



# Re-Thinking Data Quality in a Modern Framework

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Delivering insight through data for a better Canada



Statistics  
Canada

Statistique  
Canada

Canada



The national statistical  
agency of Canada  
established over 100 years  
ago

**Serving** Canadians with  
**high-quality** statistical  
information that matters

Recognized as one of the  
world's leading statistical  
agencies

Ensuring quality  
management through our  
Quality Guidelines and  
Quality Assurance  
Framework

Trusted Source of  
information –  
accurate, objective, and  
unbiased

Remaining relevant by  
listening to our data users  
and adapting

Statistics Canada

## What is Statistics Canada?

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Canada

Statistique  
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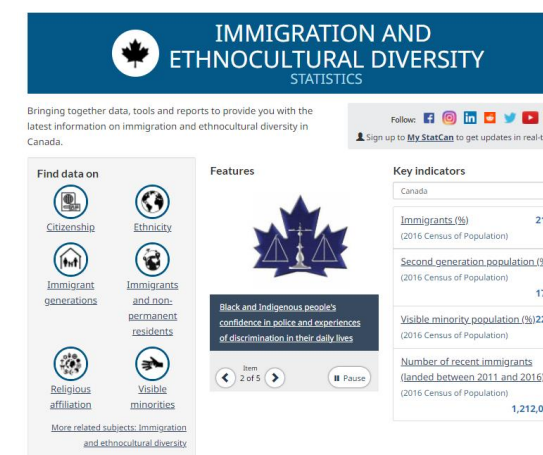
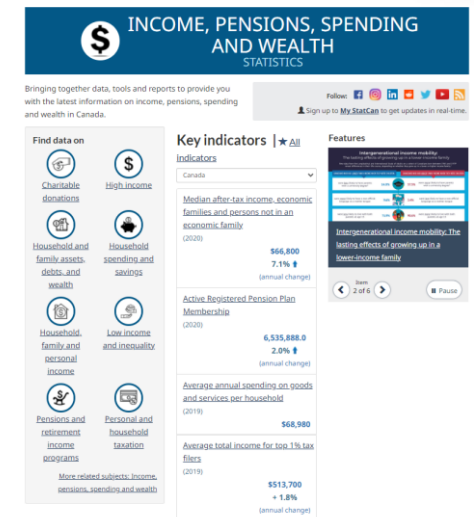
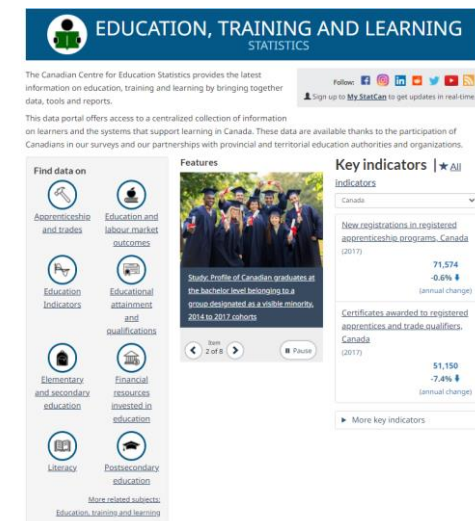
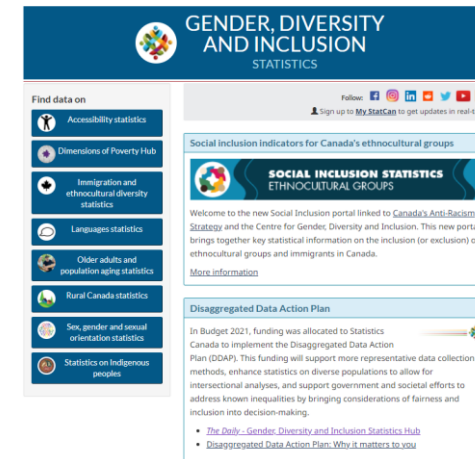
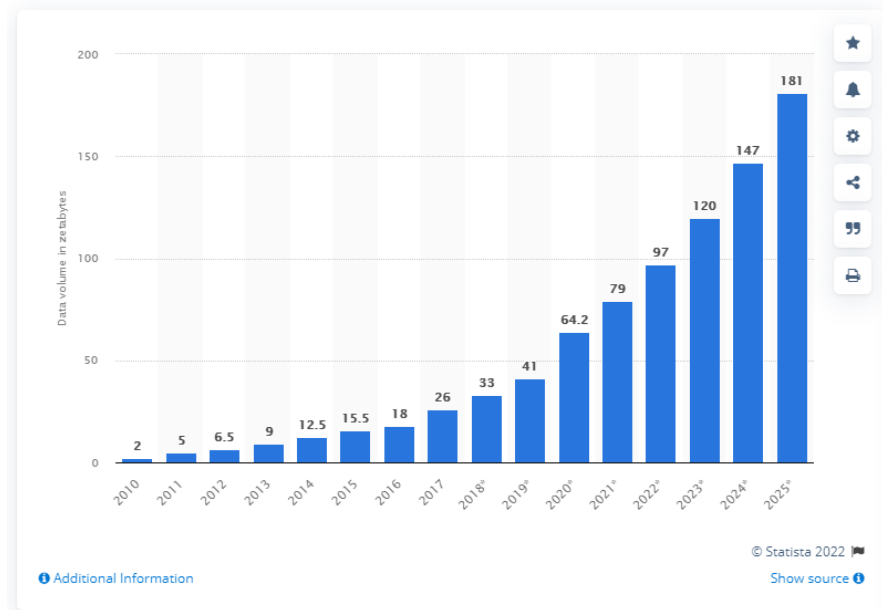
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# The New Data Ecosystem

Volume of data created, captured, copied  
and consumed worldwide from 2010 to  
2025

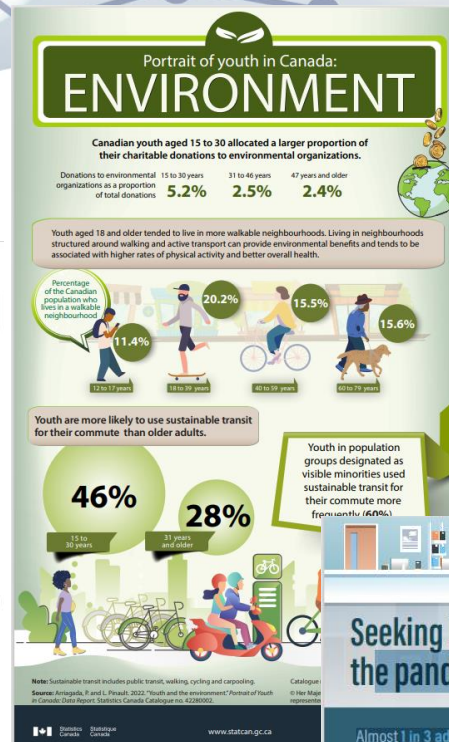
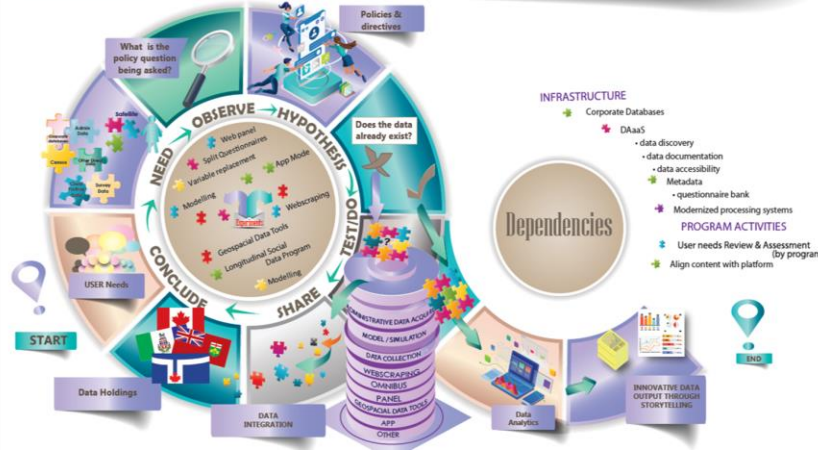
(in zettabytes)





# Data Integration

## Data Intake and Integration - How do we get there?



## Seeking health care during the pandemic

Almost 1 in 3 adults (30%) who reported needing health care said that they delayed contacting a medical professional in the first year of the pandemic.

The percentage of adults who delayed seeking care was lower in Quebec and Atlantic Canada than in the other provinces.



The reasons for delaying seeking health care were often related to taking precautions against COVID-19:

- Fear of possible exposure to COVID-19 in health care settings (18%)
- Fear of possible exposure to COVID-19 outside health care settings (7%)
- Concern about overloading the health care system (33%)



# Statistics Canada Modernization Journey

## MISSION

Serving Canada with high-quality statistical information that matters

## MODERNIZATION PILLARS

1. User-centric service delivery
2. Leading-edge methods and data integration
3. Statistical capacity building and leadership
4. Modern workforce and flexible workplace
5. Sharing and collaboration

*Ensuring no one is left behind*

## VISION

Delivering insight through data for a better Canada

## VALUES



TRUSTWORTHY



PURPOSEFUL



CARING AND  
INCLUSIVE



CURIOUS AND  
ALWAYS LEARNING

# Frameworks

## Necessity and Proportionality Framework

## Five Safes Framework (from UK)

## Foundations of Ethical Considerations: Guiding Principles

**MODERN STATISTICAL NEEDS**

Collecting data for statistics is more than a century old and keeps evolving. In our Digital Age, your information needs are growing, and new data sources offer new possibilities for information.

**COLLABORATION**

Statistics Canada is working with experts from businesses and academia from around the world as well as the Office of the Privacy Commissioner to develop new statistical methods based on necessity and proportionality.

**NECESSITY**

Statistics Canada is mandated to produce data for Canada —data that is essential for governments, municipalities, businesses small and large, and individuals like you. The agency measures our society, economy, and environment.

**PROPORTIONALITY**

When we plan surveys, our experts work to balance the volume and sources of data with the need to reduce the response burden on you, all while maintaining protection of your privacy.

**A NEW FRAMEWORK**

The new framework expands on these principles, which have always guided Statistics Canada. It assesses proportionality and data sensitivity, and ensures statistical values, such as the protection of privacy and confidentiality.



- Benefits for Canadians
- Privacy & Security
- Transparency & Accountability
- Trust & Sustainability
- Data Quality
- Fairness & Do no Harm



# Approach to Data Stewardship



# Data Quality Framework

Dimension	Definition
Access	The ease with which data can be discovered, processed, manipulated, and obtained by a user.
Accuracy	The degree to which data describes the real-world phenomena it is intended to represent.
Coherence	The degree to which data from one or more sources is comparable and linkable.
Completeness	The degree to which data values are sufficiently populated.
Consistency	The degree to which data is internally non-contradictory.
Interpretability	The degree to which data can be understood in its appropriate context.
Relevance	The degree to which data is deemed suitable to support an objective.
Reliability	The degree to which variability in data can be explained.
Timeliness	The amount of time between the end of the period to which data pertains, and the time at which that data is available to meet user needs.



# STATISTICS CANADA'S MISSION

Is to leverage valuable data assets by providing trusted data products, statistical services and insights to support the decision making of Canadian institutions, businesses and citizens – through robust quality, privacy protection, communications and measurement.



## PRIVACY AND CONFIDENTIALITY AT EACH STEP OF THE DATA VALUE CHAIN

### LEGISLATION



**Statistics Act** – mandate to collect, use and publish data, while protecting privacy and confidentiality (**Privacy Act**)

### DATA COLLECTION



The **Necessity and Proportionality** framework ensures a balance between data needs and ethics.

### DATA PROCESSING



The **Quality Assurance Framework** ensures we have rigor and standards for around the quality of data we produce

### ANALYSIS & MODELLING



**Framework for Responsible Machine Learning** ensures no harm when using artificial intelligence to process data.

### DISSEMINATE & SHARE



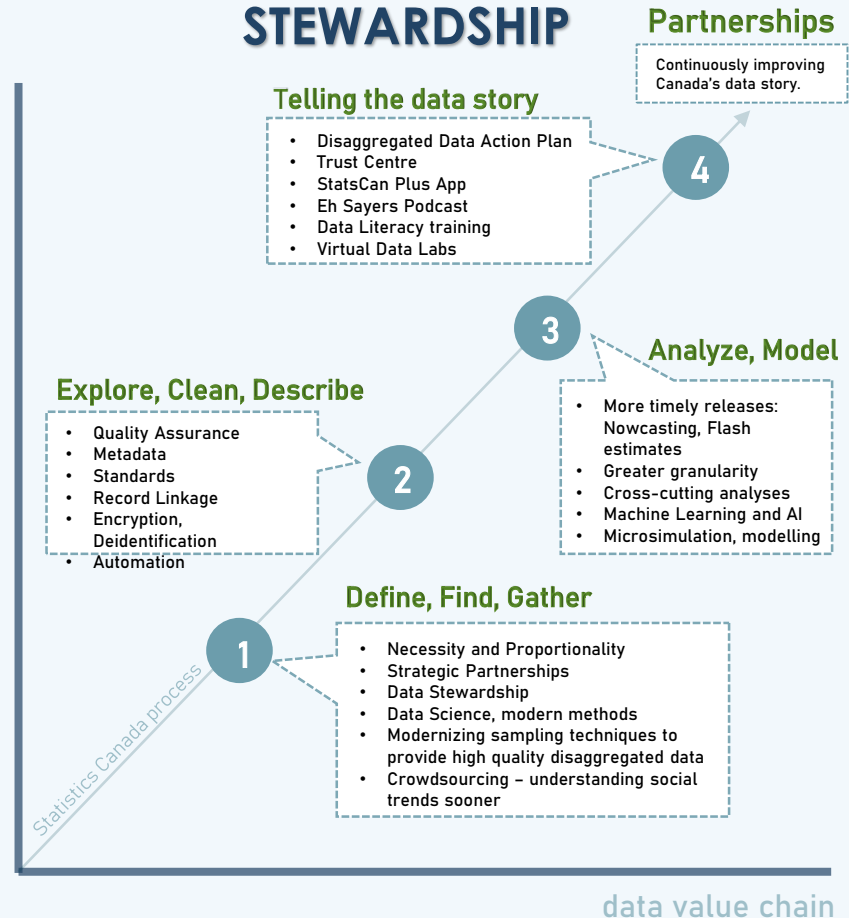
**Five Safes framework** ensures: Safe people. Safe projects. Safe data. Safe setting. Safe outputs

## Optimizing the value of Canada's Economic Data

- **Point of Sale Data** used to improve and automate CPI
- **More Granular Household Accounts** to inform pandemic income support measures and recovery
- **Canadian Housing Statistics program** to better understand Canada's evolving real estate market

## THE SCIENCE OF DATA STEWARDSHIP

Value to Users



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