Roles of NSO in the new data ecosystem:

Data stewardship discussion
at the Conference of European Statisticians and in Canada

Delivering insight through data for a better Canada

Conference of Europeans Statisticians' Perspective

Collaborative papers produced for UNECE

Including changing/emerging roles of NSOs in new data ecosystems

Seminars organized for CES plenary

"Emerging role of NSOs as office for statistics and data", in June 2019

UNECE HLG-MOS and data stewardship informal task team

Key input paper written by Estonia with contribution from Albania, Canada, Ireland, Italy, the Netherlands, New Zealand, Poland and the UNECE Secretariat

21 considerations for roles of NSOs

Included in task team's updated paper "Implementation of the new role of national statistical offices at the time of expanded possibilities"

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Conference of Europeans Statisticians' Perspective: Data Stewardship – next step for NSO

Some of the 21 considerations in the paper (ECE/CES/2020/10) include the recommendation that NSOs assuming a leadership or an advisory role on the following areas:

Data governance and stewardship	Encouraging the appointment of a Chief Data Officer or similar role	Supporting role on data literacy and data science
Elaboration of national data strategies	Creation of common data standards, quality frameworks, data policies, legislative frameworks and data ethics protocols	

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Canada

Conference of Europeans Statisticians' Perspective: Members views (2019)

The paper used as key source proposed a light survey to gather countries' views

CES survey

- Conducted in 2019 as input to the seminar
- 48 countries responded
- Questions on changing roles as a result of the evolving data ecosystem

Survey results

1. Most NSOs saw a need to change/adapt their role.
2. Most NSOs planned to consider the following:
   - establishing strategic partnerships
   - acquiring new data sources and talent/skills
   - adapting and changing processes

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Conference of Europeans Statisticians' Perspective: Recent work (2020)

Continued discussion focused on implementation at the 2020 plenary.

The role of NSOs is changing in response to new demands and opportunities, and this has been accelerated by the COVID-19 crisis.

No "one-size-fits-all" solution.

Task force to work on turning the 21 considerations of the Estonia *et al* paper into a roadmap and action plan to support NSOs.

International collaboration between relevant initiatives is needed.

Canadian perspective: drivers for action

Absence of horizontal governance for strategic direction on data issues	Lack of data literacy and cultural reticence to break silos
Lack of adequate digital infrastructure and a complex rules framework	Challenge of acquiring, governing and managing large volumes of disparate data

Delivering insight through data for a better Canada
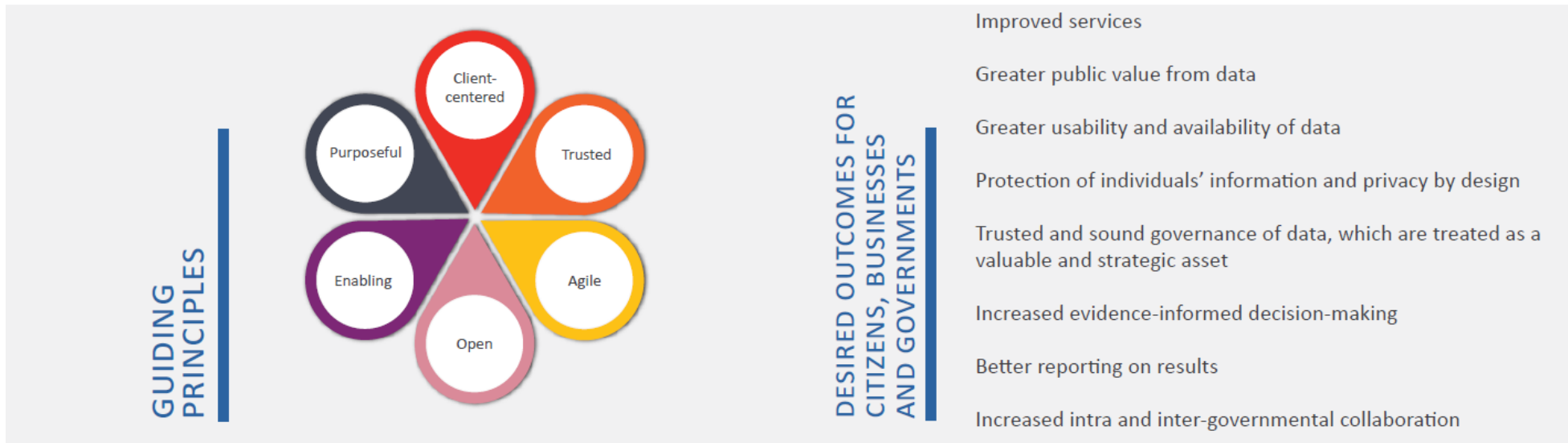
Canadian perspective: data strategies

Many countries creating whole-of-government data strategies

Data Strategy Roadmap for the Federal Public Service (DSFPS)
- Developed in collaboration by:
    - Statistics Canada
    - Privy Council Office (central agency)
    - Treasury Board Secretariat (central agency)

Statistics Canada   Statistique Canada

Canada

DATA STRATEGY FRAMEWORK FOR THE FEDERAL PUBLIC SERVICE

A whole-of-government approach to creating, protecting, using, managing and sharing data as a strategic asset, enabling informed decisions that lead to better outcomes and services for Canadians

GUIDING PRINCIPLES

- Client-centered
- Purposeful
- Trusted
- Enabling
- Open
- Agile

DESIRED OUTCOMES FOR CITIZENS, BUSINESSES AND GOVERNMENTS

Improved services

Greater public value from data

Greater usability and availability of data

Protection of individuals' information and privacy by design

Trusted and sound governance of data, which are treated as a valuable and strategic asset

Increased evidence-informed decision-making

Better reporting on results

Increased intra and inter-governmental collaboration

PROPOSED PILLARS

People and culture

The government has the talent and capacity it needs to manage, interpret, use and understand data. Includes, for example:

- Culture
- Skills
- Recruitment and retention
- Development and training

Environment and digital infrastructure

Processes and infrastructure are aligned to turn good data and analysis into action. Includes, for example:

- Enabling infrastructure and tools
- Security, confidentiality and integrity
- Privacy
- Legislation and supporting policies

Data as an asset

The government has the data it needs, which are fit for use, discoverable, and available. Includes, for example:

- Planning and stewardship
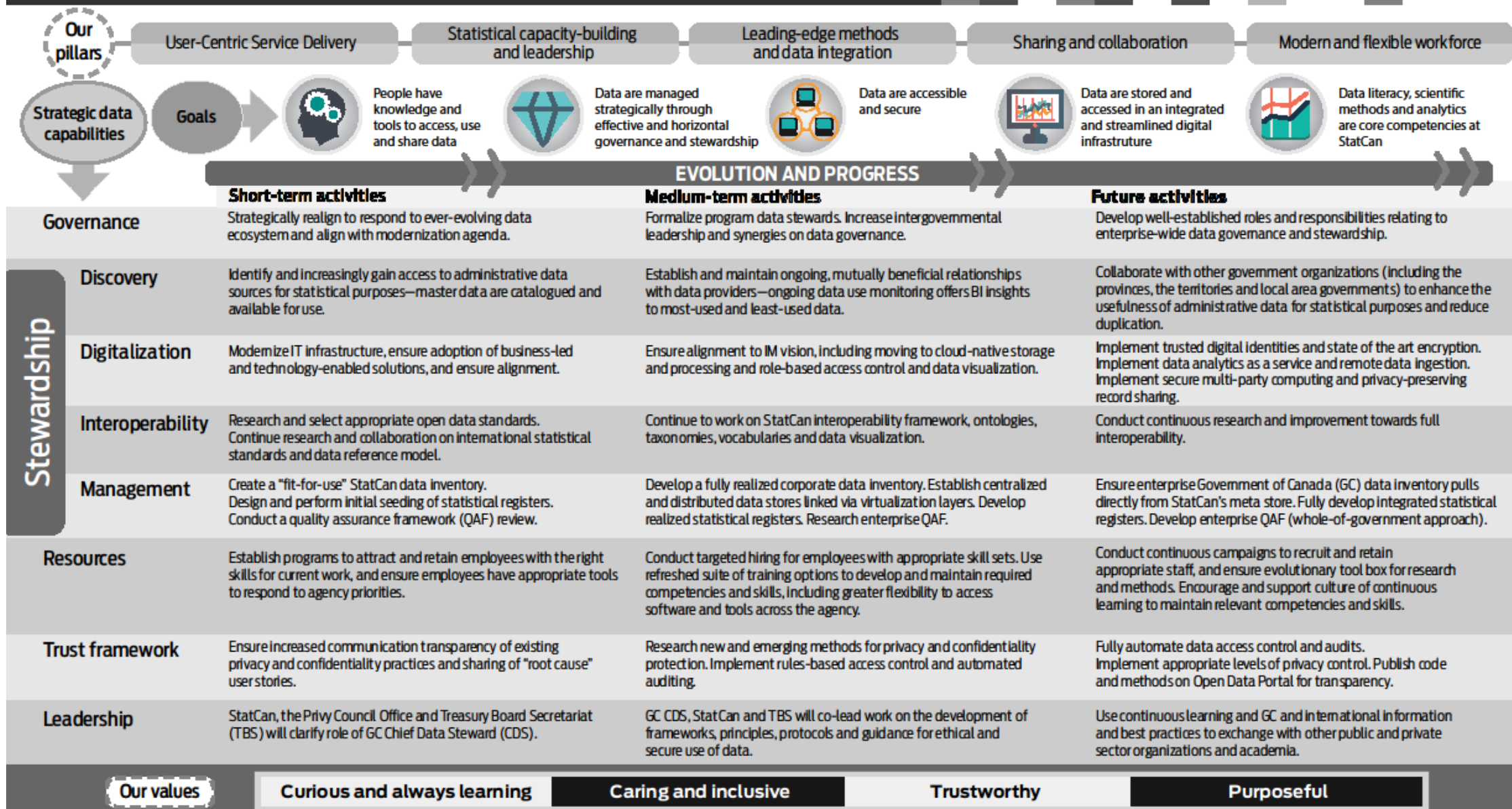- Use
- Quality
- Storage
- Sharing and access

FOUNDATION

Governance

Governance exists at the right levels to ensure that data are managed holistically as a strategic asset. Includes accountability, roles and responsibilities.

Communication

Transparency to Canadians on the government's management and use of data, as well as effective intra and inter-governmental communication.

Statistics Canada Data Strategy
Our vision: Delivering insight through data for a better Canada

Our pillars

| User-Centric Service Delivery | Statistical capacity-building and leadership | Leading-edge methods and data integration | Sharing and collaboration | Modern and flexible workforce |

Strategic data capabilities → **Goals**

- People have knowledge and tools to access, use and share data
- Data are managed strategically through effective and horizontal governance and stewardship
- Data are accessible and secure
- Data are stored and accessed in an integrated and streamlined digital infrastruture
- Data literacy, scientific methods and analytics are core competencies at StatCan

EVOLUTION AND PROGRESS

	Short-term activities	Medium-term activities	Future activities
Governance	Strategically realign to respond to ever-evolving data ecosystem and align with modernization agenda.	Formalize program data stewards. Increase intergovernmental leadership and synergies on data governance.	Develop well-established roles and responsibilities relating to enterprise-wide data governance and stewardship.
Stewardship — Discovery	Identify and increasingly gain access to administrative data sources for statistical purposes—master data are catalogued and available for use.	Establish and maintain ongoing, mutually beneficial relationships with data providers—ongoing data use monitoring offers BI insights to most-used and least-used data.	Collaborate with other government organizations (including the provinces, the territories and local area governments) to enhance the usefulness of administrative data for statistical purposes and reduce duplication.
Stewardship — Digitalization	Modernize IT infrastructure, ensure adoption of business-led and technology-enabled solutions, and ensure alignment.	Ensure alignment to IM vision, including moving to cloud-native storage and processing and role-based access control and data visualization.	Implement trusted digital identities and state of the art encryption. Implement data analytics as a service and remote data ingestion. Implement secure multi-party computing and privacy-preserving record sharing.
Stewardship — Interoperability	Research and select appropriate open data standards. Continue research and collaboration on international statistical standards and data reference model.	Continue to work on StatCan interoperability framework, ontologies, taxonomies, vocabularies and data visualization.	Conduct continuous research and improvement towards full interoperability.
Stewardship — Management	Create a "fit-for-use" StatCan data inventory. Design and perform initial seeding of statistical registers. Conduct a quality assurance framework (QAF) review.	Develop a fully realized corporate data inventory. Establish centralized and distributed data stores linked via virtualization layers. Develop realized statistical registers. Research enterprise QAF.	Ensure enterprise Government of Canada (GC) data inventory pulls directly from StatCan's meta store. Fully develop integrated statistical registers. Develop enterprise QAF (whole-of-government approach).
Resources	Establish programs to attract and retain employees with the right skills for current work, and ensure employees have appropriate tools to respond to agency priorities.	Conduct targeted hiring for employees with appropriate skill sets. Use refreshed suite of training options to develop and maintain required competencies and skills, including greater flexibility to access software and tools across the agency.	Conduct continuous campaigns to recruit and retain appropriate staff, and ensure evolutionary tool box for research and methods. Encourage and support culture of continuous learning to maintain relevant competencies and skills.
Trust framework	Ensure increased communication transparency of existing privacy and confidentiality practices and sharing of "root cause" user stories.	Research new and emerging methods for privacy and confidentiality protection. Implement rules-based access control and automated auditing.	Fully automate data access control and audits. Implement appropriate levels of privacy control. Publish code and methods on Open Data Portal for transparency.
Leadership	StatCan, the Privy Council Office and Treasury Board Secretariat (TBS) will clarify role of GC Chief Data Steward (CDS).	GC CDS, StatCan and TBS will co-lead work on the development of frameworks, principles, protocols and guidance for ethical and secure use of data.	Use continuous learning and GC and international information and best practices to exchange with other public and private sector organizations and academia.

Our values: Curious and always learning | Caring and inclusive | Trustworthy | Purposeful

A Solid Data System for Addressing Emerging Data and Information Needs

Ethics, Privacy and Transparency

Metadata, Data Standards, Data Protection and Quality Guidelines

Infrastructure Support – Convening & Facilitating – Baseline Data & Analysis

Real Time Data Provisions

- Flash indicators
- Use of crowd-sourcing, web scraping and web panels
- Data partnerships
- Data support (data processing, data wrangling)
- Measuring emerging data & information needs

Data Expertise

- Data quality
- Interoperability standards
- Scientific methods
- Innovation
- Geospatial expertise
- Custom data output

Gather

- Innovative data collection methods
- Fast-track surveys
- Data collection partnerships
- Ensuring necessity and proportionality
- Ingestion of alternative data from external data sources

Guard

- Protected cloud platform
- Collaborative data space (CODAS)
- Real-time remote access
- Data Strategy support
- Privacy and ethics reviews of data
- Ensuring privacy and security

Grow

- Forecasting/now-casting
- Innovative modelling and simulation support
- Data science support (AI/ML, synthetic data creation)
- Data integration support
- Data standards support
- Hackathons

Give

- Analytical insights
- Dashboards /visualizations
- Geo-enabled data/geospatial dashboards
- Flash economic indicators
- Custom tabulations to support decision-making
- Hosting services

THANK YOU - MERCI - GRACIAS

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