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Annual Report on the 2023–2026 Data Strategy for the Federal Public Service

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Annual Report on the 2023–2026 Data Strategy for the Federal Public Service

From: Treasury Board of Canada Secretariat

On this page

Message from the Chief Data Officer of Canada

Data plays a crucial role in making well-informed decisions. It is essential for developing services, programs and policies. In today's digital era, managing data is vital to maximizing its benefits across entire organizations.

The 2023–2026 Data Strategy for the Federal Public Service (the Data Strategy) is an opportunity to:

- improve how we govern and manage data

- invest in talent
- foster a culture of innovation and collaboration
- ensure data privacy and security

We are implementing the Data Strategy by building on existing federal processes, policies and data initiatives. By aligning with and expanding on previous work, we are establishing a solid foundation for data governance within the Government of Canada (GC). This fosters interoperability, transparency and data-driven decision-making. Effective data management not only improves current operations, but also prepares the GC for artificial intelligence (AI) and supports the upcoming AI Strategy.

Executive summary

The Data Strategy has been crucial in helping us fully harness the power of data. Our goal is to use data strategically and shift how we manage data across our organization. This report covers our accomplishments, the challenges we faced and the future of our data-centred initiatives.

Key accomplishments in year one of the Data Strategy include:

- Defining and establishing data management **governance and processes** to support data interoperability and reuse:
    - establishing an assistant deputy minister–level committee for enterprise-wide data initiatives with links to working-level committees through the Community of Practice on Data and Information and the Chief Data Officers Council
    - clarifying the roles and responsibilities for those managing or working with data
    - integrating data considerations into governance processes, such as the Chief Financial Officer (CFO) attestation, for effective resource allocation of data investments
- Developing common **standards and guidelines** to support interoperability and data exchange across government:

    - established the GC Enterprise Data Reference Standard, a new policy instrument to support data interoperability. The first three data reference standards were endorsed for use across the GC, with more being developed
    - developed the Standard for Managing Metadata and the Guidance on Data Quality to provide direction on sound data management practices
- Strengthening **knowledge sharing, collaboration and partnerships** across departments and agencies and with external stakeholders to use and retain expertise and resources:
    - launching the Data Toolkits Catalogue on GCXchange (internal link) to help public servants acquire, manage and use data-related hardware, storage and software
    - launching the Federal Open Science Repository of Canada to give Canadians access to federal scientific articles and publications for free
    - developing the Federal Science DataHub, a GC cloud-based platform to help scientists share data and collaborate
    - merging the Enterprise Data Community of Practice and Information Management Leaders groups to create the Community of Practice on Data and Information (internal link) to promote alignment and coordination within the data and information community, and collaboration on shared interests

In the coming year, we will continue to build on these accomplishments and to develop data reference standards and tools to improve data interoperability.

In the second year of the Data Strategy, we will add the following areas of focus:

- **Legislation** will be reviewed and clarified, and the data skills of public service employees improved, to address concerns about data sharing

and re-use of data sources across the GC
- **Public service employees** will improve their ability to use data effectively in their work, within defined roles and responsibilities. We will develop tools to assess skills gaps and explore data training opportunities, including launching new Canada School of Public Service courses on data foundations, principles of ethical data and disaggregated data
- We will develop a framework for the ethical stewardship and responsible use of data, along with guidance and service standards that prioritize “open by design,” to use data to its full potential

We will continue to assess the enterprise’s current state of data and information management. This will set the stage for actions to address challenges and make the most of opportunities.

Introduction

In 2018, the GC issued the Data Strategy Roadmap Report to the Clerk of the Privy Council. This report aimed to improve how data governance is handled across the entire government. The COVID-19 pandemic underscored the importance of analyzing data not only in our organization, but also globally and across different jurisdictions.

The Data Strategy built upon this report, activating whole-of-government change through its four missions:

- Data by design
- Data for decision-making
- Data driven services
- Empowering the public service

This first year of implementation of the Data Strategy, fiscal year 2023 to 2024, laid a strong foundation for the GC to succeed in year two and beyond.

Year one: laying a foundation for success

▶ In this section

For the GC to effectively use data to deliver services, we need to build the foundation first. This was the goal of the first year of the Data Strategy Implementation Roadmap.

Several federal departments and agencies have supported these efforts. Some of their successes are highlighted below. A more detailed view of each Data Strategy Mission and associated Actions can be found in the tracker and in Appendix A.

The accomplishments highlighted in this report focus on the 8 priorities identified in the Roadmap for the first year. Federal departments and agencies are making significant progress in advancing their data strategies, each tailored to their unique contexts and requirements.

Enhancing governance

To successfully implement the Data Strategy, we must improve how we manage government-wide initiatives that use data. In the initial months of the Roadmap implementation, we established an Assistant Deputy Minister Committee on Data and Information. The committee is chaired by the Chief Data Officer (CDO) of Canada and connects to existing working-level committees through the Community of Practice on Data and Information and the Chief Data Officers Council (see Action 1.1.c).

We formed working groups with clear responsibilities to develop, review and refine the deliverables in the Data Strategy. This approach significantly improved how we coordinate efforts, as other leaders came forward to chair these groups, as well as contribute to and help set priorities. It also laid the groundwork for ongoing collaboration across the GC.

The Data Strategy also emphasized the importance of clarifying roles and responsibilities for those managing or using data. We have started drafting accountabilities for Chief Digital Service Officers and Chief Data Officers as part of a comprehensive leadership framework.

We are also reviewing and mapping roles, responsibilities and data stewardship of comptrollership and human resource data assets (see Action 1.1.c). This ensures that everyone involved understands their obligations and roles in data governance, which makes it easier to use data as an asset.

Data considerations are now being more integrated into governance processes. One example is the Guideline on Chief Financial Officer (CFO) Attestation for Cabinet Submissions (see Action 1.3.b).

These data considerations will, among other things, ensure that the CFO consults with the organization responsible for data (typically under the CDO). This will ensure that the financial impacts of a proposal's data life cycle requirements, including operations and performance measurement, are adequately addressed. Integrating considerations and data costing helps assess feasibility and appropriately allocate resources for data-related investments.

Strengthening data foundations

While governance was being established, the foundations of data management were also strengthened. Teams working across the Treasury Board of Canada Secretariat (TBS), with the support of Statistics Canada and the Privy Council Office, developed a new policy instrument called the GC Enterprise Data Reference Standard to support interoperability across the GC (see Action 2.2.a). Along with key partners, we are refining the process to develop and approve specific data reference standards. The first three data reference standards were published in the first year of implementation.

TBS and Indigenous Services Canada have made important progress on developing standards on Indigenous characters and syllabics. These standards will help Indigenous Peoples reclaim their traditional names, in line with the Truth and Reconciliation Commission's Call to Action 17 (see Action 2.1.c).

The Standard for Managing Metadata was approved and took effect in January 2024. It replaced the 2010 Standard on Metadata (see Action 2.2.b). The new standard provides direction to GC departments on managing metadata for all GC information and data. It emphasizes that effective management of information and data requires the proper handling of metadata.

The Guidance on Data Quality was approved and published following GC-wide consultations (see Action 2.2.c). The guidance is based on the GC Data Quality Framework and provides a common vocabulary for understanding data quality and advice on how to ensure it in practice.

The guidance defines data quality according to 9 dimensions:

- access
- accuracy
- coherence
- completeness
- consistency
- interpretability
- relevance
- reliability
- timeliness

Each dimension has recommended practices to help assess and manage data quality. Departments can use the Guidance on Data Quality to help improve data availability and interoperability, and the design and delivery of policies, programs and services across the government.

Sharing knowledge

In addition to strengthening data foundations, we focused on harnessing existing data and information expertise across the GC. The Canada School of Public Service (CSPS) launched a Data Toolkits Catalogue on GCXchange (internal link) in December 2023 to give public servants resources for acquiring, managing and using data-related hardware, storage and software (see Action 4.3.c).

The Toolkits catalogue is part of the GC Data Community Data Resources Hub, which includes themed pages on data-related topics. We are collaborating with other departments to improve the collection, attract a larger audience and support government initiatives.

The Federal Open Science Repository of Canada was launched in January 2024. This GC online portal allows Canadians to access federal scientific articles and publications for free. In addition, the SSC Science Program is working with the federal science community to co-develop the Federal Science DataHub (FSDH) (see Action 3.2.e). The FSDH is a GC cloud-based platform that provides federal scientists with world-class data infrastructure and analytical solutions using a self-service model. The FSDH helps scientists share and collaborate through dedicated workspaces. SSC launched a pilot with 10 science departments in 2023 to refine the platform for broader use within the GC.

In 2023, the Enterprise Data Community of Practice and Information Management Leaders groups merged to create the Community of Practice on Data and Information. This community focuses on maximizing the value of strategic data and information assets in the GC by:

- promoting alignment and coordination within the data and information community
- fostering collaboration on shared interests
- improving the development and upkeep of best practices

For example, there are 4 working groups and 2 communities of practice dedicated to foundational information and data management, which creates broader consultation across departments.

Together, these platforms and forums help the exchange of knowledge and expertise, and are promoting efficiency, innovation and a culture of collaboration.

Year two: building toward interoperability

As we start the second year of the Data Strategy in fiscal year 2024 to 2025, we are committed to building on year one's progress, while also starting new projects. We will bring in more key players to help us maintain our momentum. The success of the Data Strategy depends on GC-wide commitment, with leaders from different areas providing guidance and setting priorities.

For the coming year, TBS has set 18 individual priorities within the 4 missions outlined in the introduction. These priorities will be pursued alongside ongoing improvements, such as developing and approving more complex sets of data reference standards and strengthening governance.

The 18 priorities cover a wide range of initiatives aimed at:

- strengthening data governance, management and planning
- establishing enterprise data talent management frameworks
- improving data sharing to optimize the use and reuse of data assets for policy, program and service delivery

Initiatives to improve data management and data sharing include reviewing and developing information management and data policy instruments, and developing a FAIR (findable, accessible, interoperable, reusable) assessment tool to improve data usability and interoperability. Strengthening data

governance and planning will involve clarifying data leadership roles and responsibilities and developing guidance for data needs during policy development.

To manage GC data talent and optimize data use for programs and services, we will:

- create tools to assess data skills
- explore opportunities for data training and recruitment
- promote data careers in the public service
- integrate data skills development into human resources training plans

We will also develop a framework for ethical data management and responsible data use, along with guidance and standards that prioritize “open by design” principles.

To improve data sharing within the GC and across jurisdictions, we will review data sharing challenges and propose solutions to address barriers to sharing. We will also explore developing guidelines for building data hubs to centralize data and promote efficient sharing and collaboration. We will also work with Indigenous Services Canada to develop policies and protocols to respect Indigenous data sovereignty and governance to identify, share, manage and govern Indigenous data responsibly and ethically.

As we expand our data reuse and sharing capabilities, we also need to ensure appropriate security and privacy safeguards. The safeguards will be established through improved data governance and management practices, along with efforts to train employees and clarify their roles and expected behaviours.

We will approach each task the same way as year one’s foundational work: plan, design, experiment and scale to the GC enterprise. The Data Strategy implementation team will continue to look for opportunities to engage and collaborate with partners and stakeholders across the GC.

2026 and beyond: identifying gaps and challenges

The Data Strategy set out an ambitious agenda to start using the GC's considerable data and information assets in better ways. It is only a start, however. Insights from various departments and agencies offer valuable perspectives on moving toward a culture of data-driven digital service delivery.

We need to tackle the various challenges identified through engagement activities. These challenges include issues with:

- governance
- data access and privacy
- the need for ongoing culture change
- artificial intelligence (AI)
- resource and capacity limitations

While these challenges may be difficult, they also offer opportunities for growth and improvement. As we move into year two of the Data Strategy, key plans are in place to address these challenges positively, in line with the 4 missions outlined in the Data Strategy.

We will focus on the following approaches in year two to effectively tackle these challenges and advance the missions of the Data Strategy:

- **Assessment and prioritization:** ongoing assessment of the GC's current data and information management for targeted action
- **Resource allocation:** fundamental for achieving objectives and maximizing impact
- **Capacity building:** promoting and investing in employee training and development that reflect the cultural transformation and emerging opportunities (such as AI, data sharing)
- **Collaboration and partnerships:** collaborating across the GC is vital to ensuring that the Data Strategy Actions address real issues and resolve

true data and information problems
- **Change management:** stakeholder buy-in will be essential for overcoming the challenges of culture change (for example, AI implementation)
- **Monitoring adoption:** ensuring continuous improvement so that the GC can effectively address challenges and capitalize on opportunities for growth and enhancement

Conclusion

In year one of the Data Strategy, we laid a solid foundation for managing and governing our data, focusing on engagement, accountability and collaboration. As we move forward, we are dedicated to continuous improvement, innovation and collaborative efforts to shape the future of public services.

This first Annual Report highlights how individual departments are contributing to these efforts, tailoring strategies to their contexts and needs while aligning with the Data Strategy.

As we unlock the full potential of data, we will build on these achievements. We will work toward strengthening our data governance, management and planning; establishing enterprise data talent frameworks; and improving data sharing to better use data for policy, program and digital service delivery.

Appendix A: progress on year one action items

Use the Data Strategy to view the complete list of Data Strategy Actions.

1.1.c. TBS will clarify roles and responsibilities, and

interconnections between existing data bodies and activities.

- An Assistant Deputy Minister (ADM) Committee on Data and Information, chaired by the Chief Data Officer (CDO) of Canada, was established with links to existing working-level committees through the Community of Practice on Data and Information and the Chief Data Officers Council.
- The accountabilities for Chief Digital Service Officer and Chief Data Officers have been drafted and will form part of a comprehensive leadership framework.
- A review and mapping to clarify roles and responsibilities and data stewardship of comptrollership and human resource data assets is underway.

1.3.b. Central agencies will provide guidance on strengthening the consideration of data, such as the identification of data activities that are needed throughout an initiative's life cycle, to inform appropriate resource allocation.

- Data considerations have been included in the in the guidance for Cabinet submissions, including the updated Guideline on the Chief Financial Officer Attestation for Cabinet Submissions and the Guide to Costing in TB Subs.

2.1.a. TBS will develop, and work with departments to implement, a protocol identifying and assigning domain data stewards across the public service with clear accountabilities for endorsement, approval and stewardship.

- Work is underway with the CDO Council to develop data stewardship responsibilities within and across federal organizations. This includes the eventual development of a data domain model, including identifying stewards for enterprise data reference standards.

2.1.c. TBS, with the support of Indigenous Services Canada (ISC), will advance the development of government standards on data interoperability that will enable Indigenous Peoples to reclaim their traditional names, in line with the Truth and Reconciliation Commission's Call to Action 17.

- Work is underway by TBS and ISC to develop standards on Indigenous characters and syllabics.
- In fiscal year 2022 to 2023, ISC conducted a departmental analysis of requirements in support of the government-wide response to the Truth and Reconciliation Commission Call to Action 17. This environmental study underlined the significance of the technical and policy considerations in properly addressing the issues around Indigenous name reclamation. The respective considerations brought forward questions and challenges which are currently under ISC advisement.
- These questions focus on:
    - establishing system and data interoperability with the introduction of Indigenous characters and syllabics
    - establishing the scope of Indigenous languages and characters in the implementation of the Indigenous name reclamation
    - addressing the lack of alignment between Indigenous mononym (that is, single names with one construct) naming practices and system requirements to input both first and last names for individuals
    - evaluating the Unified Canadian Aboriginal Syllabics character set in collaboration with an Indigenous advisory committee with the purpose of incorporating Indigenous characters and syllabics in their entirety and further establishing a process for adding/modifying characters
- In light of the study findings, in collaboration with TBS, ISC is working to develop two data standards; namely, a data standard on name architecture and a data standard on character set recognition to enable interoperability.

2.2.a. TBS will set expectations and work with StatCan and others to enable the use of common standards through the development of an evergreen list of standards for GC-wide adoption and scaling of StatCan's Reference Data as a Service.

- A new policy instrument called the GC Enterprise Data Reference Standard was developed to support interoperability across the GC. The first three data reference standards were published.

2.2.b. TBS will set expectations and work with StatCan and others to enable data discovery, integration and reuse by reviewing and developing information and data management policy instruments such as the Treasury Board Standard on Metadata, developing a FAIR assessment tool (findable, accessible, interoperable and reusable) and providing guidance on the evaluation of existing data for reuse.

- The Standard for Managing Metadata was approved and took effect in January 2024. It replaced the 2010 Standard on Metadata. The new standard provides direction to GC departments on managing metadata for all GC information and data. It emphasizes that effective management of information and data requires the proper handling of metadata.

2.2.c. TBS and Statistics Canada will formalize and work with departments on guidance to support implementation of the recently developed GC Data Quality Framework.

- The Guidance on Data Quality was approved and published following GC-wide consultations. The guidance is based on the GC Data Quality Framework and provides a common vocabulary for understanding data quality and advice on how to approach it in practice.

3.2.e. SSC will pilot data storage and collaboration solutions for unclassified data that meet the needs of scientific researchers and serve as an initial step towards exploring and validating the

infrastructure requirements to enable improved data sharing between departments.

- The Federal Open Science Repository of Canada was launched in January 2024 to allow Canadians to access federal scientific articles and publications for free.
- The Federal Science DataHub (FSDH) was developed by the SSC Science Program in collaboration with the federal science community. The FSDH is a GC cloud-based platform that provides federal scientists with world-class data infrastructure and analytical solutions using a self-service model. The FSDH helps scientists share and collaborate through dedicated workspaces.

4.3.c. Canada School of Public Service will coordinate a common location for departments to share information about the toolkits they have developed.

- A Data Toolkits Catalogue on GCXchange (internal link) was launched in December 2023 to give public servants resources for acquiring, managing and using data-related hardware, storage and software. The Toolkits catalogue contains resources from 19 departments and agencies and is part of the GC Data Community Data Resources Hub with themed pages on data-related topics.

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