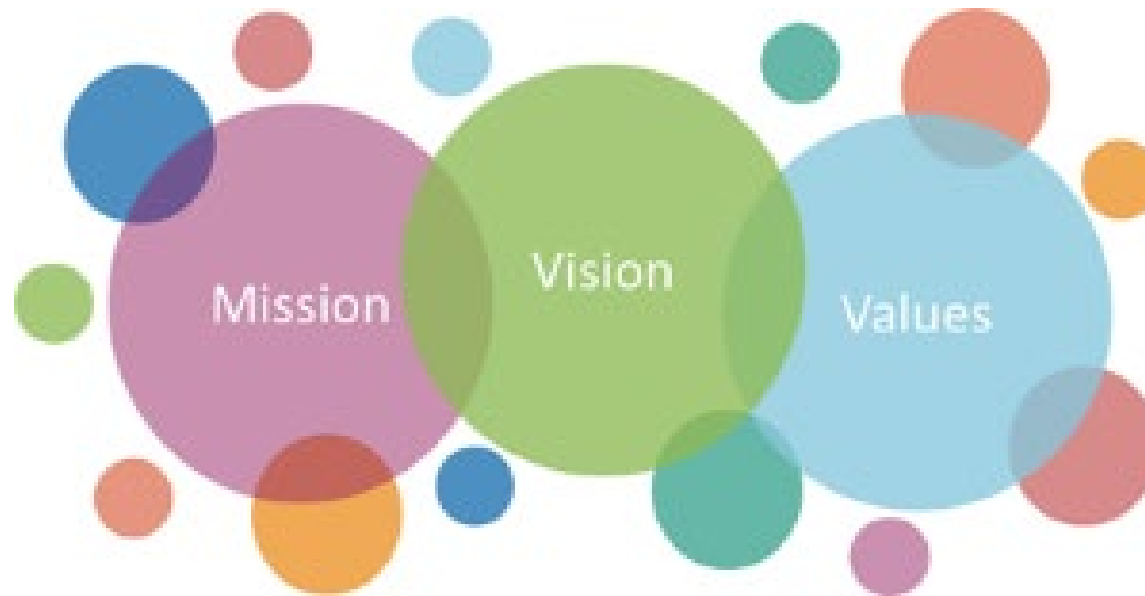


Introduction Input Privacy- Preservation Techniques Project

Presented at 2022 IPPT seminar

Dennis Ramondt - UNECE Project Manager

High Level Group for the Modernisation of Official Statistics



Defined trends

Modern statistical organizations:

- needs to become part of a data ecosystem
- acquire and integrate data from multiple sources
- provide richer statistical products

Can Input privacy preserving techniques help?

Objective of the project

*“to investigate statistical use cases that require protection on the input side,
assess and determine applicability of selected classes of techniques for main scenarios,
identify opportunities for sharing across statistical community and
create community of practice across statistical organizations and external partners (academia, private sector).”*

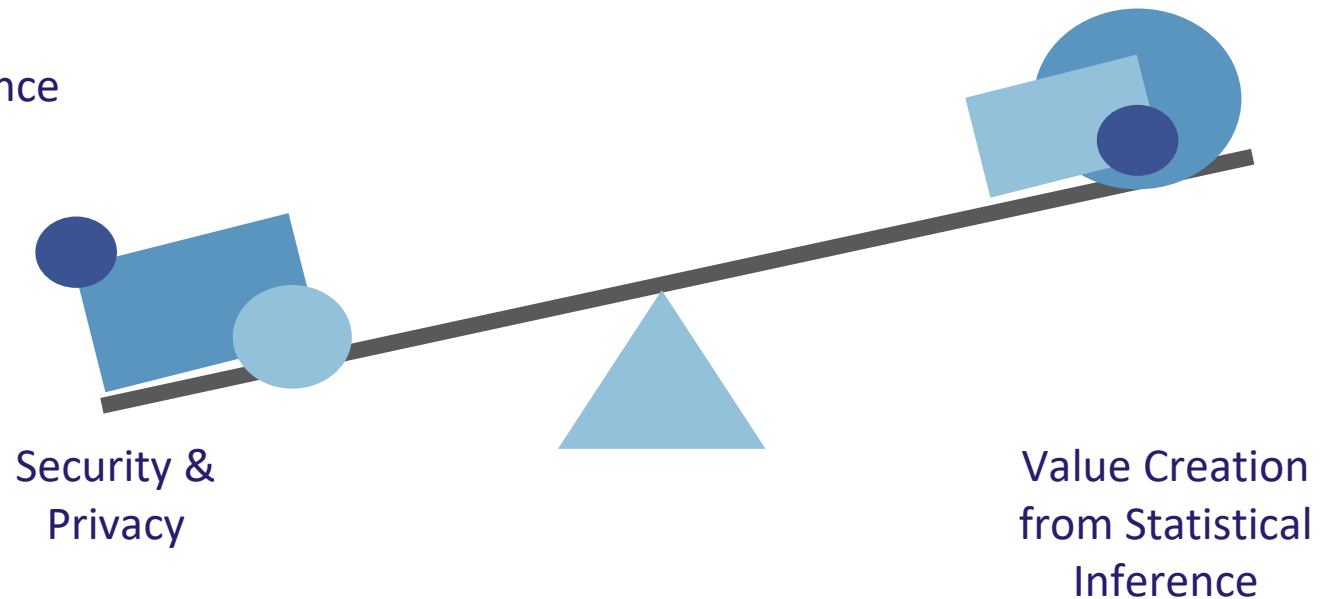
Active participants

- UNECE
- Eurostat
- ISTAT (Italy)
- StatCan (Canada)
- Statistics Netherlands
- ONS (Great Britain)

The Balancing Act

We continually play the game of balancing data usability and security:

PPTs *do not solve* the balancing act of security, privacy and data use in and of themselves, but offer risk mitigation that may be the difference between a project no-go and go.



Input & Output Privacy

A function takes in some **input** (from one or more parties) and produces some **outputs** (given to one or more parties).



Input Privacy Approaches

Input privacy focuses on how to ensure privacy of inputs of one or more parties entering a joint function.



Trusted Third Party



Secure Enclave



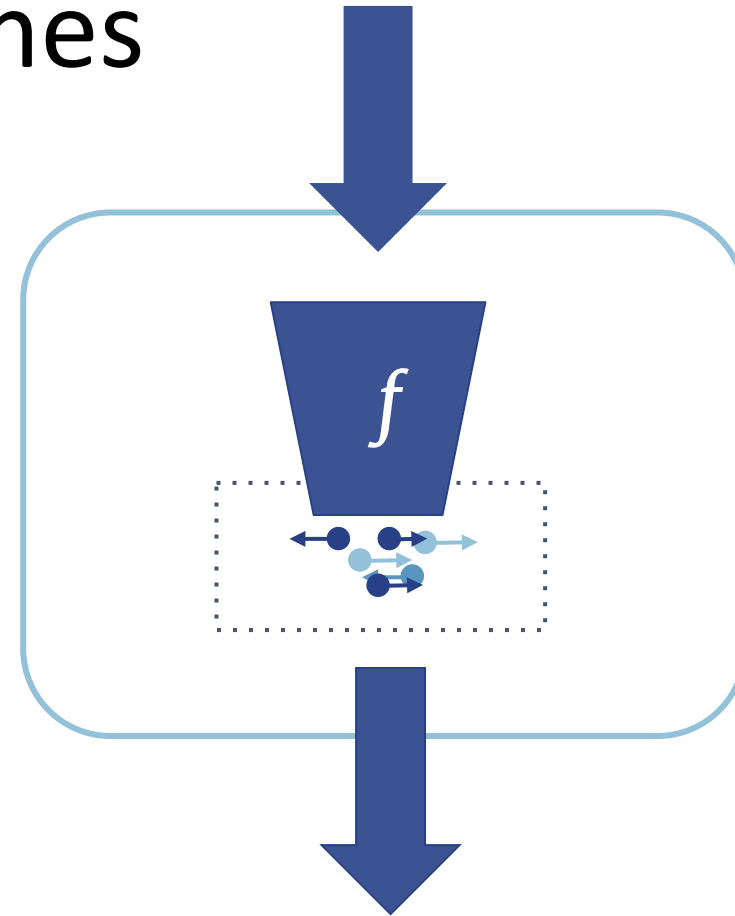
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Encryption

Output Privacy Approaches

Output privacy typically relies on:

- **Aggregation & sensitivity analysis**
(classic data disclosure controls)
- **Perturbation**
(for example differential privacy)

Both endeavour to prevent reverse engineerability of the original data.



Highlights 2021

Framework for describing use cases for Input privacy-preservation

Documented 5 use cases

Described 2 generic scenario's

IPPT project 2022

1. Private set intersection
2. Private machine learning
3. Public Consultation