



Data strategy implementation in a Major Government Department in the era of digital transformation

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CHIEF
DATA
OFFICE



IT'S TIME TO DO MORE WITH DATA

Abstract

- ❖ Enhancing service delivery and meeting growing expectations requires the evolution of data strategies and governance structures to address key gaps and enable the right client-centric insights at the right time.
- ❖ This presentation discusses work being undertaken at Employment and Social Development Canada to develop enterprise data and analytics capabilities and provide timely evidence based insight – with the required security, legal, ethical and privacy protocols maintained.



Employment and Social Development Canada

Raison d'être

The mission of Employment and Social Development Canada (ESDC), including the Labour Program and Service Canada, is to build a stronger and more inclusive Canada, to help Canadians live productive and rewarding lives and to improve Canadians' quality of life.

Mandate and role

ESDC delivers programs and services to each and every Canadian throughout their lives in a significant capacity. ESDC fulfills its mission by:

- developing policies that ensure Canadians can use their talents, skills and resources to participate in learning, work and their community
- delivering programs that help Canadians move through life's transitions, from school to work, from one job to another, from unemployment to employment, from the workforce to retirement
- providing income support to seniors, families with children and those unemployed due to job loss, illness or caregiving responsibilities
- helping Canadians with distinct needs such as Indigenous people, persons with disabilities, homeless people, travelers and recent immigrants
- ensuring labour relations stability through the provision of dispute prevention and resolution services
- promoting fair, safe and healthy workplace conditions, promoting decent work and employment equity, and fostering respect for international labour standards
- delivering programs and services on behalf of other departments and agencies.



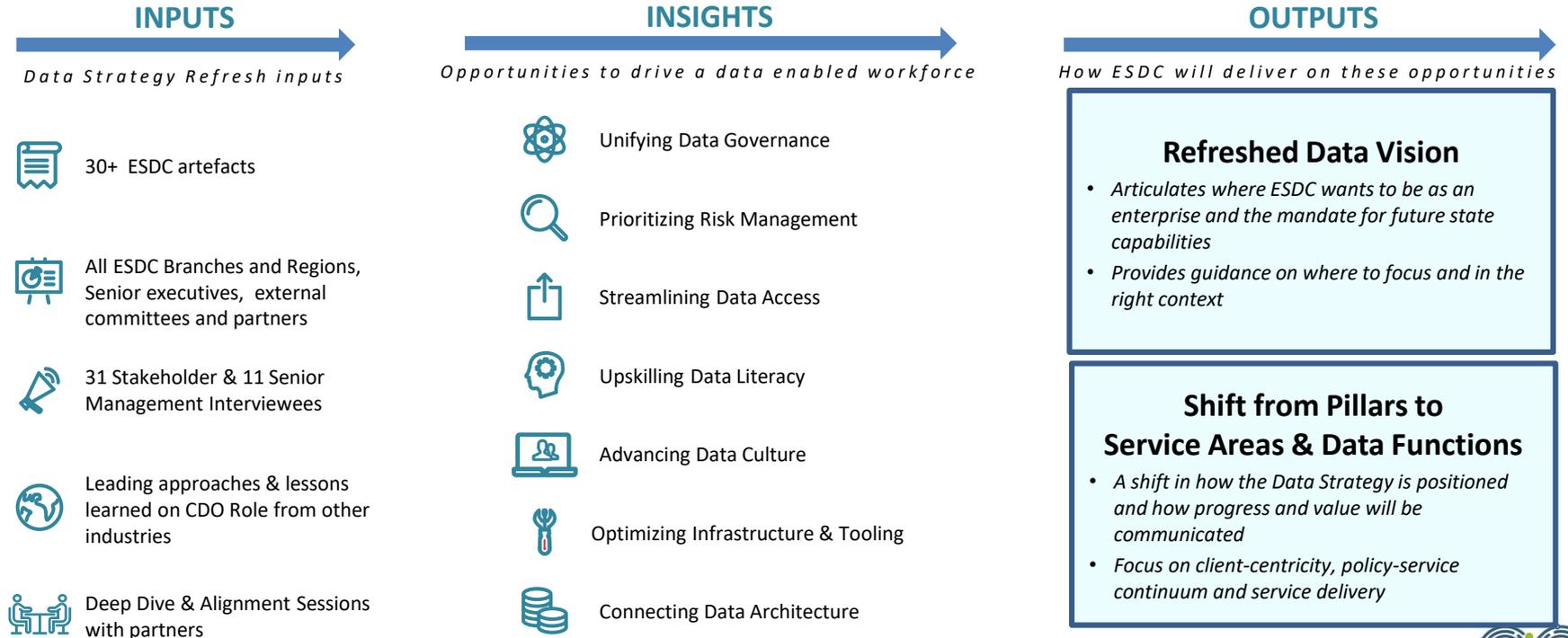
The need for the Right Insights at the Right Time

- ✓ Building data and analytics capabilities to provide **timely disaggregated data** – that meets the required privacy, security, legal and ethical protocols :
 - To improve our **understanding of the populations we serve** and the services they receive
 - To support **design and implementation** of a range of short and long-term interventions for our clients, including those most at-risk
- ✓ Enhanced transparency on **data and analytics to enable responsible innovation to generate relevant insights**
- ✓ **Enhanced ability to reach Canadians**, report on results and monitor the impacts of programs and services
- ✓ Create conditions to support **increased benefit take-up** and reduced barriers for at-risk populations



ESDC Data Strategy Refresh

The Chief Data Office led extensive internal and external engagements to maximize the value and impact ESDC's Data Strategy and ensure alignment with corporate priorities, including the Department's Transformation agenda.



ESDC's Data Strategy in Action

ESDC Data Strategy Vision

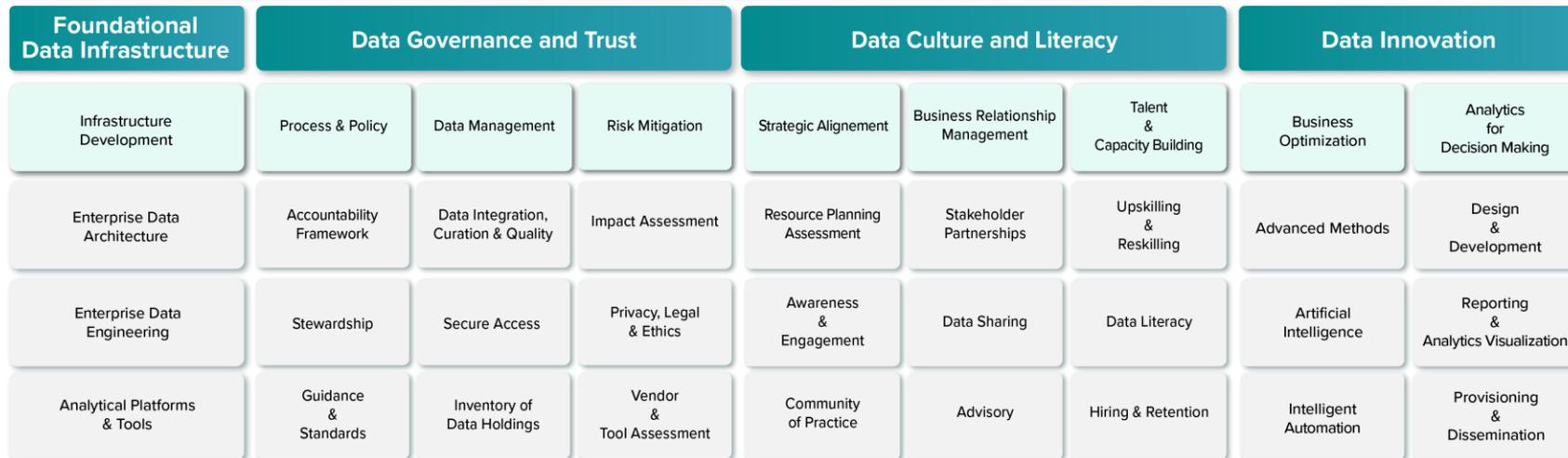
ESDC will drive toward better services and outcomes for all Canadians by empowering departmental employees to treat data as a shared, protected enterprise asset, grounded in a culture of data stewardship and collaboration.

LEGEND

Service Area

Workstream

Functional Grouping



COMMUNICATION - MONITORING - ISSUE MANAGEMENT - REPORTING

Foundational Data Infrastructure: Architectural design, tools and infrastructure support to enable data strategy implementation

Data Governance and Trust: Foundations for sustainable data management

Data Culture and Literacy: Empowering our employees and executives to better understand and use data

Data Innovation: Advice, methods and data science and analytics capacity to drive innovation and decisions with data

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Examples of initiatives underway under the service areas



Foundational Data Infrastructure

Data Science Machine Learning Platform - to provide a secure and robust environment that enables responsible scaling of advanced data science initiatives, e.g. training machine learning models using large datasets.

Enterprise Data Architecture – to design the strategy required to modernize the underlying data environment in order to improve efficiency and provide consistent access to critical data.

Data catalogue - to provide a picture of the Department's data holdings and the conditions necessary extract business value from key data assets.



Data Governance and Trust

Data Stewardship Network - to bring together data experts to share knowledge, minimize barriers to data access, leverage opportunities and ensure that common governance standards are applied to enterprise data assets.

Data Inventory - to understand our data holdings by identifying and collecting information on critical Departmental data assets at an enterprise level.

Risk impact assessment - to identify, assess and provide advice on implications and consequences of decisions that lead to enterprise data risks.



Data Culture and Literacy

ESDC- Statistics Canada Joint Data Strategy - to coordinate and leverage overlapping priorities between the departments and align data activities with key priorities, program and service delivery needs.

ESDC's Data Literacy Program - to empower employees and executives to manage and use data as an enterprise asset to enhance service delivery and client outcomes.

Data community of practice - to enable the sharing of best practices in data and analytics and increase the consistency and excellence in data practices across the department.



Data Innovation

Targeted Data Science initiatives - to optimize efficiencies and solve complex business problems through the implementation of innovative methods e.g. Application of natural language processing to text extraction.

Data Visualization strategy – to identify opportunities to leverage advanced visualizations strategies to generate dynamic insights.

Artificial Intelligence ethics/ Data ethics – to develop solutions and provide guidance on the responsible use of innovative methods.



Foundational Data infrastructure : Core infrastructure and tools

Enterprise data infrastructure to enable secure and timely access to trusted data.

Why? - Empowerment through trusted data assets

- To provide employees with the tools to discover, access, understand and use data assets; and
- Support timely informed decisions, due to greater business value from trusted data assets.

How? - Key Enterprise Data Infrastructure Projects

- Robust technology, consistent privacy and quality controls to balance the secure, ethical, and transparent use of data



Enterprise Data Warehouse



Data Lake



Data Science and Machine Learning Platform



Data Catalogue



Governance and Trust: Protecting personal information

Building Trust – leveraging technology



Collaboration with Statistics Canada to explore technologies such as **privacy preserving record linkage (PPRL)**.

- Enable data sharing across branches/departments/organization... while preserving Canadians' privacy.

Statistics Canada



PPRL

ESDC



Building Trust – moving beyond technology

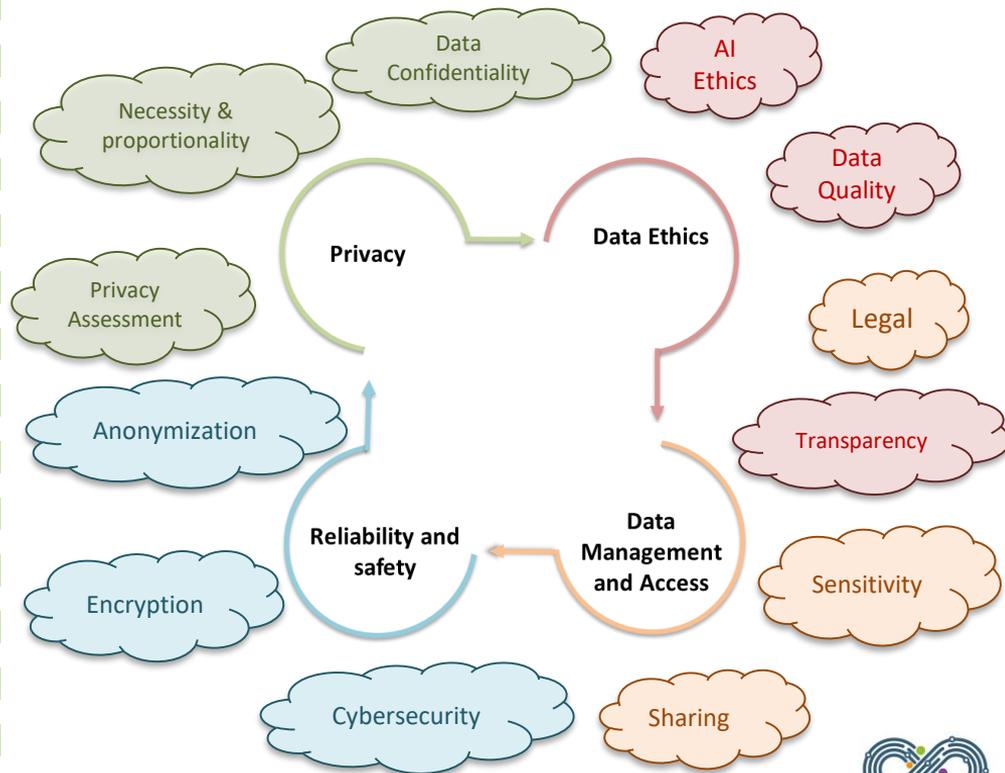


Continuously working on opportunities to **strengthen, maintain and build trust**.

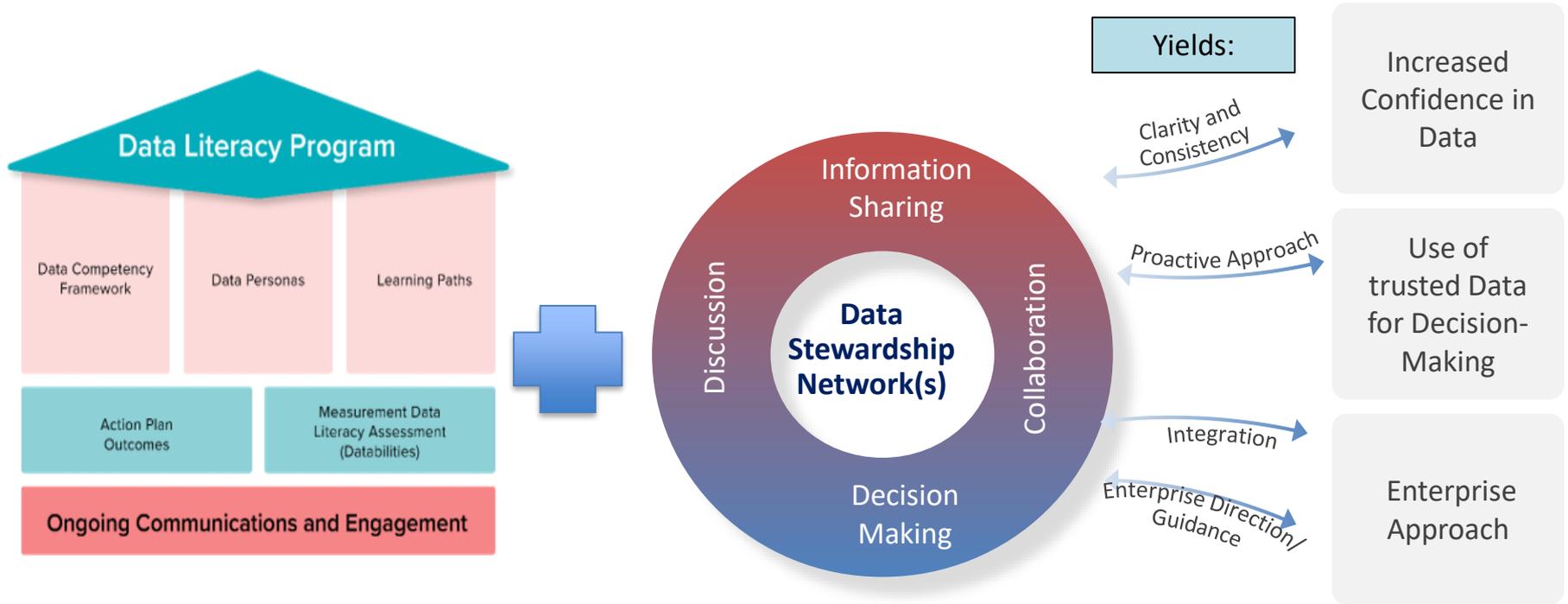
- Communicating and co-creation with key stakeholders.
- Leveraging expertise from a cross-section of private industries, as well as academia, government and the not-for-profit sector.
- Transparency – Consultation, Open Data, Public disclosure, etc.



AI: Interplay between multiple lens



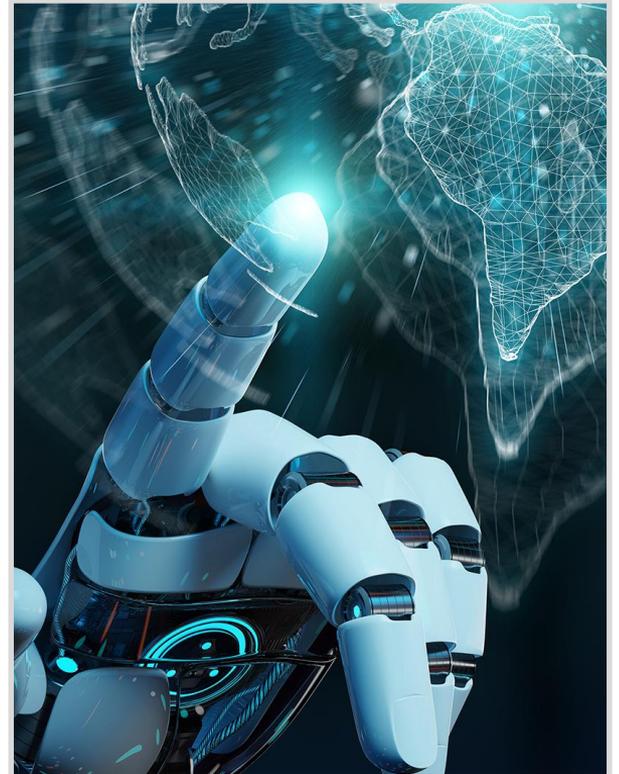
Data culture and literacy: ESDC's Data Literacy Program



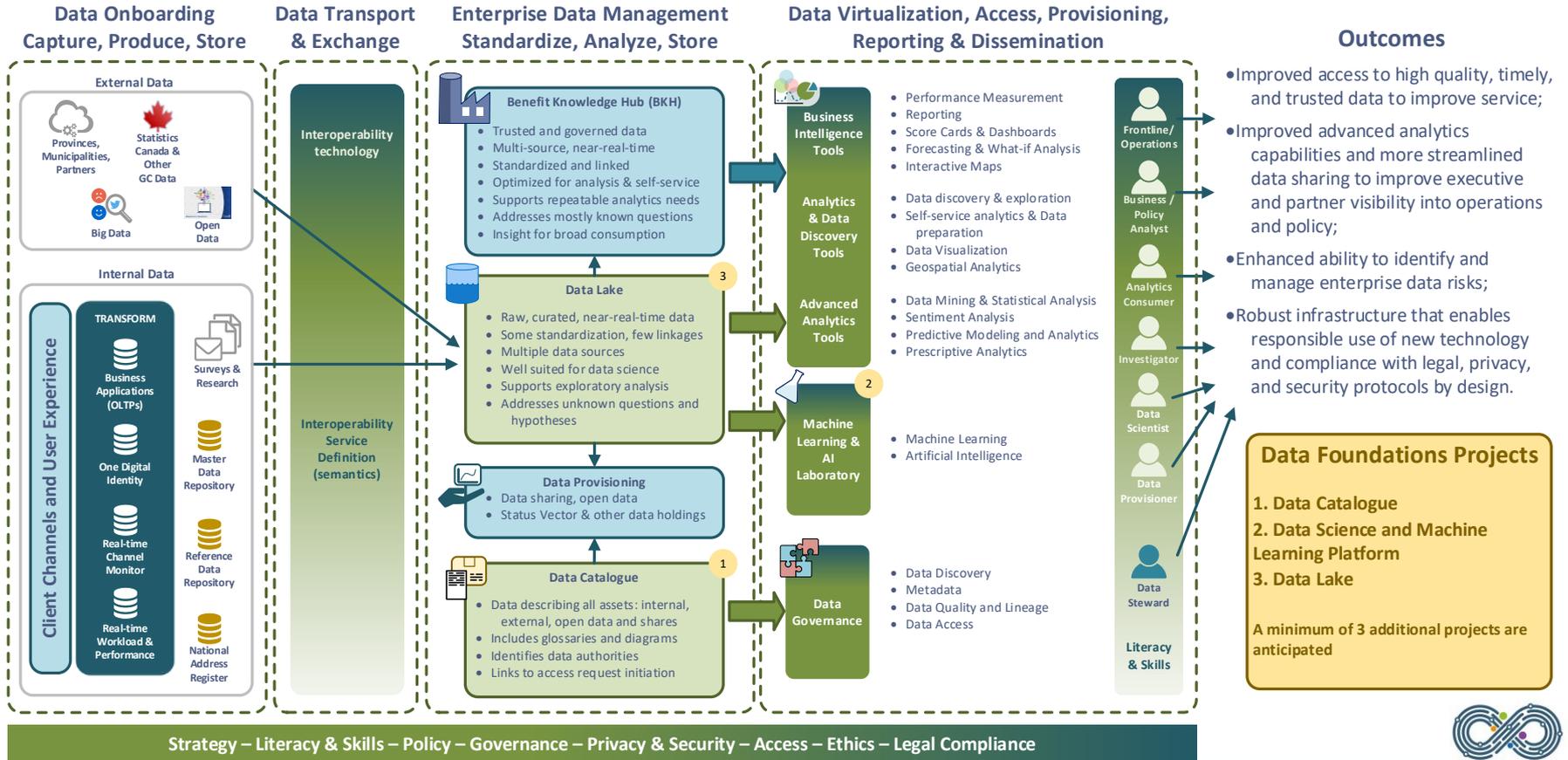
Innovation : Responsible use of artificial intelligence (AI)

- The Chief Data Office (CDO), Employment Insurance (EI) Benefits Delivery Services (BDS) and Innovation, Information and Technology Branch (IITB) are developing and implementing an artificial intelligence (AI)/machine learning solution that will interpret and assess free text comments captured by employers when records of employment (ROE) are issued.
- Based on very specific business rules, the AI will assess and predict simple actions (i.e. save or ignore comments, predict a different Reason for Separation [RFS]). The actions taken following an AI prediction will be saved within the internal interpretative notes used in the process of calculating EI claims.
- The original document (Record of Employment [ROE]) will not be modified.
- Risk Level = 2 (as per TBS Algorithmic Impact Assessment tool)

[For further information refer to: Algorithmic Impact Assessment - Record of Employment Comments \(ROEC\) – on the Open Government Portal \(canada.ca\)](#)



How it all fits together...



Next Steps

The department will continue to:

- ❑ promote evidence-based decision-making, and the responsible and ethical management and use of data and analytics
- ❑ collaborate with other government departments and stakeholders to fill key data gaps
- ❑ accelerate the implementation of core data infrastructure and enable responsible innovation using data and analytics.



Thank you !



Any questions, comments or suggestion?

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CDO**



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