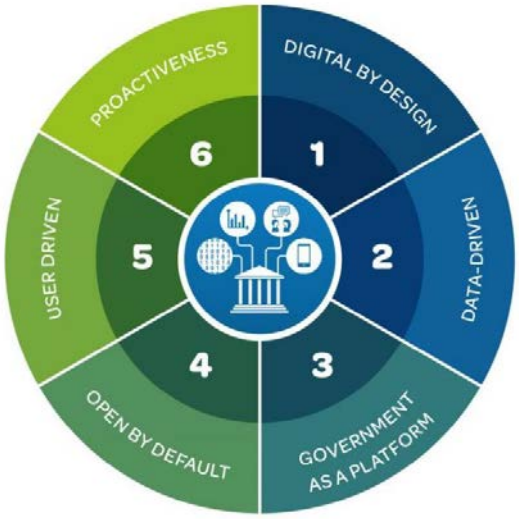
# 5 Building key governance capacities

Beyond building trust in AI in the public sector, governments must take action to ensure they have the necessary governance mechanisms and capacities in place to realise their goals and ambitions. At a foundational level, governments that have achieved high levels of digital maturity in their public sector will be best positioned to reap the benefits of AI in the public sector, while overcoming key challenges and pitfalls. This chapter discusses LAC governments' progress in putting in place foundational governance capacities for AI.

To assist governments in adopting policy actions to achieve digital government maturity, the OECD has developed the Digital Government Policy Framework (DGPF). The DGPF is a policy instrument designed to help governments identify key determinants for the effective design and implementation of strategic approaches to facilitate the transition towards digital maturity in the public sector (see Figure 5.1). Governments and readers of this report are encouraged to explore the DGPF (OECD, 2020[1]) and its associated metrics and rankings in the OECD Digital Government Index (OECD, 2020[2]).

### Figure 5.1. The OECD Digital Government Policy Framework




*Source*: (OECD, 2020[1])

In the context of digital government maturity, countries will need to build support for public sector AI efforts both within and across governments, as well as with other sectors and the public. Building this support is dependent on having solid leadership in place to set a clear direction and narrative for the use of AI in the public sector, as well as co-ordination mechanisms to ensure action towards realising strategies and goals.

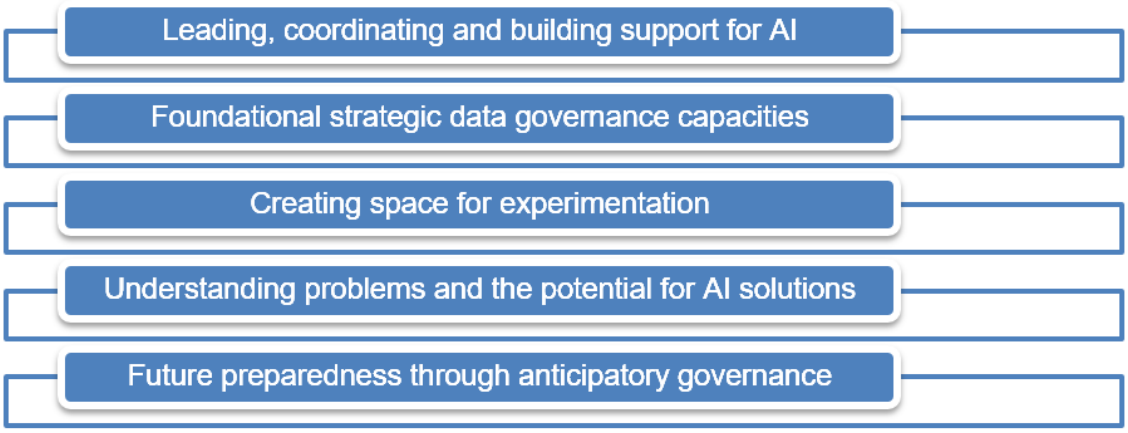
Governments must also consider the foundational elements that make AI-driven innovation possible. Data constitute the fundamental building blocks for AI, and leaderships and a clear strategy enabling governments to access and use robust, accurate data, in a manner that maintains privacy and conforms to societal and ethical norms, is necessary to effectively deploy AI.

Governments need to ensure sufficient space for flexibility and experimentation to facilitate rapid learning. Additionally, they must develop methodologies to determine whether AI is the best solution for a given problem, and provide conduits for identifying and devoting attention to such problems.

Finally, even though the pressing issues of today often take priority, governments need to recognise the significant shifts that AI might bring in the future and explore ways to anticipate these potential changes, especially those that require them to take action today.

Through the lens of the LAC regional context, this chapter explores the most pressing and relevant issues identified in previous OECD work, with the aim of helping LAC government leaders and public servants to maximise the benefits of AI. In particular, it discusses the items presented in Figure 5.2.

### Figure 5.2. Issues discussed in Chapter 5




## Leading, co-ordinating and building support for AI

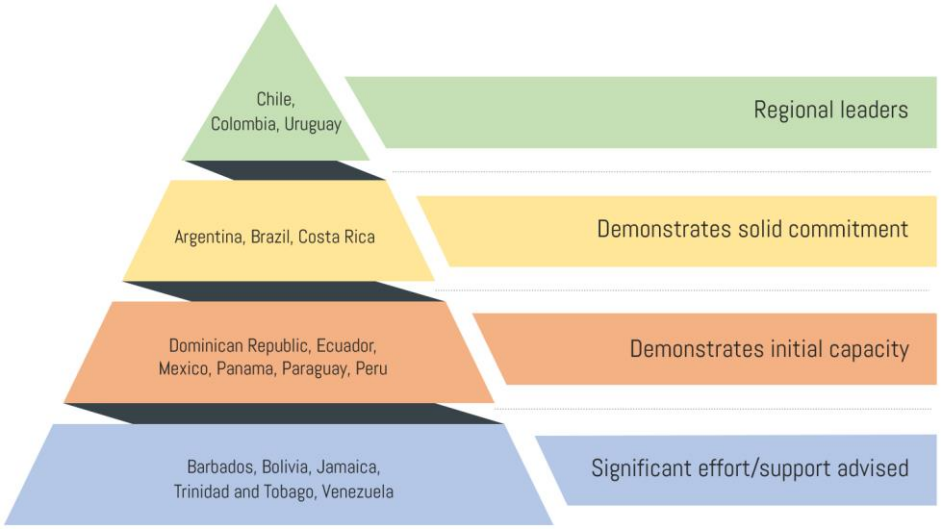
Artificial Intelligence presents a significant opportunity to improve the productivity and quality of public services and government operations. Strong leadership is a critical factor in achieving this objective, and vital to setting the right tone from the highest levels of government and actively communicating the potential benefits of AI in the public sector.

Recent research from the Boston Consulting Group indicates that support for government AI correlates with trust in government, and that "trust in institutions is essential if governments are to gain the support needed to roll out AI capabilities" (Carrasco, Whybrew and Jura, 2019[3]). While putting in place principles and processes to help ensure a trustworthy approach is critical (see previous chapter), solid and effective leadership is an important starting point, as senior leaders can build a cohesive vision for AI and set a "tone at the top" that builds confidence in AI, both within the public sector and beyond. Those at the top also have the power to set a strategic direction that can ripple through levels below, helping to frame the use of AI within the culture at large (OECD, 2017[4]). They can also promote a clear narrative of the benefits of AI to build support within and outside government. As stated in the *OECD Framework for Digital Talent and Skills in the Public Sector* (OECD, 2021[5]), "leadership that creates an environment to encourage digital transformation will communicate a clear vision for digital government, and actively champion its benefits. [Such] leaders will be engaged, visible and approachable, and empower their teams through decentralising decision making".[1]

Central leadership is critical but not enough, however. Formal co-ordination bodies and mechanisms for AI will be needed to avoid siloed approaches and to ensure coherent implementation of the AI strategy and vision.

### *Leadership and setting a supportive tone at the top*

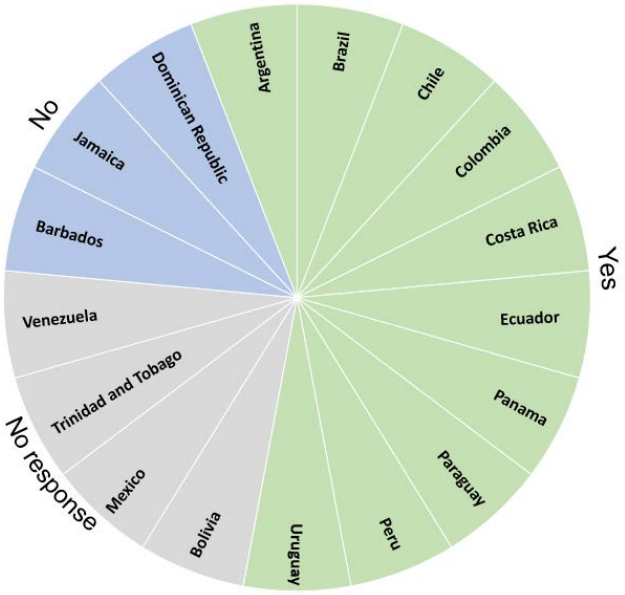
**Figure 5.3. LAC regional capacities for AI leadership and setting the right tone at the top**




The OECD Recommendation on Digital Government Strategies (OECD, 2014[6]) states that setting clear institutional roles is one of the basic preconditions for sound governance of digital government and sustainably supporting the digital transformation of the public sector. This is especially important at the leadership level. The OECD has previously found that strong support among senior leaders, including political leadership, is the most important enabler for public sector adoption of emerging technologies, including AI (Ubaldi et al., 2019[7]). Solid leadership and governance co-ordination in digital government areas, including emerging technologies such as AI, is critical for enabling a country to move forward together towards common goals.

Among LAC countries, leadership for AI efforts is mixed. The OECD survey of LAC digital government agencies indicates that at least half of countries in the region have identified a specific government organisation to drive these efforts (Figure 5.4). This is promising given that strategies and efforts focused specifically on AI for public sector transformation and innovation are a relatively recent phenomenon worldwide. Improvement in this area is essential if countries want to achieve their AI ambitions. In interviews, officials from several LAC governments told the OECD that a lack of strong leadership hinders the adoption of new technologies.

## Figure 5.4. LAC governments that have designated a public sector organisation to lead and co-ordinate AI efforts

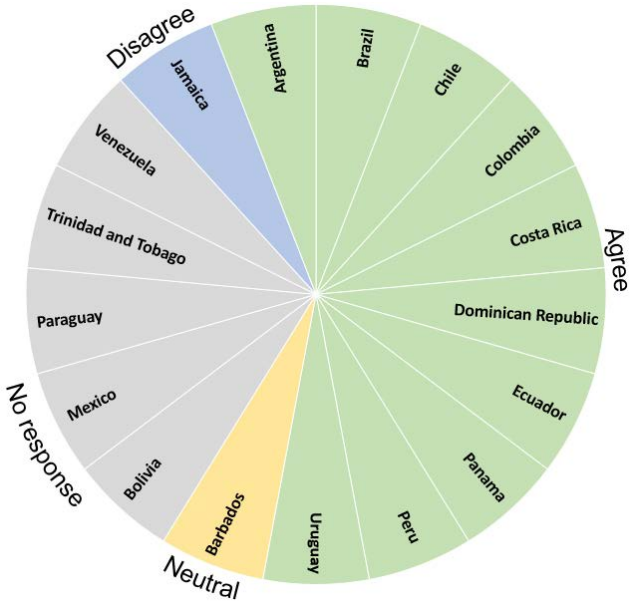



*Source*: OECD LAC Digital Government Agency Survey (2020).

In addition to ensuring strong leadership is in place, another key factor is how these and other leaders across the public sector set the tone for the exploration and use of AI in the public sector. Sustained and high-level support is necessary to create a stable, enabling environment for AI approaches and solutions to mature. The tone set by the highest levels of government plays a crucial convening role in setting the direction of AI development and its use in wider society. This tone also sends signals to – and provides "top cover" for – public servants at all levels, enabling them to push for innovation and progress.

Among surveyed digital government agency officials, more than half of LAC countries reported agreement that senior leaders express clear support for AI in the public sector (Figure 5.5). These results also indicate a link between designated leadership for AI and opinions on demonstrated support, with the exception of the Dominican Republic. Notably, those countries stating that senior leaders express clear support for AI also have designated organisations responsible for leading AI efforts.

## Figure 5.5. Perceptions regarding whether senior government leaders express clear support for AI in the public sector




*Source*: OECD LAC Digital Government Agency Survey (2020).

The same countries have developed, or are in the process of developing, national AI strategies (see Chapter 2). This is to be expected, as LAC governments that have issued national AI strategies, and/or committed to guiding principles, have already demonstrated their leadership in ways that help align public sector processes and activities towards achieving AI strategies. These strategies represent an opportunity to articulate a compelling vision for how AI can transform public services and operations to benefit citizens, businesses and public servants while maintaining public trust. Some other countries in the region – Costa Rica, the Dominican Republic and Panama – have included goals or ambitions related to emerging technologies in other strategies and policy documents (e.g. their national digital government strategy). This approach also helps to demonstrate leadership and signals the importance of AI, although perhaps to a less visible and targeted extent than dedicated AI strategies.

While instituting these strategies in itself demonstrates a solid level of maturity and advanced thinking, countries differ in the extent to which they demonstrate sustained top-level support for their strategy and for AI. Among the reviewed strategies, those of Brazil, Chile, Colombia and Uruguay have been developed and driven by the highest levels of government. Colombia's strategy is unique in taking the form of a presidentially backed instrument (i.e. a CONPES document),[2] which secures support and funding from all levels of government and assigns responsibility for implementation to the AI Office in the Presidency of the Republic. The extent of sustained top-level support among some of the other strategies is less clear, however. For instance, Argentina's strategy was originally developed by the President's office, but the original document is currently not available on official government websites. The strategy no longer seems a priority, although Argentina officials indicated that it remains in effect.[3] As touched on earlier, Mexico's 2018 strategy, which was put into effect under a previous administration, is no longer publicised on official government websites. It is unclear whether the current administration considers the strategy to be still in effect (see Box 2.2).

Countries inside and outside the region have explored other avenues to ensure leadership and tone-setting for AI in the public sector (Box 5.1). By establishing strong leadership to continuously drive AI efforts, LAC countries could help realise their strategies and goals in a systematic manner across government. Such leadership and strategic visioning is also important for evolving towards a data-driven public sector, which

provides a critical foundation for AI. These aspects are discussed in the *Foundational strategic data governance capacities* section later in this chapter.

### Box 5.1. AI leadership and tone-setting efforts

**AI Task Force (Colombia)**

With the support of CAF, Development Bank of Latin America, the Presidency of the Republic of Colombia is working to design and put in place a task force of experts for AI in Colombia. This office is in charge of fostering the implementation of AI Policy, and will also promote and facilitate the use of AI in the public sector. Its objectives are to:

- Define mechanisms and tools to accelerate the implementation of Colombia's AI strategy/policy and ethical framework.
- Monitor projects in public entities that are using AI systems to provide a more efficient and effective service towards the public.
- Increase international co-operation and co-ordination with governments and international entities to achieve the proper implementation of Colombia's AI strategy.
- Develop mechanisms to foster the access and use of data for the design and development of AI systems.
- Increase collaboration with the private sector and the entrepreneurship ecosystem on subjects related to AI.

**Secretary of State for Digitalisation and Artificial Intelligence (Spain)**

In 2020, by Royal Decree, the Government of Spain restructured a number of ministerial departments in order to improve efficiency and effectiveness in government operations. As part of this effort, the decree created the Secretary of State for Digitalization and Artificial Intelligence as the highest body under the Ministry of Economic Affairs and Digital Transformation.

The Secretariat's responsibilities include the execution of the country's December 2020 national AI strategy, which consists of six key pillars. These include boosting the use of AI in public authorities and national strategic missions, and establishing an ethical and regulatory framework that guarantees the protection of individual and collective rights. As a consequence of the COVID-19 pandemic, the Secretariat added a Data Office to serve a role similar to that of a Chief Data Officer, and developed Spain's COVID-19 contact-tracing app "Radar Covid".

**Ministry of Artificial Intelligence (United Arab Emirates)**

The UAE is the only country in the world to have a Ministry for Artificial Intelligence, which leads the country's National Programme For AI. The programme was launched in October 2017 alongside the country's Strategy for AI. To further drive and co-ordinate AI efforts across the public sector, the UAE Council for Artificial Intelligence is tasked with proposing policies to create an AI-friendly ecosystem, advanced research in the sector, and promoting collaboration between the public and private sectors including international institutions to accelerate the adoption of AI.

**AI for Humanity (France)**

The President of the French Republic launched AI for Humanity, consisting of a national AI strategy, a set of core commitments, and EUR 1.5 million in funding for AI research, companies and projects. The initiative also includes a report commissioned by the Prime Minister that lays out seven foundational

pillars for achieving French AI goals that cut across sectors and mission areas, including public sector transformation.

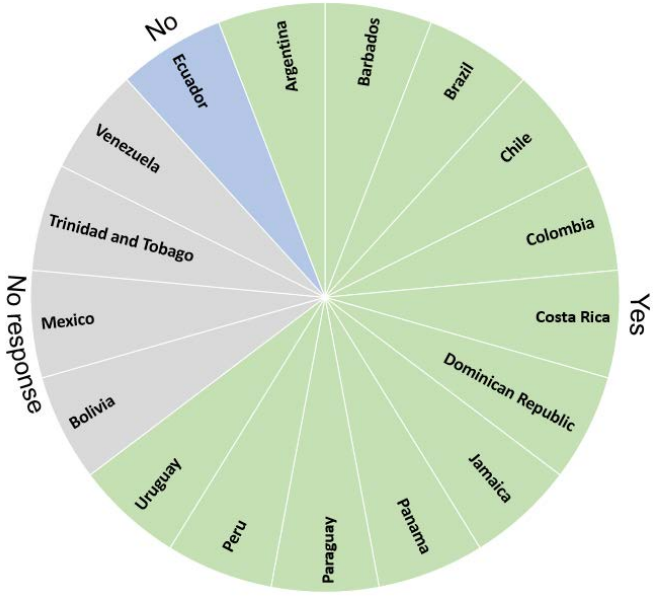
*Source*: https://oecd-opsi.org/projects/ai/strategies, https://inteligenciaartificial.gov.co, https://ai.gov.ae, www.aiforhumanity.fr, (Ubaldi et al., 2019[7]), https://oecd.ai/dashboards/policy-initiatives/2019-data-policyInitiatives-26722, https://portal.mineco.gob.es/es-es/digitalizacionIA/Paginas/sedia.aspx, www.boe.es/diario_boe/txt.php?id=BOE-A-2020-410 and www.lamoncloa.gob.es/lang/en/presidente/news/paginas/2020/20201202_enia.aspx.

### *Facilitating cross-government co-ordination*

While leadership and strategic vision are critical, so is the ability of public sector organisations and teams to implement their vision in an aligned and coherent manner. All things considered, AI is an advanced approach to developing public policies and services. Co-ordination across government is essential to help overcome bureaucratic legacies, verticality and silos, and to foster horizontality, integration, co-ordination and synergies across and between levels of government (OECD, 2020[1]). This represents a paradigm shift in the governance of digital government and public sector data, and is essential in order to achieve meaningful progress with regard to AI in the public sector.

Among LAC governments, nearly all countries who completed the OECD survey of central digital government agencies indicated that they have a formal public sector body in place to enable inter-institutional co-ordination between ministries/agencies responsible for the implementation of digital government projects (see Figure 5.6). For instance, Brazil has a Special Secretariat for State Modernisation as part of the General Secretariat of the Presidency which, by decree,[4] is explicitly responsible for co-ordinating and monitoring government-wide execution of the national digital government strategy. More lightweight but important mechanisms also exist, such as Paraguay's Digital Strategic Committee.[5] Bolivia's example is interesting in that all branches of government are involved, while the approach taken by Chile involves a mandated network (Box 5.2).

**Figure 5.6. Countries have a formal government body to enable inter-institutional co-ordination**




*Source*: OECD LAC Digital Government Agency Survey (2020).

### Box 5.2. Examples of digital government co-ordination mechanisms

**Council for Information and Communication Technologies (Bolivia)**

The Council for Information and Communication Technologies of the Plurinational State of Bolivia (CTIC-EPB) facilitates various working groups within which public institutions interact and debate about ICT initiatives and guidelines in the country. All branches of the state participate in the different working groups, while the Council serves as a co-ordination mechanism for the preparation and implementation of proposals for regulations, standards, protocols, guides, catalogues and other technical mechanisms. The working groups focus on topics such as interoperability, infrastructure, free software, security, software development, open data, electronic government, and experience and user interfaces.

*Source*: www.ctic.gob.bo.

**Digital Transformation Coordinators (Chile)**

Under the mandate of the Digital Government Division (DGD), Chile's Digital Government Coordinators assemble institutional delegates to monitor implementation of the Law on Digital Transformation of the State. This approach may serve as a useful model for digital champions in the Chilean public administration as well as a route to engage key stakeholders in what should be understood and owned as a cross-government agenda.

*Source*: (OECD, 2020[8]).

The existence of such formal co-ordination mechanisms for digital government represents a critical step in ensuring proper, aligned implementation of national digital government strategies and initiatives, including those involving AI. As seen earlier in Figure 5.6, most LAC governments have a public sector organisation responsible for leading and co-ordinating efforts at a central level. Such broader digital government co-ordination mechanisms will be discussed further in the forthcoming report *Going Digital: The State of Digital Government in Latin America*. As with these broader digital initiatives, some countries have also put in place formal mechanisms specifically to co-ordinate their AI strategies and initiatives within and across the public sector. Argentina, for example, has developed an AI Innovation Hub to implement public sector AI projects. Thematic groups are led and governed by a steering body charged with defining goals and metrics to measure progress (Ubaldi et al., 2019[7]). In the case of Colombia, a proposed AI Task Force for the Development and Implementation of AI would be responsible for cross-government co-ordination through interaction with national entities leading AI public policy co-ordination and project implementation.[6] Chile's AI Policy Action Plan calls for the development of an AI Observatory, a platform hosting information on all national public sector AI initiatives, some of which are designated as best practices. While it is unclear whether the observatory would have a formal role in co-ordinating AI efforts, it can serve as a tool to help government facilitate awareness of AI activities and ensure a level of consistency in design and implementation.

The OECD was unable to identify additional formal co-ordination mechanisms tailored for Artificial Intelligence beyond statements assigning responsibility to an existing ministry or office. However, additional examples exist outside the region, such as that of the Select Committee on Artificial Intelligence in the United States (Box 5.3). However, such AI-specific co-ordination bodies and mechanisms are fairly new and the OECD has not yet determined their utility. It may indeed be the case that existing formal co-ordination mechanisms for broader digital government efforts are sufficient to address issues related to AI. Nonetheless, LAC countries may want to explore the potential for cross-government AI co-ordination mechanisms in order to determine whether such an approach is valuable in their specific context.[7]

### Box 5.3. Select Committee on Artificial Intelligence (United States)

Over the last few years, the United States has established research institutes and issued regulatory guidance on AI, a national AI strategy and guidelines for the federal government on the use of AI. In 2018, the White House created the Select Committee on Artificial Intelligence to oversee the co-ordination of Federal efforts related to AI research and development (R&D). The Select Committee comprises the most senior R&D officials across the Federal government and represents a whole-of-government approach to AI R&D planning and co-ordination. In early 2021, the committee was expanded and made permanent. It serves as the senior interagency body responsible for overseeing the national AI strategy.

*Source*: https://trumpwhitehouse.archives.gov/wp-content/uploads/2021/01/Charter-Select-Committee-on-AI-Jan-2021-posted.pdf.

As noted earlier, data are foundational for AI, thus data leadership and co-ordination also play a critical role. These topics are discussed in the *Foundational strategic data governance capacities* section presented later in this chapter. In addition to such formal mechanisms, less formal communities of interest and networks are also vital to supporting co-ordination, breaking down organisational siloes and delivering end-to-end solutions that respond to problems in a holistic manner (OECD, 2020[1]) (OECD, 2020[8]). Such communities and networks are discussed further in the section *Understanding problems and the potential for AI solutions*. Collectively, formal co-ordination mechanisms and communities, and networks foster information exchange, culture change, future-proofing, cross-cutting collaboration and ecosystem building.

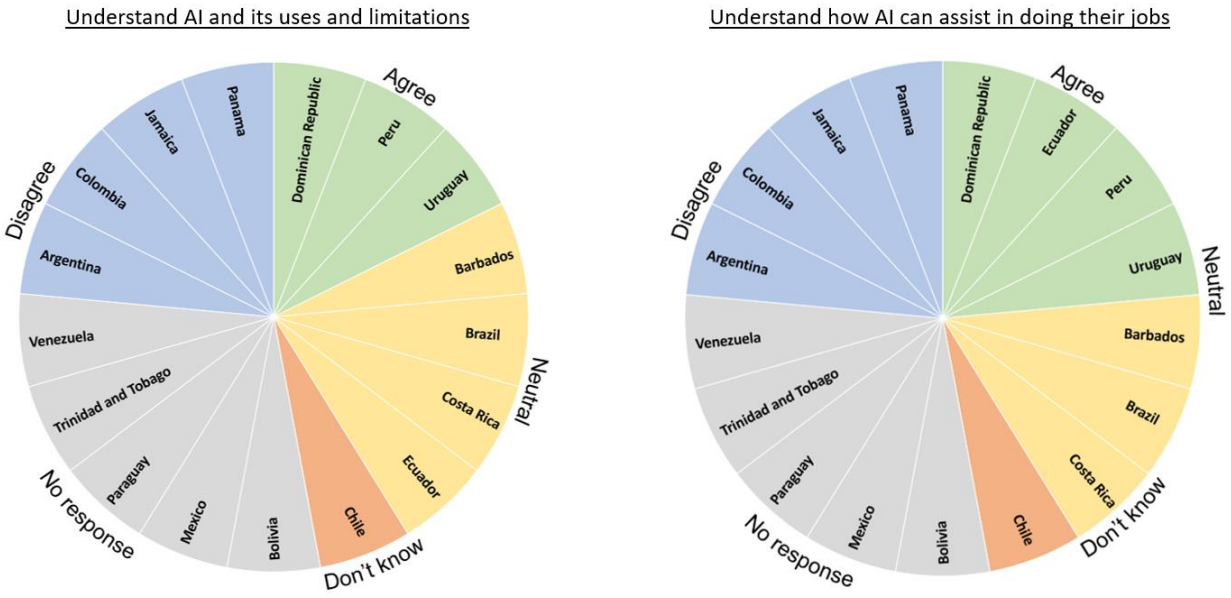
### *Building internal and external support and legitimacy*

Even with solid principles for trustworthy AI (see previous chapter) and strong leadership and co-ordinated practices in place, governments must take action to gain and maintain support and legitimacy both among public servants internally, and with the public externally. This appears to be an area that could use additional attention throughout the LAC region to help ensure that public sector AI efforts are accepted and embraced across and beyond government.

*Internally*, it is unlikely that AI will replace public sector workers in the near term; however, in Latin America, 30% of the public sector workforce are employed in occupations with a high risk of technological substitution (Weller, Gontero and Campbell, 2019[9]). Fear regarding this possibility can be pervasive among public servants. Securing their support will require a clear narrative and tangible examples demonstrating how AI can assist them to better deliver services, reducing the amount of time they spend on routine tasks and allowing them to focus on higher-value work where they can have the most impact. Steps should also be taken to ensure that public servants understand that AI can assist them, rather than replace or control them. If they feel threatened by the pace of change, their effectiveness can diminish quickly, which can manifest in a variety of ways. For instance, managers could end up thwarting their organisation's innovation capacity by failing to give enthusiasts and change agents the leeway they need to experiment and devise new ways of solving problems (PricewaterhouseCoopers, 2018[10]). If not done well, resistance among public sector workers could slow the deployment of AI, limit its effectiveness and damage morale (Berryhill et al., 2019[11]).

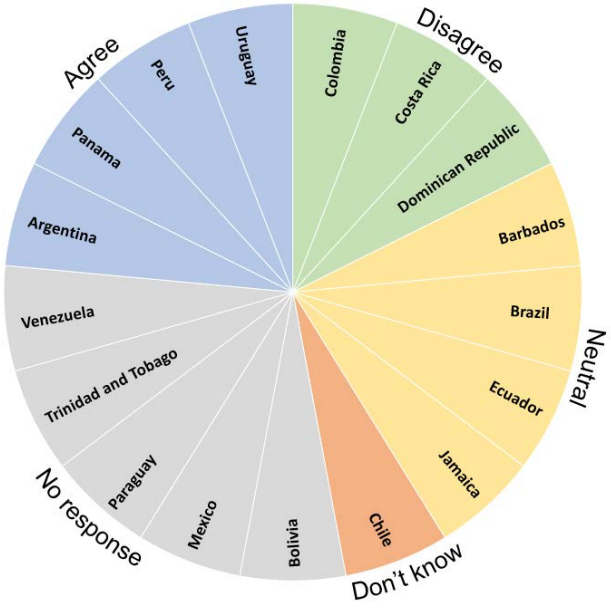
While a handful of LAC countries have put in place national AI strategies and developed or adhered to human-centric principles, there are indications that internal understanding and support for AI in the public sector in many LAC countries has not yet taken root. As shown in Figure 5.7, digital government officials in only a few countries indicated that public servants understand AI, its uses and limitations, and how it can assist them with their work. In addition, results are mixed regarding the extent to which public servants fear that AI may negatively affect their jobs (Figure 5.8).

## Figure 5.7. Public servants understand AI, its uses and limitations, and how AI can assist them with their work




*Source*: OECD LAC Digital Government Agency Survey (2020).

## Figure 5.8. Public servants fear that AI and emerging technologies may negatively affect their jobs




*Source*: OECD LAC Digital Government Agency Survey (2020).

Such indications early in the development and deployment of AI policies and initiatives are to be expected. However, they imply that more efforts may be needed in LAC governments to ensure public servants understand AI and how it can help them in their work, thereby increasing the likelihood that will adopt the technology, as appropriate. The OECD identified a number of relevant digital and AI upskilling efforts underway in LAC countries (see the section on *Enhancing internal expertise and human capital* in Chapter 6) that can assist in this regard, but these largely emphasise technical skills, and often target

certain types of employees, as opposed to broadening understanding of the benefits of AI across the public sector. Communications and educational campaigns to help dispel AI rumours and myths and explain how AI can be a positive force in the daily lives of public servants can also be of assistance. For AI and other digital government priorities, a communication strategy on actions and decisions that will foster the move toward digital government is a prerequisite for successful implementation of policies and strategies (OECD, 2018[12]). While some countries hint at this (e.g. Peru's draft national AI strategy refers to the development of online courses to help public servants understand the use and benefits of AI, and Chile's AI strategy pledges to promote AI success stories in the public sector), the OECD was unable to identify any active campaigns for AI among LAC governments. Box 5.4 provides an example from Canada of an initiative designed to broaden understanding of the benefits of technology among public servants.

### Box 5.4. Digital Foundations (Canada)

The Canada School of Public Service's Digital Academy offers training for officials at all levels of seniority and with differing levels of specialist expertise. The training explores real-life challenges and problems using a mix of events, online learning and podcasts (these "busrides.ca" are designed to give quick introductions to topics related to government digital services). The "Digital Foundations" tier of learning opportunities is targeted at all public servants and levels of expertise. It aims to provide timely information on the digital world that will affect how public servants do their jobs and even live their lives.

*Source*: www.csps-efpc.gc.ca/About_us/Business_lines/digitalacademy-eng.aspx.

Building support *externally* among the public is also important. This is perhaps especially true in the LAC region, where a recent survey of over 150 000 people found that 49% of respondents are worried that AI will be harmful – the highest regional rate in the world (Neudert, Knuutila and Howard, 2020[13]). LAC governments should ensure consistent messaging from the top that communicates to citizens, residents and businesses the importance and potential benefits of public sector AI solutions and services. Likewise, governments should articulate limiting factors and risks, alongside their strategies to overcome them (e.g. instituting ethical principles and safeguards such as those discussed in the previous chapter). This should form part of organised and targeted strategic communications campaigns.

As with digital strategies more broadly, a core argument for promoting such communication and dialogue is encouraging ownership and, above all, support among the population, making them a key player in driving the country's strategy through informed demand (OECD, 2018[12]). For this communication to be effective, it is recommended to focus on channels commonly used by citizens, such as social networks, using them to communicate key messages to the public. Physical workshops and demonstrations within ministries and local communities to stimulate ongoing engagement and participation can also play a useful role (OECD, 2020[8]). In addition to communicating strategy opportunities and challenges, LAC governments should identify opportunities to inform the public about progress in terms of service design and delivery efforts.

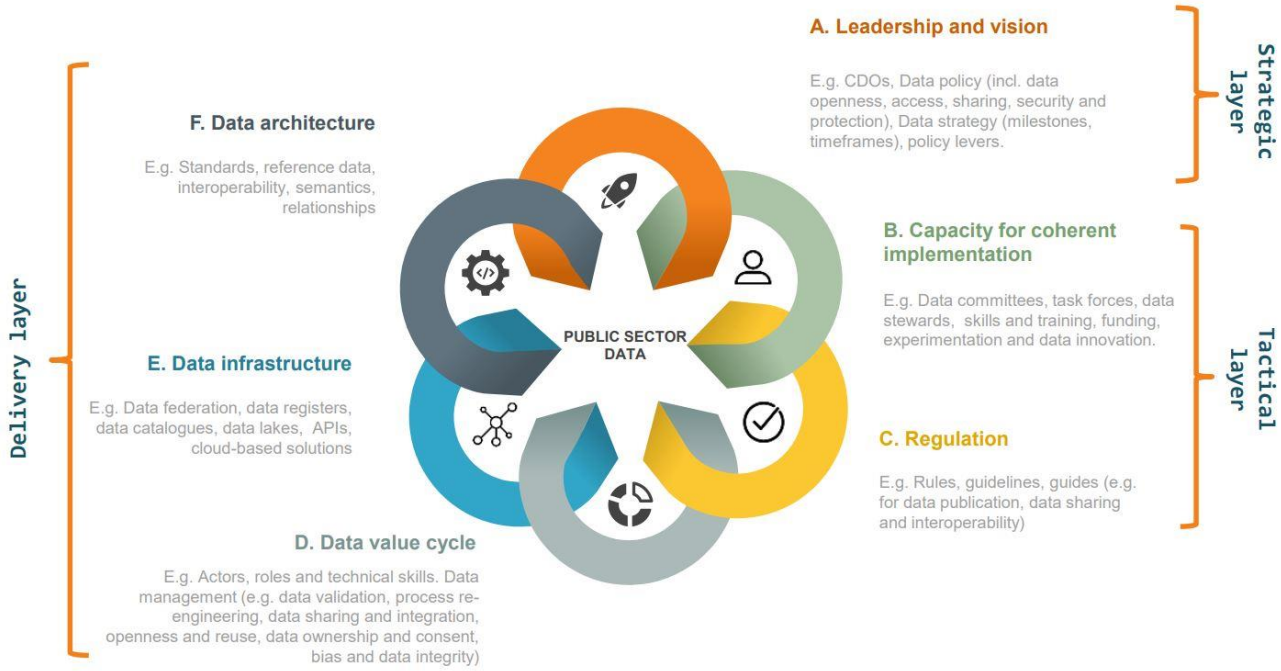
While the OECD has identified a number of positive efforts to engage citizens and obtain their input (see the section on *Leveraging external expertise through partnerships and procurement* in Chapter 6) and seek input from end users (see section on *Ensuring an inclusive and user-centred approach* in Chapter 4), there are limited examples of external communications campaigns associated with public sector AI strategies, principles or initiatives. Brazil's national AI strategy is notable for its inclusion of an action item to "Create awareness campaigns on the importance of preparing for the development and ethical use of AI" targeted at the general population. Chile's strategy includes an objective to "make the use of AI visible in the industry" through co-ordinated dissemination among ministries, although the strategy is aimed at the private sector and not the public at large. The OECD does not consider this to be a deficiency, as such

approaches are very new.[8] However, over time, LAC governments should seek to create such communications strategies and campaigns. These should be incorporated into or consistent with broader communications strategies for digital government efforts.

## Foundational strategic data governance capacities

AI governance and co-ordination must consider data governance, as data are the foundational building blocks for modern AI systems. The forthcoming review, *Going Digital: The State of Digital Government in Latin America*, due to be published in 2022, will contain an in-depth exploration of LAC government capacities and practices around a data-driven public sector, including data governance, which underpins the readiness of the public sector to adopt data-driven approaches (Figure 5.9). It will also discuss issues relating to commons standards and interoperability between different IT systems, which were among the challenges most often cited to the OECD by public officials in terms of pursuing emerging technologies (Ubaldi et al., 2019[7]). Finally, the review will analyse LAC government Open Government Data (OGD) policies and initiatives directed towards increasing the openness, usefulness and reusability of government data, which can serve as fuel for AI in all sectors.

### Figure 5.9. Data governance in the public sector




*Source*: (OECD, 2019[14]).

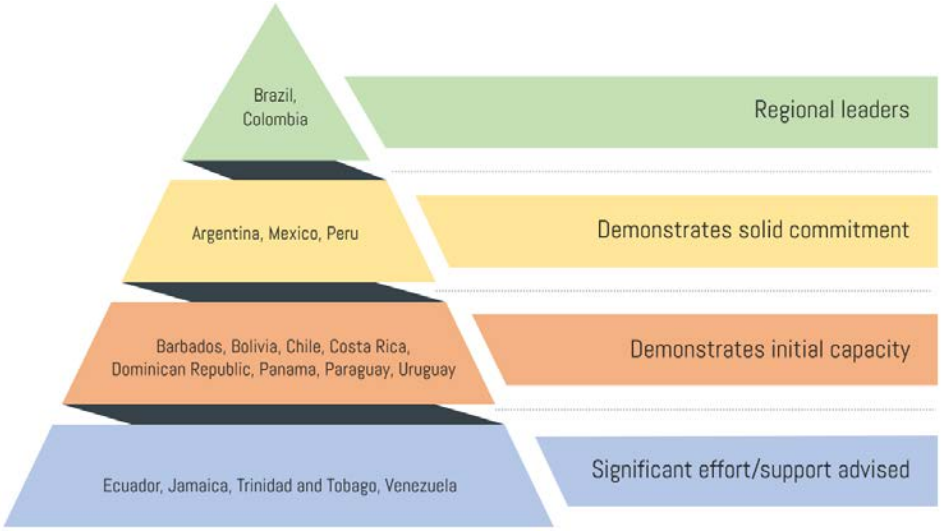
As the forthcoming report covers data in depth, this AI review focuses its attention on a critical high-level prerequisites within the strategic layer of data governance of importance to AI, namely: the extent of formal data leadership in LAC countries and the existence of data strategies.[9] Chapter 6 also discusses relevant issues that support government data capacities, including data literacy and skills (see "Enhancing internal expertise and human capital") and infrastructure components important for AI development (see "Infrastructure").

Globally, many governments still lack a strategic approach for the development of data-driven public sectors, and dedicated public sector data policies, or strategies and leadership (e.g. Chief Data Officers), remain largely absent across countries (OECD, 2020[2]). As discussed in this section, this is also true for LAC countries. The lack of a strategic vision, as well as formal roles and responsibilities for coherent design and implementation of data-driven public sector projects, represents a major challenge to building a national approach for the exploration and use of AI for public sector innovation and transformation. LAC governments that want to advance in exploring and adopting AI in the public sector will need to ensure they have solid fundamental data capacities to support their ambitions.

### *Data leadership*

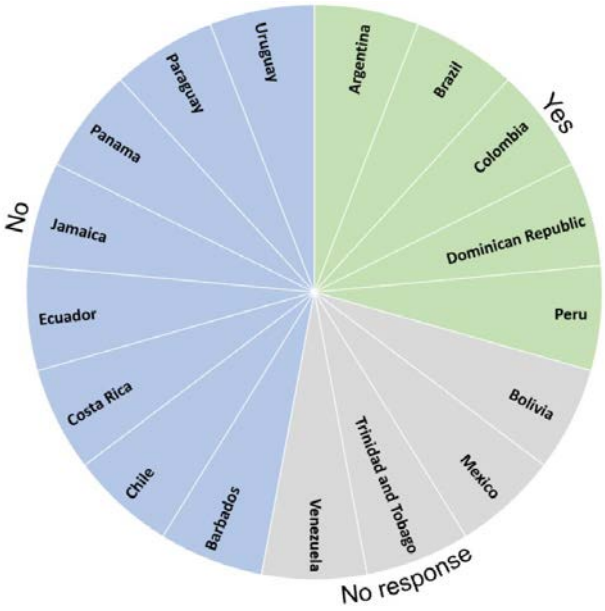
Data leadership is critical to ensure that the data-driven conversation across the public sector has strategic direction and purpose, and to guarantee coherent implementation across government as a whole and within individual organisations (OECD, 2019[14]). Good data governance can help to extract value from data assets, enabling greater data access, sharing and integration at the organisational level and beyond, and increasing overall efficiency and accountability.

**Figure 5.10. LAC region capacities data leadership**




Most governments in the LAC region have not formalised a data leadership position, such as a Chief Data Officer (or similar position with sufficient political and administrative influence) (see Figure 5.11). These formalised leadership roles assume responsibility for stewarding the development of a national data strategy, and could provide LAC public sectors, and the public at large, with clarity about how governments are approaching ethics, interoperability, access, availability, governance, analytics and other issues (OECD, 2020[8]).

## Figure 5.11. LAC countries having a national Chief Data Officer (or comparable role)



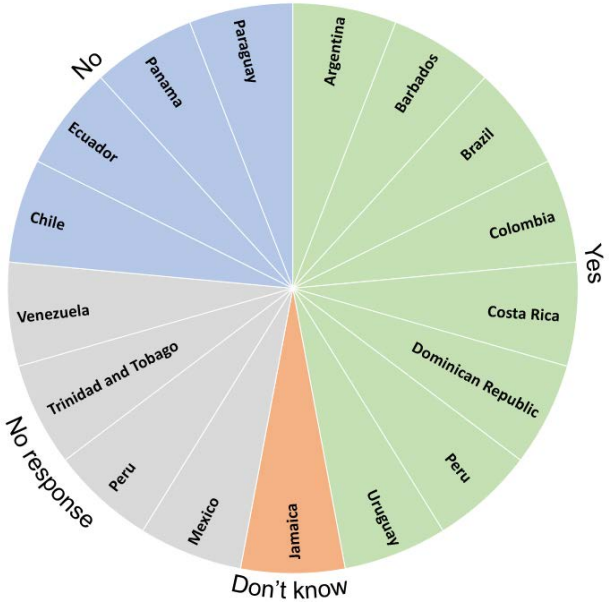

*Source*: OECD LAC Digital Government Agency Survey (2020), country comments to draft report.

About half of OECD countries have put in place a Chief Data Officer (OECD, 2018[12]), with numbers trending upwards over time. These numbers indicate that LAC countries lag somewhat behind the OECD average. OECD research has found that countries that do have Chief Data Officers appear to benefit from them significantly. For instance, the top-ranking countries in the OECD's OURdata Index have prioritised the establishment of the position/functions of a Chief Data Officer (OECD, 2018[15]). Previous OECD work has also recommended the creation of central Chief Data Officer positions in LAC countries, including in Chile (OECD, 2020[8]) and Panama (OECD, 2019[16]), in line with the specific national context and public sector culture. The OECD has also recommended that Chief Data Officers have a strategic vision of data governance enabling the co-ordination of public entities towards synchronised and well-structured policy goals covering the entire government data value chain (OECD, 2018[17]) While five countries indicated in the survey that they have national Chief Data Officers, the OECD was unable to find evidence to confirm such a role for Colombia, but was able to identify other examples in the LAC region:

- Both Brazil and Peru have mandated a national chief data officer by decree (OECD, 2018[15]). However, in the case of Peru, the OECD has recommended that the country formalise and strengthen the position of Government Chief Data Officer (OECD, 2019[18]).
- Colombia does not have a central role with the name "Chief Data Officer". According to Colombia officials, the country's Vice Minister of Digital Transformation role is comparable to the role of a Government Chief Information Officer. The government is currently designing and implementing its National Data Infrastructure Plan. As part of this plan, Colombia will "Formally define the role of Chief Data Officer in the organisational structure of public entities". In addition, as part of developing the governance model for Data Infrastructure, Colombia is defining a number of roles, including that of a National Chief Data Officer.
- While not formally called a "Chief Data Officer", Argentina and Mexico have comparable de facto positions in place (OECD, 2019[14]). Previous OECD work has indicated that a more official structure may work better, and has recommended that Argentina take additional steps with regard to formalising data governance structures (OECD, 2019[14]).

Even though few governments appear to have a central Chief Data Officer, most of the countries that responded to the OECD survey indicated that they have a dedicated department or unit responsible for providing support for the strategic use of data (Figure 5.12). For instance, Colombia's Data Exploitation Policy indicates that responsibility for leading data efforts is shared between MinTIC and the National Planning Department, but designates a specific institution for each objective (Government of Colombia, 2018[19]). Similar responsibilities in the Dominican Republic are held by the Department of Standardisation, Regulations and Technical Audit in the Presidential Office of Information and Communication Technologies (OPTIC).[10] This represents an important step even if the authority is not vested in a single leader, as is the case in many of the countries.

## Figure 5.12. Existence of a dedicated department or unit within the central/federal government responsible for providing support for the strategic use of data within the public sector

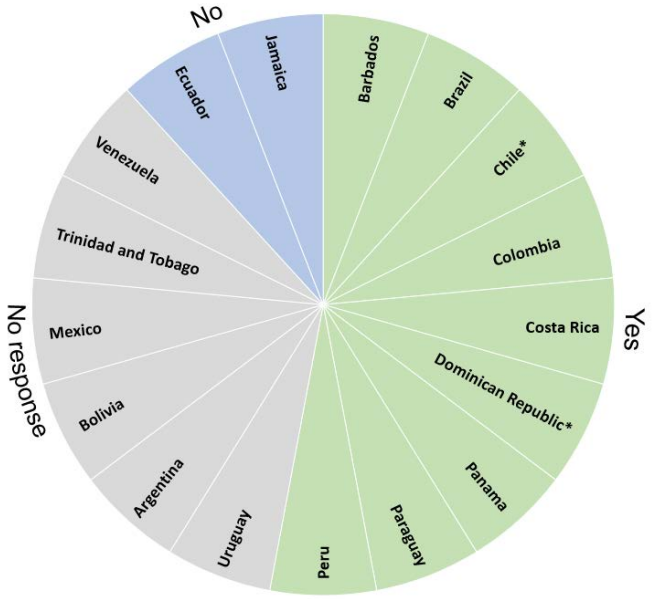



*Source*: OECD LAC Digital Government Agency Survey (2020).

Finally, the importance of data leadership is not limited to the central level. When done successfully, it takes the form of Institutional Chief Data Officers (iCDOs), or "data stewards". Central Chief Data Officers and iCDOs go hand-in-hand, ensuring the strategic implementation of data strategies, policies and governance, in the process maximising the potential for data, including for AI (OECD, 2018[15]). Under the oversight of a Chief Data Officer, the development of country and institutional data strategies should empower a network of iCDOs and data professional communities of practice to identify priorities for resolving some of the most pressing data issues (OECD, 2019[16]). Results from the 2016 OECD Open Government Data Survey suggest that the impact of a chief data officer in the central or federal government is strengthened by the existence of institutional chief data officers in each ministry and/or agency (OECD, 2018[15]).

Among LAC countries, a majority of governments surveyed indicated that digital leadership positions exist at the institutional level (Figure 5.13). Overall, the LAC region appears to follow a pattern that the OECD has identified in other areas. Somewhat counter-intuitively, governments often seek to solidify data leadership at the organisational level before putting in place national leadership in the form of a Chief Data Officer.

## Figure 5.13. Public sector organisations have a data leadership position




*Note*: * indicates that public sector organisations have put in these roles as part of their data capability, while the rest indicate a more formal specific government provision mandating these roles. Panama initially indicated "No", but their response was changed to yes by the OECD due to detailed information documented as part of an earlier review (OECD, 2019[16]).
*Source*: OECD LAC Digital Government Agency Survey (2020).

Examples of these positions in the LAC region include the following:

- Argentina, like many OECD countries, lacks an explicit formal requirement to appoint iCDOs for central/federal line ministries and agencies. This leaves digital governance at the ministry level somewhat inconsistent, with some ministries having iCDOs in place to positive effect, while others do not. To the extent that they exist, these roles have largely focused on complying with data publication regulations (OECD, 2019[20]).
- In Colombia, Decree 415/2016 orders all public institutions to designate a Director of Information Technologies and Systems, which also serves as an institutional data steward (i.e. iCDO) (see Box 5.5).
- Costs Rica's law[11] mandates institutional data leadership; however, this role appears to be limited to access to information policy and addressing related requests and complaints.
- In Panama, as of 2019, ten institutions have an iCDO with six of these focused only on open data. A further 21 institutions were planning to introduce an iCDO in the near future (OECD, 2019[16]).
- Paraguay's Information Security Governance Model[12] designates an Information Security area in all government institutions, with relevant objectives, roles, competencies and responsibilities. However, these efforts focus on data security and not necessarily strategic access, use and sharing of data.
- In Peru, "Digital Government Leaders" are in charge of co-ordinating objectives, actions and measures for digital transformation and the deployment of digital government at the institutional level, in accordance with policies and guidelines issued by the Presidency of the Council of Ministers, through the Government and Digital Transformation Secretariat.

- Uruguay's data protection law requires that each public institution have a Personal Data Protection Delegate responsible for its implementation. However, this individual does not appear to have the full role of an iCDO and the OECD could not find evidence of this role in the country.

### Box 5.5. The role of institutional data stewards in Colombia

In Colombia, Decree 415/2016 mandates all public institutions to designate a Director of Technologies and Information Systems at managerial level, a role which will also serve as an institutional data steward. Among others, the main responsibilities of the iCDOs are to:

- Focus on creating public value by ensuring the necessary abilities and technology services are present in public service institutions to advance the digital transformation, organisational efficacy and government transparency.
- Ensure the implementation and maintenance of the institution's IT enterprise architecture in conformity with central guidelines, the e-government strategy and vision, the needs of the digital transformation and the specific available legal framework for that institution or policy sector.
- Identify opportunities for the adoption of new technological trends with the potential to produce positive impacts at the national and sectoral level.
- Lead the procurement process of technology goods and services.
- Co-ordinate with other stakeholders in the public and private sectors, civil society and academia on the design and implementation of IT policies and the collection of evidence-based data.
- Design information management strategies that guarantee the relevance, quality, opportunity, security and exchange of efficient flows of public sector information within and between public sector institutions.
- Propose and roll out strategic actions to promote open government through the publication and interoperability of government data, with a view to enhancing civic participation, collaboration between stakeholders and public sector transparency.
- Appoint public servants responsible for leading the development, roll out and maintenance of information systems and digital services in accordance with the Central Strategic Plan for Information and Telecommunications Technology.
- Promote and facilitate the use and adoption of information technology, data systems and digital information services by public servants, citizens and other stakeholders.
- Promote the effective use of right to access by all people to information and telecommunications technology, within the limits established by the Constitution and Colombian law.

*Source*: Colombian Government (2016), Decree 415/2016, https://normograma.mintic.gov.co/mintic/docs/decreto_0415_2016.htm, (OECD, 2018[12]).

In addition to formalised central and institutional leadership of data, LAC governments appear to be positioning themselves for stronger leadership governance in other ways:

- In its national AI strategy, Argentina has committed to building a "comprehensive, predictable and stable governance framework for both public and private sector data". This will include a collaboration between the *Agencia de Acceso a la Información Pública* (AAIP) and the National Observatory of Artificial Intelligence to design rules for co-operation in terms of data.

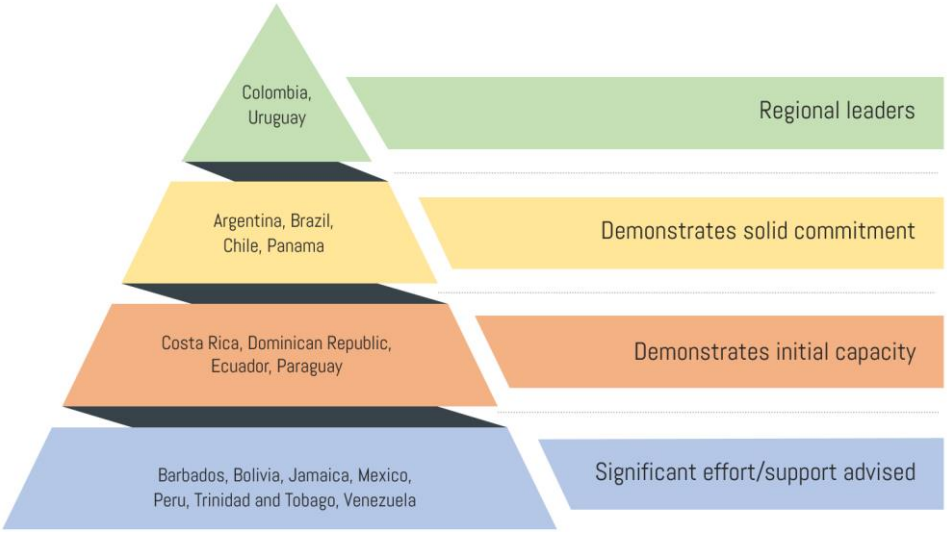
- In Bolivia, the Council for Information and Communication Technologies facilitates a Data Working group where public institutions from all levels interact, debate and establish guidelines in the field of data access and management in the state.[13]
- Chile's national AI strategy and action plan include a dedicated focus on data as an "enabling factor" and prescribe actions for the public, private and academic sectors. Regarding the public sector, it proposes the creation and consolidation of an adequate data governance structure to promote greater availability of quality data.
- Peru's Digital Government Law[14] put in place a Governance and Data Management Framework of the Peruvian State with "technical and regulatory instruments that establish the minimum requirements that Public Administration entities must implement to ensure a basic and acceptable level for the collection, processing, publication, storage and opening of the data that it administers". As a complement, it charges the Government and Digital Transformation Secretariat to issue guidelines and guides to ensure the quality of the data, its security and ethical use.[15]

The efforts discussed here illustrate the progress being made in several LAC countries to instil national, central and institutional leadership for data. However, they also reflect a number of gaps that need to be addressed in order to make progress with AI. A number of instances also arose where a LAC government reported the existence of a leadership position on the OECD survey, but which could not be verified. This may indicate a lack of formalisation of roles and responsibilities in the country.

### *Data strategy*

Along with solid data leadership, a sound data strategy is important to allow governments to put in place a systemic foundation for AI data capacity. A clear data strategy that enables governments to access rich, accurate and useful data; maintains privacy; and conforms to societal and ethical norms will be a necessary pre-condition to effective deployment of AI. In the LAC region, governments have made significant progress in this area in recent years.

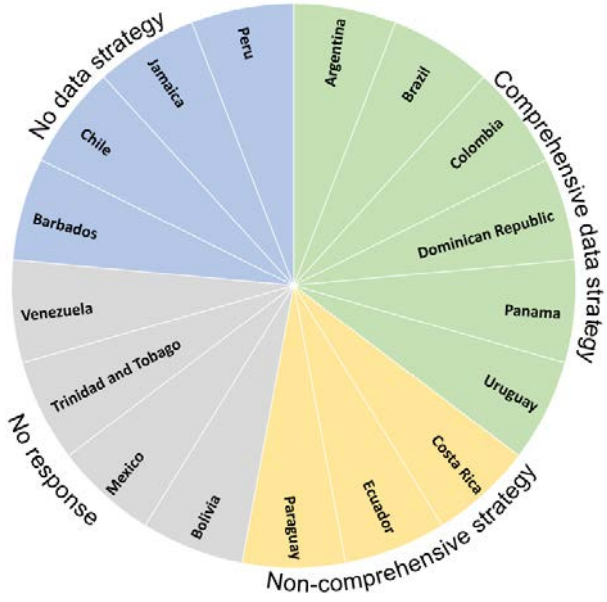
**Figure 5.14. LAC region capacities for taking a strategic approach to data use in the public sector**




Among LAC governments, six have affirmed the existence of a single national data strategy covering different aspects (e.g. open government data, data sharing within the public sector, data ethics, protection and security, etc.), while another three report the existence of a somewhat less comprehensive national

strategy focused on data for AI or the internal management of data (e.g. data cataloguing, generation, sharing and use within the public sector) (Figure 5.15).

### Figure 5.15. LAC countries having a formal data strategy




*Source*: OECD LAC Digital Government Agency Survey (2020).

These positive results demonstrate the growing priority that LAC governments place on leveraging data as an asset and advancing towards becoming a data-driven public sector. However, the OECD was not always able to obtain sufficient evidence to support these results, and was able to confirm the existence of data strategies just for Colombia and Uruguay. A deeper review of each of these strategies is beyond the scope of this review; however, there are some indications that countries' comprehensive strategies may not cover all aspects of the OECD's framework for a data-driven public sector (OECD, 2019[14]), or if they do, perhaps in a way that is not immediately clear. For instance, in a recent review, the OECD found that Panama's strategy focused mainly on open government data, with less emphasis on other valuable aspects of data (OECD, 2019[16]). Similarly, Argentina, Brazil, the Dominican Republic and Panama indicated in the OECD survey results that their open data strategies and practices constituted more comprehensive strategies, although their contents are more narrowly focused on open data. Some countries pointed to information-sharing rules or exchange platforms (Brazil, Dominican Republic).

It may be the case that an amalgamation of disparate policies and procedures is sufficient to address all the issues relevant for a national data strategy. However, this approach is less useful when developing an aligned systemic approach to building a data-driven public sector. All LAC countries, including those that have stated that they have comprehensive strategies in place, would benefit from ensuring that their national strategies are strategic and clear, and that they are aligned with the OECD's framework for a data-driven public sector (OECD, 2019[14]).

In general, the OECD could find only one clear and dedicated, albeit not very detailed, data strategy for any of the LAC countries in this review (Uruguay, see Box 5.6). Colombia appears to have the elements of a solid national data strategy in place, although they are separated into discrete components, namely the Data Exploitation Policy,[16] the open data policy,[17] the Infrastructure Governance Model for the Development of Emerging Technologies,[18] the National Data Infrastructure Plan[19] and the Interoperability Framework.[20] The latter of these elements has a broader scope covering aspects such as data

governance, data architecture, citizen-centred design, service design, information security, collaboration, data use and re-use, and other relevant topics. The country's AI strategy also includes measures that support the task of expanding data infrastructure and the creation of data trusts, which forms part of the Data Exploitation Policy.

Finally, while some governments do not currently have a data strategy in place, there are indications that such strategies are under development. Chile, for instance, is developing a national data strategy (OECD, 2020[8]) that will draw on the OECD's framework for a data-driven public sector (OECD, 2019[14]). The strategy will have a strong focus on advancing interoperability and data-sharing in the public sector and preparing the administration for the advent of increasingly sophisticated data-processing capabilities, such as AI (OECD, 2019[21]), points which are reiterated in the country's AI strategy and action plan.

### Box 5.6. Uruguay's Data Policy for Digital Transformation

The Government of Uruguay has developed a data strategy that promotes data as a critical asset for all government operations and advocates a systems approach to data collection, management and governance. Uruguay has also launched an interoperability platform to facilitate and promote government digital services and improve integration between public sector organisations.

The policy breaks down general principles for data management in the central administration, as well as principles associated with managing data through their life cycle.

**General principles:**

- Principle 1: Data as assets.
- Principle 2: Data responsibility.

**Principles associated with the data life cycle:**

- Principle 3: Generation.
- Principle 4: Efficiency.
- Principle 5: Quality.
- Principle 6: Access to data.
- Principle 7: Share and use.
- Principle 8: Open data.
- Principle 9: Data protection (includes Legality, Veracity, Purpose, Prior informed consent, Data security, Reservation, Responsibility).
- Principle 10: Safety.
- Principle 11: Preservation.

The policy does not provide a tremendous amount of detail about how each principle is to be achieved, but envisions them as a collective foundation for a subsequent data action plan.

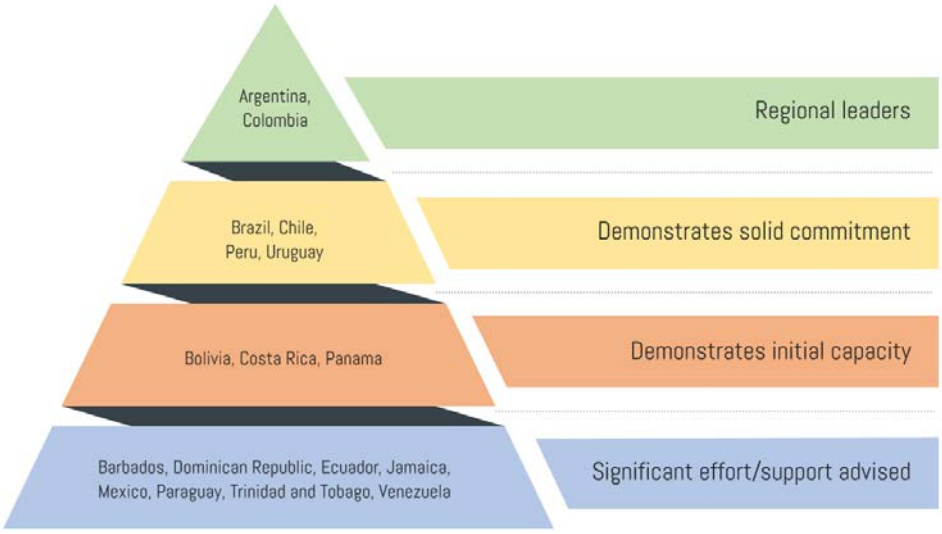
*Source*: www.gub.uy/agencia-gobierno-electronico-sociedad-informacion-conocimiento/comunicacion/noticias/uruguay-politica-datos-para-transformacion-digital.

LAC governments would benefit from building high-level strategies, and detailed and flexible action plans to achieve them. A good example of this approach from outside the region can be found in the United

States Federal Data Strategy and Roadmap, as detailed as a case study in the report *Hello, World: Artificial Intelligence and its Use in the Public Sector* (Berryhill et al., 2019[11]).

## Creating space for experimentation

### Figure 5.16. LAC region capacities for experimenting with AI




Governments need to carve out time and space for experimentation to explore AI in the public sector, as both experimentation and iterative learning are crucial to developing AI capacity in the public sector. If practitioners do not have the freedom to explore new ways of developing and delivering services, the potential for AI in the public sector is unlikely to be realised. In addition to helping to identify new possibilities and approaches, controlled environments for AI experimentation and testing facilitate the timely identification of potential technical flaws and governance challenges. In so doing, they can also highlight public concerns especially through testing under quasi real-world conditions (OECD, 2017[22]). Such environments include innovation centres, labs and sandboxes. Experiments can operate in "start-up mode" whereby they are deployed, evaluated and modified, and then be scaled up or down, or abandoned quickly (OECD, 2020[23]).

A number of LAC governments have already developed strong capacity for experimentation in general, including through innovation and experimentation labs. Some successful examples of this approach include Argentina's LABgobar,[21] Brazil's GNova lab[22] and Chile's Laboratorio de Gobierno (LabGob).[23] Although these labs are not focused specifically on AI, they demonstrate national investment in fostering systemic capacities for experimentation and innovation, including digital innovation. Consistent with OECD observations globally, a number of LAC governments have developed, or are in the process of developing, labs and pilot processes for AI experimentation which are either dedicated to AI efforts or involve a broader portfolio of digital government efforts that integrate AI. Such efforts include the following:

- As called for in the country's national AI strategy, Argentina has developed an AI Innovation Lab to bring together multiple stakeholders to experiment with and develop AI projects in a variety of areas (see Box 5.7). It also calls for the creation of eight new multi-disciplinary AI research labs.
- Bolivia's 2020 *Plan for the Strengthening of the Open and Participative Government*[24] proposes the creation of an Innovation and Technological Research Laboratory to "generate solutions to the needs of Bolivians, through the promotion and development of free knowledge, innovation and

digital research; reducing the digital divide and guaranteeing digital inclusion to build technological sovereignty in the country".

- Brazil's national AI strategy proposes the creation of data experimentation spaces for AI, while the national digital strategy underlines the need for a lab to experiment with data and emerging technologies.
- Colombia has developed an Emerging Technologies Handbook[25] that proposes pilot tests as part of the design phase for emerging technology projects. It has also established a Centre for Digital Public Innovation,[26] which promotes digital public innovation and co-creation through the use of emerging technologies in projects that seek to advance the Sustainable Development Goals (SDGs). Finally, the country has also built MiLAB,[27] a public innovation laboratory that promotes collaboration and open innovation to test, strengthen and monitor the implementation of GovTech solutions, which may involve AI-driven solutions.
- Costa Rica has declared its intention to build a National Laboratory for Artificial Intelligence (LaNIA), which will search for solutions to national problems with the support of AI through international co-operation and interaction between the public and private sectors.[28] While experimentation could occur in such a lab, it appears that LaNIA will focus more on research, data sharing, ecosystem building and the creation of technology products.
- Peru has issued a resolution[29] for the establishment of a Government and Digital Transformation Laboratory, which will operate as a platform for cross-sector experimentation and co-design for digital innovation and the use of emerging technologies, including AI, among other things. In an interview with the OECD, Peruvian officials stated that the lab is being implemented with support from CAF, and will also emphasise the creation of a cross-sector ecosystem.
- Uruguay has built the *Laboratorio de Innovación Social en Gobierno Digital* (Social Innovation in Digital Government Lab)[30] as a co-design and experimentation space for digital public service solutions.

### Box 5.7. Artificial Intelligence Innovation Lab (Argentina)

The Laboratorio de Innovación e Inteligencia Artificial (Artificial Intelligence and Innovation Lab – IALAB) is an initiative of the Law School of the University of Buenos Aires. In serves to incubate AI initiatives, conduct applied research, and engage in multidisciplinary development of high impact and scalability solutions.

*Source*: https://ialab.com.ar.

In some instances, it may be necessary to sequester AI efforts for the purposes of experimentation, as some types of innovation have the potential to subvert existing paradigms. Very new ideas generally do not cohabit well with existing reporting structures, processes, workflows and rules, as the specific details of how the idea will work in practice still need to be teased out. Thus, some efforts, including AI projects with high disruptive potential or in environments with complex or unclear rules, may need to be sheltered from other processes and have their own autonomy. Otherwise, the pressures of tangible existing priorities are likely to cannibalise necessary resources, or the concept may collide with rules that have not taken its possibilities into account.

A number of governments are seeking to promote this approach through the creation of "sandboxes". This allows them to conduct experimentation in set-aside safe spaces that help to foster innovation, while also learning about new approaches and how to handle them. Sandboxes may relax certain rules or regulations

based on a number of conditions (e.g. time-bound, limited number of participants) (Eggers, Turley and Kishani, 2018[24]). Sandboxes can also assist in enhancing data security and privacy, as they represent a supervised safe space where data can be separated from other functions and networks (CIPL, 2019[25]). In these safe spaces, officials can learn more about the data, the potential for AI, the types of sensitivities involved, and the methods needed to protect them and ensure the protection of individuals' privacy. While often geared towards the private sector (e.g. regulatory sandboxes), sandboxes are increasingly being considered for AI in the public sector.

There are a few examples of such public sector-focused sandboxes throughout the world, notably in Estonia, Finland and Lithuania.[31] However, some LAC countries are developing sandboxes related to AI in the public sector, making them early pioneers in exploring such mechanisms:

- Argentina's national AI strategy calls for the development of a sandbox for emerging technologies, including AI, in order to circumvent unnecessary bureaucracy for actors involved in digital innovation efforts. The strategy envisions allowing experimentation with proposed systems in real-life situations, allowing officials to analyse the benefits and disadvantages. The sandbox would provide a conduit to discuss and validate practices with the country's AI Ethics Committee and regulatory bodies.
- Brazil's national AI strategy includes an action item to create regulatory AI sandboxes that could be used by both the public and private sector.
- Chile's AI strategy and action plan call for study of the feasibility of regulatory sandboxes, although it is unclear whether such research would promote experimentation with AI in the public sector.
- Colombia's national AI strategy calls for developing test beds and sandboxes for GovTech projects, which may include AI-driven projects, as well as similar mechanisms for FinTech, HealthTech and AgriTech. The first use case is now in place, which serves as a FinTech regulatory sandbox.[32] The country has also developed a "Privacy by Design and Default in AI" sandbox.[33] In addition, to help guide its sandbox efforts related to regulatory experimentation, Colombia has designed and solicited public feedback on a "Conceptual Model for the Design of Regulatory Sandboxes and Beaches in AI".[34] Although these initial efforts do not specifically involve AI in the public sector (i.e. they are often geared to supporting private sector efforts), their existence implies that the other proposed sandboxes will take shape. Looking more specifically at efforts aimed at public sector transformation, Colombia has created a Data Sandbox (Box 5.8), "a collaborative space [where] the country's public entities can conduct experimentation, testing and development of analytics and Big Data pilot projects." While AI is not explicitly mentioned, it appears that such a sandbox could be used to test AI projects, which generally involve the use of significant amounts of data and data analytics techniques. According to Colombian Ministry of Information and Communications Technologies (MinTIC) officials, in an interview with the OECD, Colombia has a set goal to build up the country's data and AI ecosystem by ensuring that all ministries and sectors have access to a sandbox for piloting and experimentation.
- Peru's 2021 draft national AI strategy calls for the creation of regulatory sandboxes where AI-based ventures can be tested to ensure ethical and responsible usage.

### Box 5.8. Data Sandbox (Colombia)

Colombia's 2018 Data Exploitation Policy (CONPES 3920) called for the creation of a Data Sandbox to serve as a collaborative space where public sector entities could conduct experimentation, testing and development of analytics and big data pilot projects. The Data Sandbox is intended to help agencies explore data and information and generate new knowledge. In using the sandbox, public servants are

expected to better understand and learn how to use data analytics technologies, as well as improve their abilities to explore, process, model and visualise large volumes of data.

Each pilot project lasts between one and four months, and usually proceeds as follows:

1. The initiating public entity must apply to use the sandbox and assemble a team (two to six people) to develop the project and define its goals, objectives, scope, schedule and expected results.
2. The Ministry of Information and Communications Technologies (MinTIC) evaluates each application. If the proposed pilot is deemed sound and the sandbox has capacity, MinTIC approves the project, invites the public entity into the sandbox and provides advice regarding the proposed methodological approach. The public entity can then begin executing its project plan.
3. The sandbox operating team monitors the development and execution of the pilot and provides guidance and support to the public entity along the way.
4. As results become known, the public entity engaging in the pilot and the data sandbox operating team work together to validate and publish them on Colombia's open data portal (https://herramientas.datos.gov.co/es/usos). This step is important, as it allows others to re-use algorithms, data and the resulting project outputs.
5. Once the project is complete, the public entity team exits the sandbox, which frees up capacity for other pilots. The sandbox team and the public entity team create results dissemination pieces and share them through website articles, webinars and Facebook Live sessions, etc.

*Source*: https://gobiernodigital.mintic.gov.co/692/articles-160200_info_ciclo_vida_proyecto.pdf and https://colaboracion.dnp.gov.co/CDT/Conpes/Econ%c3%b3micos/3920.pdf.

LAC country efforts to develop labs, pilots, sandboxes and other mechanisms and conduits for experimentation demonstrate growing regional maturity in regard to exploring and implementing AI in the public sector. As many of these efforts are pledges and commitments for building out such mechanisms, it will be important for the countries involved to maintain progress and momentum to ensure that their potential does not fizzle out.

While the countries discussed above have demonstrated solid progress in this area, a number of other countries have not yet planned or implemented efforts. In particular:

- Barbados, Chile, Costa Rica, Ecuador, Jamaica and Paraguay indicated in their survey responses that guidance or mechanisms specifically for experimenting with AI have yet to be established. OECD research was consistent with these responses and for digital government more broadly.
- In their survey responses, the Dominican Republic and Panama affirmed the existence of guidance or mechanisms for AI experimentation, but did not provide supporting details. In conducting its own research for this review, the OECD could not identify any planned or ongoing initiatives in this area. However, for Panama, the national digital government strategy[35] does include promising provisions for experimentation in FinTech, which may provide competencies for experimentation that can be applied to other areas.
- Bolivia, Mexico, Trinidad and Tobago, and Venezuela did not respond to the survey, and the OECD was unable to identify any planned or ongoing initiatives in this area.

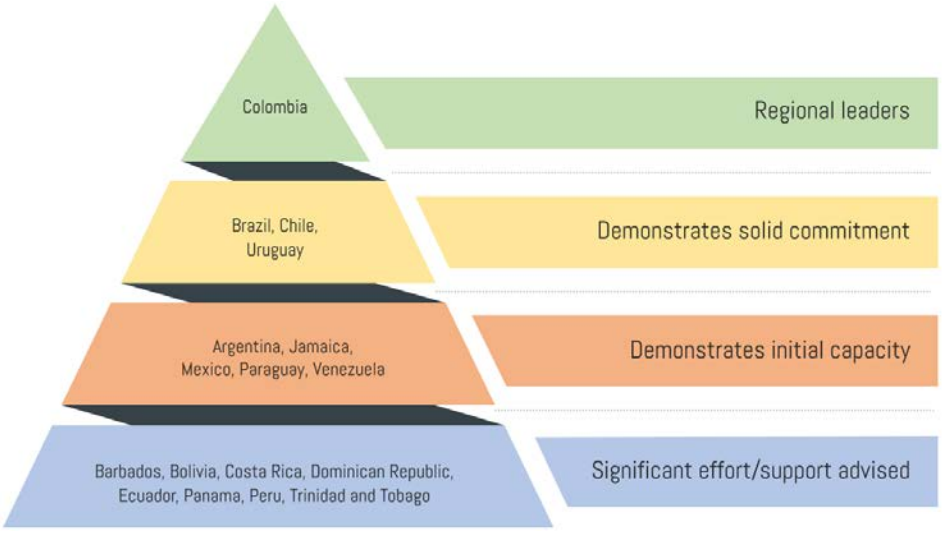
Action among LAC countries in terms of actively promoting experimentation more generally, as well as with a focus on AI, appears to be accelerating. Beyond building new structures, processes and capacities for experimentation, governments may also need to consider whether any underlying issues might prevent

them from evolving a culture of innovation. For instance, in Panama, it is generally accepted among the central digital government agency and the ecosystem of digital government stakeholders that an updated legal and regulatory framework is necessary to install a culture of innovation and experimentation and to enhance digital government in the country (OECD, 2019[16]). Such underlying and systemic challenges will be discussed in more depth in the forthcoming report *Going Digital: The State of Digital Government in Latin America*.

## Understanding problems and the potential for AI solutions

When properly designed and implemented, AI systems can make a positive contribution to government activities throughout the policy cycle – from agenda-setting and policy formulation to implementation and evaluation. However, AI is not always the best solution and in many cases is neither appropriate nor necessary. For many public sector digital challenges, the most appropriate solutions are often simple but effective uses of existing technologies and improved interoperability, including legacy systems. The importance of understanding and defining the problem at hand is an important aspect of exploring digital options and alternatives in general, and constitutes a critical component of step 1 of the UK's Digital Buying Guide, which emphasises the need to "develop a deep understanding of your users *and the problem you're trying to solve* for them".[36] This helps ensure the existence of a valid need for the solution that government is building or procuring.

### Figure 5.17. LAC region capacities for understanding problems and determining whether AI solutions are a good fit




In OECD fact-finding interviews with senior LAC government officials, one of the most repeatedly cited challenges related to pursuing *problem-driven* exploration of AI. This was especially true of the most digitally mature governments; and while a number of other governments had not recognised the issue, the OECD was able to detect its presence based on conversations. This is not unusual among governments worldwide. A common issue with emerging technologies, such as those in the field of AI, is the risk that people start with solutions and *then* look for problems for the technology to solve. In general, governments should seek to understand and focus on the outcomes that both they and their citizens want to achieve, and the problems that get in the way. Governments must therefore have processes in place to help them become aware of and understand these problems.

An important element in this regard is the need for governments to understand their users, and their needs and challenges, and how public services may fit into their lives. This a significant cross-cutting factor discussed in the *Ensuring an inclusive and user-centred approach* section of Chapter 4. Governments can adopt a number of different approaches to identify and understand problems, which can also help them determine the optimal solutions. One such approach is training, such as Colombia's course on problem definition for public services, developed in collaboration with SAP (see Box 5.9).

### Box 5.9. Training on problem definition (Colombia)

The Government of Colombia has worked with SAP to develop a training course specifically on problem definition in public services. It seeks to change the mindset of public servants with a view to re-orienting them to first consider and fully understand the problem(s) at hand before prematurely identifying solutions. Over 8 000 people have taken the course to date.

*Source*: Government of Colombia officials.

The OECD report *Hello, World: Artificial Intelligence and its Use in the Public Sector* (Berryhill et al., 2019[11]) identified other useful efforts in this regard:

- Challenges and prizes enable experts both inside and outside government to flag problems and indicate potential solutions. Through such programmes, governments may also raise known problems, which can be validated by those proposing to address them.
- Communities of interest and networks allow for collaboration and the sharing of expertise across organisational boundaries and the identification of collective or common problems.
- Central funds with bottom-up proposals can help to identify problems which could be solved through the application of AI or other technological (or non-technological) solutions.

Governments do not necessarily need to leverage all three approaches, though as discussed elsewhere in this report, such mechanisms are useful beyond their application for problem identification. Additional approaches also likely exist that can be used to surface key public sector problems and determine whether AI may be an optimal solution. The key point is that governments need to consciously put in place ways to scan for, elevate and consider problems and various alternatives for addressing them.

In terms of **challenges and prizes**, for the most part, LAC governments indicated to the OECD that they rarely or never pursue challenge or prize programmes for digital government initiatives. Only Argentina, Brazil, Colombia, Jamaica and Uruguay indicated that they use such mechanisms for AI. Through research, the OECD was also able to identify relevant efforts, though not always scoped specifically to AI, by Mexico and Paraguay. For these countries, such efforts took the form of:

- Hackathons (Argentina,[37] Colombia,[38] Jamaica[39] and Paraguay).[40]
- Innovation awards that recognise success in digital innovation, including AI (Brazil[41] and Colombia).[42]
- Challenges that encourage or incentivise entrepreneurs and others to validate public problems and generate ideas for solutions (Colombia,[43] Mexico,[44] Paraguay[45] and Uruguay).[46]

Such efforts represent positive steps towards increasing AI maturity. Some of the most promising from a problem-identification point of view appear to be the INDIGO Digital Government Innovation Awards and the "Bank of Challenges for Public and Private Entities" from Colombia, Brazil's Public Sector Innovation Competition, Mexico's Public Challenges and Paraguay's InnovandoPy, as these programmes focus on initiatives that have demonstrated an ability to surface or validate core public sector problems that can

potentially be replicated or scaled (see Box 5.10). Other examples, while valuable in their own way and for other purposes, appear to be directed more narrowly towards generating *solutions* to known problems, as opposed to also uncovering or better understanding the nature of *problems* to be solved.

### Box 5.10. Examples of challenge-type initiatives that can help surface problems

**Bank of Challenges (Colombia)**

As part of its Data Science 4 All (DS4A) initiative, Colombia's Ministry of Information and Communications Technologies (MinTIC) has actively provided free training to over 1 000 Colombians on a variety of data science topics, including big data tools, data transformation and visualisation, machine learning techniques and design of experiments. The training curriculum, developed by industry partner Correlation ONE, is 40% theoretical and 60% practical, with the latter incorporating real-world public sector cases and challenges, proposed by trainees who must identify and apply solutions.

The selection process for candidates for the practical components of the curriculum involved an open call launched by MinTIC to collect "real and identified problems" in public entities and private companies that could potentially be addressed through data science, including but not limited to AI. The goal was to develop a "Bank of Challenges for Public and Private Entities" that could be incorporated into the training curriculum by MinTIC and Correlation ONE.

Teams of five to seven DS4A participants were assembled, and each selected a challenge from the Bank for which they worked on developing data science solution(s) over the course of 11 weeks. To help them identify applicable solutions, the teams worked closely with the public or private entity that submitted the challenge and received guidance from expert instructors. At the end of the process, each team submitted a functional solution, a 10-20-page report detailing their methods and results, and a 10-minute presentation summarising the project. In addition to surfacing public and private sector problems, and potential corresponding solutions, the programme also facilitated networking among participants and public and private entities to promote recruitment and employment opportunities.

**Public Sector Innovation Contest (Brazil)**

Since 1996, Brazil's National School of Public Administration (ENAP) has organised an annual Public Sector Innovation Competition. The initiative seeks to reward public servants who have committed to achieving better results and are dedicated to rethinking daily activities through small or large innovations that generate improvement in the management of organisations and public policies. The competition awards public servants who have identified a public sector problem, and developed a successful solution, and winning initiatives are documented in ENAP's Institutional Repository (https://repositorio.enap.gov.br), which allows public sector problems to be better understood across government, alongside details on solutions that can help address them.

Potential candidates who would like to nominate their work (or the work of their team) must answer the following questions:

- What was the nature of the problem?
- What was the implemented innovation?
- What were the objectives of the innovation process?
- What were the main results obtained by the innovation?
- How did the innovation process identify the needs of users/citizens?
- What were the main factors that contributed to the success of the innovative practice?

- What problems were encountered and what were the applied solutions?

The Innovation Contest is not specific to problems related to digital government, but problems surfaced and solutions identified may draw on different types of technology, including AI.

**Public Challenges/Challenge Mexico (Mexico)**

The Mexican Public Challenges (*Retos Públicos*) initiative aimed to build a collaborative ecosystem for the development of data solutions (applications) for "public challenges". Through requests for proposals posted on the central open data portal, the Chief Data Officer (CDO), in co-operation with various state secretariats, invited non-government stakeholders to propose projects. Public institutions defined the challenges and the winners received public funding to develop the project. One of the most valuable elements of such an initiative is the clarity of vision it gives public institutions about the (value) problem they are trying to address in collaboration with stakeholders.

Towards the end of 2016, the Public Challenges initiative transitioned into Challenge Mexico (*Reto México*) (https://retomexico.org). Challenge Mexico is an open innovation platform that enables multiple stakeholders to create prototypes and jointly design solutions to address public policy challenges. The initiative aims to develop scalable and replicable projects with a view to medium-term sustainability. While Public Challenges centred on co-designed solutions for public sector challenges, Challenge Mexico widened the collaboration approach to incorporate the needs of the private sector.

**InnovandoPy (Paraguay)**

InnovandoPy is an initiative of the Ministry of Information Technologies and Telecommunications (MITIC). Operational since 2015, it seeks to identify innovative technology-based ideas, inspire and motivate young entrepreneurs, bring together public and private sector actors, promote collaboration in digital projects and promote entrepreneurship in the country. Its activities include:

- **Innovando Start-ups**: an accelerator where young entrepreneurs present their innovative ideas related to problems and solutions in both the public and private sectors. In the most recent accelerator cycle in 2019, dozens of start-ups submitted ideas, resulting in ten top ideas that received intensive mentoring to further work out their concepts, including structured problem identification, customer needs exploration, costing evaluation and product development. These ten start-ups then presented their proposals to a jury of both public and private sector leaders. Of these, four start-ups were selected as winners of a cash prize to help them advance in their solutions.
- **Hackathons:** competitive development marathons for citizen-centred apps based on open government data. The most recent 2019 edition, the IAackaton, was focused specifically on using AI to solve public sector problems in categories including reliable digital government (security and confidence in digital government services), smart government (evidence-based decisions and predictive analytics) and open government (transparency, participation and collaboration).
- **Ideathons**: events dedicated specifically to ideation and thinking of new ways to address public sector problems. The 2019 edition convened people to discuss problems and ideas related to mobility, smart cities and renewable energy.

*Source*: www.mintic.gov.co/portal/inicio/Sala-de-Prensa/Noticias/145965:MinTIC-abre-convocatoria-para-solucionar-retos-de-entidades-publicas%20-and-companies-in-digital-transformation (OECD, 2018[15]), (OECD, 2018[12]), https://inovacao.enap.gov.br and www.innovando.gov.py.

When it comes to **communities of interest and networks**, Brazil, Chile, Colombia and Uruguay all indicated that they have specific initiatives in place aiming at developing communities of practice, networks and other opportunities to promote data and digital competencies for public servants. Such efforts were supported by OECD research, as discussed below. Jamaica and Panama also indicated that such initiatives are underway, but in conducting research, the OECD was unable to identify support. The rest of the countries responded "don't know" or did not respond, and the OECD was unable to identify specific examples. Such communities and networks can serve as an excellent forum for raising or identifying issues that AI has the potential to address. Examples of such communities and networks include the following:

- Brazil's National Digital Government Network[47] encompasses all levels of government and aims to promote collaboration, exchange of ideas and the creation of innovative initiatives related to digital transformation of the public sector. Meanwhile, the country's System for the Administration of Information Technologies Resources (SISP), the main institutional digital government co-ordination mechanism in Brazil, contributes to knowledge exchange, peer-to-peer learning and promoting innovation among its members through a virtual community where members are invited to interact and share knowledge (OECD, 2018[26]). The Brazilian Association of State ICT Entities (ABEP)[48] also exists to connect state-level public technology officials.
- Chile's Network of Public Innovators, part of LabGob, connects over 14 000 public servants and other relevant actors (see Box 5.11). The OECD has previously found that LabGob has a successful history of collaborative work with other teams and organisations across the Chile public administration. The main thing these successful collaborations have in common is the determination to develop a common approach and strategy for diagnosing and addressing problems (OECD, 2019[21]). The country's AI strategy and roadmap also call for encouraging the creation of user communities in areas of public interest.
- In Colombia, the ICT Ministry co-ordinates RED CIO,[49] a network that assembles CIOs around the country via online chats to discuss collaborative work in the region. The programme aims to facilitate communication between those responsible for technology in public entities, with a view to developing a community of collaboration among participants, improving the efficient and safe provision of digital services to citizens, and leveraging the state's digital transformation. This strategy is complemented by CIO SUMMIT,[50] a face-to-face and virtual space for collaborative work. Public CIOs converge to learn about the main advances in the sector, share successful experiences and work to understand the direction technology is taking in the public sphere. The country also hosts a Seal of Excellence (*Sello de Excelencia*) programme, an expert community of public and private actors that collaborates to evaluate digital government services and award seals to top-quality programmes mainly in services, open data, smart cities, IT management and citizen participation. RED CIO is complemented by a network led by the Presidential Office for Economic Affairs and Digital Transformation, in which not only CIOs participate, but also co-ordinators promoting digital transformation at a higher level. Finally, while not co-ordinated by the central government, the country's Colombia.AI initiative is a successful "community of volunteer experts, trainees and enthusiasts of machine learning working to disseminate knowledge about data science and AI. Through free monthly discussions and workshops, Colombia.AI shares knowledge, teaching and experiences about technologies that exploit the power of data. Its purpose is to unite the industry and academia to support the growth and development of AI in Colombia. This community currently has over 5 700 members in two cities, Bogotá and Barranquilla" (Gómez Mont et al., 2020[27]).
- Uruguay is establishing Knowledge Centres (*Centros de Conocimientos*)[51] to enhance collaboration with the intention of improving the professional development of members, generating opportunities to build relationships, enable reflection, mobilise resources around members and disciplines, and promote training, research and innovation.

These networks can contribute to many crucial digital government and AI efforts, both directly and indirectly. To help ensure such communities and networks are useful for problem identification, LAC governments should ensure that mechanisms exist to surface challenges and problems among participants, as well as conduits for raising identified problems with decision makers who can consider them and, if needed, take action. Such communities and networks do not need to be specifically focused on AI, and in fact, more general groups can help surface a broader base of problems. However, governments may want to develop additional emergent technology or AI-focused communities and networks, or ensure that general communities and networks include individuals with AI expertise, in order to help identify links between problems and AI approaches that may constitute an optimal solution.

### Box 5.11. Network of Public Innovators (Chile)

Established in 2015, Chile's Network of Public Innovators *(Red de Innovadores Públicos)* is a community of Chilean public servants from all levels of government who are motivated to seek tools, experiences and approaches that can facilitate innovation with a view to improving public services.

The strategy is threefold:

1. **Collective learning** collectively constructs the competencies needed to innovate in the public sector based on the knowledge and approaches of each participant.
2. **Making public innovations visible** involves communicating and disseminating the initiatives under consideration, as well as motivating others to innovate in the public sector.
3. **Connecting those motivated to innovate** involves the use of meetings to build networks among public servants, find common ground, encourage collaboration and increase social capital. Public servants participate in different activities across the country and connect through a social network for public innovators in the Government of Chile.

The Network has grown to 14 000 members and has been developed with the active participation and contributions of a diverse set of actors with different roles and experiences. Consisting mainly of public servants, it also includes entrepreneurs, academics, students, and citizens. Members work together to improve public services in a manner consistent with the Network's five key principles:

1. Focus on people.
2. Systemic approach.
3. Co-creation.
4. Experimentation.
5. Focus on experience.

National meetings of public innovators and in-person activities promote co-operation among Network members, while a digital platform allows for connecting, communicating, collaborating and sharing. Focus areas are both digital and non-digital in nature. In evaluating the impact of the Network, the government noted that it allows public servants from the same region and across the country to connect in order to discuss public sector innovation, problems they face and potential solutions already implemented elsewhere. The government also found that the Network has the potential to help achieve a key innovation imperative of LabGob: ensuring that Chilean public sector institutions approach their problems in a more systematic manner.

*Source*: www.lab.gob.cl/iniciativas/red-de-innovadores-publicos and https://innovadorespublicos.cl, and https://oecd-opsi.org/wp-content/uploads/2019/03/HR-and-Leadership-Catalyst-for-Innovation-Capabilities.pdf.

Finally, in terms of the availability of **central funds for bottom-up proposals**, LAC governments have not generally developed such mechanisms. The Pact for the Digital Transformation of Colombia (Box 5.12) represents the best example of this concept. The country has also instituted a Science, Technology and Innovation Fund targeted at sub-national governments for ICT and other purposes, whereby sub-national governments can submit proposals for solutions to address public problems in their area, according to officials interviewed by the OECD. In Uruguay, the National Research and Innovation Agency (ANII) has established a Sectoral Education Fund, which solicits bottom-up proposals. This smaller, more targeted fund is dedicated to financing research projects on teaching and learning assisted by digital technologies, including addressing problems associated with COVID-19.[52] One of its primary "research lines" is scoped around the use of data and AI.

Aside from these two efforts, the OECD was unable to identify solid instances of central funds with bottom-up proposal processes that could be well suited to surfacing problems that AI (or other digital solutions) might be able to solve. In addition to the Colombian example, Box 5.12 provides two other examples of a central fund from outside the region. In addition to surfacing problems and solutions, competitive centralised funds provide incentives for public institutions to comply with new standards and guidelines, and to align their efforts with the government's strategic objectives (OECD, 2019[21]).

### Box 5.12. Examples of central funds with bottom-up proposals

**Pact for the Digital Transformation of Colombia**

The Pact is a central fund and bundle of strategies with a budget totalling USD 5.2 billion (equivalent) dedicated to bringing Internet access to low-income households and improving the interactions between public entities and citizens. Two of its key commitments are:

- To "promote a State policy for digital transformation and the use of the fourth industrial revolution, through the interoperability of platforms, contact through the single state portal, use of emerging technologies, digital security, training in digital talent, and promotion of the entrepreneurship ecosystem".
- To "promote the digital transformation of public administration through the massive digitization and automation of procedures".

The Pact and its funding lines and action items were developed in an open and participatory manner. Roundtable discussions and regional workshops were held to learn about the aspirations and needs of different territories. The government then launched a digital platform where citizens could submit proposals. The government placed additional emphasis on ensuring that proposals benefited from the input of underrepresented populations, such as Indigenous peoples and Roma or Gypsy populations.

While the Pact is scoped very broadly, the problems and solutions it identifies have the potential to – explicitly may – result in AI solutions.

**Portugal INCoDe.2030**

In Portugal, the government has launched a National Digital Competency Initiative, "Portugal INCoDe.2020", which will invest EUR 10 million over three years. The goal of the funding is to spur the use of data science and AI in the public sector. Interested teams in government can apply for funding through open and competitive Call for Tender processes. Some of the first projects awarded funding are to develop AI-based models to predict the risk of long-term unemployment and to detect abnormal patters in antibiotic prescription. As of August 2019, 44 projects had been submitted and approved under the programme. Portugal's Programme in Data Science and Artificial Intelligence in Public Administration (Box 6.10) is part of this initiative.

**Technology Modernization Fund (United States)**

The United States Government's Technological Modernization Fund (TMF) is a fairly new funding model for technology modernisation projects. Government agencies can submit proposals for funding and technical expertise to a TMF Board consisting of senior government IT leaders. Each proposal must clearly 1) describe how the project fulfils the agency's mission, 2) identify the problem this project solves and 3) explain how successful execution of this project solves the problem.

The Board assesses the proposals based on:

- Their impact on the agency mission (improving outcomes for users and security).
- Feasibility (including agency capability).
- Generation of opportunities (potential cost savings and service quality improvements).
- Common solutions (replacement of insecure, outdated systems with scalable platforms that could be used by other organisations).

Through the submission and review of bottom-up proposals, the TMF enables the government to identify key public sector problems. It also enables efforts to be focused on areas where they can achieve maximum public benefit, by prioritising technology solutions to improve delivery of mission-critical services and projects that can serve as common solutions and/or inspire reuse. While its remit is broader than AI, US officials have encouraged agencies to submit proposals for modernisation projects driven by emerging tech.

*Source*: www.dnp.gov.co/DNPN/Plan-Nacional-de-Desarrollo/Paginas/Pactos-Transversales/Pacto-transformacion-digital-de-Colombia/Transformacion-digital.aspx, www.dnp.gov.co/DNPN/Paginas/Plan-Nacional-de-Desarrollo-ABC.aspx, https://tmf.cio.gov, https://digital.gov/event/2018/05/22/an-overview-technology-modernization-fund-tmf and www.incode2030.gov.pt.

Among other benefits, such challenge programmes, communities and funds can help governments identify problems that AI may be able to solve. Once problems are known and understood, governments can evaluate them in order to devise an optimal solution, which may or may not involve AI. Careful analysis of the capabilities of specific AI tools is necessary to determine whether they should form part or all of the solution to a specific challenge. A rigorous focus on using AI only when it is likely to provide the best solution to a specific problem will reduce the risk of inappropriate adoption in areas where it will not add value. Once such guidance and mechanisms are in place, governments can *identify problems* and *then* determine whether AI (or another tool) is the best solution (Mulgan, 2019[28]). This is a crucial but often overlooked component of success for AI in the public sector.

Governments may employ a variety of methods to determine whether or not AI is the best solution to a particular issue. In the case of AI in the public sector, the OECD and a number of governments have found the "Three V's" framework, originally suggested by consulting firm Deloitte (Schatsky, Muraskin and Gurumurthy, 2015[29]), to be particularly helpful. Under this framework, government problems that would benefit from an AI-based solution answer affirmatively to three questions:

- Is it **viable**? You should understand the scope and limits of the technology and then assess if the solution is viable.
- Is it **valuable**? Just because something can be automated does not mean that it should be. How much value would automation add? Would it deliver value to the community as well as to your organisation's operations? What would be the knock-on effects? Can you make the outcomes fair and ethical?
- Is it **vital**? Is your proposed implementation unworkable without AI?

Among LAC countries, only Colombia and Uruguay appear to have considered guidance on evaluating public sector problems in order to determine whether AI is the best solution. While Colombia seems to have guidance in place (see Box 5.13), Uruguay's AI strategy commits to "develop technical guides for problem selection, as well as the design and implementation of AI-based solutions". The strategy further notes that, "These guidelines should consider, among other aspects, the relevance of the use of AI services in the cloud, the identification of appropriate tools for different cases of application, protection and data privacy, etc." The Dominican Republic also indicated the existence of such guidance in the survey; however, the OECD was unable to identify supporting evidence. Such guidance can help address deficiencies reported by governments. For instance, in interviews with the OECD, officials from Chile reported that a lack of clarity regarding the use and functionality of certain technologies leads to the application of technologies that are not suitable for the problem at hand.

### Box 5.13. Guidance in determining whether AI is an appropriate solution for a problem (Colombia)

The Government of Colombia has issued an *Emerging Technologies Handbook*, which offers guidance to national and territorial government entities on the use and adoption of new technologies and tools. The Handbook seeks to help public servants connect their needs and problems to appropriate innovative or emerging solutions, and also documents international use cases of how others have leveraged such technologies to respond to key problems.

Among other steps to help public servants explore and implement emerging technologies, the Handbook provides guidance on:

- **Identification of emerging technology use cases.** This guidance helps public servants identify possible technology applications that may apply to their problems or objectives, and then prioritise potential approaches to determine a solution. There is a core focus on the needs and problems to be addressed, which the Handbook states helps to "avoid the temptation to experiment with new technologies that will ultimately not lead to tangible improvements in the creation of value".
- **Viability verification**. This guidance helps public servants think through the potential benefits to be achieved and the efforts that the public entity must be willing to make to achieve them. This makes for good practice and helps avoid "implementation for the sake of implementation".

In addition to the *Emerging Technologies Handbook*, the government has issued a broader *Digital Government Handbook*. This Handbook requires that public servants justify the selection and use of any technology based on the specific needs of key stakeholders. It states, "before designing and developing a project that incorporates the use of technology, the entity must ask itself: What is the specific need or problem that it wants to solve? How does the use of technology support or provide the solution to the problem or need identified?"

*Source*: https://gobiernodigital.mintic.gov.co/692/articles-160829_Guia_Tecnologias_Emergentes.pdf and https://gobiernodigital.mintic.gov.co/692/articles-160829_Guia_Tecnologias_Emergentes.pdf.

All of these activities can be helpful for surfacing problems and matching them to relevant digital or non-digital solutions, including AI. However, governments can only do this satisfactorily if they have a solid understanding of their users' needs and seek to be responsive to them. This is discussed further in the next section.

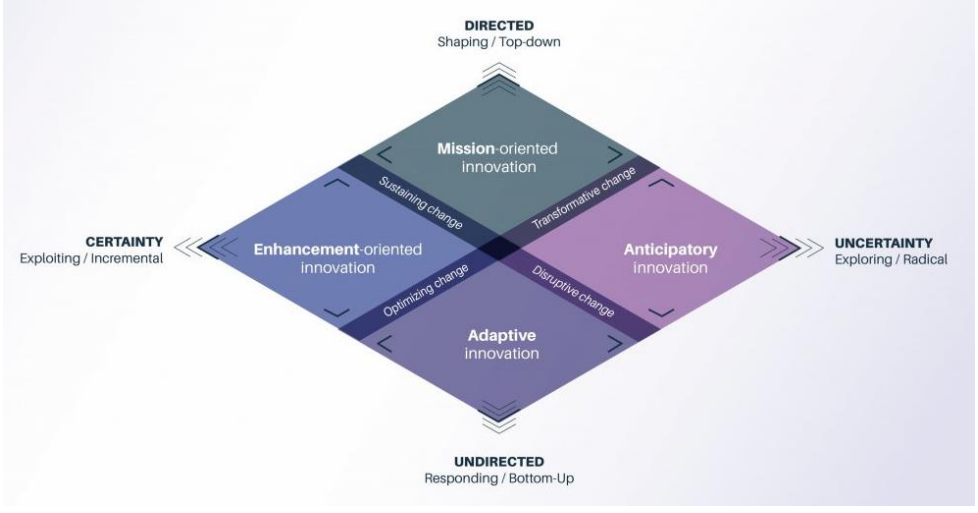
## Future preparedness through anticipatory governance

The impact of AI and other fast-paced innovations is hard to predict. Nonetheless, it is clear that they will have a profound impact not only which public services are offered (and how), but also how services are consumed. Such innovations are not contained to the realm of technology, but can transform societies as a whole, producing tectonic shifts in public values (e.g. transparency, privacy and accountability) associated with both public and private services. This has important implications for governments, who are called upon to proactively adapt to high levels of uncertainty linked to unforeseen events and new opportunities. Traditional approaches, based on targeted interventions in specific policy areas, have proven inadequate to address the scale and complexity of emerging challenges. However, while not all crises can be foreseen, governments can work in new ways to recognise early signals and be prepared (Tõnurist and Hanson, 2020[30]).

While AI is clearly beginning to transform public sector operations in the LAC region, and LAC governments have developed numerous strategies and initiatives to leverage its potential, there is still much to learn about this technology, and much that remains unknown about how it will evolve both in the region and globally. There are also a number of major unknowns that will only be resolved over time as the technology develops and its potential uses are experimented with and explored. Waiting until those unknowns are resolved is a luxury most governments are unable to afford, as this would signify being a technology-taker rather than an option-shaper, a choice that could imply significant costs and disadvantages.

There are ways to manage these unknowns and uncertainties, however. Through its work with countries worldwide, OPSI has identified four primary facets to public sector innovation and has developed a model to help governments achieve a portfolio approach to innovation (Figure 5.18). One of these four facets is *anticipatory innovation*. This term refers to detecting weak signals and engaging with them before a new course or paradigm is locked in. Anticipatory innovation is the most underdeveloped facet of innovation in governments today, and perhaps the most difficult. It is sometimes viewed as too "forward thinking" – either overtly disconnected from the apparent core business of an organisation or simply misunderstood. It can also challenge values by calling into question the current state of things, including peoples' beliefs and assumptions about how the world works.

### Figure 5.18. Facets of public sector innovation



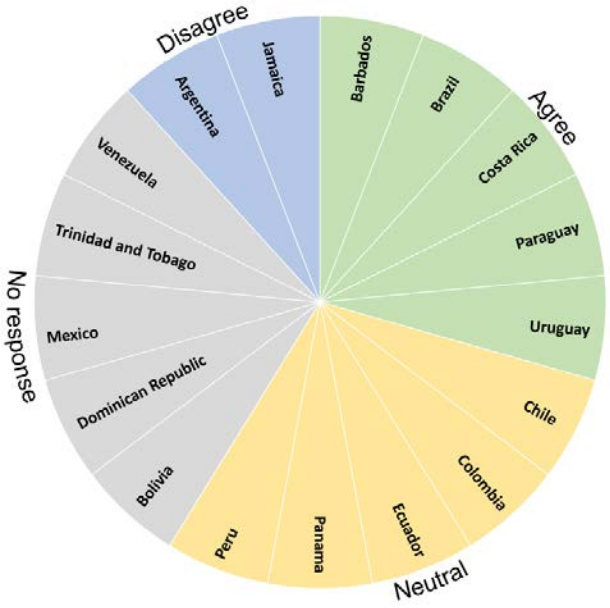

*Source*: https://oe.cd/innovationfacets.

One of the most challenging aspects of anticipatory innovation is convincing government leaders and public servants that it works and can be meaningful, even if the results may not be as immediate or clear as identifying cost savings (enhancement-oriented innovation) or achieving a major and ambitious goal (mission-oriented innovation). However, governments are increasingly recognising the importance of anticipatory thinking, especially in light of recent events such as the ongoing COVID-19 crisis, which came as a surprise to most and continues to shock systems and governments around the world. Many are seeking out weak signals, innovating to predict and explore potential futures, and some are converting predictions into action in order to more actively shape them.

An underlying principle of anticipatory innovation is that, if there are multiple possible futures, but no certainty as to which one will occur or even whether one might be more preferable or desirable, then it becomes risky to over-invest in any one set of assumptions about the future. In a context of high uncertainty, there is value in building foresight abilities, flexibility and agility into systems and processes and keeping alive a range of different options, so that it is possible to shift or pivot to alternatives as more is learned about what is needed. This suggests that governments need to get better at engaging with weak signals that indicate how the future may play out at an earlier stage. This will enable them to understand where and when to best intervene, without waiting for processes and trends to become locked in, and thus expensive and difficult to shift. The "future of work" represents such an unknown that governments are working to better understand, brace for and shape the outcome.[53]

In the LAC region, digital government representatives from a handful of countries indicated that they believe their public service is prepared to deal with increasing change and disruptive technologies (Figure 5.19). As whown on earlier in Figure 5.8, only a few countries were of the opinion that public servants fear AI and emerging technologies may negatively affect their jobs.

### Figure 5.19. The public service is prepared to deal with increasing change and disruptive technologies



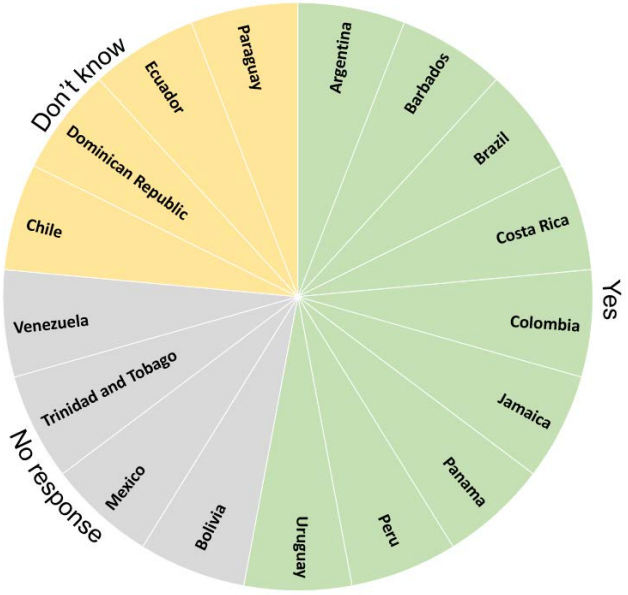

*Source*: OECD LAC Digital Government Agency Survey (2020).

This represents a fair degree of confidence and optimism. Such sentiment can be positive, but in general, there is much more that can be done to ensure governments are informed about potential future trajectories when it comes to AI, and that such information is actionable. This is not a LAC-specific challenge, as

anticipatory innovation concepts are relatively new and practically no governments today are mature in this area.[54]

One of the key elements of anticipatory innovation is picking up on weak signals through data. The emergence of new methodologies such as big data analytics and AI has increased the feasibility of such ventures. The depth and breadth of the data available to governments is growing at an almost exponential rate, paralleled by the evolution of increasingly powerful tools able to make sense of this information. As the OECD report *The Path to Becoming a Data-Driven Public Sector* (OECD, 2019[14]) argues, good data coupled with ethical and smart applications of such data can help create more anticipatory public sectors, as governments are better able to forecast what lies beyond their horizons. Armed with enhanced visibility of these signals, prediction and modelling techniques underpinned by data act as support mechanisms for governments, allowing them to detect potential social, economic or nature-related developments, and thus better assess the need to intervene, design suitable policy measures and anticipate their expected impacts with greater precision (OECD, 2019[14]). The OECD survey of LAC digital government agencies shows that many LAC countries are leveraging these approaches (Figure 5.20), in most cases to support evidence-based policy making and the design and delivery of public services. For instance, Panama's National Institute of Women (Instituto Nacional de La Mujer, INAMU) has developed a system of indicators against which measurements are regularly taken in order to provide an analytical basis for the creation of public policy (OECD, 2019[16]). In another example, the city of Cali, Colombia uses Internet of Things (IoT) sensor data to predict risk of flooding (OECD, 2018[12]).

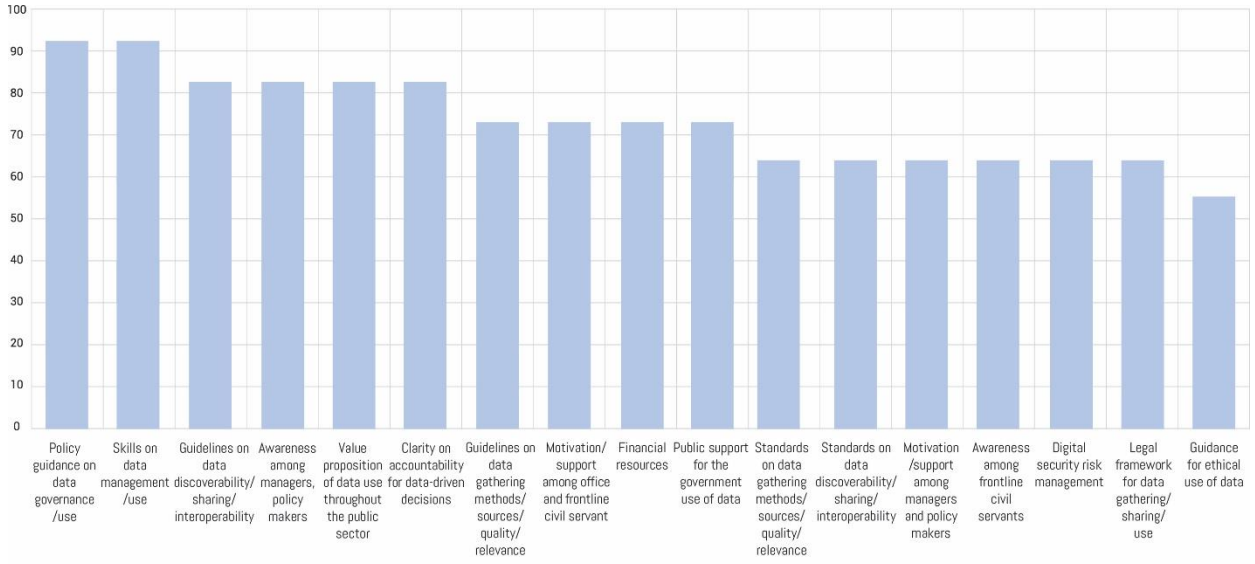
## Figure 5.20. Countries that use data to anticipate and plan government interventions




*Source*: OECD LAC Digital Government Agency Survey (2020).

However, the survey also indicates some potential challenges in this area. Of the countries who responded to relevant survey questions,[55] a majority answered that they face many moderate or strong barriers in their efforts to use data for the purposes of anticipation and planning (Figure 5.21).[56]

## Figure 5.21. Deficiencies expressed by a majority of LAC countries for using data for anticipation




*Source:* OECD LAC Digital Government Agency Survey (2020).

A common approach used worldwide to provide a strategic direction for anticipatory capacity is to build organisations with a mandate to explore potential futures, and to install agile processes that allow government to act on weak signals and make changes today to shape tomorrow (see the example in Box 5.14). The OECD has identified a few LAC government initiatives that seek to bring about a future-oriented and agile environment that can assist them in coping with and adapting to future changes and shifts:

- In Brazil, the Centre for Management and Strategic Studies (CGEE),[57] an organisation linked to MCTIC, has a mandate to anticipate futures through different predictive and prescriptive policy initiatives (Tõnurist and Hanson, 2020[30]). The Brazilian National Development Bank (BNDES), while not related to digital government or AI per se, also engages in futures exploration (Tõnurist and Hanson, 2020[30]), further demonstrating the underlying interest in – and the existence of related competencies to – a future-informed approach.
- Chile's national AI strategy includes several components that seek to make it more future-fit. The strategy seeks to instil "permanent exercises of anticipation", and to build prospective, future-oriented agendas on AI ethics and AI regulation (seeking to implement "a permanent and agile review and update of regulations, so that it is possible to keep up with the speed of progress").[58] It also calls for the development of an institutional framework that is sufficiently agile and general to respond to changes and the rapid development of technology. In addition, the strategy underlines the need for future-oriented labour policies as part of a pledge to actively detect the most vulnerable occupations, anticipate the creation of new jobs by AI, and support workers in the transition to new occupations, while minimising their personal and family negative impacts. The associated action plan calls for the creation of a "Future Team" to develop anticipatory methodologies that will help prepare for emerging technologies.
- In Colombia, the proposed *Task Force for the Development and Implementation of AI*[59] includes a "visionaries team" capable of looking to the future and anticipating technological development, to the extent possible.[60] This prospective role is also a function of *Colombia's AI Experts Mission.*[61]
- In Mexico, the government has established "Datalab" as a specialist data laboratory to focus on strengthening anticipatory governance approaches, with a view to generating data-based predictions about populations at risk of disease, zones with emerging environmental problems and future arising conflicts, among others (OECD, 2018[17]).

- Uruguay's National Digital Agenda[62] affirms that the country "has the conditions to address current challenges and anticipate future challenges of the information and knowledge society, and thus contribute to accelerating its social and economic development". Its national digital government strategy commits to actions to "exploit existing information and use it to move towards a more proactive attitude that anticipates the needs of citizens and prevents problems".

### Box 5.14. Policy Horizons Canada

Policy Horizons Canada is a national government organisation that conducts foresight, with a mandate to help the Government of Canada develop future-oriented policy and programs that are more robust and resilient in the face of disruptive change on the horizon. It has built up distributed capabilities in the use of foresight knowledge and insights. The organization uses foresight methodologies to produce research, products, experiences, training programmes and communications to help federal government policy makers and operations designers create more resilient policies and programmes. This is achieved by providing policy makers with a rich view of possible futures and working with policy makers to help them understand and shape plans relative to these possibilities.

Issues are sourced from individuals working across government at all levels and in all departments, although those selected for deeper study are determined by the team to be most relevant across the broad government landscape. Once the research agenda has been determined, it is validated by a steering committee of deputy ministers that meets quarterly. The committee also reviews work in progress and helps guide the department's future operational plans.

Policy Horizons provides foresight services across the federal landscape. To this end, they convene and support a network of foresight practitioners throughout the government, with the goal of ensuring that as many public servants as possible can make use of the insights they have derived from their own projects, as well as foresight methodologies generally to fulfil their agencies' missions. This network currently consists of approximately 80 people from across the federal government who support individuals within their own agency in applying foresight insights and methodologies. Policy Horizons also has a formal partnership with Canada's School of Public Service, an agency with a mission to educate and support public servants in advancing their career, and to provide foresight materials and training to public servants.

*Source*: (Tõnurist and Hanson, 2020[30]).

These types of efforts represent positive initial steps and commitments for the region. The OECD OPSI has found that while governments around the world are making progress in building capacity to perceive weak signals and use them to inform decision making, they have not yet built the systemic foundations necessary to achieve the full potential of anticipatory, future-informed innovation. To advance progress in this area, OPSI has developed a new action-oriented research focus on anticipatory innovation governance (AIG) (Tõnurist and Hanson, 2020[30]).[63] AIG is a meeting ground where knowledge about plausible futures becomes actionable through innovation. It embodies a broad-based capacity to actively explore options as part of broader anticipatory activities, with the aim of spurring innovations connected to uncertain futures in the hope of shaping the former through innovative practice.

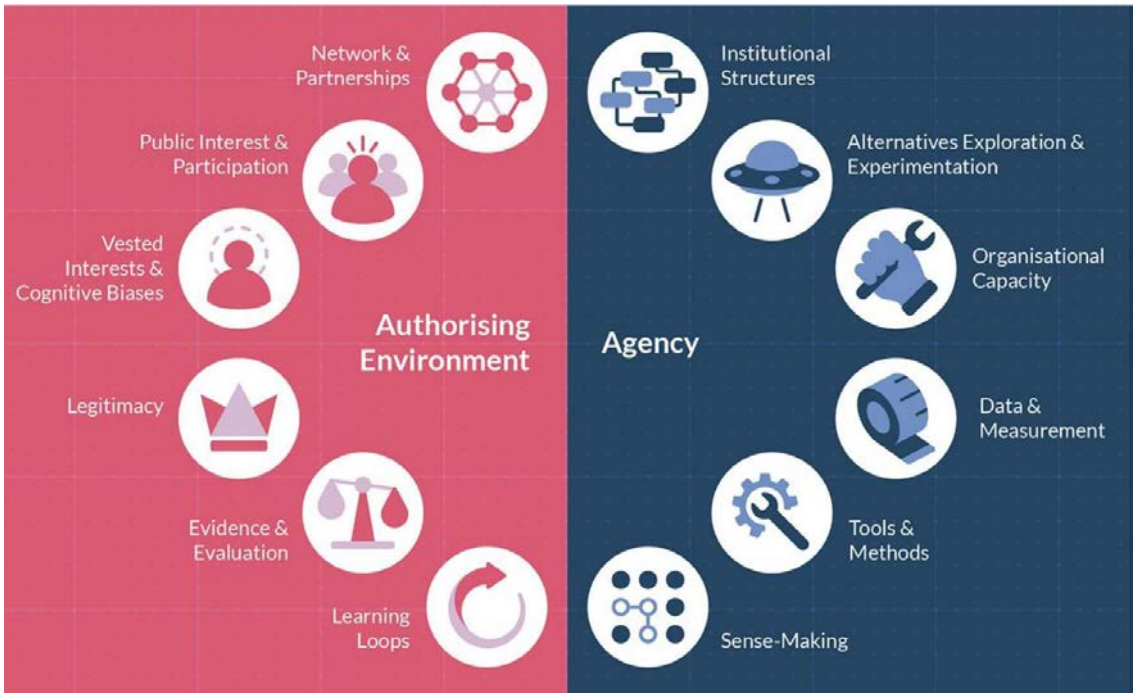
OPSI's work with governments has uncovered two key core components that underpin AIG efforts and can help make them a reality:

1. Building on the **agency** of actors within the governance process. Agency involves the exploration of alternatives, tools and methods, institutional structures, organisational capabilities, and the availability of data and resources for innovation.

2. Creating an **authorising environment** in which anticipatory processes can thrive. The authorising environment will involve issues such as legitimacy, vested interests, public interest and participation, networks and partnerships, evidence and evaluation, and learning loops.

As seen in Figure 5.22, each approach captures a variety of specific mechanisms of AIG. In addition, AIG calls for a new approach to policy making based on continuous foresight scanning and feedback loops (Table 5.1).

## Figure 5.22. Mechanisms of anticipatory innovation governance




*Source*: (Tõnurist and Hanson, 2020[30]).

## Table 5.1. New policy-making approach for anticipatory innovation governance

| | Traditional policy making | Anticipatory Innovation Governance |
|---|---|---|
| **Evaluation approach** | Evaluation as the last stage of an often multi-year policy cycle. | Continuous evaluation and assessment; exploring future effects (e.g. changes in public values, ethics, intergenerational fairness) |
| **Policy cycle** | Long research and drafting cycles, with policy implementation conducted accordingly. | Recognition that case-effect relationships are impossible to know in advance, and that the policy implementation itself changes the problem space. |
| **Research and analysis approach** | Exploring the problem space through research and analysis. | Exploring the problem space through small-scale real-world experiments and innovation. |
| **Research and analysis focus** | Research and analysis focused on what has happened. | Research and model development focused on a range of possible futures. |
| **Participation** | Policy domain experts and primary affected population. | System of related policy areas and affected populations, which changes over time. |

AIG does not mean predicting the future, but rather asking questions about plausible futures and then acting upon them by creating room for innovation (e.g. through regulation), or building out the mechanisms of AIG to explore different options in government itself. Most governments today do not have a system in place for anticipatory innovation governance (such mechanisms are usually siloed under specific policy fields or functions, such as foresight). This is the case with LAC countries as well as most other governments around the world. Over time, as LAC governments continue to mature in regard to known factors than can contribute to successful and trustworthy AI adoption in the public sector, it would serve them well to begin focusing on potential future effects. The OECD report *Anticipatory Innovation Governance: Shaping the future through proactive policy making* can help them to get started.[64]

Because AI presents tremendous unknowns for the future of all sectors, this section has focused on anticipatory innovation, which is one of the four primary facets of innovation identified by OPSI (Figure 5.18). However, the three other facets are also relevant to digital innovation. The forthcoming report *Going Digital: The State of Digital Government in Latin America*, expected to be published in 2022, will cover digital innovation more broadly than just AI, as well as LAC governments' relative strengths and weaknesses in regard to managing a portfolio of innovation.

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## Notes

[1] See (OECD, 2021[5]) for additional relevant material, including skills and competencies for digital government leadership. See also the *OECD Recommendation on Public Service Leadership and Capability* (OECD, 2019[31]) for information on how countries can instil values-driven culture and leadership, and ensure skilled and effective public servants, and responsive and adaptive public employment systems.

[2] The National Council for Economic and Social Policy (CONPES, in Spanish) "is the highest national planning authority [in Colombia] and serves as an advisory body to the Government in all aspects related to the economic and social development of the country. To achieve this, it co-ordinates and guides the agencies in charge of economic and social management in the Government, through the study and approval of documents on the development of general policies" (Source: www.dnp.gov.co/CONPES/Paginas/conpes.aspx).

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[7] A full review of broader co-ordination mechanisms is beyond the scope of this review. As the OECD has not yet determined the utility of AI-specific co-ordination mechanisms for AI in the public sector, no categorisation or visualisation of capacities is provided for this subject.

[8] Accordingly, no categorisation or visualisation of capacities is provided for this subject.

[9] For a background discussion on the importance of data for AI systems, see the "Data as fuel for AI" section of *Hello, World: Artificial Intelligence and its Use in the Public Sector* (https://oe.cd/helloworld).

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[30] www.gub.uy/agencia-gobierno-electronico-sociedad-informacion-conocimiento/lab.

[31] Additional details about these sandboxes can be found in the OECD report *Hello, World: Artificial intelligence and its use in the public sector* (https://oe.cd/helloworld, available in English and Spanish). A follow-up review of these efforts in January 2021 indicates that they are still under development.

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[53] The OECD estimates that 14% of jobs in member countries are at high risk of being automated by AI, and that automation will radically change the tasks that need to be performed in 32% of jobs. See www.oecd.org/future-of-work for the OECD's efforts on the future of work.

[54] Due to this finding, the OECD did not deem it appropriate to include a visualisation of the relative capacities of LAC countries for this section.

[55] The survey question was, "How strong are the following specific barriers to using data for improved policy making, service design and delivery and organisational management?", with a specific focus on "anticipation and planning". The countries that responded to these questions were Barbados, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Jamaica, Panama, Paraguay and Uruguay. Argentina completed the survey, but did not provide responses to these questions.

[56] The categories for which the majority of countries did not indicate moderate or strong barriers were: insufficient IT infrastructure (36%) and insufficient data storage capacities (27%).

[57] www.cgee.org.br.

[58] www.oecd.ai/dashboards/policy-initiatives/http:%2F%2Faipo.oecd.org%2F2021-data-policyInitiatives-24840.

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[61] This organisation seeks to advise the national government on the formulation of AI policies and provide state-of-the-art information on the development of AI. See the conceptualization document under consultation: https://dapre.presidencia.gov.co/AtencionCiudadana/convocatorias-consultas/consejo-internacional-de-inteligencia-artificial-para-colombia.

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