Chapter 4

Rethinking public institutions in the digital era

Rising levels of mistrust in public institutions and dissatisfaction with public services in Latin America and the Caribbean illustrate a weakening social contract, which can be further eroded by the impact of coronavirus (Covid-19). The digital transformation represents a unique opportunity to improve the function and service quality of public institutions. While emerging institutional risks must be taken into account, moving towards digital governments can help public institutions become more trustworthy, efficient, inclusive and innovative. The digital transformation affects a range of public policies, which need to be included in a comprehensive framework, such as national development strategies, to guarantee coherence and synergies and make the most of new technologies. Connecting digital strategies to national development plans is crucial to align digitalisation efforts with broader, long-term development objectives.

Digital technologies can transform public institutions and help them address their main challenges

The transition towards digital governments can help public institutions become more credible, inclusive, efficient and innovative

Open government can make public institutions more credible by improving transparency, access to information and citizen participation

In 2020, LAC countries had **53** open government action plans **38** implemented and **15** in progress

Digital technologies, such as e-learning and e-health, can support more inclusive public services, and involvement of citizens in the decision-making process

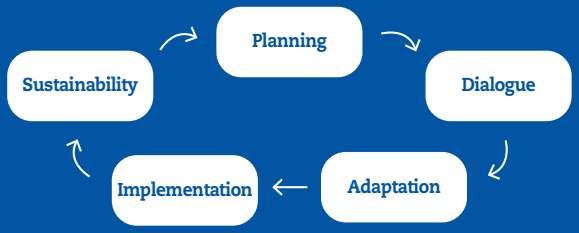
Service automation can make institutions more efficient

It takes, on average, 5.4 hours to complete a public transaction in LAC, with wide differences across countries:

From less than 3 hours in Chile

to more than 11 in Bolivia

Digital tools can support innovative approaches to public policy, using new sources of data, thus improving the policy-making process



To reap its full potential, the digital transformation should be addressed in a comprehensive manner within LAC's development strategies

Digital security, privacy regulation, and safe, secure and transparent management of data are important to ensure public trust in digital technologies

National development plans (NDPs) and digital agendas are key strategic tools for planning and co-ordinating the digital transformation

Among 16 NDPs analysed, most include policies for expanding access and use of digital technologies, as well as for increasing investment in communication infrastructure. Policies for dealing with the future of work are also gaining relevance in NDPs

Introduction

The expansion of the middle class in Latin America and the Caribbean (LAC) since the beginning of the century has come with rising social aspirations. The coronavirus (Covid-19) pandemic is likely to increase demands for stronger public institutions and better quality public services. Institutions are failing to respond to these rising aspirations, despite improvements in public governance in past years. Across most LAC countries, distrust and low satisfaction are deepening, and social discontent is growing. Citizens see less value in fulfilling social obligations, such as paying taxes, as illustrated by low levels of tax morale, undermining revenue to finance better public services and respond to social demands (OECD, 2019a). This creates a vicious circle in LAC that can be understood as an "institutional trap", which involves a circular, self-reinforcing dynamic that limits capacity to transition to greater development (OECD et al., 2019). The extent to which the coronavirus (Covid-19) pandemic deepens social discontent and changes citizens' aspirations is yet to be seen, but public institutions have been under unprecedented pressure and will need to find ways to respond to evolving social demands and extraordinary policy challenges.

In this context, the digital transformation presents new challenges, but also significant opportunities to strengthen the social contract between citizens and the state, and better respond to rapidly changing public demands.

First, the digital transformation has resulted in rising expectations on the part of digital citizens regarding the quality of public services and the integrity, transparency and responsiveness of public institutions. The exponential growth of smartphones and daily streaming of Big Data are changing the way Latin Americans live, especially in urban areas. The growing middle class and young citizens are the most digitally savvy and demanding (Santiso, 2017). Provision by top private digital service providers of seamless user experiences creates greater demands from citizens, representing a challenge for the public sector. Without designing and implementing appropriate public policies, unmet expectations could reinforce the divide between citizens and public institutions.

Second, technological progress demands innovative policy responses to address new regulatory challenges. Regulating the digital transformation to mitigate its harmful impacts and promote its benefits for all is a key aspect of the policy agenda. Regulations are crucial to safeguarding public trust in the context of the digital transformation. Emerging policy domains, including digital security, data privacy, protection and governance, and ethical considerations, are increasingly relevant.

Third, new technologies and data analytics can transform governments. Responding to emerging challenges and embracing new opportunities require a redesign of public institutions. Latin American governments have the potential to become more trustworthy, efficient, inclusive and innovative by tapping into the new possibilities offered by technological progress. Doing so could help restore confidence in public institutions and improve the quality and reach of public services.

Fourth, making the most of the digital transformation requires an ambitious agenda and a co-ordinated and comprehensive approach. LAC governments need to mainstream the digital transformation in national development plans (NDPs) and digital agendas/strategies (DAs). On the other hand, digital technologies are also part of the solution. Digital tools (e.g. videoconferences, online consultations) facilitate multi-stakeholder involvement in the construction of national development strategies, thus setting the basis for a truly inclusive new social contract.

Fifth, the digital economy is an extension of the material economy. Dramatic technology-driven changes in patterns of consumption and production require policy design and regulatory frameworks that create the conditions for governments, consumers, producers and citizens to enlist new capabilities, generate value and become relevant actors in the digital economy (ECLAC, 2016).

The coronavirus (Covid-19) crisis makes the digital transformation of governments more urgent and a top priority of NDPs. Closure of public administration buildings has revealed the importance of end-to-end digital services and interoperable systems. While data have become key inputs, especially for public health, they have also raised the relevance of digital security and data protection policies.

The three sections of this chapter analyse the challenges and opportunities the digital transformation presents for public institutions, and consider avenues to rethink and adapt institutional frameworks for the digital era. The first section, "Governing the digital transformation", describes the main challenges and opportunities of the digital transformation regarding public trust, including adequate digital security, data protection and governance, and new ethical considerations. The second, "The digital transformation of governments", analyses how digital technologies can promote more trustworthy, efficient, inclusive and innovative states. The final section, "The digital agenda in national development strategies", analyses how LAC countries have included the digital transformation in NDPs and DAs, and how their priorities address the region's development traps.

Governing the digital transformation

The profound transformations brought about by technological progress challenge the adequacy of the current national and international institutional set-up. New risks and opportunities lie ahead; the rules of the game must adapt to make the digital transformation a driver of progress and greater well-being for all. This section considers the regulatory aspects shaping the digital transformation and areas that affect citizen trust in digital technologies, including digital security, data protection and governance, and new ethical considerations, for instance concerning artificial intelligence (AI) or misinformation and fake news. It also deals with what can be defined as the evolution of human rights in the digital era, i.e. "digital rights", such as the right to personal data protection, transparency, information on AI and the option to opt out (OECD, 2019b). Further digital rights, such as digital communication with governments, application of the once-only principle, open data and proactive service delivery are analysed in the following section.

Regulatory frameworks must support a fair and equitable digital transformation

Governments face new regulatory challenges in ensuring that the opportunities and benefits of the digital transformation can be realised by all (OECD, 2019c). Regulatory frameworks must strike a balance between fostering the digital transformation and preserving secure and affordable access to digital technologies. Five steps can help achieve this objective.

First, regulatory frameworks must promote competition and investment arising from the increasing convergence of networks and services in the digital economy (e.g. seamless provision of digital services across networks). Competition is key to promoting innovation and enabling all consumers to benefit at competitive rates. Independent agencies are needed to address dominance issues or impose wholesale regulations when necessary to lower barriers to new entrants (OECD, 2019c). Some reforms in LAC, such as Mexico's 2013 telecommunication reform, highlight the importance of strong competition, strong

regulatory frameworks and support for investment, particularly in remote and rural areas (OECD, 2017a; OECD, 2019c). An independent regulator is essential to public confidence in the integrity of regulatory decisions (OECD, 2019d, 2014a).

Second, a stable and predictable regulatory framework fosters long-term investment in communication infrastructure and digital innovation. In a sector where return on investment is often measured in decades, guaranteeing regulatory stability, transparency and legal certainty helps firms prepare business plans and ultimately facilitates investment (OECD, 2012). Strong institutions boost investor confidence and encourage investment in communication infrastructure.

Third, the regulatory framework must help protect consumers, particularly in online transactions involving personal data. Lack of adequate protection may deter e-commerce and uptake of new products. Fostering access to data and data portability, as well as issues related to data ownership, should be a priority of regulations, ensuring that accumulation of data from incumbents does not create barriers to entry for newcomers, thereby slowing down innovation and reducing competition (OECD, 2019c).

Fourth, innovation-friendly regulations enable the growth of new industries and digitally intensive firms. Digital innovation frequently takes place outside existing frameworks. Regulations should therefore be flexible: accomplishing the legitimate goals of regulation without discouraging innovation and missing out on the benefits of the digital transformation. One policy response, "regulatory sandboxes", provides flexibility in the form of a limited regulatory waiver, usually to facilitate experimentation and testing (OECD, 2019c). Colombia's digital transformation and AI strategy proposed "regulatory sandbeaches" (Republic of Colombia, 2019). Encouraging and realising innovation requires technologically neutral regulations that guarantee fair competition among developing technologies (OECD, 2003).

Fifth, in establishing new regulations, stakeholder responsibilities must be clear, avoiding overlap and giving institutions tools to enforce decisions. There should be a clear separation between policy formulation and regulatory functions. Implementing systematic measurement frameworks to monitor the growth of broadband and digital services is critical to inform policy and regulatory decisions. Stakeholder involvement and peer and third-party independent reviews should be encouraged to identify improvements to the regulatory framework. Organisation for Economic Co-operation and Development (OECD) peer reviews of telecommunication markets in Colombia (OECD, 2014b) and Mexico are examples of this approach (OECD, 2012; OECD, 2017a).

At the international level, there is a need to update multilateral digital taxation and trade rules. The digitalisation of the economy brings about new tax challenges. There is ongoing global negotiation within the OECD to reach a global agreement so that multinational enterprises conducting sustained and significant business in places where they may not have a physical presence – a typical feature of digital firms – can be taxed in such jurisdictions (see Chapter 5). Cross-border data flows are another relevant area. Data underpin the digital transformation and affect the trade environment. Governments increasingly seek to regulate cross-border data transfer to protect privacy when data are stored or processed abroad or require data to be stored locally (OECD, 2019c).

At the regional level, in many instances, regulatory frameworks in LAC continue to operate in silos. Regional co-operation arrangements, sharing of regulatory experiences, deployment of regional infrastructures, cross-border data flows and lowering the cost of international connectivity and roaming should be encouraged (OECD, 2019c) (see Chapter 5).

Digital security is key to make the digital transformation work for all

Digital security incidents risk causing social and economic harm if not addressed. They can cause disruption of operations and essential public services, direct financial loss, lawsuits, reputational damage, loss of competitiveness (e.g. through the disclosure of trade secrets), privacy harm and consumer distrust (OECD, 2015a).[1]

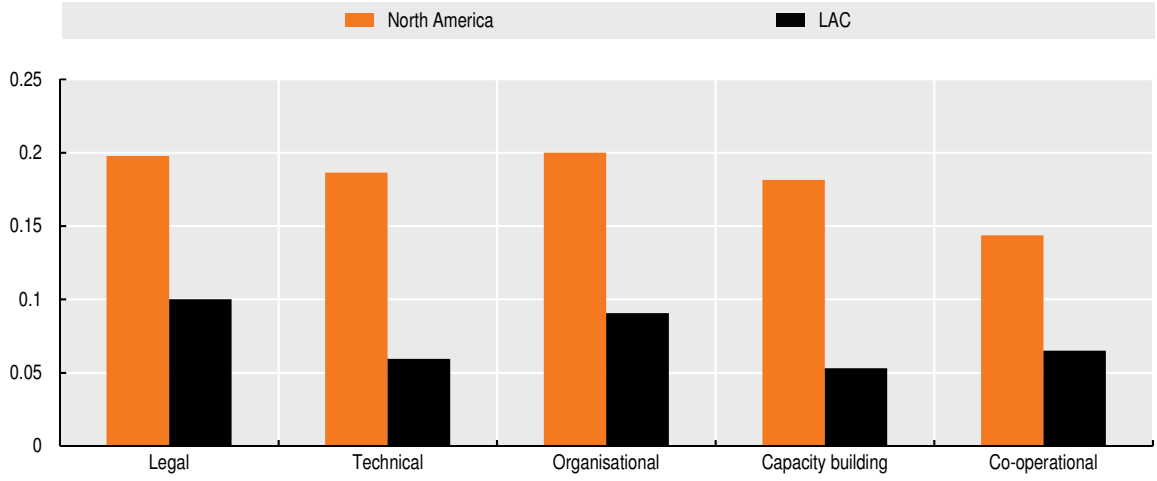
Digital security risks increased during the coronavirus (Covid-19) crisis. Cybercriminals count on the likelihood that individuals and organisations more easily fall for scams or pay ransoms in periods of stress, in particular those lacking good digital security practices or facing organisational disruptions. These growing risks strengthen the need for sufficient safeguards to protect sensitive sectors from digital security incidents. As critical infrastructure and essential services sectors – both private and public – become increasingly digital dependent, the need for comprehensive and holistic national strategies for digital security, developed in consultation with all stakeholders, becomes more urgent.

Recent examples highlight the importance of digital security incidents from a socio-economic perspective. The 2017 NotPetya digital security attack, which affected several countries and global companies, caused the temporary shutdown of the production, research and commercial operations of the big pharma enterprise Merck. In November 2019, ransomware forced Pemex (state-owned Mexican Petroleum) to shut down computers across Mexico; USD 5 million in bitcoin were demanded to end the attack. While the attack reportedly only affected the payments system, it could have endangered the entire country's energy security (Barrera and Satter, 2019). These examples show that digital security risk should be treated as an economic and social challenge, rather than only as a specific technical or national security issue.

Most LAC countries are moving towards a strategic, long-term vision for digital security (OECD/IDB, 2016). In 2019, 13 Latin American countries had a national digital security strategy (IDB/OEA, 2020), but policies had a limited understanding of the economic and social dimensions of digital security, and tended to focus on criminal and technical aspects or on national security. They also showed a limited level of stakeholder co-ordination across government and business sectors. Such co-ordination is an important aspect of the digital transformation, as critical services across finance, energy and transport sectors are increasingly offered by start-ups that provide innovative payment systems or are subcontracted to small and medium-sized enterprises (SMEs) in essential service value chains. Ensuring sufficient digital security risk management across all sectors and actors, including SMEs, makes co-operation and multi-stakeholder dialogue all the more important (OECD, 2019c).

The greatest efforts related to digital security in LAC have taken place on the legal front, but other key dimensions are still lagging. LAC shows the lowest commitment to digital security after Africa, according to the United Nations (UN) Global Cybersecurity Index (ITU, 2019), which measures five dimensions: legal, technical, organisational, capacity building and international co-operation. The index combines 25 indicators in a single measure, ranging from 0 (no cybersecurity efforts) to 1. Uruguay alone shows a relatively high level of cybersecurity, scoring 0.68 and ranking 51 of 175 countries. The rest of the region scores medium or low. Progress in legislation has been more significant: 30 countries have cybercrime legislation and cybersecurity regulations, and 10 have norms for containing mass emails (spam). Regional efforts have also concentrated on developing digital security strategies, but efforts in other dimensions lag (Figure 4.1).

Figure 4.1. **Five pillars of the United Nations International Telecommunication Union Global Cybersecurity Index, 2018**



Notes: LAC is a simple average of 31 countries in the region, excluding Haiti and Dominica. North America is a simple average of the United States and Canada.

Source: ITU (2019), *Global Cybersecurity Index* (database), www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx.

StatLink https://doi.org/10.1787/888934172502

Data are increasingly relevant assets: Privacy, governance and value

The digital economy is characterised by a growing number of entities collecting vast amounts of personal data. These include online retailers, digital platforms, financial service providers and governments. This data-rich environment, together with the emergence of more sophisticated tools for analysis, makes it possible to infer sensitive information. Misuse of this information may undermine individuals' personal privacy, including their autonomy, equality and free speech (Buenadicha Sánchez et al., 2019; OECD, 2016a).

During the coronavirus (Covid-19) crisis, many governments turned to digital technologies and advanced analytics (e.g. contact tracing, biometrics and geolocated data from mobile apps) to collect, process and share data for effective front-line responses to the spread. These technologies can be useful, as they provide critical information to improve the effectiveness of policies. However, left unchecked, they can also be used for extensive collection and sharing of personal data, mass surveillance, limiting individual freedoms and challenging democratic governance. Few LAC countries have frameworks to support these extraordinary measures in ways that are fast, secure, trustworthy, scalable and in compliance with existing privacy and data protection regulations. Privacy enforcement authorities (PEAs) play a key role in applying new or existing privacy and data protection frameworks. For instance, Argentina's PEA, the National Access to Public Information Agency, released general guidance about the application of privacy and data protection laws in the crisis for data controllers and processors. Measures adopted should be proportionate and limited to the duration of the emergency (OECD, 2020a, 2020b).

Incorporating ethical reflections on data management and use in regulations and codes of conduct is therefore a key policy issue. Ethical management of data encompasses: 1) respect for the data and privacy of individuals and organisations; 2) respect for the right to anonymity; 3) the need for informed consent in data collection (informing as to the purpose and ensuring consent to use of data for this purpose); and 4) a general need for transparency (Brito, 2017; Buenadicha Sánchez et al., 2019; Hand, 2018; Mittelstadt and

Floridi, 2016). The OECD *Guidelines on the Protection of Privacy and Transborder Flows of Personal Data*, updated in 2013, continue to represent international consensus on general guidance concerning the collection and management of personal information (OECD, 2013a).

Regulations for data protection have evolved significantly recently, bringing important changes in LAC. The European Union (EU) General Data Protection Regulation (GDPR) has strongly influenced regulatory frameworks in LAC. It sets high standards for regulating the digitalisation of the economy. It includes any organisation that collects, controls, processes or uses the personal data of data subjects who are in the EU, regardless of the organisation's location (see Chapter 5). In August 2018, Brazil passed the *Lei Geral de Proteção de Dados*, a new general data protection law that will come into force in 2021. Chile's new framework is under legislative discussion. Argentina and Uruguay have updated legislation for compliance with the GDPR.

The United States (US) data protection privileges privacy and data security, and some US framework rules apply to entities outside its territory handling the personal data of American citizens. The Asia-Pacific Economic Co-operation Forum Privacy Framework, which focuses on avoiding barriers to trade information flows in LAC, is another important reference. It has been influential in developing data protection frameworks in Mexico, Colombia and Peru (Lehuedé, 2019).

Progress in regulatory frameworks for data protection in LAC is mixed. Most countries have data protection frameworks in place. Despite common features, these vary significantly (Table 4.1). Most differences may be explained by the date of adoption and, to some degree, the influence of the different regulatory frameworks mentioned above. In turn, the adoption of uncoordinated national rules is one of the main challenges to the transfer of personal data between jurisdictions. The resulting web of permissions, consents and restrictions could affect economic activity. International harmonisation initiatives in the region should be supported (Lehuedé, 2019). For instance, the European Commission's 2020 "Shaping Europe's digital future" envisions the creation of a common market for data (European Commission, 2020).

Table 4.1. **Legal frameworks for data protection, selected Latin American and Caribbean countries, 2019**

	Argentina	Brazil*	Chile*	Colombia	Mexico	Peru	Uruguay
Definitions of personal data and sensitive personal data	✓	Only personal	✓	✓	✓	✓	✓
Extraterritoriality	✓	✓	×	✓	✓	×	✓
Consent requirements	✓	✓	✓	✓	✓	✓	✓
Rights of individuals	✓	✓	✓	✓	✓	✓	✓
Restrictions on international data transfers	✓	×	×	✓	×	×	✓
Restrictions on data transfers to data processors	✓	✓	✓	✓	✓	✓	✓
Sanctions	✓	✓	✓	✓	✓	✓	✓
Mandatory notification of breaches to authority and/or data subjects	×	×	×	To authority	✓	×	✓
Data protection authority	✓	×	×	✓	✓	✓	✓

* Brazil adopted these measures under a new law that will enter into force in 2021. Chile included some of these measures in the bill of law in Congress in 2020.

Note: The following are considered rights of individuals: information, access, correction, deletion, destruction and habeas data.

Source: Lehuedé (2019), "Corporate governance and data protection in Latin America and the Caribbean", http://hdl.handle.net/11362/44629.

Regulation models also influence adequacy schemes, which regulate authorisations for international transfers of personal data. The European Commission determines whether a non-EU country offers adequate data protection.[2] Currently, Argentina and Uruguay in LAC provide an "adequate level of data protection" for cross-border data transfers (Table 4.2). In those cases, transfers of personal data to data processors are allowed, and data controllers and processors share liabilities for data breaches (European Commission, 2019a).

Table 4.2. **Cross-border information flows: Adequacy schemes, selected Latin American and Caribbean countries, 2019**

From: To:	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Uruguay
Argentina	–	✓	✓	✓	✓	✓	✓
Brazil	×	–	✓	×	✓	✓	×
Chile	×	✓	–	×	✓	✓	×
Colombia	×	✓	✓	–	✓	✓	×
Mexico	×	✓	✓	✓	–	✓	×
Peru	×	✓	✓	✓	✓	–	×
Uruguay	✓	✓	✓	✓	✓	✓	–

Note: Adequacy schemes regulate authorisations for international transfers of personal data.
Source: Lehuedé (2019), "Corporate governance and data protection in Latin America and the Caribbean", http://hdl.handle.net/11362/44629.

More accurate and granular data are feeding into the world of research, demanding additional privacy and protection precautions. New forms of data, especially personal data from Internet usage and commercial transaction information, tracking systems and Internet of things (IoT) data and government information, have the potential to revolutionise research and provide new social and economic insights. However, they come with new ethical challenges and a responsibility to ensure public confidence in their correct use for research (Metcalf and Crawford, 2016; Mittelstadt and Floridi, 2016). In 2013, the OECD recommended the development of a code of conduct framework covering the use for research of new forms of personal data. This recommendation stressed the need to strike a balance between the social value of research and the protection of individual well-being and rights, including to privacy (OECD, 2016a). The European Union requires organisations and universities applying for public research and development (R&D) financing under Horizon 2020 to address 11 ethical concerns and give explanations and monitoring guarantees for the most sensitive projects (European Commission, 2019b; Buenadicha Sánchez et al., 2019). Mexico has a checklist to help scientists guarantee ethical protocols and the *Guía nacional para la integración y el funcionamiento de los comités de ética en investigación* (National guide for the integration and functioning of ethics committees in research).

Defining data responsibility and ownership is a complex and critical issue. While intellectual property rights protection can incentivise R&D investment, it risks restricting access to data derived from publicly funded research. While challenging, disentangling data types may be helpful for regulatory purposes.

Data access and data sharing are estimated to generate social and economic benefits worth between 0.1% and 1.5% of gross domestic product (GDP) in the case of public-sector data, and between 1% and 2.5% of GDP (up to 4% in some studies) when including private-sector data. The estimated magnitude of the effects depends on the scope and degree of openness of the data (OECD, 2019e). Business models relying on personal data as key inputs are increasingly common (OECD, 2013b). Considering data have become the main factors of production in the digital economy and thus competitive assets, regulation

should ensure that data are not used and held in anti-competitive ways, and allow actors fair access to data.

The digital transformation raises new ethical issues

Artificial intelligence needs to be fair, secure and transparent

As AI applications are adopted around the world, their use can raise questions and challenges related to human values, fairness, human determination, privacy, safety and accountability, among others. This underlines the need to progress towards more robust, safe, secure and transparent AI systems with clear accountability mechanisms (OECD, 2019f). Ethical considerations should acknowledge the potential for discriminatory biases in the functioning of modern technologies. This is especially important given the increasing use of AI and machine learning in decision making in public institutions, for example for the provision of public services. Data can be imperfect as a result of flawed decisions by those collecting them. They can also be insufficient, erroneous, biased or outdated (Buenadicha Sánchez et al., 2019). Job-matching algorithms may reproduce historical inequities and prejudices against skin colour or gender, for instance. An experiment found that women were less likely than men to receive Google Ad Services ads for high-paying jobs. The algorithm targeting ads may be trained on data in which women have lower paying jobs (Datta, Tschantz and Datta, 2015). Lack of diversity in the tech sector may perpetuate these biases: LinkedIn and World Economic Forum (WEF) information suggests that only 22% of AI professionals are women (UNDP, 2019).

Transparency about the use of AI and how AI systems operate is therefore key. Regulation in this respect has progressed recently, with several LAC countries adhering to international standards. The GDPR includes the right against automatised profiling, which allows data subjects to ask to be excluded from automated decision-making processes. It also includes the right to explicability, i.e. individuals affected by an algorithmic decision have the right to be informed of the logic applied and the importance and consequences of the logic on the individual. OECD countries adopted the OECD Recommendation of the Council on Artificial Intelligence (OECD AI Principles) in May 2019 to promote innovative, trustworthy AI that respects human rights and democratic values (OECD, 2019f). The Principles complement existing OECD standards for privacy, digital security risk management and responsible business conduct. In LAC, Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Peru adhere to the Principles. The OECD also launched an AI Policy Observatory in February 2020 (Box 4.1).

Box 4.1. The OECD AI Policy Observatory

The OECD AI Policy Observatory aims to help countries encourage, nurture and monitor the responsible development of trustworthy AI systems for the benefit of society. Building on the OECD AI Principles, the Observatory combines resources from across OECD countries with those of partners from all stakeholder groups to facilitate dialogue and provide multidisciplinary, evidence-based policy analysis on AI.

The Observatory provides resources on AI public policy topics, AI policies and initiatives, trends and data, and practical guidance on implementing the Principles. Countries and other stakeholders share and update a live database of AI policies and initiatives, including AI policies from seven LAC countries, enabling interactive comparison of key elements. The database is a centre for policy-oriented evidence, debate and guidance for governments, supported by strong partnerships with a wide spectrum of external actors (OECD, 2020c).

Beyond transparency, policies that promote trustworthy AI systems include those that: encourage investment in responsible AI R&D; enable a digital ecosystem where privacy is not compromised by broader access to data; enable SMEs to thrive; support competition, while safeguarding intellectual property; and equip people with the skills necessary to facilitate transitions as jobs evolve (OECD, 2019f). Beyond helping implement OECD AI Principles, the OECD Network of Experts on AI, a multi-stakeholder, multidisciplinary group, informs the development of a repository of non-government stakeholder and intergovernmental initiatives, including private standards, voluntary programmes, professional guidelines or codes of conduct, best practices, principles, public-private partnerships and certification programmes.

More than 20 countries have national AI strategies, and LAC is catching up. Mexico was among the first ten countries, and the first in LAC, to develop an AI strategy in 2018. Colombia's 2019 National Policy on Digital Transformation and AI commits to creating an AI market, with priority given to market-creating innovations, an ethical framework and level of experimentation. In Brazil, online public consultations are expected to deliver inputs for the development of a Brazilian AI Strategy aimed at maximising benefits for the country. Argentina is developing a national plan to foster AI development in line with the ethical and legal principles framed in the Argentina Digital Agenda 2030 and as one of the national challenges in the Innovative Argentina Strategy 2030. Chile's Ministry of Science, Technology, Knowledge and Innovation has a working plan to launch an AI Strategy and Action Plan in 2020. Its priorities include reaching consensus on ethics, standards, cybersecurity and regulations (OECD, 2020d). Uruguay is in the process of approving the final draft of its *Estrategia Nacional de Inteligencia Artificial para el Gobierno Digital* (National Strategy of Artificial Intelligence for the Digital Government) after online public consultation between April and June 2019 (Agesic, 2019).

The risks of mass misinformation: Fake news

Digital technologies now shape daily life, making it easier to communicate and to access and share social and political information. The shift from traditional information channels (e.g. newspapers, radio, television) to digital ones (e.g. social media, websites, private messaging apps) increases exposure to misinformation and so-called fake news. In particular, especially in times of panic or stress (e.g. Covid-19 crisis, election times), our critical skills are impaired and we are less likely to discern between reliable and sensational content. While the impact of misinformation on democratic outcomes is yet to be proven, there appears to be a negative relationship between level of exposure and trust in government (OECD, 2019g). As digital channels gain relevance across LAC countries, policy makers should attempt to stem the proliferation of fake news and empower citizens with critical-thinking tools to evaluate the information they encounter.

The enhanced facility and rapidity with which fake news can spread represent critical challenges posed by new technologies. Digital technologies allow for complex data analyses that can be used to shape information and target it to socio-economic groups or geographical areas to influence opinion. The potential impacts on, for instance, electoral processes raise numerous ethical questions. Similarly, the spread of false information on coronavirus (Covid-19) can negatively affect public health. Digital platforms facilitate the creation of homogeneous social networks that act as echo chambers or filter bubbles, insulating users from contrary perspectives. They allow fake news to reach mass audiences and encourage social polarisation (Lazer et al., 2018; Marwick and Lewis, 2017; Tucker et al., 2018; Wardle and Derakhshan, 2017).

Fake news can be used to discredit authorities or be used by authorities to preserve the status quo or by interest groups to shift public opinion. Aside from facilitating the dissemination of partisan or fake news via algorithmic ranking, digital platforms allow

for political campaigning and advertising based on microtargeting and psychographic profiling that enlist user data harvested from social media (Neudert and Marchal, 2019). Big Data analytics add a new layer to the fake news phenomenon, as they enable targeting of political messages based on individual wants and needs, as the Cambridge Analytica scandal showed.

On the other hand, recent scandals concerning the massive reach and impact of fake news have made citizens question the reliability of information on social media. In 2019, 53% of the LAC population believed that false information was spread frequently or very frequently to influence elections (Pring and Vrushi, 2019). Three in four believed as much in Brazil, where confidence in news overall decreased by 11 percentage points in 2019 over the previous year (Reuters Institute for the Study of Journalism, 2019).

The limited evidence suggests that the impact of fake news on public opinion is large, at least in terms of number of people exposed. In the month preceding the 2016 US election, Americans were exposed to between one and three fake news stories (Allcott and Gentzkow, 2017). Similarly, of the around 126 000 tweets investigated in 2006-17, falsehoods diffused significantly faster, deeper and more broadly than truths, with the effects being more pronounced for false political news than for false news on terrorism, natural disasters, sciences, urban legends or financial information (Vasoughi, Roy and Aral, 2018). Studies tend to focus on the number of individuals who shared or interacted with fake news; quantifying the number affected by it is less evident and could be significantly greater (Lazer et al., 2018).

Policy makers have a responsibility to ensure that citizens have access to true and reliable information (OECD, 2017b). Taking action against fake news is critical to improving trust in public institutions, especially in LAC, where trust in social media as a channel for news is above the world average, although it has fallen in all countries surveyed, except Argentina: in 2019, trust in social media news was highest in Mexico (39% of respondents), followed by Chile (32%), Argentina (32%) and Brazil (31%), compared with a 23% world average. Social media is the preferred way to access online news for 42% of respondents in Chile, followed by search engines (21%) and directly from news websites or apps (19%). Similar trends are observed in Brazil (Reuters Institute for the Study of Journalism, 2019).[3]

Media regulation and media literacy are the two main interventions used to tackle the problem. Media regulation consists of structural changes aimed at preventing exposure. Platforms have taken steps in this direction. WhatsApp introduced a limit on message forwarding to five chats at once to prevent spam. Facebook made changes to its algorithm and, together with Twitter, now publishes a transparency report on the number of malicious activities observed on the platform. Twitter reported having verified 14 million to 20 million accounts under suspicion of malicious or spam activity per month between January and June 2019 (Twitter, 2019).

The shift from social media platforms, such as Facebook, to private messaging apps, such as WhatsApp and Facebook Messenger, to access online news may hamper the fight against fake news. Some 53% of Brazilians surveyed reported using WhatsApp to access news,[4] and 58% of WhatsApp users in Brazil reported using groups to interact with people they did not know.[5] The respective figures were 9% and 12% in the United Kingdom, and 6% and 27% in Australia (Reuters Institute for the Study of Journalism, 2019).

Media literacy is a complementary intervention empowering individuals with skills and tools to evaluate the news they encounter, including through fact-checking and news-verification initiatives (Lazer et al., 2018). Such initiatives have surged in LAC, in some instances via journalism in the run-up to elections, e.g. *Chequeado* and *Reverso* in Argentina, *Agencia Lupa* and *Comprova* in Brazil, Colombiacheck, *Ecuador Chequea*, *VerificadoMX* in Mexico and *Verificado.uy* in Uruguay. Governments have encouraged other media literacy

initiatives, such as *Gobierno Aclara* in Costa Rica and *#VerdadElecciones2019* in Colombia. More recently, initiatives have emerged to fight misinformation about the coronavirus (Covid-19) crisis. In Colombia, the UN Centre for Information put in place strategic partnerships with local radio stations and news agencies to monitor fake news. It also manages the *Voces Unidas* radio station, which answers questions or doubts about the virus in both Spanish and indigenous languages (UN, 2020a).

The non-territoriality and global scope of fake news indicates a need for exploring networks of co-operation at the regional and international levels, sharing best practices on countering disinformation and organising co-ordinated responses. The Rapid Alert System, established as part of the EU Action Plan against Disinformation, is an example of international co-operation (European Commission, 2019c). Developed ahead of the 2019 European Parliament elections, the Action Plan was a comprehensive effort to tackle fake news at the state level. It aimed to: improve detection, analysis and exposure of disinformation; strengthen co-operation and joint responses to threats via a dedicated Rapid Alert System; enhance collaboration with online platforms and industry to tackle disinformation; and raise awareness and improve social resilience (European Commission, 2018). The European Union also developed the Code of Practice on Disinformation, a voluntary, self-regulatory set of standards to fight disinformation signed by platforms, leading social networks and the advertising industry.

The digital transformation of governments

From e-governments to digital governments in LAC: Where are we?

Incorporation of digital technologies to transform public institutions is evolving rapidly. Three main stages can be identified (Figure 4.2). Analogue government was based on analogue procedures. E-government consists in "the use by the governments of information and communication technologies (ICTs), and particularly the Internet, as a tool to achieve better government" (OECD, 2014c). E-government makes more content and information available on line, but there is little interaction with citizens, and management practices remain hierarchical.

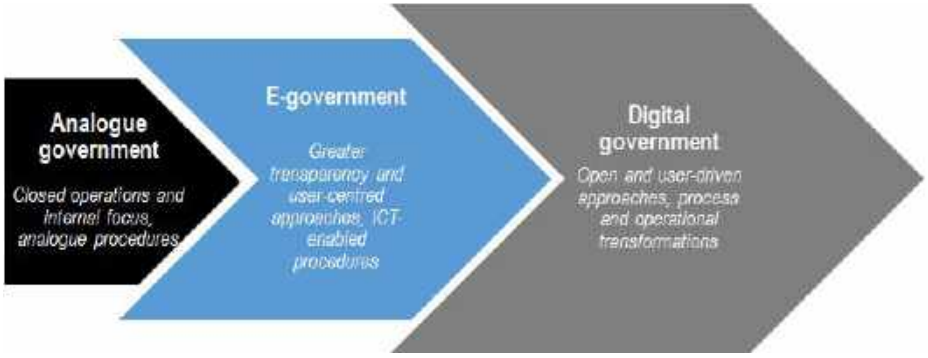
Digital government is defined as "the use of digital technologies, as an integrated part of governments' modernisation strategies, to create public value. It relies on a digital government ecosystem comprised of socio-economic actors of the country which support the production of and access to data, services and content through interactions with the government" (OECD, 2014c). Progress towards the digital transformation of government entails a radical shift in public sector culture with respect to participation, policy making, public service delivery and collaboration. The OECD Digital Government Framework outlines six dimensions of a digital government: digital by design, user-driven, government as a platform, open by default, data-driven and proactive. Whereas e-government had a technology focus, digital government is about embedding a digital culture throughout the practice of government that focuses on meeting users' needs by re-engineering and redesigning services and processes. Technology is a background enabler, woven into the ongoing activity of improving government, rather than the driver of transformation (digital by design) (OECD, 2019h).

New technologies have changed expectations of engagement with government. Digital technologies enable new forms of stakeholder participation, occasioning a shift from citizen-centric approaches, whereby government anticipates citizen and business needs, to citizen-driven approaches, whereby citizens and businesses identify and respond to needs in partnership with government (OECD, 2014c). In such public administrations (user-driven), government is no longer a service provider, but a platform

for the co-creation of public value (government as a platform) enabled by the disclosure of data in open formats (open by default) (OECD, 2019h).

Using the full potential of new digital technologies and data in the design, delivery and monitoring of public services and policies can transform governments. A truly data-driven public sector should: 1) recognise data as a key strategic asset, define its value and measure its impact; 2) reflect active efforts to remove barriers to managing, sharing and re-using data; 3) apply data to transform the design, delivery and monitoring of public policies and services; 4) value efforts to publish data openly and the use of data between and within public sector organisations; and 5) understand the data rights of citizens in terms of ethical behaviours, transparency of usage, protection of privacy and security of data (OECD, 2019b). In turn, the automatic processing of data allows governments to anticipate and respond quickly to emerging public issues or needs, rather than react (proactive) (OECD, 2019h).

Figure 4.2. **Progression towards digital government**



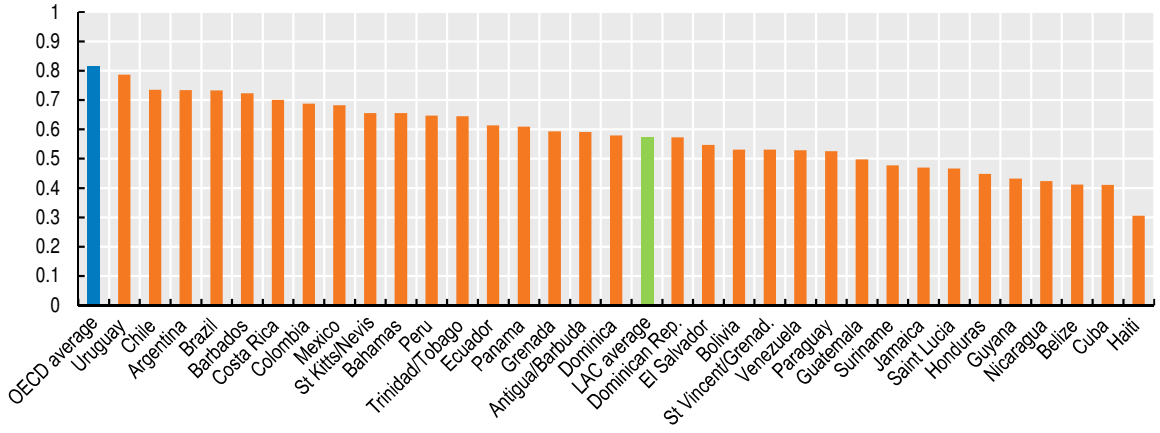
Source: OECD (2014c), *Recommendation of the Council on Digital Government Strategies*, www.oecd.org/gov/digital-government/Recommendation-digital-government-strategies.pdf.

LAC countries are at various stages of the digital transformation of their governments. While it does not capture all the dimensions of a fully digital government, the UN E-Government Development Index (EGDI) is a comprehensive measure of e-government development world wide and an internationally recognised benchmark for comparing countries' efforts. It is based on measures of online services, communication infrastructure and human capital. In LAC, Argentina, Brazil, Chile and Uruguay stood among the top 50 performers of the 193 countries surveyed in EGDI 2018, performing slightly below the OECD average. Belize, Cuba, Haiti and Nicaragua were among the worst LAC performers (Figure 4.3; UN, 2019). In-depth country analysis on the state of the digital transformation of governments in LAC can be found in the *OECD Digital Government Studies* series covering Argentina, Brazil, Chile, Colombia, Mexico, Panama and Peru.

The greatest challenges for LAC countries are in the dimensions of telecommunications infrastructure and human capital, according to the evolution of the EGDI sub-indices between 2014 and 2018. The dimension of online services showed a moderate advance in the period (Figure 4.4). This highlights the difficulty of changing structural variables, such as human capital and infrastructure. The design and implementation of e-government strategies has been a main factor in the advancement of online service provision in LAC countries.

The shift from e-governments to digital governments has not yet taken place in statistical systems. At present, there is no measure of digital government able to capture all of its dimensions. Various scattered indicators show that Chile, Mexico and Uruguay are advancing rapidly in the provision of online government services (Figure 4.9), and

Figure 4.3. **United Nations E-Government Development Index, Latin America and the Caribbean, 2018**



Notes: The UN E-government Development Index (EGDI) is a composite index of the Online Service Index (OSI), Telecommunications Infrastructure Index (TII) and Human Capital Index (HCI). The OSI assesses the scope and quality of online public services on the country's national website; the TII measures the status of the development of telecommunications infrastructure; the HCI captures the status of human capital. It ranges from 0 (least developed) to 1 (most developed). Simple averages for the OECD and LAC.

Source: UN (2019), *UN e-Government Knowledge Database* (database), https://publicadministration.un.org/egovkb/en-us/Data-Center.

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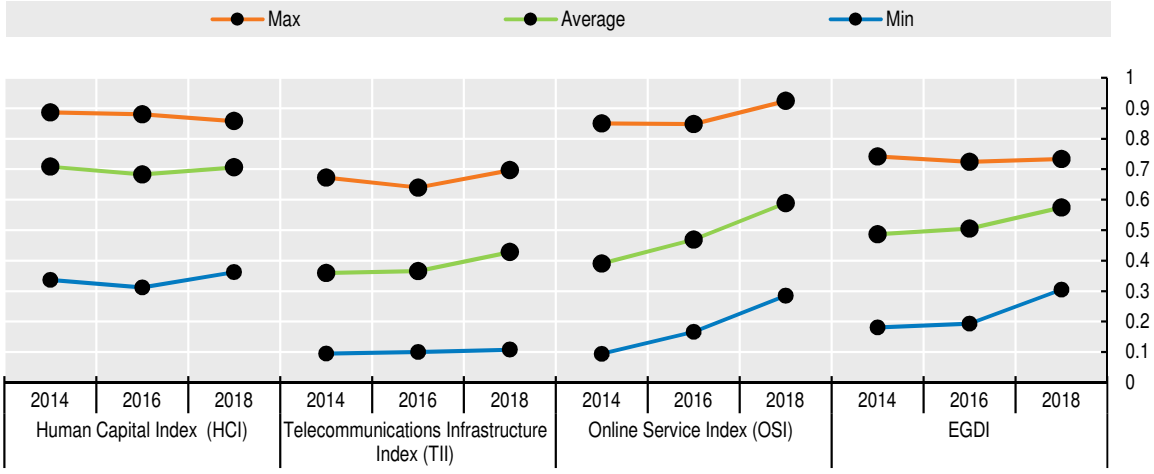
Figure 4.4. **United Nations E-Government Development Index, by component, Latin America and the Caribbean, 2014, 2016 and 2018**

Maximum, minimum and average values



Notes: Simple averages used. LAC includes Antigua/Barbuda, Argentina, Bahamas, Belize, Bolivia, Brazil, Barbados, Costa Rica, Colombia, Chile, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, St Kitts/Nevis, Panama, Paraguay, Peru, St Vincent/Grenad., Suriname, Saint Lucia, Trinidad/Tobago, Uruguay and Venezuela.

Source: Own elaboration based on UN (2019), *UN e-Government Knowledge Database* (database), https://publicadministration.un.org/egovkb/en-us/Data-Center.

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Colombia is making progress in open government data (OGD) policies (Figure 4.12). However, neither of these measures yields a comprehensive picture of the state of the digital transformation of governments. The OECD is currently developing a new generation of Digital Government Indicators (Box 4.2).

Box 4.2. **Measuring digital government maturity**

Most international measurements still focus on government use of technologies to support the digitisation of existing processes, procedures and services (e-government) rather than on the characteristics that make a government fully digital. The OECD developed a set of Digital Government Indicators encompassing the six dimensions of a digital government (digital by design, user-driven, government as a platform, open by default, data-driven and proactive), which can be used as a maturity index, enabling governments to assess progress in each dimension.

This project is a first attempt to measure the digital transformation of the public sector. It is the result of a collaboration between the OECD Digital Government Unit of the Public Governance Directorate and the OECD Working Party of Senior Digital Government Officials (E-Leaders). It builds on the theoretical framework of the 2014 Recommendation of the Council on Digital Government Strategies and resulting peer reviews. The index will not only provide a tool for benchmarking across countries, but also a basis for monitoring their efforts to implement the Recommendation (OECD, 2019i).

Moving towards more credible, efficient, inclusive and innovative public institutions

The digital transformation represents a unique opportunity to transform public institutions deeply and adapt them to rising social aspirations. In a rapidly changing world, development processes demand agile public institutions that are ready to meet emerging challenges and embrace new opportunities. The Latin American context has been characterised by a growing divide between citizens and institutions, leading to an institutional trap that acts as a vicious circle of low trust, declining willingness to pay taxes and, consequently, low public resources to finance good-quality public services and meet citizen demands (OECD et al., 2019). This section explores opportunities offered by the digital transformation to move towards public institutions in LAC that are more credible, effective, inclusive and innovative.

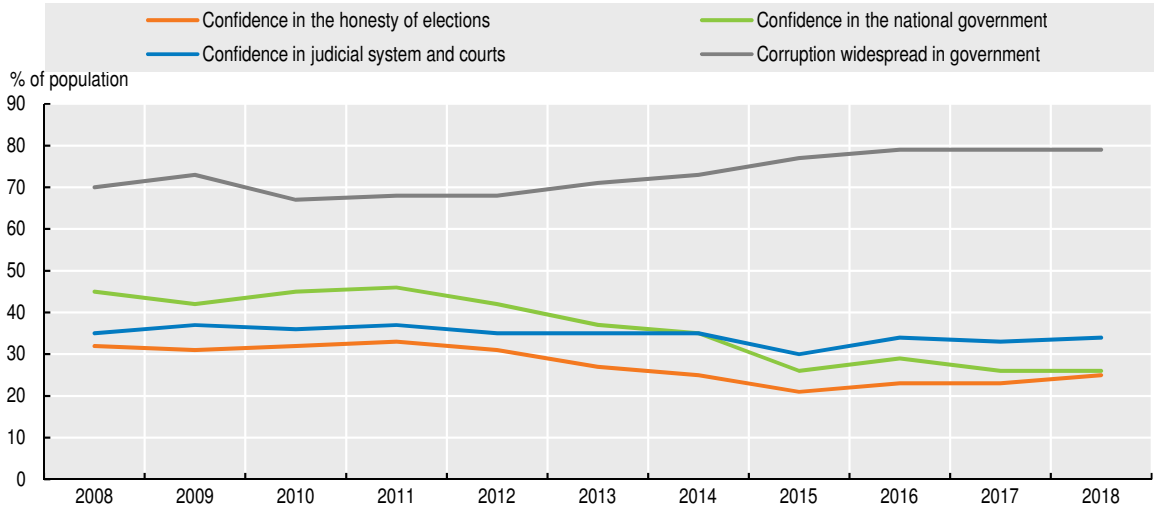
Although not the focus of this section, infrastructure development and investment in civil servants' digital skills are two essential prerequisites to ensure a successful digital transformation of governments. Infrastructure development must close the digital divide, so all citizens can equally access public services on line and engage with government and each other digitally. Digital literacy and culture in public administration are essential to make the most of digital technologies and respond to new challenges (see Chapter 3). Beyond user skills with digital technologies (e.g. email, word processing, spreadsheets, workflow apps) and soft and hard digital skills in public-sector professions (e.g. data analysts), complementary digital skills are increasingly required for public functions profoundly transformed by digitalisation (e.g. tax collection, government communications, citizen services management, planning) (OECD, 2019j). Digital management and leadership skills are also necessary for acknowledging the opportunities, benefits and risks of using digital technologies in the public sector (OECD, 2017c).

Towards more credible public institutions

Trust in public and democratic institutions has declined in LAC in recent years. In 2018, 26% of the population had confidence in the national government vs. 45% in 2008, 21% in Congress (vs. 32%), 24% in the judiciary (vs. 28%) and 13% in political parties (vs. 21%) (Figure 4.5). Perception of democracy has also undergone significant erosion (Figure 4.6).

Widespread perception of corruption is a main driver of mistrust in public institutions. In 2018, 79% of the LAC population believed corruption was widespread in government (Figure 4.5). Some 53% thought corruption increased between the end of 2018 and the end of 2019 (Pring and Vrushi, 2019). This deepens public perception that economic and political elites exert a strong influence on policy decisions for private gain. Some 79% believed the country was governed by, and for the benefit of, a few (Figure 4.6).

Figure 4.5. **Confidence in public institutions and perception of corruption, Latin America and the Caribbean, 2008-18**

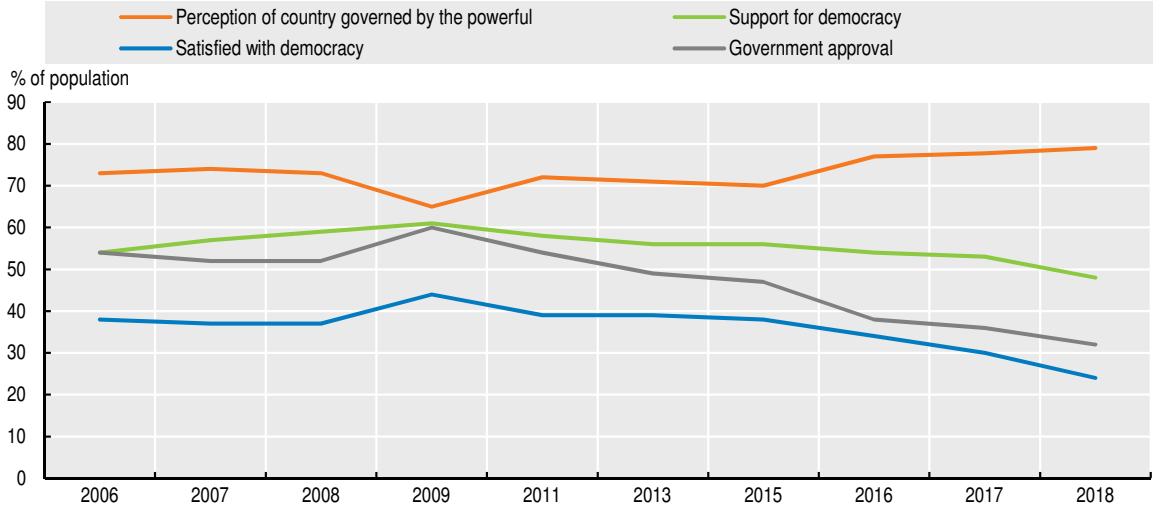


Note: Weighted average.

Source: Own elaboration based on Gallup (2019), *Gallup World Poll* (database), www.gallup.com/analytics/232838/world-poll.aspx and Latinobarómetro (2018), *Latinobarómetro Survey* (database), www.latinobarometro.org/lat.jsp.

StatLink https://doi.org/10.1787/888934172559

Figure 4.6. **Sentiment towards democracy and government approval, Latin America and the Caribbean, 2006-18**



Note: Simple average.

Source: Own elaboration based on Latinobarómetro (2018), *Latinobarómetro Survey* (database), www.latinobarometro.org/lat.jsp.

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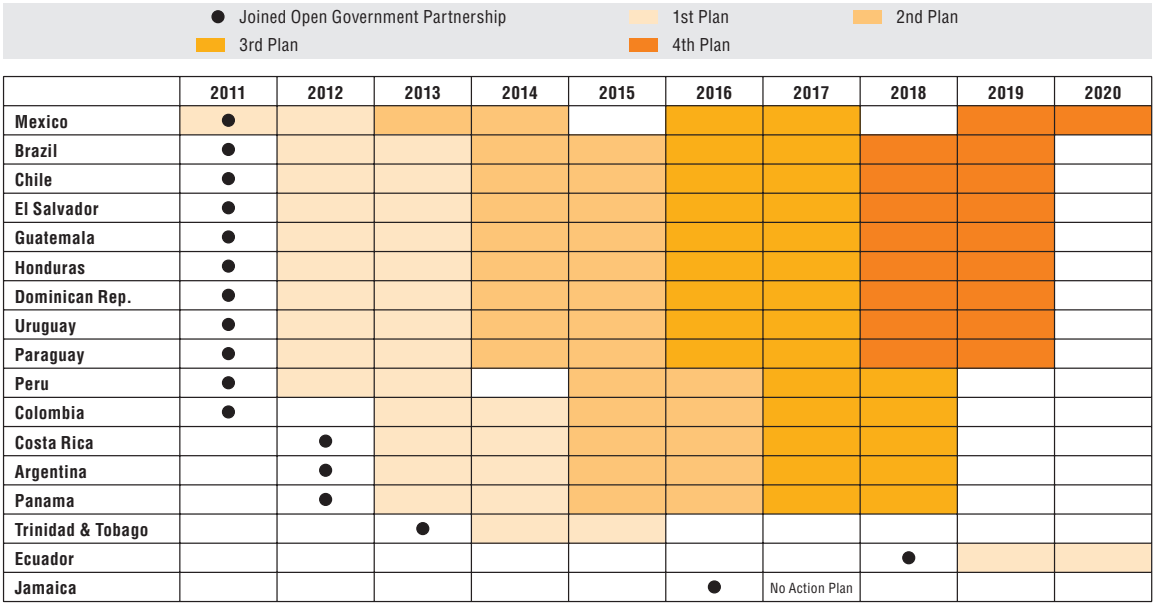
Trust is a cornerstone of public governance and fundamental to the success of public policies. Many policies depend on the co-operation and compliance of citizens, while many others assume the public will behave in a way that translates policies into effective action (OECD/CAF/ECLAC, 2018).

Open government, as a paradigm of public management, can contribute to addressing these challenges, emphasising the importance of transparency, access to information, collaboration and citizen participation (Naser, Ramírez-Alujas and Rosales, 2017). LAC countries have demonstrated commitment to open government (Figure 4.7): by January 2020, there were 53 action plans in the region – 38 already implemented and 15 in progress. Moreover, 1 116 action commitments were added, reflecting the relevance of open innovation as a modality of collaboration with citizens for the co-creation of solutions.

Figure 4.7. **Open government action plans, selected Latin American and Caribbean countries**



Source: ECLAC (2020), *Regional Observatory on Planning for Development in Latin America and the Caribbean*, https://observatorioplanificacion.cepal.org/en/opengov.

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Access to information is a fundamental aspect of open government, and OGD is a natural evolution of the proactive publication of public information. Open data have thus become a central component of open government plans. Increased data availability opens up new possibilities to increase the trustworthiness of public institutions. The potential of OGD strategies to improve democratic governance is large, as open data availability supports a culture of transparency, accountability and access to public information. OGD puts large amounts of information in the hands of citizens, civil society and international organisations, which can then play an oversight role and act as watchdogs and whistle-blowers in cases of corruption or malpractice. The availability of budget and public finance data was critical in uncovering large-scale corruption scandals in the region, such as the Panama Papers or the Odebrecht corruption network (Santiso and Roseth, 2017).

Digital technologies can improve areas particularly susceptible to corruption, including public contracts, infrastructure investments and transfers from national to

subnational authorities. While there is room for improvement, LAC has seen progress in these areas. *MapaInversiones* is a regional Inter-American Development Bank (IDB) initiative to support countries in creating digital platforms for data visualisation. Its main objective is to improve the transparency and efficiency of public investment. The platforms can be used by citizens to exert social control over the use of public funds, by the private sector to prioritise investment, and by policy makers to strengthen planning, design and implementation of public policies (Kahn, Baron and Vieyra, 2018). Colombia, Costa Rica, the Dominican Republic, Jamaica, Paraguay and Peru have implemented such platforms. In Colombia, the *MapaRegalías* platform, which shows the origin and destination of financial resources obtained from the exploitation of natural resources, has helped identify numerous irregularities (Santiso, 2018). Since its launch, the implementation efficiency of projects financed with royalties increased by 8%, on average (Lauletta et al., 2019).

The creation of central purchasing bodies as centres of procurement expertise, and the development of e-procurement solutions, are transforming traditional practices in LAC. *ChileCompra* and *Colombia Compra Eficiente* are two e-procurement platforms providing transparent information on public contracts, for instance. In addition to improving transparency in public management, the data generated by e-procurement platforms can be re-used for anti-corruption purposes through Big Data and machine learning techniques. The OCEANO system, developed by Colombia's General Comptroller, cross-checks information derived from the e-procurement system, administered by *Colombia Compra Eficiente*, with the business and social register to detect corruption networks (Cetina, 2020). Brazil's Observatory for Public Expenditure tracks and cross-checks procurement expenditure data with other government databases to identify atypical scenarios that, while not *a priori* evidence of irregularities, warrant further examination. The platform revealed fraud in Brazil's largest social welfare programme, *Bolsa Família*.

Blockchain is another emerging technology that can support the integrity of public institutions and prevent corruption. Blockchain allows for recording assets, transferring value and tracking transactions in a decentralised manner, ensuring data transparency, integrity and traceability. It eliminates the need for intermediaries, cuts red tape and reduces the risk of arbitrary discretion.

Social media and online audio-visual mediums can help build trust in the management of crises. As seen during the coronavirus (Covid-19) pandemic, conflicting government messages make it hard for the public to know how serious the risks are and what to do. Disinformation and fake news can exacerbate the trend and create panic and confusion (De La Garza, 2020). Governments should ensure that clear, trustworthy information channels reach the greatest number. Social media can provide an important platform to inform citizens about risks, the evolution of the crisis and the measures adopted to counter it. Examples include digital awareness-raising campaigns and daily briefs shared on official government social media accounts. This channel can be especially effective in LAC, given the high use of social media. News verification initiatives can also help counter the spread of fake news (see the section "The risks of mass misinformation"). The UN launched *Verified*, a platform to increase the volume and reach of trusted, accurate information on the crisis (UN, 2020b).

Social media and search engines can also help governments better manage crises by highlighting, surfacing and prioritising content from authoritative sources (Donovan, 2020; OECD, 2020e). Social media algorithms usually promote the most engaging content, risking heightening the spread of sensational fake news. However, during the coronavirus (Covid-19) pandemic, digital platforms pinned informative government websites to the top of their coronavirus (Covid-19) search results. For instance, Google tweaked its

algorithm so that the top search results provided a panoramic overview of the outbreak, information on symptoms, preventive tips and links to national government and World Health Organization (WHO) websites. Other initiatives included co-operation with fact-checkers and health authorities to flag and remove disinformation, and granting free advertising spaces to health authorities to disseminate critical information on Covid-19 on-line (OECD, 2020e).

Digital technologies also pose new challenges for institutional trust. The increasing interconnectedness favoured by technological advances may create new paradigms of social progress. Easier comparison with progress in LAC countries at higher levels of development may inflate aspirations among younger generations, leading to frustration with public institutions if there is a perception that these are not delivering (Nieto-Parra, Pezzini and Vázquez, 2019). Widespread access to information can also be a source of vulnerability for trust in public institutions, insofar as the Internet is used to spread propaganda and fake news and misinform citizens. Fighting fake news is complex, but initiatives are emerging to counter its pervasive impact on public trust (see the section "Governing the digital transformation"). Moreover, the Internet can affect political attitudes and, in certain circumstances, decrease public confidence in government (Guriev, Melnikov and Zhuravskaya, 2019).

Towards more efficient public institutions

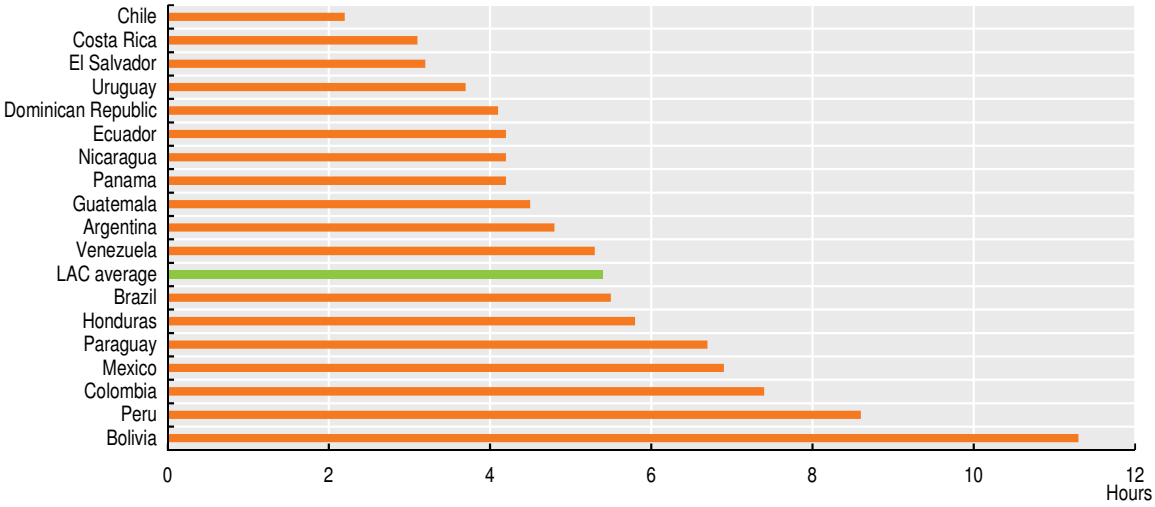
As governments face significant public spending constraints and struggle to meet growing expectations, digital technologies can help make public services more efficient by cutting transaction times and administrative costs.

LAC's complex bureaucracy is best exemplified by the average time it takes to carry out a government transaction, such as getting a birth certificate, paying a fine or obtaining a licence. It takes 5.4 hours, on average, to complete a public transaction in LAC, although variation among countries is high, ranging from more than 11 hours in Bolivia to less than 3 in Chile (Figure 4.8). A high proportion of transactions require three or more interactions with officials, resulting in high transaction costs for citizens, who have to dedicate time and money to dealing with institutions, and for governments, which have to invest financial resources in dealing with citizens face-to-face, reviewing documents and responding to queries. Digital tools can help reduce this burden, for instance the London Borough of Barking and Dagenham reduced processing time by 30 days and saved GBP 617 000 per year by digitalising benefit claims (Local Government Association, 2014).

Transaction times and administrative costs could be reduced through bureaucratic simplification and automation using technologies. Establishing a digital channel for processing transactions would eliminate in-person time and cost for citizens. Establishing interoperable automated systems among government institutions would further reduce and simplify steps to complete a transaction. Such transformation depends on interinstitutional co-ordination among government bodies. The OECD Recommendation of the Council on Digital Government Strategies called for "providing the institution formally responsible for digital government co-ordination with the mechanism to align overall strategic choices on investments in digital technologies" (OECD, 2014c).

Administrative reforms in LAC countries mainly focus on whether regulations can be simplified or eliminated.[6] For instance, the Dominican Republic launched RD+ Simple, a website to report on burdensome regulations or administrative processes. Argentina developed a similar website. Yet, only half of the ten countries surveyed (Argentina, Colombia, Costa Rica, Mexico and Peru) had undertaken administrative simplification at the regional and municipal levels, with little progress shown since 2015-16 (OECD, 2020f).

Figure 4.8. **Hours to complete a government transaction, selected Latin American and Caribbean countries**



Source: Roseth, Reyes and Santiso (2018), *Wait No More: Citizens, Red Tape and Digital Government*, https://publications.iadb.org/publications/english/document/Wait-No-More-Citizens-Red-Tape-and-Digital-Government.pdf; calculations based on Latinobarómetro (2017), *Latinobarómetro Survey* (database), www.latinobarometro.org/lat.jsp.

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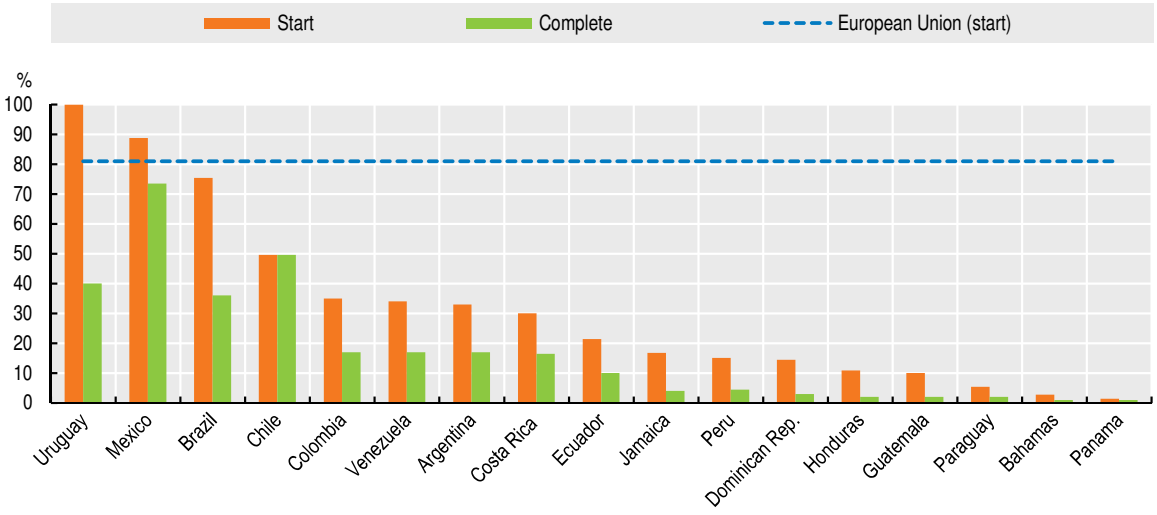
With respect to automation, use of digital transactions in LAC is heterogeneous, but remains rare in the majority of countries. This is usually because: 1) transactions are not available on line; 2) the public cannot access online transactions (e.g. due to lack of broadband access, identification or debit card); and 3) the experience with available, accessible online transactions is unsatisfactory (Roseth, Reyes and Santiso, 2018). Mexico and Chile are the only LAC countries in which more than half of government transactions can be started and completed on line (Figure 4.9). An inclusive digital transformation should not forget the physical service delivery channel, as it remains important in many LAC countries, especially for older and less digitally savvy citizens, and those without Internet access.

During service transformation, service design is a critical discipline that helps governments: 1) understand a user's journey from first attempt at solving a problem to final resolution (from end to end rather than within organisational siloes of provision); 2) address citizen-facing experiences and back office processes (external to internal and vice versa) as a continuum rather than two separate models; and 3) create consistency of access and experience between and across channels (omni-channel) rather than adopt different solutions for different channels (multi-channel) (OECD, forthcoming).

The six-year project, initiated in 2012, to transform the justice system in Panama is an example of successful service design and implementation. The collaboration between the National Authority for Government Innovation and several stakeholders focused on both digital elements and physical infrastructure problems and analogue interactions, addressing the end-to-end experience. Paper is no longer involved, and the justice system has reduced time investment by 96% (OECD, 2019j). The digital transformation of Colombia's Attorney/Inspector General's Office (PGN) is another promising initiative. Through a digital filing project, it is expected that all PGN cases will be fully operational at all PGN offices using: 1) optimised workflows that facilitate direct interaction between officials and citizens via digital channels; 2) digital document processing, content management and user services; and 3) access to information from legacy systems. Yet, despite virtuous exceptions, the justice system remains one of the least digitalised sectors of public administration in LAC.

Figure 4.9. **Government transactions that can be started and completed on line, selected Latin American and Caribbean countries**



Notes: Start indicates the share of government transactions that can be started on line. Complete indicates the number of government transactions that can be carried out and finalised on line. Figures are based on each national authority's definition of "transactional service". Calculations for Mexico consider only transactional services (2 708 services) rather than the total number of entries in the National Catalogue of Transactions and Services, which includes official information and government transactions.

Source: Roseth, Reyes and Santiso (2018), *Wait No More: Citizens, Red Tape and Digital Government*, https://publications.iadb.org/publications/english/document/Wait-No-More-Citizens-Red-Tape-and-Digital-Government.pdf.

StatLink https://doi.org/10.1787/888934172635

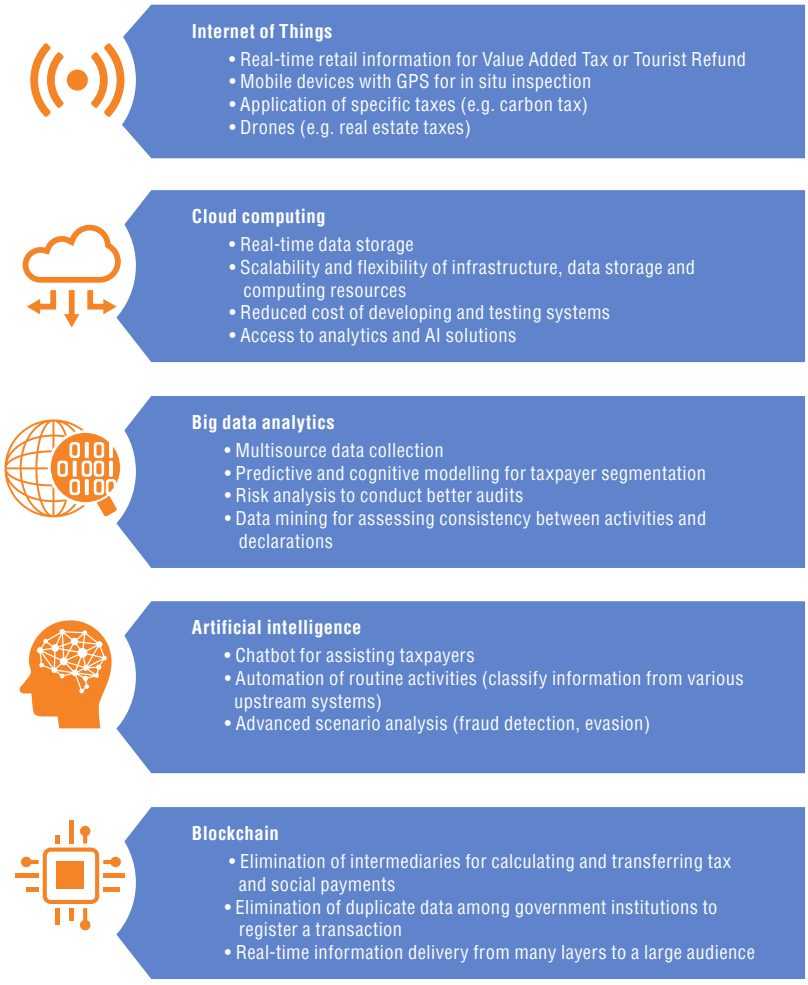
In addition to simplification, automation and service design, adoption of interoperable systems among public administrations is key to more efficient governments. Integrating data systems from different government bodies requires significant digitalisation of databases that share reporting standards and identifiers. Automated cross-checks of tax, wealth, social and payroll data could result in more effective targeting of social transfers and detection of tax evasion (Izquierdo, Pessino and Vuletin, 2018). By integrating information on beneficiaries of various programmes, Iraq's Social Safety Net Information System allowed the Ministry of Labour and Social Affairs to identify households receiving multiple benefits to which they were not entitled. Exclusions resulted in savings of USD 18 million in the system's budget for Baghdad alone. Estonia and Korea are the most advanced in system integration, but Argentina's national fiscal and social system of identification (SINTyS), Chile's integrated system for social information (SIIS) and Brazil's *Cadastro Único* have achieved remarkable levels (Barca and Chirchir, 2014).

Uruguay's national electronic health record (EHR), *Historia Clínica Electrónica Nacional*, features similar integration. While providers manage their own systems, shared data standards make information interoperable. Patients can receive personalised health care anywhere in the country because their records, including medical visits, examination results and mobile consultations, are shared across providers on a platform (Bastias-Butler and Ulrich, 2019).

The digital transformation of tax administration can positively affect process efficiency and service delivery (OECD, 2019k). Digital technologies open up new ways to collect, store, manage and analyse tax information. Income tax filing is one of the most diffused online government services globally (UN, 2019). Latin America leads the way in e-invoicing, which electronically records and automatically transfers commercial transactions to tax authorities. E-invoicing helps fight tax evasion by providing real-time

information and making cross-referencing tax filings easier (Barreix and Zambrano, 2018; Bellon et al., 2019). Chile was the first to adopt e-invoicing in 2003, followed by Argentina, Brazil, Ecuador, Mexico, Peru, Uruguay and other LAC countries. Ecuador has gradually introduced e-invoicing since 2013. In 2016, taxpayers who already emitted e-invoices reported 24% more taxable sales than those not yet included in the programme, up from 17% in 2015 (Ramírez Álvarez, Oliva and Andino, 2018). Other digital technologies, such as the IoT, cloud computing, Big Data analytics, AI and Blockchain, offer new opportunities to increase the efficiency of tax administration (Figure 4.10).

Figure 4.10. **Digital technologies and their application in tax administration in LAC**



Source: Own elaboration based on ECLAC (2018), *Datos, algoritmos y políticas: La redefinición del mundo digital* (LC/CMSI.6/4), Santiago, https://repositorio.cepal.org/bitstream/handle/11362/43477/7/S1800053_es.pdf.

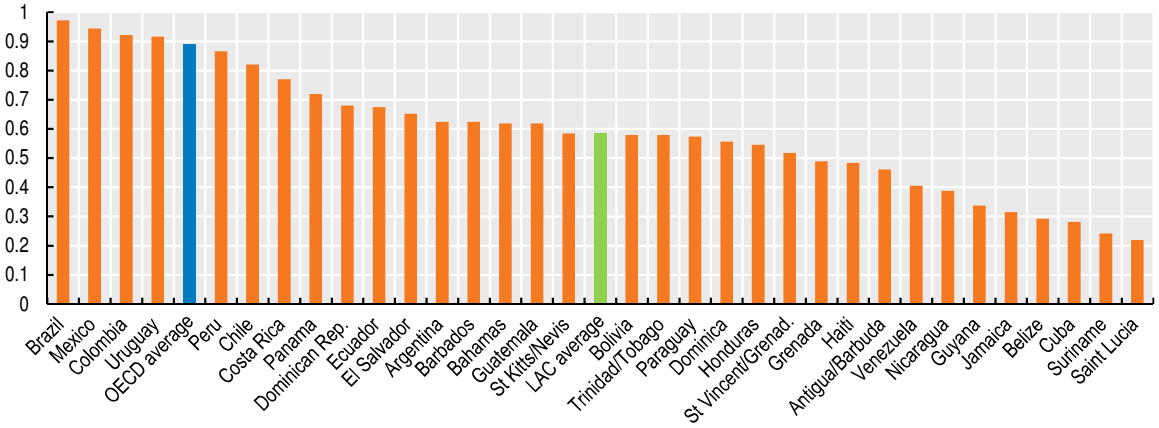
Towards more inclusive public institutions

The digital transformation can make public institutions more inclusive by facilitating interaction with stakeholders (e-consultation) and citizen engagement in decision making (e-decision making). Digital platforms can be a low-cost means for governments to interact with stakeholders in policy design, monitoring and implementation. The digital transformation can help governments provide more inclusive public services, making public institutions more accessible and citizen centred. Using digital technologies, public

institutions can develop policies that are better targeted and put citizen experience at the centre of their design.

According to the 2018 UN E-Participation Index, which includes measures of e-information sharing, e-consultation and e-decision making, the performance of Brazil, Colombia, Mexico and Uruguay was above the OECD average, while other countries lagged far behind (Figure 4.11).

Figure 4.11. **UN E-Participation Index, selected countries relative to LAC average and OECD average, 2018**



Notes: The UN E-Participation Index focuses on government use of online services in providing public information (e-information sharing), interacting with stakeholders (e-consultation) and engaging citizens and stakeholders in decision making (e-decision making). The purpose of this measure is to offer insight into how countries use online tools to promote citizen and citizen-government interactions for the benefit of all. It ranges from 0 (least participative) to 1 (most participative).

Source: UN (2019), *UN e-Government Knowledge Database* (database), https://publicadministration.un.org/egovkb/en-us/Data-Center.

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Digital technologies are opening up innovative channels for stakeholder engagement at various stages of the policy-making process. In 2018, the city of Montevideo set up the Montevideo Decide platform to foster and facilitate citizen participation in public matters through debates, proposals and participatory budgets. One of the more innovative features is a space for citizens to make proposals to the city and choose the winning option(s), to which the city then commits. Chile's *Vota Inteligente* was a similar open and participatory platform aimed at transmitting proposals to electoral candidates in the 2017 elections. Brazil's Promise Tracker allows citizens to track authorities' compliance with their commitments and promotes spaces of dialogue between citizens and authorities to find shared solutions to pressing challenges. Citizens can also increase their participation in legislative processes through CrowdLaw, which uses technology to tap the knowledge, creativity and expertise of citizens to improve the law-making process. Communication is a critical aspect of successful public policies. Digital technologies offer many opportunities for true public engagement and strengthening the impact of government communications (Box 4.3).

The digital transformation of governments can also support inclusive public services by reaching remote and disadvantaged segments of society that have difficultly accessing services. Digital technologies have expanded the reach of public education, for instance. Among other developments, e-learning alternatives have undergone an extraordinary transformation in recent years. Massive open online courses have the potential to democratise education by expanding access and providing many with opportunities

for flexible career paths more closely aligned with labour market needs (OECD, 2015b). E-health delivery systems, such as remote consultations, portals and wearable devices, open up new options for on-demand non-emergency health care that covers more patients at lower cost. These digital modalities may allow a refocussing of health-care services on prevention and early diagnoses (Pombo, Gupta and Stankovic, 2018). One-and-a-half years after implementation of the online service, Peru had carried out 6 800 telemammographies and diagnosed 39 cases of breast cancer in areas with no radiologists (Peru Ministry of Health, 2018).

Box 4.3. **Digital government communications: From broadcasting to true public engagement**

Government communications are an indispensable tool for public institutions to build trust, boost taxpayer morale and encourage public participation. Digitalisation brings unprecedented opportunities for government communications.

Social media provides a relatively inexpensive way to reach millions of citizens. Governments can build support for policy and demonstrate progress with engaging online formats (e.g. video, digital storytelling, data visualisations), promote behavioural change and encourage citizens to join national and local efforts to achieve sustainable development.

The most innovative institutions treat online media not as new broadcasting channels but as multiway processes, creating platforms where citizens can shape debate and communicate their own messages.

Digitalisation also provides governments with a precious information source. With data analytics and online consultations, they can better anticipate public debate, understand audience segments and develop more engaging and effective messaging (OECD, 2020g).

These digital solutions played a crucial role during the coronavirus (Covid-19) crisis. Schools adapted content and went digital to ensure continuity (see Chapter 3). Doctors provided e-consultations to mitigate emergency room overcrowding and viral spread. Recent events have laid the groundwork for an emerging e-health services market that could be developed beyond national borders (Blyde, 2020), similar to e-learning. Low culture and language barriers in LAC could generate important economies of scale for e-health and e-learning providers. However, if complementary investments are not made to ensure equal access to communication infrastructure and skills, these digital services may benefit a small part of the population, exacerbating inequalities in the region (Basto-Aguirre, Cerutti and Nieto-Parra, 2020).

Towards more innovative public institutions

The digital transformation can help governments be more innovative in all stages of policy making, thereby improving the quality of public policies. Digital technologies, combined with data, can be drivers of innovation in public administration by supporting better informed and targeted public policies and services.

Technology, and the digitalisation of societies and governments, generate massive amounts of data. Timely and sufficiently granular data offer opportunities for evidence-based decision making, with digital technologies supporting the policy cycle. Harnessing this potential requires a shift in public administration from an information-centred approach to an innovative, data-driven approach that incorporates digital technologies and data into policy design, delivery and evaluation.

Digital technologies and data promote this approach in various ways. They allow tracking of rapidly changing or previously under-recorded phenomena, such as pollution, financial activity or disease outbreak. Improved data availability, sharing and visualisation help policy makers tailor and differentiate policy design by geographical area, policy setting or socio-economic group (Huichalaf, 2017). Big Data and advanced econometric techniques supported by more granular data allow for greater policy experimentation and evaluation. Last, digital tools facilitate real-time data collection and exchange among both public and private actors, allowing governments to predict and respond proactively to emerging trends or risks (OECD, 2019l). The coronavirus (Covid-19) pandemic illustrates the use of digital technologies and data for innovative policy making. The OECD Country Policy Tracker is a visual platform created to monitor and compare coronavirus-related measures (OECD, 2020h). Korea was among the first to use a smartphone app to deliver test results, track adherence to quarantine and map the geographical distribution and evolution of contagion (Kim, 2020). More countries have adopted a contact-tracing tool, one being Go.Data, developed by WHO and Global Outbreak Alert and Response Network partners to collect case and contact data, and visualise disease transmission (WHO, 2020).

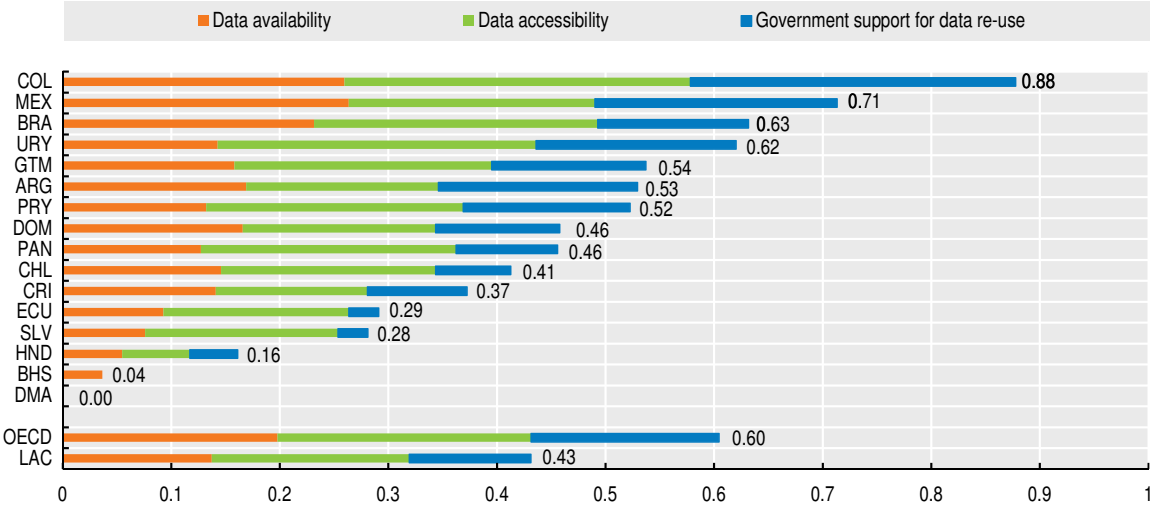
Innovative policy making can be fostered by making data openly available, but also usable and re-usable. OGD policies must be complemented with efforts to make the data re-usable so that they can feed into public administration policy cycles and help firms and individuals make more informed decisions (van Ooijen, Ubaldi and Welby, 2019). The OECD/IDB Open, Useful and Re-usable data (OURdata) Index 2019 measured government commitment to OGD policies, ranging from 0 (lowest) to 1 (highest). LAC countries scored 0.43 in 2019, compared with an OECD average of 0.60. OGD levels are very heterogeneous in LAC: Colombia (0.88), Mexico (0.71) and Brazil (0.63) are leaders, while Caribbean countries, such as the Bahamas (0.04) and Dominica (0.00), are not yet implementing OGD policies (Figure 4.12).

Data availability (Pillar 1 of the OURdata Index), which measures the extent to which central/federal governments promote OGD, shows that, except for Brazil, Colombia and Mexico, LAC is underperforming, compared with the OECD: 10 of the 16 LAC countries surveyed have formal requirements to ensure publication of transparency data. LAC shows better performance in data accessibility (Pillar 2), which measures how OGD are released: 13 of 16 countries, including Costa Rica, the Dominican Republic and Guatemala, provide all or most of the data in machine-readable format on their central portals, and 12, including Argentina, Brazil and Chile, provide all or most of the associated metadata. Except for Brazil, Colombia and Mexico, LAC countries most lag in government support for data re-use (Pillar 3). In particular, countries could better monitor the impact of OGD, since the LAC average score in this sub-category is 0.07, compared with 0.14 for the OECD (Figure 4.12) (OECD, 2020f).

Innovative governments should explore the potential of public-private collaboration in the exchange of data to inform public policies. Search engine data can provide invaluable information that complements traditional socio-economic and institutional data. In contrast to traditional citizen surveys or macroeconomic indicators, such as GDP growth, inflation or unemployment rates, data generated by Internet searches can inform public policies with readily available, anonymous, high-frequency data. For instance, the frequency of Google Trends searches for terms related to government corruption, public services complaints and insecurity have a statistically significant negative association with government approval in the region, after controlling for traditional macro variables (Montoya et al., 2020) (Figure 4.13). Many examples illustrate the potential of public-private collaboration to address policy issues (Socías, 2017). Throughout the coronavirus (Covid-19) pandemic and 2014 Ebola crisis, mobile phone data were used to map regional population movements, identify areas at increased risk of outbreak and determine where to focus preventive and healthcare measures (OECD, 2019l). The same type of data can be

used to track migration phenomena (Frias-Martinez et al., 2019; Isaacman, Frias-Martinez and Frias-Martinez, 2018) or map poverty, as done in Guatemala (Benjamins et al., 2017; Hernandez et al., 2017). The IDB used Waze traffic data to measure the impact of a Buenos Aires bridge on traffic congestion (Yañez-Pagans and Sánchez, 2019).

Figure 4.12. **OECD Open, Useful and Re-usable Data Index, selected Latin American and Caribbean countries, 2019**



Notes: The OECD OURdata Index on open government data (OGD) assesses government efforts to implement open data in three areas: data availability on the national portal, data accessibility on the national portal, and government support for innovative re-use of public data and stakeholder engagement. The composite index ranges from 0 (lowest) to 1 (highest). The score for each indicator corresponds to an unweighted simple average of each sub-indicator. The index does not measure the impact of OGD on socio-economic outcomes, but rather the work governments do to provide sufficient conditions to enable and stimulate their re-use. The index is based on the OECD analytical methodology described by Lafortune and Ubaldi (2018), which also maps the principles of the International Open Data Charter. Data for Argentina, Chile, Colombia and Mexico were collected through the 2018 OECD Open Government Data Survey. Honduras established a central OGD portal in mid-2019, after the survey was conducted. In Brazil, since July 2019, the Office of the Comptroller General has been responsible for OGD policies; there have therefore been changes in implementation.

Source: OECD (2020f), *Government at a Glance: Latin America and the Caribbean 2020*, https://doi.org/10.1787/13130fbb-en.

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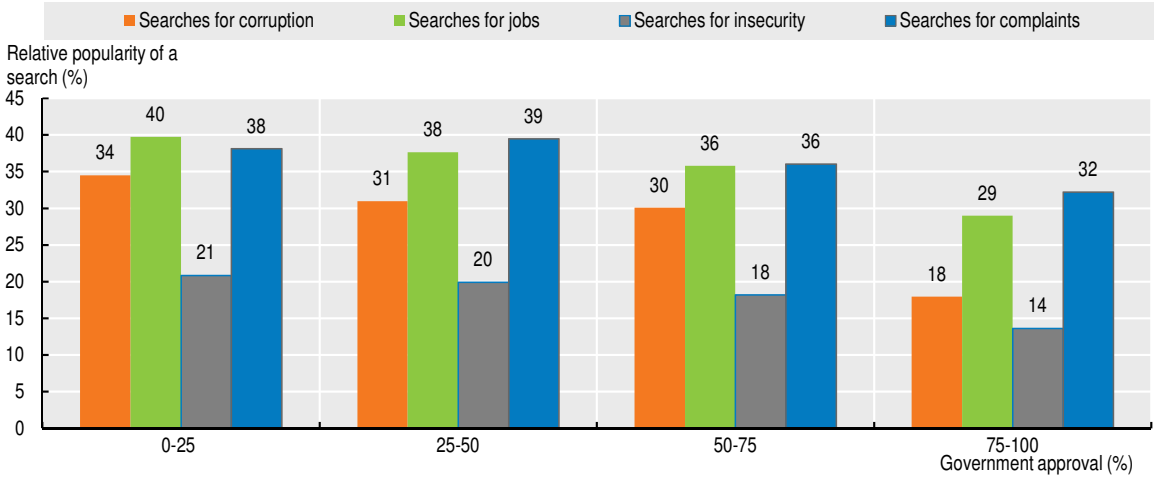
To support public sector innovation, it is essential to invest in civil servant skills, including technical skills, as well as a range of softer behavioural and cognitive skills, such as creative thinking and communication. When supported and motivated, front-line staff and middle managers can play a role in bringing forward innovative ideas and working them through at every stage. People management is therefore an important lever to sustain public sector innovation and a key area where countries should focus efforts to raise their innovative potential. In 2014, Chile set up the *Laboratorio de Gobierno*, a multidisciplinary institution to catalyse citizen-centred public-sector innovation that focuses on developing innovation capabilities and supporting innovative projects in public institutions. Its promising *Experimenta* programme encourages a learning-by-doing approach and helps civil servants address concrete institutional challenges with a citizen-centric, collaborative approach (OECD, 2017d).

Governments should take a bolder stance in favour of innovation, including by supporting innovative initiatives outside the public sector. Part of this strategy should be support for GovTechs (SMEs and start-ups dedicated to developing digital technology solutions for public administrations). While large companies dominate the market for public administration technology solutions, which generates around USD 400 billion per year world wide, creative entrepreneurs have emerged in LAC (Santiso, 2019).

Figure 4.13. **Google search popularity and government approval, Latin America and the Caribbean, 2006-15**



Note: Based on 18 LAC countries, simple average.

Source: Montoya et al. (2020), "Using Google data to understand government approval in Latin America".

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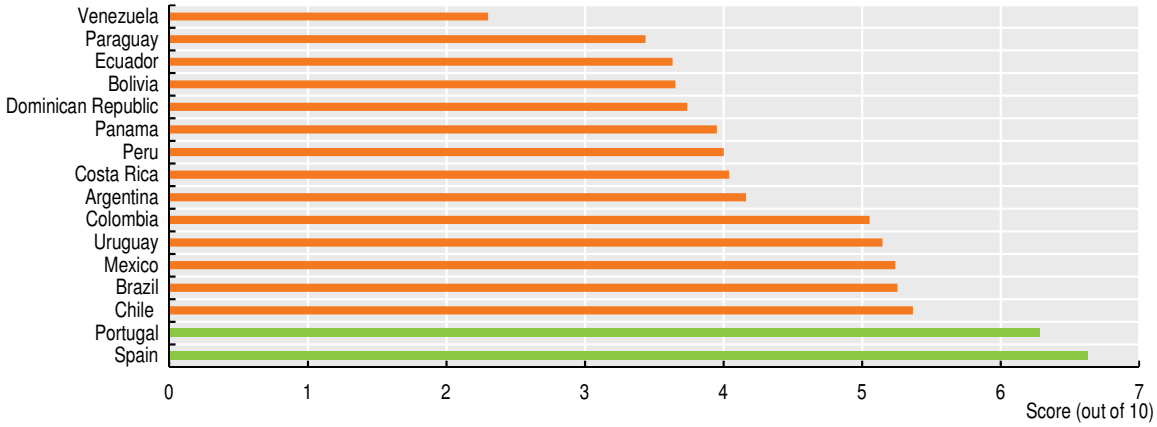
The maturity of GovTech ecosystems across LAC countries is heterogeneous. The Corporación Andina de Fomento (Andean Development Corporation [CAF]) GovTech Index 2020 is the first attempt to measure the development of GovTech ecosystems in the region. Its three pillars assess the start-up industry, government policies to promote the GovTech ecosystem, and the quality and efficiency of procurement systems. The start-up pillar has the lowest score across the region. This is mainly explained by the low availability of the venture capital needed for funding start-ups and scaling up. Portugal and Spain display greater average maturity than their Latin American counterparts (Figure 4.14).

Figure 4.14. **CAF GovTech Index, selected Latin American and Caribbean and European countries, 2020**



Notes: The CAF GovTech Index 2020 measures the maturity of GovTech ecosystems based on 28 indicators across 7 dimensions, which, on aggregate, form 3 equally weighted pillars: start-up industry, government policies and procurement systems. It ranges from 0 (least developed) to 10 (most developed).

Source: Zapata et al. (2020), *The GovTech Index 2020: Unlocking the Potential of GovTech Ecosystems in Latin America, Spain and Portugal*, http://scioteca.caf.com/handle/123456789/1580.

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Among successful LAC GovTech initiatives, *Visor Urbano* is a platform for managing online transactions related to business licences and construction permits of the Government of Guadalajara, Mexico. It has helped fight corruption, supported evidence-based policy making and saved citizens time and money (Zapata and Gerbasi, 2019a).

MuniDigital®, a platform focused on improving municipal services management by collecting accessible, up-to-date data, is currently employed by 40 municipalities and institutions in 10 Argentinian provinces. Government and citizen savings were attributed to, among other effects, improved administrative efficiency and reduced costs related to infrastructure maintenance and public transport, which helped lower environmental costs (Zapata and Gerbasi, 2019b).

Government-GovTech collaboration presents challenges that should be addressed. Fixed, long-term contracts with technology companies prevent public administrations from engaging with newer entrants. The public procurement process is also long and complex: the search for the cheapest solutions and the duration of decision making can result in contracting firms that are competitive, but not innovative (Ortiz, 2018). Regulatory frameworks should focus on lowering entry barriers for innovative start-ups. Colombia's *Compra Publica para la Innovación* applies an innovation criterion in procurement to find alternative solutions that satisfy public needs. Brazil and Chile are also making public procurement rules more flexible (Santiso, 2019). Innovation requires upfront and long-term financing (Mazzucato and MacFarlane, 2018). The longer maturation times of companies catering to the public sector deter venture capital funds. The public sector could play a key role in establishing funds for supporting these emerging start-ups. Denmark, Israel, Lithuania, Poland, Portugal and the United Kingdom have taken steps in this direction. Mexico is testing this approach through *Reto México*.

Digital technologies and new forms of data open up new opportunities for all levels of government, including cities, which is particularly relevant in highly urbanised LAC. Incorporating digital technologies can transform public service provision and quality of life (smart cities). Citizens' regular interactions with local public administration (e.g. carrying out transactions at local government offices, voting in the constituency or using public transport) influence their perception of public institutions, making investment in digital technologies at the local level critical to improving their well-being and satisfaction with government.

Public institutions and cities can benefit from the digital transformation in terms of credibility, efficiency, inclusiveness and innovation. Data-driven innovation can increase efficiency and promote integration of urban systems. For instance, smart grids can be connected to electric vehicles and home devices to manage energy supply and demand more efficiently. Civic technology can foster citizen engagement by facilitating access to information and providing spaces for expression of opinion, public consultation and online voting. Moreover, digital innovation at the local level often has lower costs and requires less capital expenditure, allowing smaller firms to compete with dominant incumbents in a disruptive ecosystem (OECD, 2019m). Pinhão Valley, the innovation ecosystem of Curitiba, Brazil, includes multiple actors, such as universities, accelerators, incubators, investment funds, start-ups, cultural and creative movements, and civil society.

Measuring the use and impact on citizen development of technologies in cities is important to guide investment in ICT and make public policies more effective. In Colombia, cities were ranked as smart cities according to three criteria: ICT infrastructure; socio-economic, institutional and environmental context; and the relationship between ICT and progress in various dimensions of well-being. The municipalities of Armenia, Bogota D.C., Envigado, Pereira and Medellín performed best (Gallego et al., forthcoming).

The digital agenda in national development strategies

The digital transformation, with its developmental potential, unlocks new opportunities and brings about diverse development challenges that should be integrated into development planning. Previous chapters and the sections "Governing the digital transformation" and "The digital transformation of governments" highlight opportunities and challenges associated with the digital era. To navigate these changes effectively, policy actions must be co-ordinated and take a long-term perspective.

A number of increasingly relevant challenges prevent LAC countries from moving to the next stage of development. Development traps, as described in *Latin American Economic Outlook 2019: Development in Transition*, refer to low productivity, social vulnerability, institutional weaknesses and environmental risks in the current development model (OECD et al., 2019). These traps underscore the importance of development planning in realising a clear, coherent vision of progress for the region. In particular, decreasing levels of confidence in institutions highlight the need for a new social contract that must be the result of a participative, multi-stakeholder process where citizens and firms have a voice. Digital technologies can support the construction of inclusive development strategies by opening innovative channels for stakeholder participation (e.g. videoconferences, online consultations).

NDPs are a vital policy instrument to embrace the opportunities of the digital transformation and overcome persisting challenges. Well-designed NDPs apply a coherent, long-term vision to increasingly complex and interconnected problems. They can also address development challenges in a clear and comprehensive manner, i.e. involving all government institutions at all levels (national, regional, municipal) over time. NDP effectiveness can be measured in six dimensions: 1) clear goals and indicators to define priorities, allocate financial resources, monitor progress and identify gaps; 2) a solid legal framework to give the plan authoritative power; 3) a link with the national budget, allowing concrete assessment of policy feasibility; 4) inclusion of a subnational dimension and public participation in the creation of the plan, giving it greater legitimacy; 5) a specialised agency responsible for formulating NDP matters in terms of commitment and expertise; and 6) monitoring and evaluation, which are fundamental for assessing implementation and enabling learning, prioritisation and policy improvement over time.

Development planning in LAC countries has improved significantly (Chimhowu, Hulme and Munro, 2019). However, the digital era requires integrating the digital transformation as a key and cross-cutting pillar of NDPs and further developing specific agendas for digitalisation. The coronavirus (Covid-19) crisis underscored the importance of advancement in the digital transformation. In particular, it shed light on the persistent digital divide, evident in the unequal distribution of Internet access and use, and digital skills across the LAC population, which can reinforce existing inequalities (OECD, 2020i). DAs within NDPs should become top priority.

This section analyses how the digital transformation is mainstreamed in LAC NDPs, looking at the relative importance of various digital topics and how digital technologies relate to the four development traps. It then reviews DAs and identifies key areas for their success.

Mainstreaming the digital transformation in national development plans

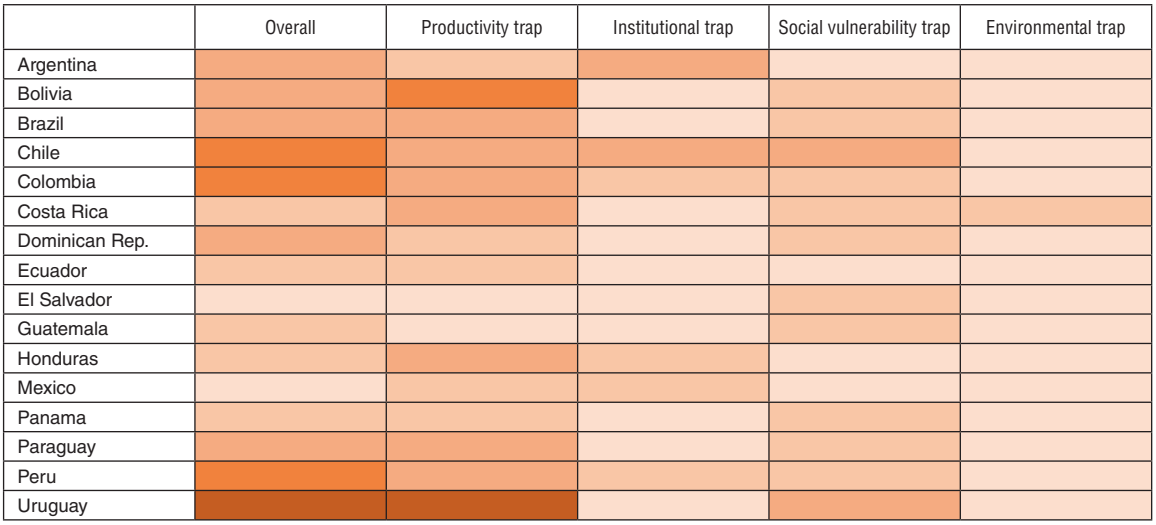
Attention to digital-related policies in LAC NDPs is mixed. There is potential to integrate the digital transformation more fully in most plans. The digital transformation in NDPs is more frequently linked to productivity-enhancing policies and less to social, institutional and environmental issues (Figure 4.15). These results emerge from a text-mining analysis

that identified and classified the NDPs of 16 Latin American countries by assessing the frequency of digital-related keywords and analysing their connection to the four development traps or to a set of topics relevant to the digital transformation of a country (see Annex 4.A1 for detailed methodology and Annex 4.A2 for a list of NDPs analysed). Communication infrastructure, Internet access and use as well as the future of work are prominent topics, while those related to the digital economy or digital governments are relatively under-represented (Figure 4.16).

The link between the digital transformation and the four development traps in LAC NDPs

LAC NDPs show heterogeneous incorporation of digital-related issues. They have a relatively larger presence in the NDPs of Chile, Colombia, Peru and Uruguay (Figure 4.15). Chile's NPD cites the digital revolution and the changes needed in the economic, social and institutional structure as a main government commitment. Colombia's NDP dedicates a pillar, or Pact, to the digital transformation (*Pacto por la transformación digital de Colombia*). Peru's NDP has a chapter on the development of skills for innovation, adoption and transfer of technological improvements. Uruguay's NDP singles out technological revolution as a main global trend and the strategic importance of ICT for the productive transformation of the economy.

Figure 4.15. **Intensity of digital dimensions in national development plans, by development trap, selected Latin American and Caribbean countries, 2019**



Notes: The darker the colour, the higher the intensity of the digital transformation. To obtain the table, each NDP policy was linked to a development trap, then the relative frequency of the words "computational", "digital", "digitalisation", "electronic", "informatics", "intelligent", "Internet", "online", "technology", "technologic", "virtual", and all their derivations, was calculated for each trap. Analysis was conducted in Portuguese for Brazil's NDP and in Spanish for all others. See Annex 4.A1 for detailed methodology.

Source: Own elaboration based on latest NDPs (end of 2019).

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LAC NDPs focus relatively more on digital policies connected with the productivity trap. Concern for investment in communication infrastructure is particularly widespread. The challenge of expanding broadband network deployment throughout the country, including remote and rural areas, is well represented. Only a few NDPs reference the potential of, for instance, the Fintech sector to provide more inclusive financing to SMEs. Colombia focuses on adapting the regulatory framework to emerging financial technologies, in line with principles promoted by the Pacific Alliance. Peru aims to implement a legislative proposal on the regulation of financial services by 2021 and to

create a Fintech Regulatory Platform by 2025. Honduras emphasises the development of digital financial services to improve financial inclusion. Uruguay addresses the important topic of automation and robotisation of production processes and use of Big Data to increase agri-food productivity and enhance product traceability.

The connection between the digital transformation and the social vulnerability trap receives relatively less attention, and policies tend to focus exclusively on strengthening scientific and information technology skills in schools. Digitalisation in the education and health sectors, e.g. through distance learning or e-health services, remains largely unexplored. Some NDPs include policy frameworks to improve connectivity in schools and boost inclusiveness. Chile's Government Plan 2018-22 proposes a virtual academy, *Conectados con el Futuro* (Connected with the future), offering free science and technology classes to all citizens. The Dominican Republic, Paraguay and Peru advance similar policies. Colombia's NDP includes proposals to develop a digital platform for families with child education recommendations. NDPs also include proposals for equipping schools with Internet connection and computers, as with El Salvador's *Niñez y juventud del futuro: una niña, un niño, una computadora* (Infancy and youth of the future: A girl, a boy, a computer). Uruguay's NDP aims to facilitate and democratise access to new technologies to ensure that all citizens benefit from basic e-health services.

Concerning the link between the digital transformation and the institutional trap, most NDPs recognise the importance of adopting digital tools for the modernisation of public administration (e-government), but proposals are mixed regarding to the reorganisation of the public sector apparatus in order to integrate strategic thinking about digital technologies from the outset (digital government). The NDPs of Argentina, Chile, Colombia and Peru have the most advanced recommendations for the modernisation of government. Argentina proposes a digital ballot (*Boleta Única Electrónica*) to make elections more transparent, digitalisation of customs (also proposed by Peru) and *País Digital* (Digital Country Plan) to promote Internet use by provincial and municipal governments. Brazil and Colombia aim to introduce digital platforms to improve interactions among government, citizens and firms. Chile aims to improve police management with safe systems of electronic reporting and mobile apps for emergencies and crime. Colombia and Peru plan to introduce a model of digital justice, with support for electronic procedures in most judicial actions.

The links between the digital transformation and the environmental trap are least evident in the plans. Brazil proposes to use technologies for remote sensing of deforestation, land use and forest fires, and for the diffusion of the information. Costa Rica proposes installing smart meters in the national electrical system as part of its national decarbonisation plan and creating a digital platform to accelerate environmental transactions, processes and permits. Uruguay plans to promote R&D on technologies for environmental control, monitoring and management. Countries should adopt new digital technologies to monitor pollution and species conservation. Advancements in image processing, when used in conjunction with machine learning, can be useful for conservation policy by allowing tracking of wildlife populations and monitoring biodiversity loss (OECD, 2019l). These methods were used to carry out the first census of the Grévy's zebra in Kenya (Berger-Wolf et al., 2016).

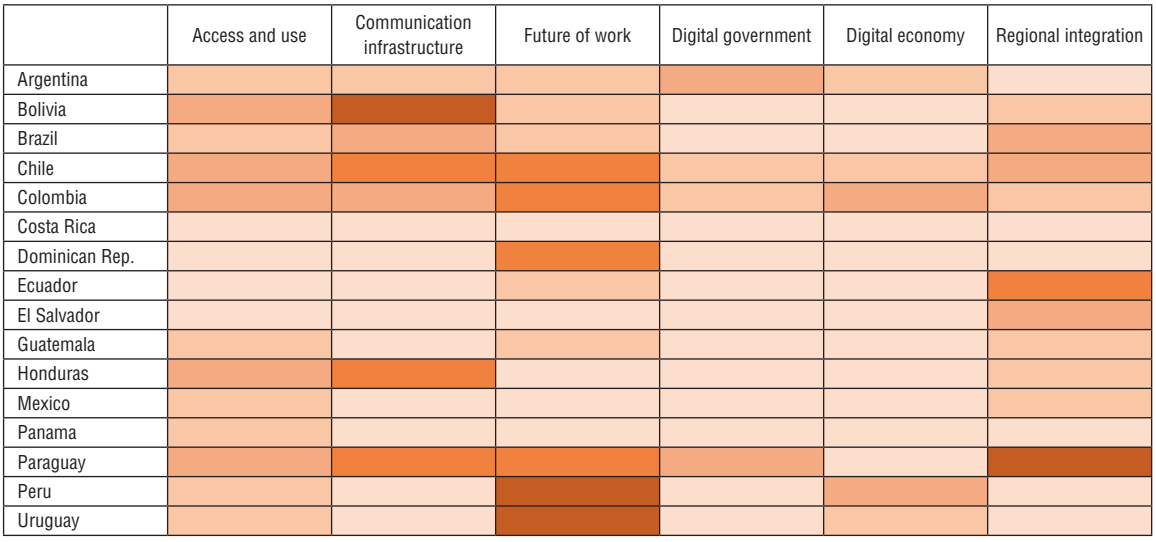
Key digital-related topics across NDPs

The digital transformation manifests in many areas where policy making is important. To determine the main digital-related areas included in LAC NDPs, a text mining exercise assessed the relative frequency of the following policy items: access to and use of the Internet and digital technologies; communication infrastructure; digital economy; digital

government; regional integration; and the future of work (see Annex 4.A1 for detailed methodology and Annex 4.A2 for a list of NDPs analysed).

Overall, a broad range of policy areas reference the digital transformation. Countries do not focus on a single area, although they may emphasise an aspect. For instance, Paraguay privileges regional integration, while Peru and Uruguay emphasise the future of work (Figure 4.16).

Figure 4.16. **Intensity of digital dimensions in national development plans, selected Latin American and Caribbean countries, 2019**



Note: The figure was obtained by compiling a list of keywords for each topic; intensity of topic was calculated based on relative frequency. See Annex 4.A1 for detailed methodology.

Source: Own elaboration based on latest national NDPs (end of 2019).

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The majority of NDPs include expansion of access and use of digital technologies to close the digital divide and ensure universal Internet coverage. Internet access is included among basic household services, together with water, electricity and telephone, in the majority of plans. Some countries, including Brazil, Chile and Colombia, propose nation-wide Wi-Fi access hot spots to ensure the digital inclusion of all citizens.

Policies seeking to expand communication infrastructure are fundamental for an inclusive digital transformation. The majority of countries have programmes to ensure universal broadband, although priorities depend on the state of communication infrastructure development. Those with low levels of Internet access, such as Honduras, focus on expanding network coverage and extending the number of broadband subscriptions. Higher income countries, such as Colombia and Costa Rica, aim to upgrade existing infrastructure and migrate to 4G and 5G networks, the latter in the coming years. Uruguay plans to strengthen the connectivity of IoT applications, as fixed and mobile broadband are relatively well developed.

Regarding the impact of digitalisation on labour markets and adapting to a new world of work, countries emphasise skills upgrading over encouraging new, more flexible working arrangements or transforming labour market institutions. Uruguay's plan provides a gender perspective on the risks of automation and the possible increase in wage inequality. It stresses the importance of ending education segregation and encouraging female participation in science and technology curricula. It also seeks to ensure the right

to lifelong learning and universal social protection and security for all workers in order to mitigate changes in the future of work. Teleworking remains relatively underanalysed, apart from proposals in Chile's plan to enhance work-life balance, in Colombia's plan to promote employment equality and favour female labour market participation, and in Peru's plan to approve a new teleworking law by 2021.

Proposals for the application of digital technologies to accelerate internal public administration processes and adopt open data policies are widespread; however, apart from Argentina, Brazil, Chile, Colombia, Mexico and Uruguay, no country mentions the complementary extension of digital security regulations. The creation of digital one-stop shops for carrying out government transactions is gaining traction. Argentina's *Ventanilla Única Digital y Presencial* proposes to unify all channels for accessing social services and sending transfers. *Chile sin Papeleo 2025* and *Chile Atiende Online* are important in achieving sufficient capacity to have all government procedures on line by 2025. Colombia has a similar aim for 2030. Peru will implement *Ventanilla Única Digital Minero Energética*, a digital one-stop shop to manage permits and authorisations for mining and energy sector investors, by 2021.

Attention to the development of the digital economy remains low, with few proposals to foster e-commerce, open banking or financial technology companies. Chile's *Pymes Digitales* (Digital SMEs) supports access to connectivity and provides training through digital platforms. As part of its Pacific Alliance commitments, Chile will also create a roadmap for firms' participation in e-commerce, the massification of payment and the certification of electronic origin. Colombia, beyond promoting e-commerce, plans an advanced manufacturing programme to develop technologies associated with industry 4.0, including the industrial IoT, Big Data, AI, robotics, 3D printing, nanotechnology and augmented and virtual reality. Panama aims to implement an online payment system as part of its law on e-government (*Panamá en Línea*). Uruguay is looking at e-commerce to increase meat exports and at the creative industry's role in the development of a digital economy.

Regional integration is important for the majority of countries surveyed, but most focus on energy, border and commercial integration. Few countries advocate for digital integration in their NDPs as part of their broader objective to develop an innovative, competitive economy.

The prevalence of digital issues in NDPs indicates gaps and opportunities to benefit further from the digital transformation. However, NDP analysis results bear careful interpretation. Lack of a policy area can indicate that it is not a top priority, that it is covered by existing policies or that the objective has been achieved. For instance, Uruguay does not mention digital government, but progress in this area to date, and the existence of a DA and a digital government plan, may explain the omission.

National digital agendas/strategies: Comprehensive action to exploit the benefits of new technologies

Since the mid-1990s, LAC governments have increasingly devoted efforts and resources to DAs or ICT strategies, generating a series of comprehensive policies and initiatives (see Chapter 6 for the case of Caribbean countries). Brazil, Chile and Colombia were among the pioneers, formulating ambitious ICT strategies. Several countries, including Chile, Colombia and Uruguay, have since consolidated policies and institutions, and developed third- or fourth-generation DAs (ECLAC, 2016). Most LAC countries now have a DA (Table 4.3).

Table 4.3. **National digital agendas/strategies in selected Latin American and Caribbean countries**

	Digital agenda/ strategy	Objectives	Institution
Argentina	Agenda Digital 2030	Digital education; infrastructure; connectivity; creation of a legal framework for data processing; efficient government; cybersecurity; economic development; and proactivity in the digital transformation at the international level	Special Temporary Unit for the Digital Agenda of Argentina, under the Government Secretariat of Modernisation
Bolivia	Agenda Digital 2025	Biodiversity and technology; digital and knowledge economy; digital arts and communication; open government; technology for life; gender and inclusiveness; and security and infrastructure	Agency of Electronic Government and Information and Communication Technologies, under the supervision of the Ministry of the Presidency
Brazil	Estratégia Brasileira para a Transformação Digital (E-Digital) (2018)	By thematic axis: 1) enablers (infrastructure and access to ICT; communication, R&D and innovation; confidence in the digital environment; digital education; and international dimension); and 2) digital transformation of the economy, citizens and government	Ministry of Science, Technology, Innovations and Communications
Chile	Chile Digital para Tod@s Agenda Digital 2020	Rights for digital development; digital connectivity; digital government; digital economy; and digital skills	Presidency of the Republic, with advice from the Committee of Ministers for Digital Development
Colombia	El Futuro Digital es de Todos ICT Plan 2018-22	ICT environment; digital social inclusion; empowerment of citizens and households in a digital environment; and digital sectoral transformations	Ministry of Information and Communication Technologies
Costa Rica	Estrategia de Transformación Digital del Bicentenario 2018-22	Digital transformation of public institutions and society with a focus on people, transparency, efficiency, productivity, good governance and world leadership	Ministry of Science, Technology and Telecommunications
Dominican Republic	Digital Agenda of Dominican Republic 2016-20	Infrastructure and access; e-government and digital services; skills development; productive development and innovation; and facilitating environment	National Commission of the Knowledge and Information Society, presided by the Dominican Institute of Telecommunications
Ecuador	Política Ecuador Digital	Connectivity; efficiency and security of information; and innovation and competitiveness	Ministry of Telecommunications
Guatemala	Agenda Nación Digital 2016-32	Education; health; security; development; and transparency	x
Honduras	Agenda Digital Honduras 2014-18	Digital connectivity with equity; digital government strategies; human capital and ICT; and development of a legislative and institutional framework for ICT	Technical Secretary of Planning and External Co-operation
Mexico	Estrategia Digital Nacional 2013-18	Government transformation; digital economy; quality education; universal and effective health; and public security	Presidency of the Republic, Digital National Strategy Co-ordinator
Panama	El Camino a un Ciudadano Digital Agenda Digital 2020	Equity and social inclusion; democratic strengthening; transformation of the state; infrastructure development; knowledge-based economic development; education through ICT; knowledge generation, research development and innovation; and territorial and international action	National Authority for Government Innovation
Paraguay	Agenda Digital	Connectivity; digital government; digital economy; and institutional strengthening and cybersecurity	Ministry of Information and Communication Technologies
Peru	Agenda Digital al Bicentenario 2021	Integrity; competitiveness; link with citizens; trust; innovation	Multisector Commission for the Monitoring and Evaluation of the Development Plan of the Information Society, under the direction of the Presidency of the Council of Ministers
Uruguay	Transforming with equity Agenda Digital 2020	Digital skills development for inclusion; innovation for social well-being; infrastructure investment; digital economy; smart management of environmental information and of emergencies; and connected and smart government	Agency for Electronic Government and Knowledge and Information Society, dependent on the Presidency of the Republic

Note: x = not applicable.

Source: Own elaboration based on sources from Katz (2009), *El Papel de las TIC en el Desarrollo: Propuesta de America Latina a los Retos Economicos Actuales*; OECD/IDB (2016), *Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit*, https://doi.org/10.1787/9789264251823-en; and DAs in LAC countries.

Various countries, including Argentina, Brazil, Ecuador and Paraguay, approved DAs in 2018-19. After a long consultation process with more than 30 public institutions, Brazil approved the *Estratégia Brasileira para a Transformação Digital* (*E-Digital*) (Brazilian Digital Transformation Strategy) in 2018. Ecuador adopted the Digital Ecuador policy in 2019 and is currently preparing its new DA. Paraguay recently adopted an ambitious DA, in addition to creating a Ministry of Information and Communication Technologies in 2018.

Chile, Colombia, Costa Rica, the Dominican Republic and Panama have ongoing policy frameworks on digital issues, while other LAC countries, including Mexico, have yet to update their frameworks, partly owing to political change in the region.

DAs are cross-sectoral and aim to address various policy objectives involved in the digital transformation of economies and societies. Most DAs in LAC prioritise or include objectives related to infrastructure and access to ICT, broadband deployment, digital skills development, legal framework, digital government, ICT in schools and productivity-enhancing policies mainly aimed at the adoption of digital technologies by SMEs, promoting the IT industry, e-commerce and digital entrepreneurship. E-health and, especially, environmental policies are less often mentioned. An increasing number of DAs indicate the importance of international co-operation as a strategic component of their policy agendas (see Chapter 5). This section focuses on DAs, but many countries in LAC have separate digital government strategies focused on the digital transformation of government institutions: Brazil has the E-Digital DA and the Digital Governance Strategy (2020-22), for instance (OECD, 2018).

DAs in LAC countries encompass a broad range of policies, involving not only ICT ministries, but also other government institutions, such as those in charge of finance, education, industry and public administration (Figure 4.17). Effective co-ordination among government bodies is essential for the implementation of a coherent DA: policy makers can misunderstand data governance as the exclusive responsibility of IT departments, but a comprehensive data governance framework must ensure proper data management throughout their life cycle, i.e. across various departments (OECD, 2019b). The digital transformation calls for policies and practices that address issues in a holistic, coherent manner across sectors (OECD, 2019n, 2019o; Quintanilla, 2017). Responding to technological disruption requires a certain degree of institutional disruption, i.e. changing the traditional organisation of government with respect to digital policies.

There are examples of inter-institutional co-ordination around DAs in LAC, but very few countries have consolidated them. Uruguay's Honorary Advisory Council for the Information Society meets periodically to evaluate DA implementation.

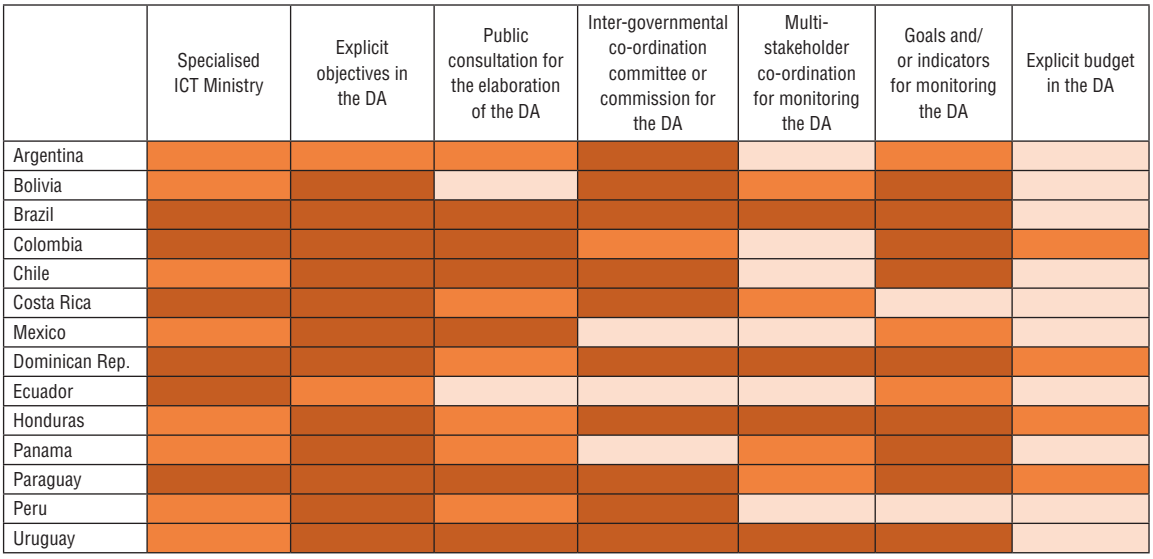
The digital transformation is not only driven by governments, but also businesses, people and other non-government stakeholders. To ensure that strategies are inclusive and useful for all, it is important to include all levels of government and all stakeholders. Multi-stakeholder dialogue can help identify obstacles, exchange best practices and open up opportunities for self-regulation, stakeholder-led standard setting and public-private partnerships. Digital technologies increasingly facilitate such engagement through, for instance, web-based consultations (OECD, 2019o). LAC countries acknowledge the importance of multi-stakeholder engagement in DA elaboration, but few have an institutional design that seeks co-ordination with the private sector and civil society for implementation and monitoring.

Clear responsibility and adequate implementation power are crucial for the success of DAs. A high-level body leading the strategy can be particularly helpful in co-ordinating a swift digital transformation (OECD, 2019i, 2019n). Approaches to governing DAs vary across countries, both in the OECD and in LAC. OECD countries follow two models.

The first is characterised by high-level leadership and centralised responsibility for strategic co-ordination above the ministerial level, e.g. by a head of government or equally important figure. This is the case in the Slovak Republic, where the Prime Minister holds a strong mandate for digital issues, including drafting of the strategy, which is executed through a dedicated co-ordination office. In other countries, including Estonia, Korea and Luxembourg, as well as Chile and Peru in LAC, the Prime Minister (or the Presidency) is responsible for certain functions, such as strategic co-ordination, but ministries play an important role, for instance, in providing inputs for strategy development and in implementation (OECD, 2019o).

The second approach allocates responsibility for DA co-ordination to a lead ministry. In several OECD countries, including Belgium, Japan, Poland, Portugal and Slovenia, the lead ministry is exclusively dedicated to digital affairs. In various LAC countries, including Brazil, Colombia, Costa Rica, Ecuador and Paraguay, ministries of ICT or science and technology are in charge of DAs. In Bolivia, Panama and Uruguay, among other countries, a special agency under the control of the Presidency of the Republic oversees the DA (Figure 4.17).

Figure 4.17. **Institutional characteristics of national digital agendas, selected Latin American and Caribbean countries, 2020**



Note: Colour intensity indicates the intensity with which the DA includes the characteristic in its institutional design.
Source: Own elaboration based on latest national DAs (January 2020).
StatLink https://doi.org/10.1787/888934172768

An effective oversight framework is important for monitoring implementation and carrying out evaluation of DAs. These activities should enable learning, prioritisation and improvement of policies over time (OECD, 2019o). Many OECD governments have developed measurable targets within specific time frames. On average, monitoring started in 2013. Some countries monitor implementation with a supranational index, such as the EU Digital Economy and Society Index; others, such as Germany and Mexico, developed their own aggregate digitalisation indexes (OECD, 2017e). The OECD's *Going Digital Toolkit* helps countries assess their state of digital development and formulate policy strategies and approaches in response. *Measuring the Digital Transformation: A Roadmap for the Future* outlines additional indicators and a future measurement agenda (OECD, 2019i).

While keeping track of key performance indicators is important for assessing the progress of specific programmes, comprehensive monitoring of the overall advancement of the DA is also necessary. The latter is especially helpful for national authorities when the achievement of one policy objective is based on the success of another goal (OECD/IDB, 2016). Several LAC countries have begun to include monitoring indicators to follow up on DA implementation. Brazil's strategy establishes monitoring indicators for each objective based on statistics from the Regional Center for Studies on the Development of the Information Society, the country's pre-eminent source for ICT statistics.

It is important that DAs align with NDPs, countries' main planning document. NDPs set out development strategies and can be articulated into various regional and sectoral plans, including DAs. Alignment of objectives among government plans is important for co-ordinating policy making. For instance, the Digital Strategic Agenda Panama 4.0 considered the main goals of its Government Plan 2014-19, its Strategic Government Plan, its National Competitiveness Plan and the objectives of the regional Digital Agenda (eLAC2020) co-ordinated by the Economic Commission for Latin America and the Caribbean.

DAs should follow a medium-term time frame of around five to ten years (Katz, 2009). Although many DAs in LAC are aligned with, and derive from, main NPD objectives, alignment tends to be problematic, as the temporal framework of DAs often coincides with the presidential term (Mattar and Cuervo, 2017): continuity of the strategy is in danger with each government turnover. While a short-term plan is useful to co-ordinate immediate actions, a longer-term strategy is necessary to invest in projects, such as ICT infrastructure, that have longer maturation times and whose results can only be assessed over the medium to long term.

Conclusion

The coronavirus (Covid-19) pandemic posed unprecedented challenges to public institutions, which face extraordinary policy dilemmas in an existing context of rising citizen aspirations and deepening distrust, dissatisfaction and social discontent. The crisis is likely to increase demands for stronger public institutions and better quality public services. The digital transformation offers opportunities to address these, although not without challenges.

The profound transformations brought about by technological progress challenge the adequacy of the current global and national institutional set-up. New risks and opportunities lie ahead; the rules of the game must adapt to make the digital transformation a driver of greater well-being for all. The digital transformation itself offers an opportunity to transform public institutions and adapt them to rising social aspirations, including those for new "digital rights". Latin America has seen a growing divide between citizens and institutions, leading to an institutional trap: a vicious circle of low trust, declining willingness to pay taxes and, consequently, low public resources to finance good-quality public services and meet citizen demands (OECD et al., 2019).

Three dimensions of public institutions must be rethought in the digital era. The first is the governance of the digital transformation. New regulatory challenges are emerging. Regulations must ensure fair and equitable advancement of the digital transformation by promoting fair competition, promoting digital innovation and investment, and protecting citizens and consumers. This demands an independent regulator and a stable, predictable regulatory framework to foster long-term investment. Digital security is one of the greatest challenges; yet, after Africa, LAC shows the least commitment, according to the Global Cybersecurity Index. However, there has been progress: 13 countries had a digital

security strategy in 2019. Data protection is another key issue that deserves a renewed policy framework. The GDPR set a model for many LAC countries.

The digital transformation comes with new ethical challenges. The increasing use of AI and machine learning in decision making in public institutions can raise questions and challenges related to human values, fairness, human determination, privacy, safety and accountability, among others. Regulations and standards to respond to these issues have progressed recently. The 2019 OECD AI Principles promote AI that is innovative, trustworthy and respects human rights. Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Peru have adhered to the Principles. The risks of mass misinformation (fake news) represent another key challenge. In LAC, 53% of the population believed that false information is spread frequently or very frequently to influence elections. Two main interventions are being used to address the problem: media regulation, which consists in structural changes aimed at preventing exposure to fake news; and media literacy, which consists in empowering individuals with tools to evaluate the news they encounter, including through fact-checking and news-verification initiatives.

The second dimension is the digital transformation of governments. Governments are incorporating technologies and moving from analogue to e-governments, then gradually towards fully digital governments. The OECD Digital Government Framework highlights six dimensions of a digital government: digital by design, user-driven, government as a platform, open by default, data-driven and proactive. Governments are not only required to adopt new technologies, but also rethink the way in which they are used in order to integrate their use into public sector modernisation efforts from the outset. LAC countries are at various stages of the digital transformation of their governments. EGDI, despite being an insufficient measure that does not capture the broader dimensions of digital governments, showed that Argentina, Brazil, Chile and Uruguay stood among the top 50 performers of the 193 countries surveyed in 2018, performing slightly below the OECD average. Belize, Cuba, Haiti and Nicaragua were among the worst LAC performers.

Digital technologies offer the opportunity to transform public governance and move towards more credible, effective, inclusive and innovative public institutions. New policies like OGD, which supports a culture of transparency, accountability and access to public information, make governments more credible. LAC countries have demonstrated commitment to OGD: by January 2020, there were 53 action plans in the region. Digital technologies can improve areas particularly susceptible to corruption, including public contracts, infrastructure investments and transfers from national to subnational authorities. Central purchasing bodies, the development of e-procurement solutions and use of Blockchain show promise.

LAC governments can be made more effective by using digital technologies to cut high transaction times and administrative costs. Bureaucratic simplification and automation, establishment of interoperable automated systems among government institutions and the digital transformation of tax administration (improving collection, storage, management and analysis of tax information) can reduce costs and increase public revenue. The digital transformation of the judiciary remains a highly necessary, yet pending, agenda in most LAC countries.

The digital transformation can make public institutions more inclusive by facilitating interactions with stakeholders and citizen involvement in decision making (e-decision making). There are innovative channels for stakeholder engagement at various stages of the policy-making process, such as a platform for citizens to track authorities' compliance with commitments, or spaces for dialogue between citizens and authorities to co-create solutions to policy challenges. By making the policy-making process more inclusive, digital technologies can therefore set the basis for a more participative social contract.

Digital tools can also make public services (e.g. e-learning, e-health) more inclusive by reaching more disadvantaged or remote segments of society.

Digital technologies can help governments be more innovative in all stages of policy making. The availability of massive amounts of data allow tracking of rapidly changing or previously under-recorded phenomena. It can help policy makers tailor and differentiate policy design by geographical area, policy setting or socio-economic group. Big Data and advanced econometric techniques supported by more granular data allow for greater policy experimentation and evaluation. Innovative governments should explore the potential of public-private collaboration in the exchange of data to inform public policies, including collaboration with GovTechs (SMEs and start-ups dedicated to developing digital technology solutions for public administrations).

The third dimension is the digital agenda in national development plans. Efforts to transform and adapt public governance to the digital era must be co-ordinated with a long-term strategic view. NDPs, and particularly DAs, are essential. Incorporation of digital issues varies across LAC NDPs. The digital transformation is more frequently linked to productivity-enhancing policies and less to social, institutional and environmental issues. Communication infrastructure, Internet access and use as well as the future of work are prominent topics, while the digital economy, digital government and regional integration are relatively under-represented. Most LAC countries have a DA. It is important that DAs align with NDPs. It is equally important that DAs include all levels of government and engage with all non-government stakeholders: institutional co-ordination and multi-stakeholder dialogue are key for a successful digital transformation, but also for advancing towards a more inclusive social contract. Clear responsibility and adequate implementation power are crucial for the success of DAs, as is an effective oversight framework for monitoring implementation and carrying out evaluation.

Annex 4.A1. Methodology used in Figure 4.15 and Figure 4.16

For Figure 4.15, each NDP was analysed with NVivo qualitative data analysis software and coded according to the four development traps. Coding rules followed were:

Table 4.A1.1. **Coding rules**

Code	Description	Examples
Environmental trap	Includes topics related to environment and climate change adaptation and mitigation	• "Elaboration of a National Policy for the Sustainable Use of Wood, which includes a plan for the replacement of wood with energy coming from less polluting sources, better regulation of the wood market ... " • "Fostering environmental education, awareness and culture, together with the access to information about the environment"
Institutional trap	Includes reforms related to institutional strengthening, including the modernisation of public services, citizen security, justice and international co-operation	• "The national government, in co-ordination with the Attorney General's Office, will dismantle and disrupt criminal organisations, as well as run investigations to extinguish money-laundering, in order to disrupt financial networks and the value chain of illegal activities." • "The public territorial entities (governorates and municipalities) will strengthen their process of digital transformation to develop the possibilities of Decree 1008 of 2018 on Digital Government."
Social vulnerability trap	Includes social and human development, social inclusion and cohesion, equity, education quality and access to basic services	• "Expanding the focus of the Strategy of the Management Platform 'Better Life', going beyond its role in the mitigation of poverty, to a broader role that includes a strategy for leaving this condition" • "Increasing the number of households with electricity, especially in rural areas"
Productivity trap	Includes macroeconomic stability, growth, employment, infrastructure development and investment in science and technology	• "Duplicating the growth rate with respect to the current government" • "Gradually converging towards a balance between structural revenues and expenditures in the next 6 to 8 years, in order to stabilise and then reduce the levels of public debt with respect to GDP" • "Improving the competitiveness of rural SMEs"

Source: Own elaboration.

After this, the frequency of the most recurrent word in the DA was calculated. The frequency of the words "computacional", "digital", "digitalización", "electrónico", "informático", "inteligente", "Internet", "online", "tecnología", "tecnológico", "virtual" and all their derivations (e.g. digital, digitales, digitalizar) was calculated for each trap. Last, the ratio of this frequency to the frequency of the most recurrent word was taken to produce the relative frequencies in Figure 4.15.

For Figure 4.16, each NDP was analysed with NVivo. A list of keywords was associated to the various topics, and relative frequencies were calculated.

Table 4.A1.2. **List of keywords used in the analysis**

Theme	Keywords
Access and use	Access to technology; access to Internet; Internet coverage; network coverage; Internet connection; Internet penetration; technology penetration; Internet use; technology use; connectivity; digital divide
Communication infrastructure	Analogic; aerial; electrification; wired, wireless; microwaves; mobile; router; satellite; telecommunication; telephony; television; transmission; 2G; 3G; 4G; 5G; high definition; high speed; broadband; optical fibre; GPRS; hardware; ICT infrastructure; mobile Internet; Mbps; MHz; Wi-Fi
Digital government	Electronic administration; digital administration; cybersecurity; smart city; e-procurement; open data; open government/state; e-invoice; e-government; e-education; e-health; m-government; electronic government; digital government; online government; mobile government; information privacy; information security; digital security
Digital economy	Incubation; incubator; Big Data; Blockchain; electronic commerce; digital commerce; online commerce; e-commerce; e-payment; Fintech; artificial intelligence; Internet of things; industry 4.0; audiovisual market; online business; open banking; online payment; digital payment; paying online; digital platform; digital productivity; digital competition; technological transfer; digital services; online services; start-up
Future of work	Virtual academy; digital literacy; continuous learning; automation; digital capital; technological skills; digital skills; digital knowledge; co-working; digital class; digital education; technology education; digital training; technological innovation; R&D; digital talent; teleworking; digital transformation; digital work; distance work
Regional integration	Regional digital integration; bilateral treaty; integration treaty; commercial treaty; subregional treaty; plurilateral treaty; common tariff; bilateral commerce; international co-operation; border integration; Latin American integration; macroregional integration; world integration; countries integration; regional integration; free circulation/movement; free transit; free trade; Asociación de Estados del Caribe; Asociación Latinoamericana de Integración; Alianza Bolivariana para los Pueblos de Nuestra América; Alianza del Pacífico; Comunidad de Estados Latinoamericanos y Caribeños; Comunidad Andina; Sistema Andino de Integración; Mercado Común Centroamericano; Mercado Común del Sur; Organización de los Estados Americanos; Organización del Tratado de Cooperación Amazónica; Proyecto de Integración y Desarrollo de Mesoamérica; Proyecto Mesoamérica; Sistema Económico Latinoamericano y del Caribe; Unión de Naciones Suramericanas

Source: Own elaboration.

Annex 4.A2. National development plan characteristics

Table 4.A2.1. National development plan characteristics, selected Latin American and Caribbean countries, latest plan analysed

	Latest NDP analysed	Regulatory framework	Budget	Participation	Planning authority
Argentina	Objetivos de Gobierno de Argentina 2015-2019				Ministerio del Interior, Obras Públicas y Vivienda (MIOPV) de la Argentina
Bolivia	Plan de Desarrollo Económico y Social en el marco del Desarrollo Integral para Vivir Bien 2016-2020	✓		✓	Ministerio de Planificación del Desarrollo (MPD) de Bolivia
Brazil	Plano Plurianual (PPA) "Desenvolvimento, produtividade e inclusão social" 2016-19	✓	✓	✓	Ministério do Planejamento, Desenvolvimento e Gestão de Brasil
Chile	Plan de Gobierno "Construyamos tiempos mejores para Chile" 2018-22				Presidencia de la República de Chile
Colombia	Plan Nacional de Desarrollo "Pacto por Colombia, Pacto por la equidad" 2018-22	✓		✓	Departamento Nacional de Planeación (DNP) de Colombia
Costa Rica	Plan Nacional de Desarrollo y de Inversion Publica 2019-22	✓	✓	✓	Ministerio de Planificación y Política Económica (MIDEPLAN) de Costa Rica
Dominican Republic	Estrategia Nacional de Desarrollo "Un viaje de transformación hacia un país mejor" 2010-30	✓		✓	Ministerio de Economía, Planificación y Desarrollo (MEPyD) de República Dominicana
Ecuador	Plan Nacional de Desarrollo "Toda una Vida" 2017-21	✓	✓	✓	Secretaría Nacional de Planificación y Desarrollo (SENPLADES) de Ecuador
El Salvador	"El Salvador: productivo, educado y seguro" 2014-19		✓		Secretaría Técnica y de Planificación (SETEPLAN) de El Salvador
Guatemala	Plan Nacional de Desarrollo: K'atun Nuestra Guatemala 2032	✓	✓	✓	Secretaría de Planificación y de Programación de la Presidencia (SEGEPLAN) de Guatemala
Honduras	Plan Estrategico de Gobierno 2018-22	✓		✓	Secretaría de Coordinación General de Gobierno de Honduras
Mexico	Plan Nacional de Desarrollo de México 2019-24				Presidencia de los Estados Unidos Mexicanos
Panama	Plan Estratégico de Gobierno 2015-19				Ministerio de Economía y Finanzas (MEF) de Panamá
Paraguay	Plan Nacional de Desarrollo "Paraguay 2030"	✓			Secretaría Técnica de Planificación del Desarrollo Económico y Social (STP) del Paraguay
Peru	Plan Nacional de Competitividad y Productividad 2019-30	✓		✓	Centro Nacional de Planeamiento Estratégico (CEPLAN) de Perú
Uruguay	Estrategia Nacional de Desarrollo Uruguay 2050	✓	✓	✓	Oficina de Planeamiento y Presupuesto (OPP) de Uruguay

Notes: When more than one planning document was available, priority was given to national development or government plans over *visión país* (country visions) and long-term plans for consistency reasons. In Argentina, the Presidency is responsible for the formulation of the Government Plan, whose objectives will be included in the Strategic Territorial Plan developed by the Ministry of the Interior. In Ecuador, the Secretaria Tecnica de Planificación "Planifica Ecuador" recently replaced SENPLADES as the main planning authority. In Peru, the Plan Nacional de Competitividad y Productividad 2019-30 was formulated by the Consejo Nacional de Competitividad y Formalización of the Ministry of Economy and Finance, but the main planning authority is the Centro Nacional de Planeamiento Estratégico. Also note that Panama released a new Strategic Government Plan (Plan Estratégico del Gobierno 2019-24) in December 2019, but the analysis is based on the previous plan.

Source: Own elaboration based on information from ECLAC (2020).

Notes

1. These type of risks are referred to as "digital security" risks, in line with the 2015 *Digital Security Risk Management for Economic and Social Prosperity: OECD Recommendation and Companion Document*, which prefers this term to "cybersecurity" to avoid the specificity of "cyber" (OECD, 2015a).
2. Based on Article 45 of EU Regulation 2016/679.
3. The survey asked, "Which of these was the MAIN way in which you came across news in the last week?".
4. The survey asked, "Which, if any, of the following have you used for news in the last week?" The share of people using WhatsApp for accessing news was 39% in Argentina, 40% in Chile and 41% in Mexico, compared with a 19% world average.
5. The survey asked, "WhatsApp allows you to set up, join, and participate in groups, where you can discuss news or related topics with like-minded people. Which, if any, of the following have you used in the past month on WhatsApp itself?"
6. The information draws on the 2015-16 and 2019 OECD/IDB Survey on Regulatory Policy and Governance. LAC countries surveyed in 2015-16 were Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico and Peru. The 2019 survey updated those countries and included Argentina, the Dominican Republic and El Salvador. Reponses were provided by government officials and reflect the situation as of 31 March 2019.

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