



Occasional Paper Series

Number 53

Digitalization of Public Administration in Federal Countries: Challenges, Opportunities, and a Look Ahead

**Silvana Gomes
Eric Champagne
André Lecours**

The Forum of Federations, the global network on federalism and multilevel governance, supports better governance through learning among practitioners and experts. Active on six continents, it runs programs in over 20 countries including established federations, as well as countries transitioning to devolved and decentralized governance options. The Forum publishes a range of information and educational materials. It is supported by the following partner countries: Australia, Brazil, Canada, Ethiopia, Germany, India, Mexico, Nigeria, Pakistan and Switzerland.

Digitalization of Public Administration in Federal Countries: Challenges, Opportunities, and a Look Ahead

Silvana Gomes
Eric Champagne
André Lecours

© Forum of Federations, 2022
ISSN: 1922-558X (online ISSN 1922-5598)

Occasional Paper Series Number 53
Digitalization of Public Administration in Federal Countries: Challenges, Opportunities, and a Look Ahead
By Silvana Gomes, Eric Champagne and André Lecours

For more information about the Forum of Federations and its publications, please visit our website: www.forumfed.org.

This is a joint collaboration between the Forum of Federations and the Center on Governance



Forum of Federations
75 Albert Street, Suite 411
Ottawa, Ontario (Canada) K1P 5E7
Tel: (613) 244-3360
Fax: (613) 244-3372
forum@forumfed.org



Centre on Governance
Faculty of Social Sciences, University of Ottawa
120 University Private
Social Sciences Building
Room 5043
Ottawa, Ontario, Canada K1N 6N5

Suggested Citation for Forum of Federations Publications:

Silvana Gomes, Eric Champagne and André Lecours, Digitalization of Public Administration in Federal Countries: Challenges, Opportunities, and a Look Ahead (Forum of Federations, Occasional Paper Series, Number 53, 2022).

Abstract

The digital transformation of the public sector has been reshaping how governments function and deliver public services worldwide. However, the effects of this digital-oriented shift on federal countries remain largely unaddressed. We need to know more about the impacts of digitalization on the distribution of power, intergovernmental relations, coordination, and policymaking in multi-tiered systems. Fundamentally, an important question still lacks a clear answer: is digitalization favoring the empowerment of central governments in federal government settings? Based on a comprehensive desk research, this paper aims to analyze whether the advancement of digitalization policies has been giving room to centralizing devices in federal countries. To this end, we explore the impacts of digitalization across levels of government in four domains: intergovernmental relations, collaborative action, digital policies implementations, and accountability. We study the main challenges and opportunities that federations face to thrive in the digital era, and the interplay between digitalization and centralization. We conclude that while there seems to be a trend towards centralization in certain areas, these centralizing devices usually coexist with devolved mechanisms.

Résumé

La transformation numérique du secteur public a remodelé la façon dont les gouvernements fonctionnent et fournissent des services publics dans le monde entier. Cependant, les effets de cette évolution vers le numérique dans les pays fédéraux demeurent largement ignorés, notamment en ce qui concerne les impacts de la numérisation sur la répartition des pouvoirs, les relations intergouvernementales, la coordination et l'élaboration des politiques dans les systèmes à plusieurs paliers gouvernementaux. Fondamentalement, une question importante n'a toujours pas de réponse claire : la numérisation favorise-t-elle la concentration des pouvoirs des gouvernements centraux dans les systèmes fédéraux? Sur la base d'une recherche documentaire, cet article vise à analyser si l'avancement des politiques de numérisation a donné lieu à des dispositifs centralisateurs dans les pays fédéraux. À cette fin, nous explorons les impacts de la numérisation à tous les niveaux de gouvernement dans quatre domaines : relations intergouvernementales, action collaborative, mise en œuvre de politiques numériques et responsabilité. Nous étudions plus particulièrement les principaux défis et opportunités auxquels les fédérations sont confrontées pour prospérer à l'ère numérique, et l'interaction entre numérisation et centralisation. Nous concluons que s'il semble y avoir une tendance à la centralisation dans certains domaines, ces dispositifs centralisateurs coexistent généralement avec des mécanismes décentralisés.

Introduction

Digital government, digital transformation, and digitalization are some of the buzzwords that gained momentum as governments race to introduce technological resources for the remaining desk-bound governmental activities. The multi-faceted nature of this race is reflected in the competing definitions that have been proposed for this transformation. Most scholars and users still employ the term *e-government*, a word that was coined at the outset of the phenomenon (Fang, 2002; Janowski, 2015). For the purposes of this work, we adopt the term *digital government* and define *digitalization of the public administration* as an overarching transformation of the public sector's activities, policies, institutions, culture, and relationships (internal and external) that is steered by information and communication technologies (ICTs).

Throughout the past two decades, a profuse literature on digital government has emerged and plunged into various aspects of the phenomenon (Gil-Garcia et al., 2018), although little has been said about the specific effects of digitalization in federal arrangements. Many case studies dealing with federal states have been produced, although engagement with key discussions surrounding federalism is rare, incidental, or absent. Many of the works that address the relationship between digitalization and federalism are exploratory, thus with limited real-world examinations. It is worth noting that a significant portion of research on the topic relies on interviews of elites with a small number of total subjects sampled as the primary methodological tool to gather and analyze data.

The relationship between federalism and digitalization can be understood mainly through two different approaches. First, setting digitalization as the factor that is changed first and federalism as the factor that is affected by that change, this approach seeks to explain how the intensification of digitalization affects the dynamics of power distribution, intergovernmental relations, coordination, and policymaking in federal systems. Conversely, when federalism is the factor that is changed first and digitalization is the factor that is affected by that change, the analysis then turns to the ways through which federalism acts upon the digital transformation of the public administration, either propelling or hampering it. Given the scope of this work, we will primarily rely on the first approach, albeit recognizing that both are capable of shedding light on important – and distinct – aspects of digitalization in federal countries.

Amid the different possibilities for looking at the relationship between federalism and digitalization one fundamental point that remains unclear is this: does digitalization favor the empowerment of central governments? This core question will guide the analysis that we develop in the following sections. We begin by exploring the impacts of digitalization across all levels of government, focusing on four relevant areas (intergovernmental relations, collaborative action, implementation of digital policies, and accountability). Next, we turn our attention to some of the most pressing challenges and opportunities that digitalization entails for federal countries. After that, we analyze the ambiguities of digitalization in terms of clarifying centralizing and decentralizing strategies. Finally, we summarize our main findings and provide a selection of prospective research issues.

The Impacts of Digitalization across Levels of Government

The impacts of digitalization across levels of government are varied and reach a wide range of policy areas and administrative activities (Edmiston, 2003; Tolbert and Mossberger, 2006; Linders, 2012). This section briefly presents some of the most significant impacts that the transition towards a digital-driven public administration has had for federal countries in four domains: *intergovernmental relations*, *collaborative action*, *implementation of digital policies*, and *accountability*.

The promotion of digitalization requires increasing levels of two important activities: coordination and integration. **Coordination** is the practice of organizing the activities and resources of different actors to implement policies coherently and effectively. **Integration** is the practice of joining up different organizations and information systems to streamline the delivery of public services (Luna-Reyes et al., 2007). This need for an integrative approach gains even more nuances in federal contexts since **allocating power and responsibilities across a constellation of autonomous governmental entities may yield overlapping jurisdictional areas and unequal distribution of resources** (Gladkova and Ragnedda, 2020). In contrast, recent technological advancements can enable better communication channels and platforms for coordination, although further research is needed to ascertain how administrative bodies are reaping these potential advantages.

Adopting a citizen-centered perspective and an integrated approach to service delivery are two important factors that shape the design of digital government policies. The first factor requires finding solutions that meet citizens' needs and are easy to use. To do so, first find target users in the first round of a digital solution, adding gradual enhancements in stages to improve a service even before its public launch. The second factor – integrated service delivery – requires civil servants across departments and jurisdictions to join up resources to render public services in digital formats. However, bringing together multiple actors creates challenges¹ that may give rise to frictions that can hamper the ultimate goal of providing services jointly. Kernaghan (2007, p. 123) suggests that drafting detailed agreements to govern joint initiatives could solve potential tensions in inter-jurisdictional integrated service delivery. Nonetheless, there are significant transaction costs associated with this approach, such as negotiating the terms of the deal, addressing incomplete and asymmetrical information, and managing uncertainty. Besides, agile development techniques, now used increasingly in producing digital products and services call for a margin of freedom and discretion that may be at odds with the restrictions introduced by overly descriptive agreements.

The successful delivery of digital public services requires a high degree of coordination and integration across different levels of government. This government-to-government (G2G) facet of digitalization encompasses the ways different governmental structures interact, exchange resources and experiences, and contribute to common goals. The implementation of *one-stop* and *no-stop* shops, which are two recent hallmarks in providing online services, shows that G2G relations are part and parcel of an efficient provision of digital services. One-stop shops are governmental platforms that represent a single point of contact to information and services from several departments. In turn, no-stop shops go one step further and involve a proactive stance, whereby citizens are granted public benefits and services by default upon completion of life events. Despite their differences, these two models are based on the engagement of multiple governmental actors across vertical and horizontal structures.

As Scholta et al. (2019a, p. 12) suggest in their framework for the transition from one-stop to no-stop platforms, three dimensions should be taken into consideration:

1. integration of data collection;
2. integration of data storage; and
3. purpose of data use.

¹ For instance, accommodating distinct views on the development of the project at hand, arriving at a funding scheme, creating synergy between different organizational cultures, and garnering support from political leaders at different levels of government.

Different departments work closely together to ensure that information systems and data are compatible, interoperable, and, therefore, reusable.

Delivering public goods and services from a digital-driven perspective depends on the *collaboration between levels of government* to provide agile, user-centered, and responsive solutions (Mergel, 2016). Digital leaders – public agents (both elected officials and career bureaucrats) who influence the dissemination of information technology through governmental structures (Borins and Brown, 2007, p. 278) – are key enablers of collaboration across organizational boundaries, an important pillar of major digitalization projects. One of the major challenges for intergovernmental collaboration is the implementation of interoperable systems and databases, which demands a high degree of joint efforts from public authorities (Gottschalk, 2009; Pardo et al., 2012). In many instances, central administrations have resorted to a top-down approach to push interoperability forward. Against the German background, Buchmann (2017) explored the issue of information management in smart grids through the lens of fiscal federalism. The author concluded that governments tend to apply uniform approaches that undermine innovation and efficiency amid the heterogeneous preferences that emerge in a federal context.

In Brazil, authorities from all levels can sign an agreement to enter the National Network for Digital Government, a collaborative initiative that aims to promote mutual learning and the co-creation of innovative solutions. By joining this initiative, the parties agree to follow the federal government's guidelines and rules about digital public services. The parties must also agree to prioritize the adoption of the digital platforms that the federal government runs in exchange for technical and financial support. While common ground is important to ensure compatible public services across jurisdictions, excessive standardization may render digital services poorly responsive to specific needs. In this Brazilian initiative, creating an ongoing intergovernmental forum for cooperation and mutual support is an important step to achieve the goals set forth by the country's national digital transformation strategy. However, encouraging local and/or experimental solutions can be at odds with the network's requirement to abide by the federal framework. Over two years after the National Network for Digital Government was launched, 14 states (out of 26) and 58 municipalities (out of 5,570 municipalities and including 10 state capitals) have joined the initiative, whose goal is to secure the adherence of all states by 2022.

These initiatives reflect a trend towards the adoption of centralized platforms to streamline interactions between governments, businesses, and citizens. Platforms such as Digital Austria², the Australian government's marketplace for the acquisition of ICT goods and services—that is, information processing and communication by electronic means³ and intergovernmental solutions such as the Canadian Multi-Jurisdictional Registry Access Service⁴ – an integrated business registry – have gained traction in recent years. Such initiatives share the goal of rendering public information and services more easily accessible to a variety of audiences. This objective aligns with many of the tenets underlying digital and open government – such as transparency and efficiency– but, in turn, it raises some challenges both in terms of design and implementation. The challenges include getting all levels of governments to take part in decisions about digital policies that, to be implemented, require the provision of adequate funding, as well as political and technical support.

² <https://www.digitalaustria.gv.at/>.

³ <https://marketplace.service.gov.au/>

⁴ <https://www.isc.ca/CorporateRegistry/Pages/MRAS.aspx#:~:text=The%20Multi-jurisdictional%20Registry%20Access%20Service%20%28MRAS%29%20is%20a,Saskatchewan%2C%20and%20Corporations%20Canada%20are%20participating%20in%20MRAS.>

The ***implementation of digitalization policies is critical at the local level***, where most challenges involve executing operational tasks and responding directly to end-users. However, according to the OECD's 2019 Digital Government Index (OECD, 2020b, p. 62), 44% of countries with a specific digital government division do not have a coordination body or mechanism that includes the participation of local governments. Despite some variation across cities, several studies suggest that political support and other institutional variables are crucial determinants of digitalization at the local level (Wohlers, 2009; Dias, 2020; Ingrams et al., 2020).

The implementation stage is also where tensions between top-down and bottom-up approaches tend to flourish. Conflicting values and views on implementation can lead to delays and even project failures (Hellberg and Grönlund, 2013), especially when a top-down approach is adopted (De Corte et al., 2018). To avoid these problems, executives from all levels should coordinate to make sure that their values and strategies align, which requires expanding the participation of local governments in decision-making processes.

Accountability is another area where the impacts of digitalization can be felt in important ways (Lindquist and Huse, 2017). Since its early days, digital government has been linked with an accountability agenda that seeks to promote a pattern of governance that places ***transparency and compliance at the forefront of governmental activities***, even though growing concerns with data governance, privacy protection, and cybersecurity have added new elements to this agenda (Cullen, 2009; Macmanus et al., 2013; Thompson et al., 2015). In this sense, openness is a core tenet that shapes how governments provide access to information and integrate different sources of data (Kuiler and McNeely, 2018).

The open government agenda has occupied a central position within digitalization for over a decade. Political support and leadership are crucial elements to foster transparent, collaborative, and participatory policies that strengthen accountability. In Mexico, the provision of extensive support by central agencies has enabled open government policies (OECD, 2016, p. 120). More recently, discussions about data protection and management have added new nuances to openness and accountability. Countries worldwide have been setting forth further – and stricter – regulations on users' privacy and data usage, which are usually accompanied by the creation of data protection agencies that play oversight and enforcement roles⁵. For local governments, this means that smart city projects have to perform the necessary adjustments to comply with new data and privacy regulations (Stefanouli and Economou, 2018; Bu-Pasha, 2020).

Main Challenges and Opportunities for Federal Countries

The journey towards digital-driven government draws on experimentation, mutual learning, and cooperation. All of this creates exciting prospects for federal countries. On the flip side, federal countries seem to be lagging behind their unitary counterparts in much of the digitalization process. From the ten highest-ranked countries in the *very high* stream of the United Nations' E-Government Development Index for 2020⁶, only two (Australia and the United States) have a federal system of government. In the domain of open data, from the sixteen states that ranked above the average score for OECD member

⁵ In the European Union, the General Data Protection Regulation (GDPR) established a comprehensive set of protective measures, including the creation of national Data Protection Authorities in each member state. For an overview of their competencies, see Giurgiu and Larsen (2016).

⁶ Available at: [https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20\(Full%20Report\).pdf](https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf)

and partner countries in the Open, Useful and Reusable Data (OURdata) Index for 2019⁷, four of them (Canada, Australia, Mexico, and Austria) were federal countries.

These examples reflect a major trend of unitary states to outperform federal countries in different dimensions of digitalization. A good starting point to understand the hurdles to digitalization in federal systems may be found in its interplay with broader federal and multi-level governance agendas (Jarger, 2002). In a comparative study between Canada and Italy, Ubaldi and Roy (2010) indicate that both countries experience a high level of differentiation across sub-national entities and need greater political leadership to capitalize on the potential benefits associated with federalism.

The implementation of digital policies in federal settings is fraught with some obstacles that stem from the complexity of a multi-tiered system of governance and digitalization, which is an intricate endeavor in and of itself.

Scholta et al. (2019b) argue that there is a mismatch between federalism and digitalization on two main grounds:

1. societal demand for agile action *versus* slower responses and administrative processes in federations; and
2. societal demand for clear jurisdiction and responsibilities *versus* confusing assignment of duties across governmental entities.

Similarly, Cargnello and Flumian (2017) assert that policy issues are increasingly complex, often spreading through different jurisdictions. In their reflection about the changing landscape of Canada's multi-level governance system, the authors argue that institutions and practices that traditionally characterized its political and administrative structures can be counter-productive in today's digital-driven world. Therefore, federalism and digitalization may clash on governance and institutional grounds, especially when digitalization is conceived as a shift from an analog to a digital paradigm. This conception disregards the cultural, organizational, and institutional changes that are woven into digital transformation.

Along with these issues, federal countries are prone to inter-jurisdictional conflicts that arise from the own distributed nature of power in decentralized settings. In their analysis of the digital infrastructure policies adopted by provincial governments in Canada, Rajabiun and Middleton (2013) identified that federal regulatory barriers and competence over telecommunications and competition issues constrained provinces in taking further action to expand broadband networks. Similar findings were reported by Ali and Osmanaj (2020) in their assessment of cloud computing adoption by local authorities in Australia, which has been impaired, among other barriers, by confusing central guidelines and regulations that are poorly supportive to municipal administrations.

If the challenges to advance digitalization in federal systems are significant, so are the opportunities to combine efforts and provide better public goods. Federal countries are well-positioned to build on policy learning and leverage digital services. In Switzerland, for example, the adoption of a bottom-up approach

⁷ Available at: <http://www.oecd.org/governance/digital-government/ourdata-index-policy-paper-2020.pdf>. It is worth noting that Hungary, Iceland, Turkey, and the United States were not available and, therefore, these countries were not included in the ranking.

strengthened policy learning across cantons and was highly valued by public officials who engaged in the implementation of digitalization projects (Neuroni et al., 2011).

The creation of joined-up projects is an important step to steer integration and deliver better public services (Chen et al., 2007; Kwon et al., 2009). The spread of data collaboratives (Ruijter, 2021) – partnerships to collect across agencies, levels of government, and non-state actors to tackle collective problems is something that can be done well in federal countries. This initiative relies on exchanges between different actors to nurture platforms and services that depend on the information provided by multiple sources. Engleder (2013) stresses that the success of intelligent transport systems in Austria stems from the implementation of specialized units at the state level. The author also found that the participation of states in collaborative projects allowed them to benefit from the accumulated knowledge that spans through different organizational structures. In the same way, Yun and Opheim (2010, p. 78) showed that the participation of states in professional leadership networks is a relevant variable to explain the diffusion of digital services across subnational governments in the United States.

Consortia, alliances, partnerships, and other types of joint endeavors are important devices to overcome the individual limitations of subnational and local governments to pursue complex, iterative, and often risky projects in the domain of digitalization. Collaborative innovation can take different forms and include actors such as state-owned enterprises. In some Swiss municipalities, partnerships between governments and local public or semi-public utility companies have been formed to support smart city projects, even though these arrangements have also given rise to conflicts of values between the concerned actors (Neumann *et al.*, 2019). How these joined-up structures divide powers is an important factor in ensuring the success of collaborative innovation and empowering subnational and local governments to deliver the right digital solutions. In this sense, it is important to find a balance between standardization, flexibility, and experimentation to reap the potential benefits of collaborative projects.

Collaboration across government units can lead to a large-scale economy that is often a key advantage of centralized arrangements. Shared service strategies play a relevant role here, especially among local governments. Based on a multiple case study of German municipalities, Niehaves and Krause (2010) concluded that cost pressures, political support, and prior history of cooperation among local governments favor the adoption of shared frameworks. Also, different governments – whether within the same or across different levels – can make a more efficient use of their technological services by pooling them and acting in a coordinated manner (Chen, Pang, and Kumar, 2021).

Federal settings make room for the kind of iterative and experimental development of solutions that digitalization often requires. Innovation labs constitute a hub of collective policy design that favors the craft of locally-tailored services (Tönurist, Kattel, and Lember, 2017). These labs can be key players to support the development of bottom-up solutions, particularly at the local level (Soe and Drechsler, 2018). Besides, as Mello and Ter-Minassiam (2020, p. 17) suggest, subnational governments can host pilot projects for testing and subsequent expansion to other jurisdictions. This approach to scaling up solutions can engage a wider variety of stakeholders while promoting incremental enhancements.

Digitalization in Federal Countries: a journey towards centralization?

Digitalization is fueled by technological breakthroughs that present governments with opportunities to make the best use of their administrative capacities and improve the delivery of public services. Moreover, technological shifts can affect both centralization and decentralization in federations. Dardanelli *et al.* (2019, p. 15) argue that together with market integration, technological change can

induce greater centralization through several policy areas – such as economic regulation and transportation. However, this trend can be successfully resisted and does not affect all federal countries the same way. Still, efforts to push digitalization forward have frequently translated into centralizing measures in different national contexts. This outcome has a bearing on the central question that the present paper explores: is digitalization favoring the empowerment of central governments? Current evidence suggests that the centralization of technical resources, online platforms, and regulation at the central level coexists with devolved mechanisms. Levels of centralization and decentralization vary from country to country and tend to reflect national arrangements concerning the distribution of power and jurisdictional competencies. This means that in countries where centralization at the federal level prevails, digitalization follows suit and, hence, favors the empowerment of central governments.

The *government as a platform* perspective that emerged in the 2010s (O’Reilly, 2011) reinforces the trend to put together a vast portfolio of services in single access points for citizens, businesses, and public servants themselves. Together with the portfolio of federal bodies, many online national platforms comprise services that subnational and local governments render. These platforms are built upon a two-link strategy: on the one hand, data and operational tasks are centralized in a single platform; on the other, the actual delivery of services takes place in a highly decentralized manner. Individuals and organizations can request these services from anywhere, at any time, and often without the need to complete their demands with in-person procedures. Even though this combination between top-down direction and bottom-up implementation has already been identified in general administrative matters (Long and Franklin, 2004), its specific implications for digitalization are yet to be studied.

Steering organizations for central administrations include the creation of ministries and other dedicated structures at the central administration. For more decentralized bodies, these include digitalization agencies⁸ that are in charge of implementing and/or overseeing digital transformation policies by different departments. There are systematic difficulties in promoting an efficient use of information and communication technologies to support administrative reforms. To deal with these difficulties, Clarke (2020) notes that from the 2010s on, several countries watched the dissemination of digital government units in their central administrations. These units are usually assigned the double task of enhancing the delivery of digital services while reshaping management practices across government bodies. Digital government units are not exclusively situated at the federal levels. Sub-national governments have also adhered to this trend, as the creation of bodies such as the Ontario Digital Service (Canada) and the Flanders Information Agency (Belgium) attest.

The existence of regulations, departments, and processes at the central level does not preclude the creation of sub-national and local solutions. Many state and local level governments adopt their own digital government strategies. In Belgium, where digitalization projects are highly decentralized and take place primarily at the subnational level, each region has its digital policies and organizations. However, Belgium has in place a nationwide interoperability framework that applies to all levels of government (European Commission, 2020). In Switzerland, where central, cantonal, and local initiatives coexist, a recent study has found that top-down and bottom-up undertakings not always aligned. As a result, the country’s devolved governance system constitutes a negative influence on the introduction of emerging technologies (Mettler, 2019).

⁸ For instance, Australia has its Digital Transformation Agency (DTA), and Austria has set up a Digitalization Agency at the federal level.

The fact that some subnational and local governments have successfully established their digitalization programs may overshadow the resources' discrepancies among them. While the wealthiest urban areas usually have greater access to funds, technological apparatus, and high-skilled personnel, smaller towns and rural areas tend to be more dependent on higher levels of government to access these resources. In these places, revenues from intergovernmental transfers and federal grants have traditionally played a major role in ensuring an adequate provision of public goods and services. This continues to be the case in the digital era.

The operational and financial bottlenecks that fall upon lower levels of governments may undermine their autonomy to conceive and implement their digitalization programs. Moreover, most local administrations do not have the necessary resources – sufficient funding, cutting-edge technological assets, and skilled personnel – to accomplish digitalization goals, thus reinforcing their dependence on higher levels of government (Kruger and Gilroy, 2015). Besides, local governments may face additional restrictions in terms of decision-making power. They often act in consultative and advisory roles, making them subject to conditional assistance arrangements that bind them to policy frameworks over which they have limited discretion.

Innovation laboratories and smart city projects are frequently depicted as two major representatives of the move towards decentralization that digital governments often necessitate. In Germany, the establishment of digitalization laboratories operating under a joined-up umbrella has emerged as a practice that places users at the center of service design.

Recent research analyzed the establishment of German digitalization laboratories within the implementation of the Online Access Act. This research found that these organizations are a promising place for multi-level coordination. These organizations were able to create joined-up solutions from a user-centric perspective that prioritized citizens' needs and also avoiding conflict among participants (Carstens, 2021). However, at this point, further evidence is needed to assess whether the outcomes stemming from such laboratories help influence practices in other organizational structures and jurisdictions.

The adoption of decentralized solutions such as innovation laboratories does not imply that governments have completely dismissed using centralizing bodies. The German case is an illustrative example of a place where centralizing and decentralizing devices coexist in implementing digitalization policies (Härtel 2019). Rackwitz, Hustedt, and Hammerschmid (2021) point out that while public managers across all levels value flexibility and collaboration, centralizing devices are still largely deployed to solve problems. The authors found that although the implementation of the German Online Access Act (OAA) is deemed as a joint endeavor by federal and state governments, states must comply with the requirements by the federal level (Rackwitz, Hustedt, and Hammerschmid, 2021, p. 102). Moreover, a limited number of local government representatives may join the meetings of the council that oversees the OAA implementation “in an advisory capacity” (*Idem*, p. 104).

The coexistence of digitalization initiatives at the federal, regional, and local levels can respond to the different needs of each administration. However, such coexistence can also obfuscate the division of roles and responsibilities. A clear definition of roles and responsibilities is an important factor in fostering collaboration and information sharing initiatives across public sector organizations, according to recent research on state and local level governments in the United States (Gil-Garcia et al., 2019; Prognos 2017).

Conclusion

The digitalization of public administration in federal countries is fraught with many opportunities and difficulties. Current knowledge about the subject points to a trend towards the empowerment of central governments in three main respects:

1. concentration of technical resources;
2. administration of centralized platforms for the provision of digital public services; and
3. enactment of regulations that are also binding for subnational and local governments.

This inclination to the empowerment of central governments is stronger in the stage of policy formulation, while implementation tends to be scattered across all levels of government.

Our analysis shows that countries must balance two strategies to advance the digitalization agenda: ensuring integration and streamlining implementation through centralization and devolving digital policies to subnational and local governments. As a result, while many national governments recognize that digitalization rests on agile, networked, and collaborative governance, they frequently resort to centralizing devices to accomplish these goals. The competing forces between centralization and decentralization in digitalization account for the ambiguous strategies and actions that many federal states have adopted.

We have mapped out some of the most pressing issues to grasp the nuances of digitalization in federal countries in this Occasional Paper. However, many relevant points could be further explored to illuminate the relationship between digitalization and federalism. The topic of *leadership and political support* is a fertile ground for research. Because many public leaders now value an agile, collaborative, and user-centric approach to government, there need to be more tools for leaders. These tools could provide an important factor for the success of digitalization. Future research in this domain could address, for example, the readiness of senior-level personnel to lead digitalization programs in collaborative arrangements and the factors that determine political support to digitalization policies.

The *definition of clear roles and responsibilities* is another major avenue of inquiry since the division of power in federal systems may give rise to frictions among different levels of government. The dynamic evolution of digital practices may leave room for regulatory gaps that do not fall within the boundaries of established jurisdictions. Additionally, a more thorough understanding of *intergovernmental coordination and cooperation* is needed. We need to analyze how different levels of government are engaging in the design and implementation of cross-jurisdictional digital initiatives. Finally, it is also important to gain a better appreciation of the strategies to *foster learning* within and across levels of government. Building on the exchange of knowledge and drawing lessons from successful experiences are salient features of federal arrangements that are underutilized in many digitalization projects. Therefore, finding out more about learning, exchange, and experimentation at the subnational and local levels could contribute to research and practice.

References

- Ali, O.; Osmanaj, V. (2020). The role of government regulations in the adoption of cloud computing: A case study of local government. *Computer Law & Security Review*, vol. 36, pp. 1-20.
- Australia Government – Digital Marketplace. (2021). Retrieved from <https://marketplace.service.gov.au/>
- Borins, S.; Brown, D. (2007). *Digital Leadership: The Human Face of IT*. Borins, S.; Kernaghan, K.; Brown, D.; Bontis, N.; Perri 6, Thompson, F. (eds.). *Digital State at the Leading Edge*. University of Toronto Press, pp. 277-301.
- Buchmann, M. (2017). The need for competition between decentralized governance approaches for data exchange in smart electricity grids—Fiscal federalism vs. polycentric governance. *Journal of Economic Behavior & Organization*, 139, pp. 106-117.
- Bu-Pasha, S. (2020) The controller's role in determining 'high risk' and data protection impact assessment (DPIA) in developing digital smart city. *Information & Communications Technology Law*, 29:3, pp. 391-402.
- Cargnello, D.; Flumian, M. (2017). Canadian governance in transition: Multilevel governance in the digital era. *Canadian Public Administration*, vol. 60, issue 4, pp. 605-626.
- Carstens, N. (2021). Digitalisation Labs: A New Arena for Policy Design in German Multilevel Governance. *German Politics*, pp. 1-18, DOI: 10.1080/09644008.2021.1887851.
- Chen, Z.; Gangopadhyay, A.; Holden, S.; Karabatis, G.; McGuire, M. (2007). Semantic integration of government data for water quality management. *Government Information Quarterly*, 24, pp. 716-735.
- Chen, M.; Pang, M.; Kumar, S. (2021). Do You Have a Room for Us in Your IT? An Economic Analysis of Shared IT Services and Implications for IT Industries. *Management Information Systems Quarterly*, vol. 45, issue 1, pp. 225-268.
- Clarke, A. (2020). Digital government units: what are they, and what do they mean for digital era public management renewal? *International Public Management Journal*, 23:3, pp. 358-379.
- Cullen, R. (2009). Culture, identity and information privacy in the age of digital government. *Online Information Review*, Vol. 33 No. 3, pp. 405-421.
- Dardanelli, P.; Kincaid, J.; Fenna, A.; Kaiser, A.; Lecours, A.; Singh, A.K. (2019). Conceptualizing, Measuring, and Theorizing Dynamic De/Centralization in Federations. *Publius: The Journal of Federalism*, vol. 49, No. 1, pp. 1-29.
- Dias, G. P. (2020). Determinants of e-government implementation at the local level: an empirical model. *Online Information Review*, vol. 44, issue 7, pp. 1307-1326. <https://doi.org/10.1108/OIR-04-2020-0148>
- Digital Austria. (2021). Retrieved from <https://www.digitalaustria.gv.at/>

- Edmiston, K. (2003). State And Local E-Government: Prospects and Challenges. *The American Review of Public Administration*, 33(1), pp. 20-45. doi:10.1177/0275074002250255
- Engleder, B. (2013). Efficient ITS organisation structures as framework for collaborative ITS key projects in Austria. 20th ITS World Congress Tokyo 2013 2013. 20th Intelligent Transport Systems World Congress, ITS 2013; Tokyo; Japan; 14 October 2013 through 18 October 2013.
- European Commission. (2020). Digital Public Administration Factsheet 2020 – Belgium. Digital Public Administration Factsheets Series.
- Fang, Z. (2002). E-Government in Digital Era: Concept, Practice, and Development. *International Journal of the Computer, The Internet, and Management*, vol. 10, No. 2, pp. 1-22.
- Gil-Garcia, J.; Dawes, S.; Pardo, T. (2018). Digital government and public management research: finding the crossroads. *Public Management Review*, vol. 20, issue 5, pp. 633-646.
- Gil-Garcia, J. R., Guler, A., Pardo, T. A., & Burke, G. B. (2019). Characterizing the importance of clarity of roles and responsibilities in government inter-organizational collaboration and information sharing initiatives. *Government Information Quarterly*, 36(4), 101393.
- Giurgiu, A.; Larsen, T. (2016). Roles and Powers of National Data Protection Authorities – Moving from Directive 95/46/EC to the GDPR: Stronger and More ‘European’ DPAs as Guardians of Consistency? *European Data Protection Law Review*, vol. 2 (3), pp. 342-352.
- Gladkova, A.; Ragnedda, M. (2020). Exploring digital inequalities in Russia: an interregional comparative analysis. *Online Information Review*, vol. 44, issue 4, pp. 767-786.
- Gottschalk, P. (2009). Maturity levels for interoperability in digital government. *Government Information Quarterly*, vol. 26, issue 1, pp. 75-81.
- Härtel, I. (2019); Kooperativer Föderalismus: Digitalisierung der öffentlichen Verwaltung – Erfahrungen aus dem deutschen föderalen Raum“, Bußjäger, P.; Keuschnigg, G.; Schramek, C. Raum neu denken. Von der Digitalisierung zur Dezentralisierung. New Academic Press, Vienna.
- Hellberg, A.; Grönlund, Å. (2013). Conflicts in implementing interoperability: Re-operationalizing basic values. *Government Information Quarterly*, 30, pp. 154-162.
- Information Services Corporation. (2021). MRAS – Multi-jurisdictional Registry Access Service. Retrieved from <https://www.isc.ca/CorporateRegistry/Pages/MRAS.aspx#:~:text=The%20Multi-jurisdictional%20Registry%20Access%20Service%20%28MRAS%29%20is%20a,Saskatchewan%2C%20and%20Corporations%20Canada%20are%20participating%20in%20MRAS>
- Ingrams, A.; Manoharan, A.; Schmidhuber, L.; Holzer, M. (2020). Stages and Determinants of E-Government Development: A Twelve-Year Longitudinal Study of Global Cities. *International Public Management Journal*, vol. 23, issue 6, pp. 731-769.
- Janowski, T. (2015). Digital government evolution: From transformation to contextualization. *Government Information Quarterly*, vol. 32, issue 3, pp. 221-236.

- Jarger, P.T. (2002). Constitutional principles and E-Government: An opinion about possible effects of Federalism and separation of powers on e-government policies. *Government Information Quarterly*, 19, pp. 357-368.
- Kernaghan, K. (2007). *Beyond Bubble Gum and Goodwill: Integrating Service Delivery*. Borins, S.; Kernaghan, K.; Brown, D.; Bontis, N.; Perri 6, Thompson, F. (eds.). *Digital State at the Leading Edge*. University of Toronto Press, pp. 37-68.
- Kruger, L. Gilroy, A. (2015). *Broadband Internet Access and the Digital Divide: Federal Assistance Programs*. In: Cohen, E. (Ed.). *Broadband Internet: Access, Regulation and Policy*. Nova Science Publishers, New York, pp. 51-76.
- Kuiler, E.; McNeely, C. (2018). *Federal Big Data Analytics in the Health Domain: An Ontological Approach to Data Interoperability*. In: Batarseh, F.; Yang, R. *Federal Data Science: Transforming Government and Agricultural Policy Using Artificial Intelligence*. Academic Press, pp. 161-176.
- Kwon, H.; Pardo, T.; Burke, G. (2009). *Interorganizational collaboration and community building for the preservation of state government digital information: Lessons from NDIIPP state partnership initiative*. *Government Information Quarterly*, vol. 26, issue 1, pp. 186-192.
- Linders, D. (2012). *From e-government to we-government: Defining a typology for citizen coproduction in the age of social media*. *Government Information Quarterly*, l. 29, issue 4, pp. 446-454.
- Lindquist, E.; Huse, I. (2017). *Accountability and monitoring government in the digital era: Promise, realism and research for digital-era governance*. In: *Canadian Public Administration/Administration Publique du Canada*, vol. 60, No. 4, pp. 627-656.
- Long, E., Franklin, A. L. (2004). *The paradox of implementing the government performance and results act: Top-down direction for bottom-up implementation*. *Public Administration Review*, 64(3), pp. 309-319.
- Luna-Reyes, L.F.; Gil-García, J. R.; Cruz, C.B. (2007). *Collaborative digital government in Mexico: Some lessons from federal Web-based interorganizational information integration initiatives*. *Government Information Quarterly*, 24, pp. 808-826.
- Macmanus, S. A.; Caruson, K. Mcphee, B.D. (2013) *Cybersecurity at the Local Government Level: Balancing Demands for Transparency and Privacy Rights*, *Journal of Urban Affairs*, 35:4, pp. 451-470.
- Mello, L.; Ter-Minassian, T. (2020). *Digitalisation Challenges and Opportunities for Subnational Governments*. *OECD Working Papers on Fiscal Federalism*, April 2020, No. 31.
- Mergel, I. (2016). *Agile innovation management in government: A research agenda*. *Government Information Quarterly*, vol. 33, issue 3, pp. 516-523.
- Mettler T. (2019) *The Road to Digital and Smart Government in Switzerland*. In: Ladner A., Soguel N., Emery Y., Weerts S., Nahrath S. (eds). *Swiss Public Administration. Governance and Public Management*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-92381-9_10

- Neumann, O., Matt, C., Hitz-Gamper, B. S., Schmidhuber, L., & Stürmer, M. (2019). Joining forces for public value creation? Exploring collaborative innovation in smart city initiatives. *Government Information Quarterly*, 36(4), 101411–.
- Neuroni, A.; Fraefel, M.; Riedl, R. (2011). Inter-organizational Cooperation in Swiss eGovernment. *Proceedings of the International Federation for Information Processing Conference*, pp. 259-272.
- Niehaves, B.; Krause, A. (2010). Shared service strategies in local government – a multiple case study exploration. *Transforming Government: People, Process and Policy*, vol. 4, No. 3, pp. 266-279.
- OECD (2016). *Open Government Data Review of Mexico: Data Reuse for Public Sector Impact and Innovation*. OECD Digital Government Studies. OECD Publishing: Paris, <https://doi.org/10.1787/9789264259270-en>.
- OECD (2020a). OECD Open, Useful and Re-usable data (OURdata) Index: 2019. OECD Policy Papers on Public Governance No 1, 2020. Available at: <http://www.oecd.org/governance/digital-government/ourdata-index-policy-paper-2020.pdf>
- OECD (2020b). Digital Government Index: 2019 results. OECD Public Governance Policy Papers, No. 03, OECD Publishing, Paris, <https://doi.org/10.1787/4de9f5bb-en>.
- O'Reilly, T. (2011). Government as a Platform. *Innovations: Technology, Governance, Globalization* 2011; 6 (1): 13–40.
- Pardo, T.; Nam, T.; Burke, G.B. (2012). E-Government Interoperability: Interaction of Policy, Management, and Technology Dimensions. *Social Science Computer Review*, 30(1), pp. 7.23.
- Rackwitz, M., Hustedt, T., & Hammerschmid, G. (2021). Digital transformation: from hierarchy to network-based collaboration? The case of the German "Online Access Act". *der moderne staat - dms: Zeitschrift für Public Policy, Recht und Management*, 14(1), 101-120.
- Prognos (2017). Projekt „Digitaler Föderalismus“. Trendreport 2017. <https://www.digitaler-staat.org/wp-content/uploads/2016/09/Trendreport2017.pdf>.
- Rajabiun, R.; Middleton, C. (2013). Multilevel governance and broadband infrastructure development: Evidence from Canada. *Telecommunications Policy*, 37, pp. 702-714.
- Ruijter, E. (2021). Designing and implementing data collaboratives: A governance perspective. *Government Information Quarterly*, 2021, 101612, ISSN 0740-624X.
- Scholta, H; Mertens, W.; Kowalkiewicz, M.; Becker, J. (2019a). From one-stop shop to no-stop shop: An e-government stage model. *Government Information Quarterly*, Volume 36, Issue 1, pp. 11-26.
- Scholta, H.; Nieman, M.; Halsbenning, S.; Räckers, M.; Becker, H. (2019b). Fast and Federal – Policies for Next-Generation Federalism in Germany. *Proceedings of the 52nd Hawaii International Conference on System Sciences*, pp. 3273-3282.
- Soe, R.-M., & Drechsler, W. (2018). Agile local governments: Experimentation before implementation. *Government Information Quarterly*, 35(2), pp. 323–335.

Stefanouli, M., & Economou, C. (2018). Data Protection in Smart Cities: Application of the EU GDPR. In *Data Analytics: Paving the Way to Sustainable Urban Mobility*, Springer International Publishing, pp. 748–755.

Thompson, N.; Ravindran, R.; Nicosia, S. (2015). Government data does not mean data governance: Lessons learned from a public sector application audit. *Government Information Quarterly*, Volume 32, Issue 3, pp. 316-322.

Tolbert, C.; Mossberger, K. (2006). The Effects of E-Government on Trust and Confidence in Government. *Public Administration Review*, 66, pp. 354-369.

Tönurist, P.; Kattel, R.; and Lember, V. (2017). Innovation labs in the public sector: what they are and what they do? *Public Management Review*, vol. 19, issue 10, pp. 1455-1479.

Ubaldi, B.; Roy, J. (2010). E-government and Federalism in Italy and Canada—A Comparative Assessment. In: Reddick, C. (Ed.). *Comparative E-Government*. Springer New York, pp. 183-199.

UN Department of Economic and Social Affairs. (2020) United Nations E-Government Survey 2020: Digital Government in the Decade of Action for Sustainable Development, New York. Available at [https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20\(Full%20Report\).pdf](https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf)

Wohlers, T. (2009). The Digital World of Local Government: A Comparative Analysis of the United States and Germany. *Journal of Information Technology and Politics*, vol. 6, issue 2, pp. 111-126.

Yun, H.J.; Opheim, C. (2010). Building on Success: The Diffusion of e-Government in the American States. *Electronic Journal of e-Government*, vol. 8, issue 1, pp. 71-82.

AUTHORS

Silvana Gomes is a PhD student in Public Administration at the University of Ottawa, where she is affiliated with the Centre on Governance. She holds a Master's degree in Political Science and a Bachelor of Laws from Fluminense Federal University (Brazil). Her research interests include federalism, multi-level governance, digital government, and innovation in the public sector.

Eric Champagne, Ph.D., is Associate Professor in Public Administration at the School of Political Studies and Director of the Centre on Governance at the University of Ottawa. He teaches courses in theory and practice of public management and governance, program evaluation, research methods, public policy implementation, and globalization and continental integration. His current research focuses on multilevel governance in the financing and implementation of transportation, infrastructure, and the digital transformation of the public sector.

André Lecours is Professor in the School of Political Studies at the University of Ottawa. His main research interests are Canadian politics, European politics, nationalism (with a focus on Quebec, Scotland, Flanders, Catalonia and the Basque country) and federalism. He is the editor of *New Institutionalism. Theory and Analysis* published by the University of Toronto Press in 2005, the author of *Basque Nationalism and the Spanish State* (University of Nevada Press, 2007), the co-author (with Daniel Béland) of *Nationalism and Social Policy. The Politics of Territorial Solidarity* (Oxford University Press, 2008); the co-author (with Daniel Béland, Gregory Marchildon, Haizhen Mou and Rose Olfert) of *Fiscal Federalism and Equalization Policy in Canada. Political and Economic Dimensions* (University of Toronto Press, 2017); and the author of *Nationalism, Secessionism, and Autonomy* (Oxford University Press, 2021).

Cover design by Olakunle Adeniran

ISSN: 1922-558X (online ISSN 1922-5598)



Forum of Federations
75 Albert Street, Suite 411 Ottawa, Ontario
Canada K1P 5E7

forumfed.org

The Occasional Paper Series is financed in part by the following countries: Brazil, Canada, Ethiopia, Germany, India, and Switzerland