

*Government data:
A key to Canada's
prosperous future*





DATA IS POTENTIAL

Optimizing how governments manage and use data can help Canada thrive in the coming decade.

This report explores ideas to help governments augment their impact.

WE ENVISION A FUTURE WHERE ALL CANADIANS HAVE THE OPPORTUNITY TO THRIVE



→ We believe that to achieve this, government must maximize the power of one of the most critical assets at its disposal: data. It can be mined to design the kinds of policies and programs that meet the needs of Canadians and set us firmly on the path to resilience and prosperity.

In recent years, governments at all levels across the country have made substantial progress in adopting and utilizing data and digital policies, including:

- Implementing data strategies to enhance digital capacity
- Ensuring responsible data practices to protect privacy and uphold ethical standards
- Advancing data-driven services to improve policy design and service delivery

That's a strong start, but more is needed. To build on the momentum, they can begin exploring innovative ways to enhance their data mandates, capabilities, and roles. With the right action, they can make optimal use of public-sector data to meet the needs of Canadians and deliver trusted, high-quality programs and services.

This will require focusing on three priorities: having good data, safeguarding trust, and getting future-ready. To this end, we recommend nine actions that governments can take to get the most value from their data:

1 **Prioritize proactive data stewardship**

4 **Strengthen governance for automated decision systems**

7 **Implement data-driven policies and services**

2 **Contribute resources to nationwide data standards**

5 **Accelerate Indigenous data sovereignty**

8 **Support data literacy, continual upskilling, and talent pipelines**

3 **Continually review and update ethics frameworks and cybersecurity practices**

6 **Empower community approaches to race-based data collection**

9 **Focus data-planning on the future**

Governments in Canada have proven in recent years that they can effect transformation when they rally around a shared objective. Data can serve as another rallying point for ambitious action—used right, it can help governments support Canadians in a way that’s more responsive, agile, and resilient.

CONTENTS

The vision: Stewards of a prosperous future	→ 06
The current state	→ 08
Ongoing data challenges across Canada	→ 10
The path forward: Public policy recommendations	→ 16
The future: A prosperous, resilient Canada	→ 36

THE VISION: STEWARDS OF A PROSPEROUS FUTURE



→ In our first Catalyst report, *A vision for a thriving Canada in 2030*, Deloitte's Future of Canada Centre laid out the key elements of a better future, the challenges to overcome to deliver it, and the actions needed to pave a new, resilient, and prosperous path for the country over the next decade. It's clear that government data will be a critical resource throughout this continuing journey, particularly as emerging technologies generate ever-increasing amounts of it.

Governments across Canada have already made good progress on how to best collect, share, and use data. However, there are still opportunities to reinvigorate mandates, expand capabilities, redefine roles, and improve trust as they continue to deliver high-quality programs and services. In this report, we'll outline some of the areas where governments can build on their momentum and close off shortfalls to realize the full benefits of data.

Our vision is that governments will be maximizing the power of public sector data by 2030 to design policies and programs that better meet the needs of all Canadians and, in so doing, keep the country firmly on the path to resilience and prosperity.

Our research approach for this report

- **A literature review** of academic and secondary research, including analysis of emerging international best practices, to determine which approaches Canada could implement to unlock the full potential of public sector data.
- **Specialist consultations** with policymakers and Deloitte and industry leaders who have extensive experience in and understanding of the trends shaping government data ecosystems.

THE CURRENT STATE



→ Governments across Canada have made impressive progress on data stewardship, and it shows. A great deal of energy has been put into building strong foundations for their data ecosystems, which have been instrumental in making headway on some of the most challenging issues policymakers are facing today. Highlights include:

The emergence of data strategies

To prepare for the opportunities that data can provide, governments have been implementing a range of new strategies.

The federal government recently published the 2023-2026 Data Strategy for the Federal Public Service, setting a world-leading standard for expanding digital capacity across federal government agencies. At the provincial level, the Government of Ontario's 2021 Digital and Data Strategy prioritizes online privacy and safety, and the delivery of user-centered services to promote economic output. The Government of British Columbia's Digital Plan establishes missions and calls to action that will steer the province's digital transformation.

Responsible and ethical data practices

Governments understand the importance of protecting individuals' privacy and using data responsibly, which requires enveloping data collection and use with responsible and ethical practices and implementing robust cybersecurity measures. For example, British Columbia recently published its Gender and Sex Data Standard to drive improved delivery of health programs in the province. The guidance sets standards for the responsible and accurate collection of data related to gender and sex that adheres to individual privacy protections. Additionally, the First Nations Information Governance Centre (FNIGC) and the federal government continue to collaborate and progress toward achieving Indigenous data sovereignty, which will lead to better outcomes for Indigenous communities from coast to coast.

Advancements in data-driven services

Governments are finding ways to unlock the full potential of data to improve policy design and service delivery. Exciting opportunities include the recent Canada Health Transfer agreements between the federal, provincial, and territorial governments, which include a commitment to achieve common data standards and policies for improving health outcomes for Canadians.¹ The potential for data to improve government operations and services for Canadians continues to grow, and governments are preparing for what the future holds.

ONGOING DATA CHALLENGES ACROSS CANADA



To build on existing momentum, we have identified several ongoing issues where continued attention across jurisdictions and levels of governments would further improve the response to future challenges and opportunities. While these issues are not new, their complexities require coordination, dedicated resources, and time to solve.



The need to have good data

The challenge:

Much progress has been made in collecting, managing, and sharing good data. Without a foundation of good data, governments cannot effectively design and deliver high-quality programs and services. Despite the progress, policymakers continued to face challenges in obtaining the data they need. Barriers caused by outdated systems and inconsistent formats limit their ability to maximize the use of the data they have.² Governments have worked to establish data-stewardship roles and capabilities to address these challenges, but there are advancement opportunities that go beyond what individual leaders can deliver.

Key obstacles:

Difficulty accessing the right data to make decisions

When policy aims to expand existing services or improve programs, the data required to inform its design can be substantial and may not be readily available.

The administrative capacity to obtain or order the right data

Data-capture functions often exist in the broader public sector, but those entities are not always fully resourced or equipped. Even when permissible (i.e., data that is not otherwise precluded from being shared between departments), it's still difficult to share data within and between governments.

Lack of access to data expertise

There's not necessarily a data leader in every government department, creating gaps in the knowledge and experience needed to move projects forward and ensure adequate data stewardship.

The vision:

Through proactive data stewardship, governments have enhanced capabilities to obtain the data needed for creating policy, delivering quality services, and assessing outcomes.



The importance of good data for next-generation tech

Next-generation technologies and artificial intelligence systems—including Generative AI (GenAI)—have rapidly evolved and are expected to continue growing in use and popularity.³ As well, high-quality, representative data is needed to ensure AI models deliver accurate, unbiased, reliable, and contextually fitting outputs for decision-making processes. The absence of such data can lead to flawed results, AI “hallucinations,” or perpetuation of harmful biases, which can lead to negative impacts, especially in sensitive sectors like health care, finance, and law enforcement.⁴

Governments can work to meet this challenge by supporting the development of high-quality public data sets that follow good privacy and anonymization safeguards to ensure government use of AI technologies better reflects the complexities of our societies. Additionally, guidelines for fair and equitable data practices can help mitigate the associated risks. The Government of Canada’s principles for responsible AI in government and its Directive on Automated Decision-Making demonstrate such efforts.⁵ As the adoption of GenAI and other technologies progresses, continued proactive government leadership in data governance is crucial to balance innovation and the protection of Canadians.

The need to safeguard trust

The challenge:

As data use surges and technologies evolve, the risk of perpetuating mistrust increases. In our report, *Canada's AI imperative: Public policy's critical moment*, we noted that while advancements in these areas can deliver immense benefits for Canadians, many don't truly understand or trust the technology, which can hinder the adoption of new systems or programs. Canadians are also more concerned than ever about the growing threat of cybersecurity attacks, which is further degrading trust.⁶ In a survey we conducted for our report, *Digital equity: Focusing on every Canadian's digital future*, we found that only 40% of Canadians trust governments to safely manage their data. We also found that they trust banks—which invest heavily in cybersecurity and cyber governance measures—more than other organizations with their information.

It is critical that governments remain proactive in building trust and implementing measures to safeguard it for the future. This includes deepening their focus on the most pressing trust issues surrounding technology faced by marginalized people in Canada.

Key obstacles:

Biased data and algorithms

Predictive algorithms and automated decision systems (ADS) have the potential to transform government service delivery. However, they can be biased against underrepresented groups. For example, ADS have significantly underestimated the needs of racialized individuals in health care settings and exaggerated their probability of becoming repeat criminal offenders.⁷

Delivering on Indigenous data sovereignty and race-based data initiatives

Regaining ownership and control of their data is a critical priority for Indigenous Peoples, but has only recently become a shared priority with governments.⁸ The lack of data ownership has perpetuated and exacerbated trust issues between Indigenous communities and governments, resulting in programs that do not reflect the needs of these communities.⁹ This issue is also felt by other marginalized groups. During the COVID-19 pandemic, for example, a lack of race-based data collection led to disparities in the quality of health interventions and policy responses for marginalized communities.¹⁰

The vision:

Guided by comprehensive data governance frameworks, robust cybersecurity principles, and strong ethics, data is used to build trust and uplift people who have historically been left behind.

The need to get future-ready

The challenge:

Governments understand that—with good data stewardship and ethical guardrails in place—data can help them deliver transformative, resilient, and much-needed services for Canadians. However, given the immense possibilities, governments must continue to be mindful of where they focus their resources and attention to become future-ready. There are opportunities to make services more accessible for those who need them most by closing the gaps that exist in effectiveness and user-friendliness.

Key obstacles:

Outdated service delivery systems

While governments are working to make their services more accessible and efficient, improving how data is collected and used can streamline the delivery of those services.

Talent and skill gaps

Digital skills and talent gaps are already affecting Canada's public sector. As the skills needed in the workplace continue to expand and evolve, governments—like all organizations—will need to work on closing those gaps and plan for future demands.

The vision:

With a foundation of good data and appropriate guardrails, governments are future-ready—in both technological capabilities and talent—and able to leverage data to its full potential in the design and delivery of high-quality programs and services.

THE PATH FORWARD: PUBLIC POLICY RECOMMENDATIONS





→ Prioritize proactive data stewardship

While it's important to maintain limitations and restrictions on governments' ability to collect and share it, data can be used to deliver high-quality programs and services for the public. Governments can strengthen the data stewardship culture they have already built by considering the following areas of focus:

Strengthening common data standards

Accessing and integrating data from multiple sources is critical for analysis, decision-making, and operations. Senior-level data stewards could be further empowered to identify, develop, and drive the adoption of data interoperability standards within their agency or department to enable linkages across datasets. This could be achieved by deepening the support—through mandating, funding, and staffing—of interoperability initiatives or strategies. Where feasible, these initiatives could also be developed with an eventual view of collaboration across departments, jurisdictions, and other levels of government (*see Contribute resources to nationwide data standards on page 20*).¹¹

Improving the quality of high-priority datasets

Governments have been working to ensure that the quality of their data is maintained or improved; however, the amount of data they have is increasing rapidly. Governments could mandate continual reviews of data quality—where they don't already exist—by allocating resources and expertise to the highest-priority datasets. Governance over these datasets could also include regular reviews of privacy safeguards and data anonymization, particularly as high-priority data becomes more essential to training next-generation technology such as GenAI models. It may be worthwhile for data stewards to also co-create ways to increase accountability for the quality of data under their purview and ensure it's ready for use.

Optimizing data-sharing practices

Data sharing within and between governments would benefit from a cultural shift—one that encourages and enables collaboration, while also maintaining privacy and security. Data stewards could be further encouraged to identify barriers to both intra- and inter-government data-sharing through informal means. This could include creating branch- or department-level working groups or developing standard, multilateral agreements for minimum data-sharing requirements. Initiatives like the federal government's Multilateral Early Learning and Child Care Framework could be scaled for greater impact, for example.¹² Additionally, data mesh systems—which decentralize data ownership and accountability to allow for more secure data sharing—may be another option for governments to look into. They could help eliminate the need for ad-hoc bulk data transfers, and contribute to faster, more effective data sharing while also maintaining accountability.

Data federation using data mesh systems

Data mesh systems emphasize the decentralization of data storage for organizations. In contrast to traditional systems where data security and governance are centralized, a data mesh decentralizes data ownership to specific domains, creating smaller, self-governing data units.

For governments, this approach could enhance security for the data they hold by isolating any breaches and, as a result, minimize potential exposure.¹⁵ It would also localize accountability for data accuracy and protection, thereby limiting the scope and potential impact of other security vulnerabilities, while enabling a more comprehensive approach to data governance, privacy, and access control.



→ **Contribute resources to nationwide data standards**

Pan-Canadian data standards—whether custom-developed or adopted from widely accepted global standards—will be critical for enabling even more data to flow within and between governments. While this would be a substantial undertaking, progress could be made by focusing on high-priority areas to start, such as the work that’s already been done to improve health care data standards and interoperability across jurisdictions.¹⁴

Governments at all levels could commit to allocating the necessary resources for establishing mission-oriented data ecosystems—convening stakeholders around shared challenges to develop common standards and processes, address system roadblocks, and drive collaboration.¹⁵ Such ecosystems can improve collaboration and build on the work of existing initiatives like the Canadian Data Governance Standardization Collaborative and public service data strategies. Over time, the standards and lessons learned through mission-oriented data ecosystems could evolve into broader pan-Canadian data standards that bring greater alignment both nationally and internationally.





DATA STEWARDSHIP AND SHARING AROUND THE GLOBE

Organizational data stewards: Caldicott Guardians

The UK's National Health Service (NHS) has a senior-level role—called a Caldicott Guardian—for organizations that process personal health and social care data.¹⁶ Caldicott Guardians sit on senior decision-making bodies to champion appropriate and ethical data use, offer guidance on complex data issues, and oversee protocols for sharing data with external partners. They are guided by a common set of principles and toolkits to ensure consistent and cohesive data stewardship across the NHS. A 2016 review of the program found that it had been central to and vital for ensuring responsible patient data management and privacy protection.¹⁷ It also found that that the program had contributed to improved awareness of data issues, enhanced health care organization collaboration, and more effective data use oversight.

Mission-oriented data ecosystem: The Sequoia Project

The Sequoia Project is an independent American nonprofit working with government and industry to promote the exchange of health data nationwide. Through its initiatives, the project identifies barriers to interoperability and develops solutions to promote better data sharing. In 2012, it took over management of the Department of Health's eHealth Exchange, which has since grown into the largest health data network in the United States. The Sequoia Project also operates the Carequality Interoperability Framework, a multilateral data-sharing agreement that allows participating members to easily and safely share information with peers in the network. This not only increases efficiency, but also lowers costs and duplication of effort, as organizations no longer need to pursue one-off legal agreements with individual partners.¹⁸





DATA STEWARDSHIP AND SHARING AROUND THE GLOBE

Cross-jurisdictional standards: The European Interoperability Framework (EIF)

The European Commission's EIF is a point of convergence for the national interoperability frameworks of member countries. As part of the Commission's Digital Single Market strategy, the EIF offers 47 specific recommendations on creating interoperable digital public services, ensuring that existing and new legislation does not compromise these efforts.¹⁹ The EIF aims to enable European Union (EU) member states to follow a common approach as they digitalize their governments, giving citizens access to public services not only within national borders, but across EU countries. A 2017 report by the European Commission found that the EIF helped facilitate the adoption of common data standards across different public sector organizations.²⁰



→ Continually review and update ethics frameworks and cybersecurity practices

Recognizing the importance of public trust, Canadian governments have been working to ensure that their data policies foster and elevate trust among Canadians. For example, Canada's Data Strategy for the Federal Public Service emphasizes building trust through transparent data practices and privacy protections.²¹ Governments should be continually reviewing and updating policies that are foundational for building and maintaining trust, including ethics frameworks and cybersecurity practices.

Ethics frameworks can provide values-based guidance for governments to address pressing challenges and foster opportunities to instill greater trust among Canadians in how their data is used.²² While ethics frameworks already exist or are in development across Canadian governments, they'll need to accommodate and adapt to change, and include principles on transparency, accountability, and fairness.

Cybersecurity is also an integral part of ethical and responsible data management. Government cybersecurity teams work to maintain the confidentiality and integrity of data, and mitigate security breaches. In our digital equity report, Deloitte called for an increase in government investment in cybersecurity to match our G7 peers, as Canada was falling behind. It will be critical for governments to continually look for ways to improve their cybersecurity infrastructure as a key component of building trust.

Having ethics frameworks and strong cybersecurity measures in place creates a good foundation for building and maintaining trust in government data use and evolving technology. It's also instrumental for repairing and advancing trust among people who face systemic discrimination that's caused or exacerbated by data. The following actions may support governments as they work to build, maintain, and enhance trust among their citizens.

→ Strengthen governance for automated decision systems

ADS technology is used to reduce processing times and improve efficiency by having decisions made without human intervention and based on training data. This data is composed of previous decisions made by people in similar scenarios.²⁵ In Canada, some governments are already integrating ADS—the federal government, for example, uses the technology to help with immigration processing by automating certain decisions and supporting the evaluation of an application’s merit.²⁴ Though the benefits of ADS are clear, there are risks, including algorithmic biases caused by biased training data, which can produce discriminatory outcomes and undermine trust in the governments using them. Transparency and explainability, which are central to building trust, form a key component of the ADS governance

directives that governments have already put in place.²⁵ As we argued in our *digital equity report*, people should not only be empowered to understand how their data is used by algorithms and how an algorithm arrives at its conclusions, but also given the ability to contest automated decisions. Given how rapidly these technologies are evolving, ADS directives need to be continually reviewed, updated, and strengthened, especially in light of the emergence of mainstream GenAI systems. Continual monitoring of AI tools would also help ensure policies reflect the latest risks and opportunities. In the long term, governments could also look into collaboration as a way to ensure that their respective standards are mutually reinforced and collectively upheld to the highest standards of integrity.



→ Empower community approaches to race-based data

Data has often been used without proper consultation and governance, disenfranchising certain communities in Canada and deteriorating their trust. For example, marginalized communities, including Indigenous Peoples and Black Canadians, have been disproportionately impacted by police carding practices—a means of collecting personal information by stopping individuals on the street regardless of suspicion or in the absence of criminal activity.²⁶ The collected data could then be stored indefinitely and used by government institutions in ways that negatively affect individuals or communities, increasing the likelihood of carded individuals being stopped in the future.

These types of practices highlight the need for a continued focus on working with communities to collect, manage, own, and store data in a way that's ethical and trusted, while also gaining valuable insights to ensure programs and services reflect their needs. There has been some progress: Nova Scotia recently launched the Fair Care Project, an initiative that aims to gather information on race and language to gain helpful insights for evidence-based health care decision-making.²⁷ And British Columbia entrenched anti-racist data principles into law through the Anti-Racism Data Act, which enables the collection and use of intersectional demographic data to identify and address gaps in public services.²⁸

With the appropriate guardrails in place, race-based data can offer insights into issues of systemic racism and policy intervention effectiveness—both crucial to governments' ability to address inequality. Where initiatives don't yet exist, governments can look to these examples and work with underserved communities to develop approaches that fit their needs and reflect their unique challenges.



Accelerate Indigenous data sovereignty

Government ownership and control of Indigenous data is rooted in colonialism and has created challenges that persist today.²⁹ For example, there is a tendency for data collection to focus on measures of disadvantage that reflect negative stereotyping.³⁰ Data has been used to perpetuate colonial impacts and power imbalances, such as enabling economic development agendas without appropriate regard for Indigenous agency.³¹

Recognizing data sovereignty for Indigenous communities indicates respect for their self-determined development and is a contemporary expression of their inherent rights affirmed by Articles 18 and 19 of the United Nations Declaration of the Rights of Indigenous Peoples.³²

Governments are making progress on working with Indigenous Peoples on an equal footing. For example, the federal funding of the National First Nations Data Governance Strategy, developed by the FNIGC (see sidebar), supports First Nations governments in delivering community services and improving socio-economic outcomes.³³ Data-sharing agreements such as the one between the Chiefs of Ontario (COO) and the Institute for Clinical Evaluative Sciences (ICES), which enables Indigenous Nations to access their data and better understand the needs of their communities, also demonstrate positive action with respect to Indigenous data sovereignty and adherence to the First Nations principles of ownership, control, access, and possession (OCAP[®]) (see sidebar).³⁴

Opportunities to accelerate this progress have been identified in a growing body of research and in several Truth and Reconciliation Calls to Action.³⁵ The FNIGC has made recommendations that could make a positive impact, including strategy implementation status reports and the establishment of First Nations data oversight review boards.³⁶ Governments should also work with the FNIGC and other Indigenous representative groups on accelerating long-term capacity-building initiatives, particularly the establishment of regional information governance centres—Indigenous-led, regionally based institutions that serve as data stewards and advisory centres that support Indigenous governments' data governance needs.³⁷

Definitions

- **Indigenous data sovereignty** is the assertion of identity ownership of current and historical data, including cultural heritage, language, and records.³⁸
- **The First Nations Information Governance Centre (FNIGC)** is a community-driven, Nation-based organization that supports First Nation communities in achieving data sovereignty in alignment with their distinct world views.³⁹
- **The First Nations principles of ownership, control, access, and possession (OCAP[®])** establish how First Nations' data should be collected, stored, and used. They are a tool to support effective information governance on the journey toward Indigenous data sovereignty.⁴⁰



EXERCISING INDIGENOUS DATA SOVEREIGNTY AROUND THE GLOBE

Embedding Māori data sovereignty across the government

Aotearoa New Zealand's Integrated Data Infrastructure (IDI) is a massive public database that links data from more than 50 surveys and datasets to enable cross-sector research into the complex issues that affect New Zealanders.⁴¹ Māori data sovereignty advocates worked with StatsNZ, the national data agency, to create the Ngā Tikanga Paihere framework to guide the appropriate use of data about Māori for research purposes. The framework draws on *tikanga*, or Māori world concepts, such as *pūkenga* (skills and expertise), which sets an expectation for researchers to work in culturally

appropriate ways and establish relationships with relevant communities, and *tapu* (sacred), which recognizes that some data is highly sensitive and requires appropriate management. StatsNZ actively uses the framework to assess research projects for appropriate cultural safeguards and benefits to Māori communities.⁴² Other tikanga-based solutions include the Māori Data Audit Tool for assessing organizational readiness across the government to incorporate Māori data sovereignty principles.⁴³

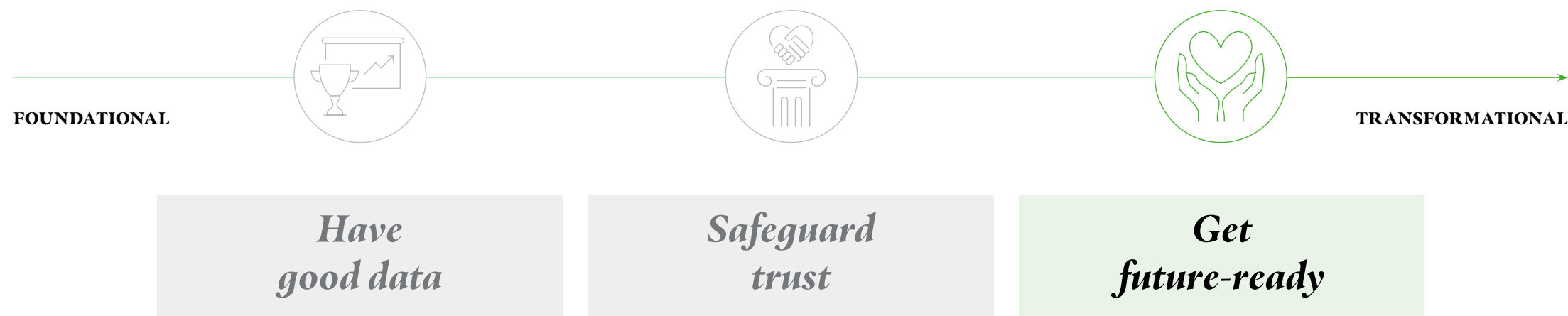
An aerial night photograph of a city, likely El Paso, Texas, showing a river winding through the landscape. The city is illuminated with warm yellow and orange lights, while the foreground features a hillside decorated with numerous small, white string lights. The overall scene is a mix of urban development and natural beauty.

EXERCISING INDIGENOUS DATA SOVEREIGNTY AROUND THE GLOBE

Ysleta del Sur Pueblo community census

When the Ysleta del Sur Pueblo tribe near El Paso, Texas, experienced economic challenges, they set out to develop policies to improve their economic standing. But they ran into a key issue: US Census Bureau data was not sufficiently granular to inform the decisions they needed to make. The tribe took matters into their own hands, partnering with the Institute for Policy and Economic Development at the University of Texas at El Paso to launch a community-centred, grassroots socio-economic survey that blended their cultural practices with Western research approaches. It relied on community

engagement and trust-building strategies, including focus groups, planning sessions, and community meetings. Even the analysis of the data was a community-driven exercise. Eventually, the survey was embedded into the annual tribal membership enrolment, with the tribal enrolment office retaining principal data custodial and storage authority. This community-based approach created a sense of ownership that has allowed for an average response rate of 90% and a much higher level of detail on socio-economic information than the Census Bureau would have been capable of obtaining.⁴⁴



→ Implement data-driven policies and services

Governments across Canada know what an instrumental asset data can be for developing programs and services, and they have been working to put the appropriate infrastructure in place to maximize data's potential. By closing key gaps, including those that we've highlighted so far, governments can empower themselves to fully embrace future-ready, data-driven policies and services. This can bring substantial benefits, particularly through improving the end-user experience of government services. Delivering high-quality services can also offer a much-needed balm to an increasingly fractious citizen-government relationship: OECD research shows that better public services foster greater trust in government.⁴⁵ With the right infrastructure in place and a foundation of good data, governments can focus their attention on implementing systems that deliver efficient, accessible, and trusted services.

Initiatives that could bring about impactful transformations include:

Build services based on “tell us once” principles

Governments in Canada would benefit from adopting the “tell us once” approach. The concept allows people's information to be used across multiple departments and services, which streamlines administrative processes and makes interacting with public services more efficient for users. While there has been some progress, like the single online user portal for the Canada Revenue Agency (CRA) and Employment and Social Development Canada, there are opportunities to accelerate and expand these efforts.⁴⁶ Governments will need to broaden their governance and policy scopes to encourage whole-of-government initiatives and ensure their funding

and staffing models reflect the need for cross-departmental flexibility. Eventually, the scope of collaboration would also need to become cross-jurisdictional. These are significant shifts in how governments work, and responses will take time to implement. Governments could begin by identifying areas for pilot projects that can be scaled up eventually, much like the approach the federal government is taking with its OneGC project.⁴⁷

Design and deliver life-event services

Adopting “tell us once” principles and having good data available can allow governments to leverage that data to meet people's needs more proactively through a life-event approach—a model of services that doesn't rely on people's awareness of those services. For example, auto-enrolment in relevant benefits for those who may have barriers to navigating digital

spaces, like low-income populations or seniors, would be transformative. The CRA recognizes this opportunity and will be launching a pilot project to automatically file taxes for vulnerable Canadians who are missing out on government benefits. The design of these practices and systems should allow for expansion to cover other major life events that typically require providing information to multiple departments, such as births, marriages, and the loss of a loved one.

→ Support data literacy, continual upskilling, and talent pipelines

While data and technology can enhance the work people do, the human element will always be a crucial component of good policy development and service delivery. Governments should continue to ensure that the public service is equipped with the skills and confidence needed in a rapidly evolving, data-driven world by focusing staffing expertise where it's needed most and developing a pipeline of talent that can meet future staffing demands. Statistics Canada's Data Strategy, for example, includes a plan for addressing skill needs in the short, medium, and long term.

Components that governments should consider implementing are:

Internal training, mentorship, and collaboration

Governments can focus on ensuring their training programs reflect the immediate needs of individual departments and encourage data leaders to mentor others who are learning to work with data. Governments could also encourage and enable cross-functional teams to bring expertise to departments that need it for specific projects.⁴⁸

Academic and private sector partners

Partnerships with academic institutions could help governments deliver in-demand training programs and develop talent pipelines by coordinating internship opportunities in data-related roles. To help deal with immediate talent gaps for specific projects, Canadian governments can partner with experts in the private sector for temporary placements. Singapore has implemented a program for this called the Smart Nation Fellowship that brings data expertise in on projects for three to six months.⁴⁹



→ Focus data planning on the future

Governments have long relied on data generated through traditional sources like surveys, censuses, and administrative records. Emerging, non-traditional data sources will offer valuable new insights, similar to how health agencies were able to develop and publish response guidelines based on wastewater testing data during the COVID-19 pandemic.⁵⁰

The mandate of government department data stewards could be widened to include work with other areas to identify how future or disruptive technologies might alter data collection needs. Across governments, federal-provincial-territorial working groups could add a future-planning focus to their shared mandate.





Delivering wraparound services for births

Imagine if families came home from the hospital with their new babies to discover that they had been automatically approved for child benefits. No cumbersome applications for sleep-deprived parents, no language barriers for new immigrants, and no digital challenges for those with limited access or literacy.

In Estonia, this has been the reality since 2019, thanks to the back-end systems that connect data registries across health, social care, and taxation agencies to allow secure and privacy-preserving exchanges.⁵¹ Every night, an automated system queries the National Population Registry for any new births.

The system then determines parents' benefit eligibility by checking their income and employment information in the tax and customs board database. The parents are directed via email to a self-service portal that contains a pre-populated summary of the benefits for which they may enroll. Parents can make adjustments, such as changing a bank account number, before approving the package and triggering benefit disbursement. The system does all the hard work, but still enables parents to review all the information and make decisions that are best for their families.⁵²

THE FUTURE: A PROSPEROUS, RESILIENT CANADA

→ The amount of data available to governments will continue to grow and their responses will need to keep pace. Addressing this challenge requires bold action. While great work on government data is happening across the country, we need better cooperation across departments, jurisdictions, and community stakeholders. The pandemic demonstrated the transformational impact of governments coming together to work on a shared objective—that data can serve as a rallying point for ambitious action.

The data imperative is an opportunity to reimagine the paradigm of public services. Governments can harness the power of data to support Canadians in a way that's more responsive, agile, and resilient. When used right, data can help put Canada on the path to prosperity, where every Canadian can thrive.

Acknowledgements

→ This report was authored by Jaimie Boyd, partner and national leader for Digital Government, and Nihar Dalmia, partner and Government and Public Services leader for Omnia AI, Deloitte's artificial intelligence practice.

It follows up on our first Catalyst report, *A vision for a thriving Canada in 2030*, in which Deloitte's Future of Canada Centre charted the country's path from recovery from the COVID-19 pandemic to a prosperous, resilient, and inclusive economy and society by 2030. Read more about the Future of Canada Centre on page 39.

The Future of Canada Centre gratefully thanks Ayesha Chughtai, Sofia Cuyegkeng, Ryan Dormer, Eric Jackson, Mike Jancik, Regina Mandamin, Maya Prager, and Alexandra Wilkinson for their research and writing contributions.

1. Prime Minister of Canada, "[Working together to improve health care for Canadians](#)," February 7, 2023.
2. MaRS Discovery District, "[Pathways Towards Data Interoperability for the Sustainable Development Goals in Canada](#)," May 29, 2019.
3. Bloomberg, "[Generative AI to Become a \\$1.5 Trillion Market by 2052, Research Finds](#)," Announcements, June 1, 2023.
4. Tim Keary, "[AI Hallucination](#)," Techopedia, June 30, 2023.
5. Government of Canada, "[Responsible use of artificial \(AI\)](#)," April 25, 2023.
6. Canadian Centre for Cyber Security, "[National Cyber Threat Assessment 2023-2024](#)," October 2022.
7. Hannah Alberga, "[How can we keep algorithmic racism out of Canadian health care's AI toolkit?](#)" The Globe and Mail, February 5, 2021; Stephen Buranyi, "[Rise of the racist robots – how AI is learning all our worst impulses](#)," The Guardian, August 8, 2017.
8. Leone, "Data Colonialism in Canada"; Animikii, "[Animikii presents... #DataBack: Asserting and supporting Indigenous data sovereignty](#)," accessed July 7, 2023."
9. Ibid.
10. Kwame McKenzie et al., "[Tracking COVID-19 Through Race-Based Data](#)," Ontario Health, September 2022; Kwame McKenzie, "[Race and ethnicity data collection during COVID-19 in Canada: if you are not counted you cannot count on the pandemic response](#)," Royal Society of Canada, November 12, 2020.
11. Public Health Agency of Canada, "[Expert Advisory Group Report 2: Building Canada's Health Data Foundation](#)," Government of Canada, December 2021.
12. Employment and Social Development Canada, "[National Progress Report on Early Learning and Child Care 2018 to 2019 – Summary](#)," Government of Canada, June 23, 2021.
13. Katharine Jarmul, "[Privacy-first data via data mesh](#)," Thoughtworks Canada, July 25, 2022.
14. Prime Minister of Canada, "[Working Together to Improve Health Care for Canadians](#)."
15. MaRS Discovery District, "[Pathways Towards Data Interoperability for the Sustainable Development Goals in Canada](#)."
16. The UK Caldicott Guardian Council (UKGCG), "[The Caldicott Guardian's Role](#)," accessed October 20, 2022.
17. Ibid.
18. The Sequoia Project, "[About Us](#)," accessed July 5, 2023.
19. European Commission, "[New European Interoperability Framework](#)," 2017.
20. Ibid.
21. Government of Canada, "[2023-2026 Data Strategy for the Federal Public Service](#)," April 19, 2023.
22. Organisation for Economic Cooperation and Development (OECD), "[Good Practice Principles for Data Ethics in the Public Sector](#)," accessed April 6, 2023.
23. Benoit Deshaies and Dawn Hall, "[Responsible use of automated decision systems in the federal government](#)," Statistics Canada, accessed January 10, 2023.
24. Government of Canada, "[Immigration, Refugees and Citizenship Canada Departmental Plan 2023-2024](#)," March 9, 2023.
25. Organisation for Economic Cooperation and Development (OECD), "[Building Trust to Reinforce Democracy: Main Findings from the 2021 OECD Survey on Drivers of Trust in Public Institutions](#)," OECD, 2022; Government of Canada, "[Directive on Automated Decision-Making](#)," April 25, 2023.
26. Civilian Review and Complaints Commission for the Royal Canadian Mounted Police (RCMP), "[Review of the RCMP's Policies and Procedures Regarding Street Checks Report](#)," June 29, 2021.
27. Office of Equity and Anti-Racism Initiatives, "[Fair Care Project Improves Data Collection to Offer Better Care](#)," Government of Nova Scotia, October 25, 2022.
28. Government of British Columbia, "[Anti-racism legislation](#)," accessed November 8, 2022.
29. Leone, "Data Colonialism in Canada"; Animikii, "[Animikii presents... #DataBack: Asserting and supporting Indigenous data sovereignty](#)," accessed July 7, 2023.
30. Jonathan Obar and Brenda McPhail, "[Preventing Big Data Discrimination in Canada: Addressing Design, Consent and Sovereignty Challenges](#)," Centre for International Governance Innovation, April 12, 2018.
31. Chidi Oguamanam, "[Indigenous Data Sovereignty: Retooling Indigenous Resurgence for Development](#)," Centre for International Governance Innovation, December 5, 2019; Obar and McPhail, "Preventing Big Data Discrimination in Canada."
32. Department of Economic and Social Affairs, "[United Nations Declaration On The Rights Of Indigenous Peoples](#)," United Nations, accessed July 7, 2023; First Nations Information Governance Centre (FNIGC), "[Introducing A First Nations Data Governance Strategy](#)," March 18, 2020.
33. FNIGC, "[Introducing A First Nations Data Governance Strategy](#)."
34. Institute for Clinical Evaluative Sciences (ICES), "[Indigenous Portfolio](#)," accessed April 4, 2023.
35. Crown-Indigenous Relations and Northern Affairs Canada, "[Delivering on Truth and Reconciliation Commission Calls to Action](#)," Government of Canada, accessed April 4, 2023.
36. First Nations Information Governance Centre (FNIGC), "[Exploration of the Impact of Canada's Information Management Regime on First Nations Data Sovereignty](#)," August 2022.
37. First Nations Information Governance Centre (FNIGC), "[First Nations Data Sovereignty in Canada](#)," Statistical Journal of the IAOS, vol. 35, no. 1, March 19, 2019.
38. British Columbia First Nations' Data Governance Initiative (BCFNDGI), "[Indigenous Nations Asserting Data Sovereignty](#)," accessed April 10, 2023.
39. First Nations Information Governance Centre (FNIGC), "[About FNIGC](#)," accessed January 10, 2023.
40. First Nations Information Governance Centre (FNIGC), "[The First Nations Principles of OCAP®](#)," accessed January 10, 2023.
41. Stats NZ Tātaraunga Aotearoa, "[Integrated Data Infrastructure](#)," accessed April 4, 2023.
42. Craig Jones et al., "[Building on Aotearoa New Zealand's Integrated Data Infrastructure](#)," Harvard Data Science Review, vol. 4, no. 2, Apr 28, 2022.
43. Stephanie Carroll Rainie et al., "[The State of Open Data: Histories and Horizons](#)," African Minds and International Development Research Centre, May 22, 2019.
44. Oguamanam, "[Indigenous Data Sovereignty](#)."
45. Organisation for Economic Cooperation and Development (OECD), "[Trust in Government](#)," accessed July 7, 2023.
46. Canada Revenue Agency, "[Two accounts, one password](#)," Government of Canada, April 15, 2021.
47. Treasury Board of Canada Secretariat, "[A simplified digital experience](#)," Government of Canada, June 13, 2018.
48. Shared Services Canada, "[Departmental Results Report 2018-19](#)," November 2022.
49. GovTech Singapore, "[Smart Nation Fellowship Programme](#)," accessed January 11, 2023.
50. Douglas G. Manuel et al., "[The Role of Wastewater Testing for SARS-CoV-2 Surveillance](#)," Ontario COVID-19 Science Advisory Table, August 26, 2021.
51. Observatory of Public Sector Innovation, "[Pro-active Family Benefits](#)," accessed July 7, 2023.
52. Ibid.

The Future of Canada Centre facilitates an exploration of new ideas, viewpoints, and insights about our country's most important national issues, with the aim of helping propel Canada into a new age of growth and competitiveness. It houses a team of Deloitte's most innovative thinkers and experienced leaders, who are valued influencers in their respective fields. →



A vision for a thriving Canada in 2030

→ **Download our report at
deloitte.ca/canada2030**



www.deloitte.ca

This publication contains general information only and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor. Deloitte shall not be responsible for any loss sustained by any person who relies on this publication.

About Deloitte

Deloitte provides audit and assurance, consulting, financial advisory, risk advisory, tax, and related services to public and private clients spanning multiple industries. Deloitte serves four out of five Fortune Global 500® companies through a globally connected network of member firms in more than 150 countries and territories bringing world-class capabilities, insights, and service to address clients' most complex business challenges. Deloitte LLP, an Ontario limited liability partnership, is the Canadian member firm of Deloitte Touche Tohmatsu Limited. Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see *www.deloitte.com/about* for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

Our global Purpose is making an impact that matters. At Deloitte Canada, that translates into building a better future by accelerating and expanding access to knowledge. We believe we can achieve this Purpose by living our Shared Values to lead the way, serve with integrity, take care of each other, foster inclusion, and collaborate for measurable impact.

To learn more about Deloitte's approximately 412,000 professionals, over 14,000 of whom are part of the Canadian firm, please connect with us on *LinkedIn*, *Twitter*, *Instagram*, or *Facebook*.

© Deloitte LLP and affiliated entities.

Designed and produced by the Agency | Deloitte Canada. 23-7704439