



Data Ethics at Statistics Canada

UNECE/EFTA Expert Meeting on Modernizing Statistical Legislation Data Ethics Panel
November 18, 2021



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Outline

- Data Ethics and National Statistical Offices (NSO)
- Statistics Canada's Necessity and Proportionality Framework and the Data Ethics Secretariat
- Statistics Canada's Guiding Principles for Ethical Reviews





Data Ethics

- Field of study that addresses questions about the appropriate use of data.
- Different questions and problems to solve at various stages of the life cycle of data (collection, management, manipulation, sharing).
- Examples of possible ethical issues related with the use of data:
 - Using biased data to inform decision makers
 - Using data that can reinforce existing inequalities
 - Privacy intrusion that is not proportional to the benefit of a project
 - Producing information that does not correspond to the needs of the population



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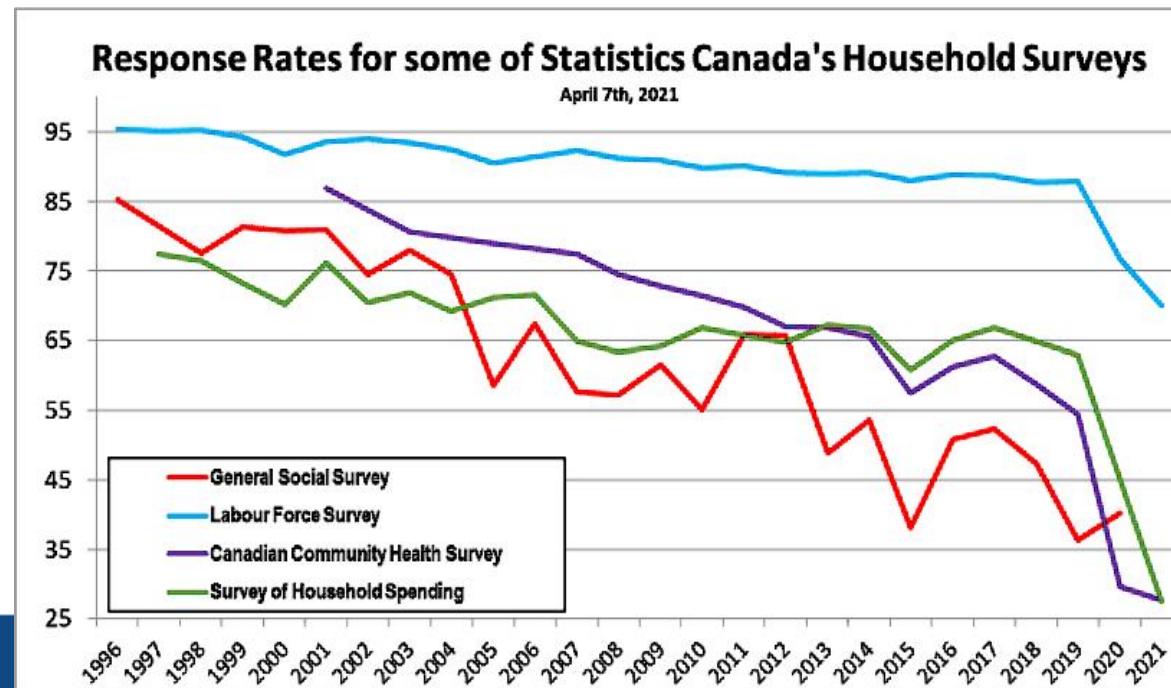
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Data Ethics in NSOs – What has changed?

- NSOs used to rely almost exclusively on surveys to collect data in order to produce official statistics
- In past years, a steady decline in response rates has been observed, costs to conduct surveys have increased.




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Data Ethics in NSOs – What has changed?

- An administrative-first approach was at the core of the recent modernisation of Statistics Canada.
- In this context, with new data sources available and new tools to process these data, we are innovating and therefore introducing practices that can raise new ethical challenges.
- To face these challenges, Statistics Canada has adopted the Necessity and Proportionality Framework in 2019.



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Necessity and Proportionality Framework

- It is an adaptation of the scientific approach to the context of both statistical methodology and privacy protection.
- It is an approach that has been developed to optimize privacy protection and the production of information when designing a data-gathering approach

Necessity: The description of the needs should include **who** requires the information and the reasons **why** such information is needed.

Proportionality: The balance between privacy intrusion and the quality of the data is coherent with the expected benefits of a project; and that we do not use more information than we need to in order to produce such benefits.





Data Ethics Secretariat

- Role to conduct ethical reviews, hold discussions with program managers and make recommendations to Principal Data Ethics and Scientific Integrity Officer.
 - More sensitive cases are brought to the Data Ethics Committee with members from different backgrounds, with different point of view
- Redaction of documents on specific topics



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Ethical Reviews

- An ethical review consists in a series of questions and comments that are meant to obtain enough information about a given data acquisition or project in order to have a rational discussion on its ethical merits
- Ethical reviews are usually not tailored in function of the topic but in function of the way the data has been acquired (through a survey or not).
- This is not to say that specific topics do not raise specific ethical problems, but generally speaking, it is the way in which the data is acquired (and what we want to do with the data) that defines the ethical dimensions of a given project.





Ethical Reviews

- Reviews are based on six guiding principles:
 - Benefits for Canadians
 - Privacy & Security
 - Transparency & Accountability
 - Trust & Sustainability
 - Data Quality
 - Fairness & Do no Harm
- They are not independent from one another and this is what makes an ethical review a non-trivial task.





Guiding Principles

Benefits for Canadians

- Clear benefits that speak directly to Canadians.
 - Define and illustrate the expected benefits with concrete examples
 - Avoid empty expressions (e.g., ‘data gaps’ or ‘help policy makers’) or technical terms unless these are clearly explained with the help of concrete examples
- Highlight how the data acquisition is answering a pressing need of Canadians.
 - If not going through with the project has negative side-effects, explaining them and listing the consequences will help justify the project.





Guiding Principles

Privacy & Security

- In the context of a security breach, what kind of harm could it bring to Canadians?
 - What steps are we taking in order to avoid such a breach?
- How the information collected is relevant to the goals of the project?
 - Are we asking for/using more than we need to?
 - Could we aggregate data or remove unnecessary variables before the data sets are analysed within the agency?



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Guiding Principles

Transparency & Accountability

- Given that we will not be asking for the consent of Canadians to share this information, what are the steps that Statistics Canada is going to take in order to be transparent about this project?
- Accountability takes a center stage when a project involves automating a decision process
 - How the algorithm's performance and its impact on the individuals will be monitored through time?





Guiding Principles

Trust & Sustainability

- Are we going to share information with the data provider?
 - If so, are there any confidentiality concerns (perceived or real) that this could cause?
- Did the data provider acquire the data that we will use in a way that is incompatible with our own rules and regulations?
- If the project involves a collaboration with an external agency, ensure the project will not undermine the trust of Canadians by explaining how this collaboration is coherent with Statistics Canada's mandate.



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Guiding Principles

Data Quality

- Decisions based on biased or erroneous information can potentially cause harm.
 - Are there known potential sources of bias and error for this project and how to address them? For example, are there any concerns about the coverage of the administrative data file?
- The expected benefits of the project should be proportional to the quality of the data.



Guiding Principles

Fairness & Do no Harm

- How are we going to make sure that we are not creating harmful profiles that could propagate stereotypes ?
 - Especially important if we are collecting information on vulnerable or marginalized segments of the population
- Once data is acquired by Statistics Canada, it should be used for the purpose of the project that justified its acquisition
 - What is the risk of this data being repurposed in the future?





Conclusion

- New data sources and new methods have highlighted the importance of Data Ethics
- NSOs need to be proactive to maintain trust
- Statistics Canada has adopted the Necessity and Proportionality and established ethical reviews
- Next steps include
 - Further communications with partners within and outside the organization to refine our process
 - Research on some specific topics
 - Refinement of a sensitivity scale





Thank you/ Merci

Pour de plus amples renseignements, veuillez contacter:

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The content of this presentation represents the position of the author and may not necessary represent that of Statistics Canada.



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