizens and businesses can also be better understood, allowing for the development of automated feedback loops that can progressively improve the usability of public services.

Given the inevitability of emerging technologies use (namely AI) in the public sector and its impact on service delivery approaches, OECD countries are progressively developing policies to address the change underway better. For instance, the government of Canada is developing a Pan-Canadian Artificial Intelligence Strategy, envisaging an increase in the number of researchers working on this technology and promoting global thinking of the leadership on the economic, ethical, policy and legal implications of advances in AI. In Finland, a steering group promoted by the Ministry of Economic Affairs and Employment launched a report highlighting several conditions for the country to nurture the benefits of AI. The group also developed a report on the impact of AI on the future of work. In Italy, the Artificial Intelligence Task Force led by the Agency for Digital Italy (AGID), a government agency responsible for the implementation of the Italian Digital Agenda produced a white paper on the opportunities offered by AI to improve the quality of public services. In Portugal, a research and development (R&D) programme of EUR 10 million was launched to fund the development of artificial intelligence solutions for the public sector (OECD, forthcoming[1]).

In Brazil, important policies being developed by the federal government seem to be creating the foundations and the demand for the use of emerging technologies for improved service delivery, using public data as a critical asset. Examples include:

1. **Sharing of public databases**

   In June 2016, the Brazilian federal government decreed that the owners of public entities or those responsible for the management of official public databases should make data accessible to other public sector organisations. The main purpose of the policy is to improve the delivery of services (Casa Civil, 2016[26]).

2. **The *Conecta.gov* platform**

   The recently launched interoperability platform of the federal government, *Conecta.gov* (www.conecta.gov.br), contains a catalogue of application programming interfaces (APIs) to promote the integration of public services and the exchange of information within the administration. The progressive integration and exchange of information among public sector entities set an adequate context for the progressive introduction of technologies such as data analytics and artificial intelligence to better monitor and forecast citizens' needs, and to develop citizen-driven public services.

3. **Simplification of service delivery**

   In July 2017, the federal government approved a strategic policy for the simplification of service delivery based on the once-only principle, challenging the public sector to rapidly improve its connectivity, exchange of information and management of data to maximise citizens' convenience when interacting with the public sector.

4. **Internet of Things**

   Considering the increasing importance of the topic of Internet of Things in the current digital transformation context, a diagnosis and a suggestion for an action plan were developed in 2017-18. The project commissioned by the National Development Bank (BNDES) and the Ministry of Science and Technology foresees three mobilising projects for the action plan, a governance structure and a monitoring framework (Banco Nacional do Desenvolvimento, 2018[27]).

Considering the foundations already in place for the improved exchange and better management of data, the current political commitment to improve service delivery, as well as some advanced examples of the use of emerging technologies in the public sector (see Box 5.2), the Brazilian government should consider building on the current momentum to promote the use of emerging technologies for improved efficiency and effectiveness, enhanced public sector intelligence and reinforced convenience for citizens and businesses.

The development of an action plan on the use of emerging technologies, for example, AI, could be considered as a complementary programmatic document of the current Digital Governance Strategy. The development of the action plan could be co-ordinated by the System for the Administration of Information Technologies Resources (Sistema de Administração dos Recursos de Tecnologia da Informação, SISP) (see Chapter 2) and executively led by the Secretariat of Information and Communication Technologies (SETIC) of the Ministry of Planning, Development and Management. Since the capacity of countries to lead the transformation through emerging technologies also depends on their ability to support R&D on this topic, the allocation of funding resources for the development of innovative service delivery solutions for public sector should also be considered.

Box 5.2. Examples of the use of emerging technologies in the Brazilian public sector

Improved economic competition

The Administrative Council of Economic Defence (Conselho Administrativo de Defesa Econômica, CADE) uses artificial intelligence to identify competition dysfunctions in critical areas of the market. Responding to the Ministry of Justice, CADE has developed improved techniques to spot cartel practices in areas such as the prices of gas.

Reinforced integrity in the public sector

The Ministry of Transparency and Comptroller General of the Union (CGU) uses artificial intelligence to find evidence of deviations in the performance of public servants. The tool supports the auditor looking at public officials' profiles based on data such as previous irregularities, affiliation in political parties or commercial interests.

Better monitoring of public procurement

The Court of Accounts of the Union (Tribunal de Contas da União, TCU) uses artificial intelligence to analyse the procurement processes of the federal administration better. Based on the information published on the portal of public procurement, Comprasnet, the system analyses the costs of tenders and compares the information with other databases. Based on the information obtained, the system is able to identify risks and send alerts to the auditors.

Chatbot in the Services Portal

As an example of the progressive adoption of emerging technologies in the Brazilian public sector, the Services Portal (Portal de Serviços) makes available a chatbot that answers questions and provides information on several available services (e.g. passports, university allowances, tax exemptions). Although not very sophisticated and entirely dependent on quantity and quality of the information and data that supports its functioning, the chatbot

called Beta is a good example of the value of using emerging technologies for service delivery.

Source: Convergência Digital (2018[28]), *CADE adota inteligência artificial para agilizar combate aos cartéis - Convergência Digital - Inovação*, http://www.convergenciadigital.com.br/cgi/cgilua.exe/sys/start.htm?UserActiveTemplate=site&infoid=48613&sid=3 (accessed on 08 October 2018); Government of Brazil (2018[29]), *Portal de Serviços*, https://www.servicos.gov.br/ (accessed on 08 October 2018); Agência Brasil (2018[30]), *Órgãos públicos usam inteligência artificial para combater corrupção*, http://agenciabrasil.ebc.com.br/geral/noticia/2018-08/orgaos-publicos-usam-inteligencia-artificial-para-combater-corrupcao (accessed on 08 October 2018).

Towards cross-border service delivery in the LAC region

In a progressively digitalised world, national borders are progressively ignored by people who consume content and services independently of their geographic location. The OECD Recommendation on Digital Government Strategies (OECD, 2014[12]), in its Key Recommendation 8, highlights the potential of international co-operation for knowledge sharing, development of synergies beyond national borders and joint efforts for the definition of common goals among countries' public sectors.

In line with the trends observed in several sectors of the digital economy, the digital transformation of public service delivery is opening new perspectives for the provision of services beyond national borders. Users' expectations based on experiences with top service providers (e.g. Google, Netflix or Uber) increasingly push governments towards a new paradigm of access and delivery of public services. Digital public platforms from different countries can also be connected, aiding in the sharing of data and information and the common recognition of digital certificates.

The European Union presents one of the most integrated efforts worldwide for the development of cross-border services, focused on the development of a European digital single market that can add value to the sum of the 28 member state national markets. Public administrations across the European Union are progressively developing cross-border services (e.g. opening a company, studying abroad, obtaining a patient summary abroad) that can bring greater convenience to users.

Building on similar efforts for the progressive integration of digital technologies in public sector activities, Latin America and Caribbean countries have strengthened their co-operation on digital government in recent years, progressively sharing knowledge and exploring synergies. Given mutual knowledge, trust and willingness to co-operate have developed with the support of networks such as the e-Government Network of Latin America and Caribbean (Red de Gobierno Electrónico de América Latina y el Caribe, Red GEALC) (Red GEALC, 2018[31]) and organisations such the Inter-American Development Bank (IDB) and the Organisation of American States (OAS) the governments of LAC countries should start exploring more consistently the development of digital cross-border services in the region.

In December 2017, the Ministers of Foreign Affairs of the Mercosul States meeting in Brasilia announced the creation of a Digital Agenda Group. The group is responsible for elaborating a draft action plan with policy proposals and joint initiatives, with goals and deadlines. The draft action plan should cover areas such as the digital economy, digital government and Internet governance (MERCOSUL, 2017[32]). The creation of the Digital

Agenda Group reflects the important role attributed to digital services to enhance the economic co-operation of the countries of the region.

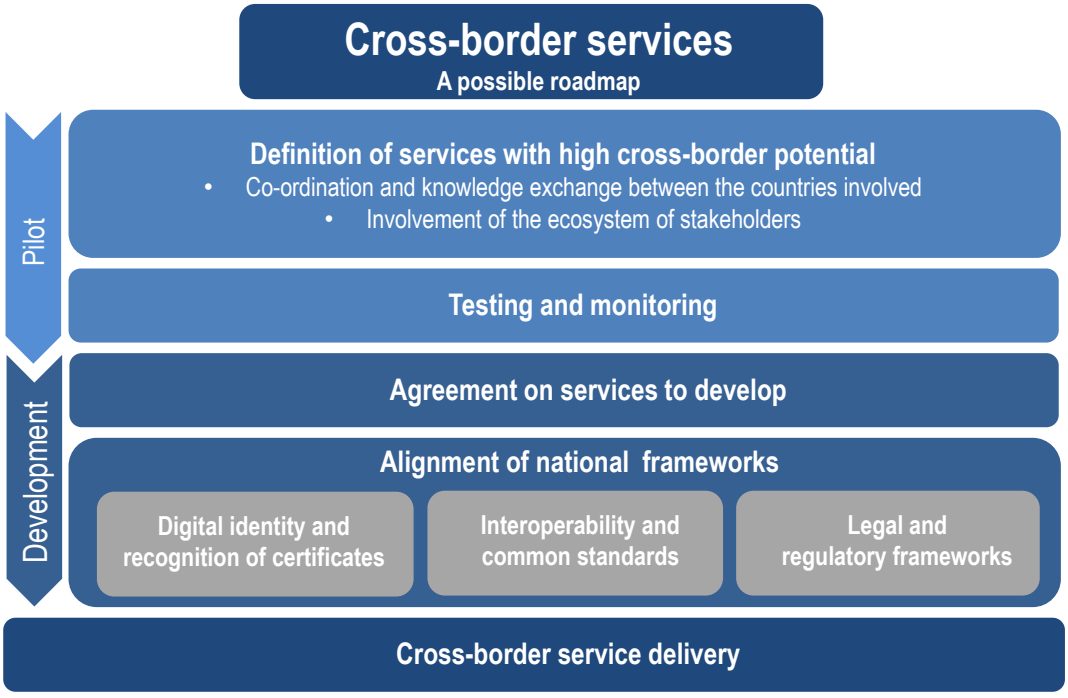
Although presenting different levels of digital development, digital cross-border services could contribute to strengthening the economy of the region and reinforce the movement of citizens across its different countries for working, studying or touristic purposes.

Driven by the needs of citizens and businesses, the development of cross-border services should start by prioritising the following critical dimensions:

- alignment of legal frameworks
- adoption of common data and architecture standards
- interoperability of digital identity mechanisms
- mutual recognition of digital certificates.

In this sense, LAC governments should explore the development of a roadmap with major steps to ensure a realistic and credible path for the integration of relevant digital services in the region (a sample roadmap is pictured in Figure 5.8). Piloting exercises should also be considered fundamental for this common regional co-operation effort.

Figure 5.8. A possible roadmap for digital service delivery in the LAC region



Source: Author.

Given the political and economic relevance in the region, the government of Brazil should consider leading and actively supporting LAC efforts on cross-border service delivery. The effort and commitment of the Brazilian government would be determinant for the success of such a regional policy priority. The country's experience in developing interoperability across different federation levels – federal, states, municipalities – could be leveraged to tackle the challenges of connecting different systems for cross-border service delivery.

Brazil's determinant role in the Mercosul context, as well as the active role it played in the approval of the Digital Agenda Group, should also be considered. Brazil has already developed some of the critical digital government key enablers (or they are about to be implemented), such as an interoperability framework, digital identity, open source. These key enablers might be leveraged for improved co-operation in the region.

The development of cross-border services is a medium- to long-term challenge. It requires strong political will as well as significant human and financial resources able to take the necessary actions – definition of services, testing and monitoring, alignment of national frameworks – towards final cross-border services delivery. The adoption of this challenge by the LAC countries would require the governments to recognise that it is not a short-term objective. However, building on this challenge, the ambition of developing cross-border services could function as an important incentive for concrete co-operation, able to mobilise broad political support across the region.

Given the different levels of digital development in the countries of the region, and different priorities for investment in this area, the creation of cross-border services could involve in a first stage only a small part of the countries of the region, enabling other countries to focus on further priorities. For instance, more prepared or interested countries on specific cross-border services should be able to arrange pilots to analyse the viability of the services, the effective demand, the business case or the user experience. Other countries should be able to join this common effort later, whenever they feel prepared to.

The common agreement on services to be developed with a cross-border approach is a critical stage of this suggested multilateral co-operation. The current level of development in each one of the countries and its economic and social impact are some of the variables to be considered. In this sense, some examples of cross-border services might include:

- creating a company abroad
- working abroad
- studying abroad
- having a medical consultation abroad.

Considering all the efforts of economic integration already underway among LAC countries, the development of cross-border services in the region would represent taking co-operation on digital government to the next level, contributing to the mobilisation of the ecosystem of stakeholders towards a practical and tangible objective.

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