Data sharing solutions at Statistics Canada

G20 DGI-2 Workshop

Promotion of Data Sharing

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Presented by: Steven Thomas

Statistics Canada

Delivering insight through data for a better Canada

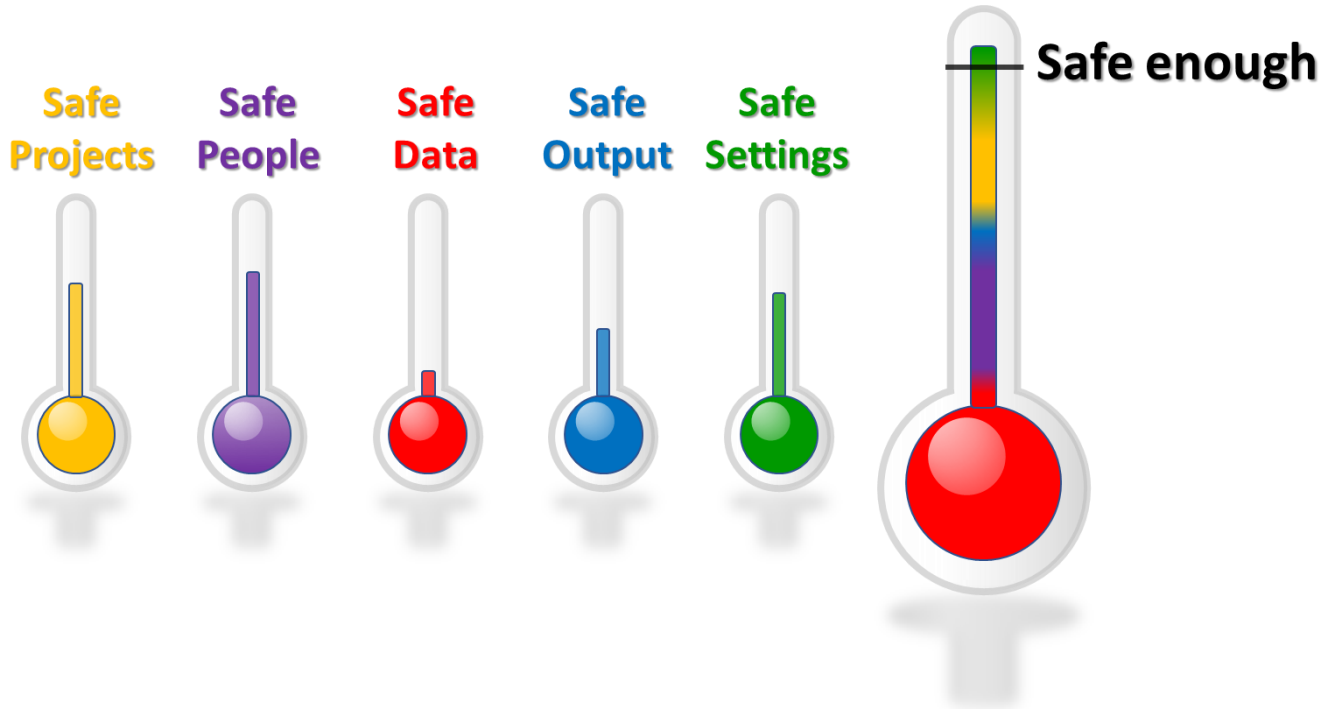
Data sharing - risk and reward

- All data obtained through the Statistics Act must not be disclosed
- At the same time, all data collected through the Act is meant for statistical analysis to help benefit Canadians and must be accessed in some way
- A risk-benefit balance must be determined and this includes allowing researchers direct access to microdata

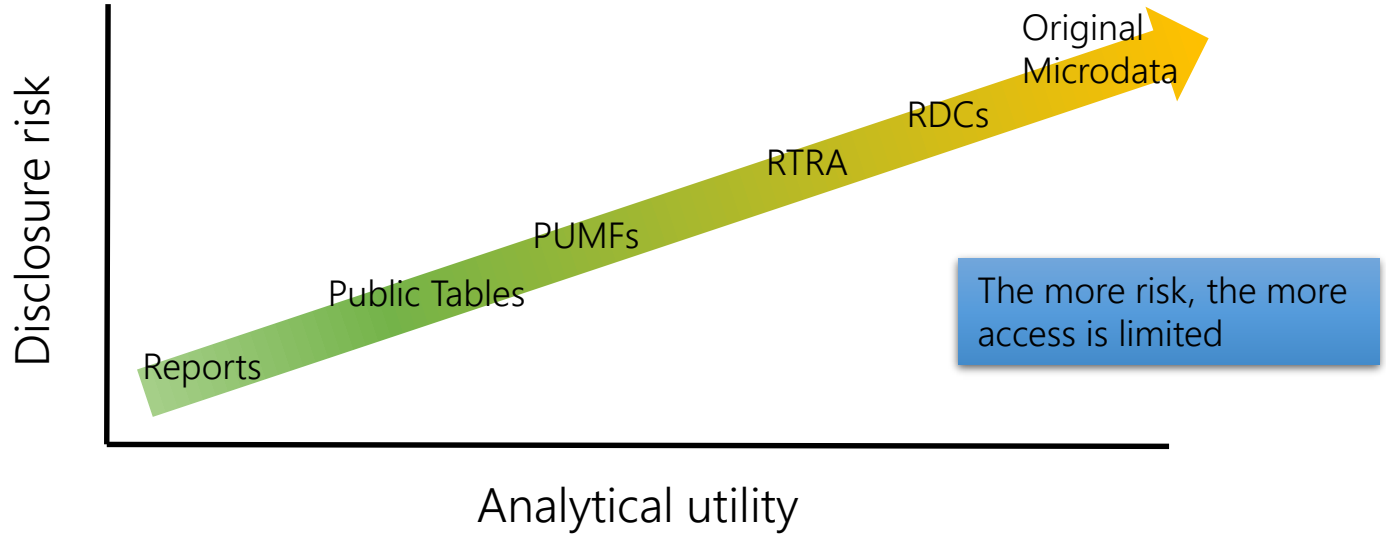
The ‘Five Safes’ Framework

- www.fivesafes.org
- All data access solutions ensure safety through a combination of:
  - Safe Projects
  - Safe People
  - Safe Data
  - Safe Outputs
  - Safe Settings

- Paraphrasing Elliot et al.: ‘safe’ is a goal, not a state → ‘safer’ / ‘safe enough’.



Risk and Utility



Research Data Centres

Facilitate access to microdata files through 32 universities across the country, as well as 3 Federal Research Data Centres

Safe Data

- 182 De-Identified social data files. Access limited to project specific data.

Safe People

- Trusted researcher.

Safe Projects

- Project approval process through institutional review of projects

Safe Output

- Output vetted by StatCan analyst through application of survey specific output vetting rules

Safe Setting

- Microdata remains located in a central and secure location.

- Future work on expanding access to economic data and virtual access through cloud architecture

Public-Use Microdata Files (PUMFs)

- ‘Open’ data solution with unlimited access to 142 anonymized datasets

Safe Data

- Anonymized data. Anonymization processes include de-identification, sub-sampling, aggregation, random adjustments, suppression – lower utility

Safe People

- Subscription based access for institutions requiring microdata access
- Also available through post-secondary institutions

No use of other safeguards

The Real Time Remote Access (RTRA*) system

- Access to over 100 different datasets for over 40 different statistical programs
  - Health, Labour, Income, Diversity, Health Access, Immigration, Education, Cannabis, Spending

Safe Data

- Only specific de-identified datasets are available

Safe People

- The researcher or project team must be associated with a government department, non-profit organization, or an academic institution

Safe Projects

- RTRA users can calculate frequencies, means, percentiles, percent distribution, proportions, ratios, and shares
- Individuals requesting analytical products beyond descriptive and cross-tabular output may wish to explore other options for data access.

Safe Output

- Limited number of output with controlled rounding on requested statistics

Safe Setting

- Microdata remains located in a central and secure location. Researchers do not gain direct access to the microdata and cannot view the content of the microdata file

* More information can be found at https://www.statcan.gc.ca/eng/rtra/rtra

Virtual Data Lab (VDL) Project (New)

Extension of the RDC access model. Developing trust in research partners

Safe People

- Access limited trusted research partners. Shared-risk framework. Partner liability and accountability

Safe Data

- De-Identified Microdata. Admin, integrated and business microdata

Safe Projects

- Institutional review of projects

Safe Output

- Output is vetted against survey specific rules

Safe Settings

- 24/7 Secured Cloud Infrastructure with Physical and IT monitoring

A series of pilots are currently underway with key partners to better improve and strengthen the VDL. Full implementation is scheduled for Fall 2021.

Synthetic Analytical Data – In Development

- Most promising open data option
  - Unlimited access to anonymous microdata
- Terminology and nomenclature
  - Not to be confused with purely random data – Dummy Data
- Methods and tools
  - How to create analytically valuable data without risking disclosure
- 2 cases from StatCan of releasing synthetic analytical data using SynthPop (R package)
- Utility, risk and cost concerns. Can it replace real data access?

Concluding Remarks

- All microdata access solutions require a consideration of the 5 safeguards that allow safe access
- The most sensitive information requires the most protection and use of safety measures
- Open data requires many safety measures to the data itself
- Synthetic Data is an open data option with risk and utility concerns

Thank You! Merci!

For more information please contact / Pour plus de renseignements veuillez contacter

Steven.Thomas@Canada.ca

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