PRIPARE

PReparing **I**ndustry to **P**rivacy-by-design by supporting its **A**pplication in **RE**search

Privacy by Design

A technical perspective

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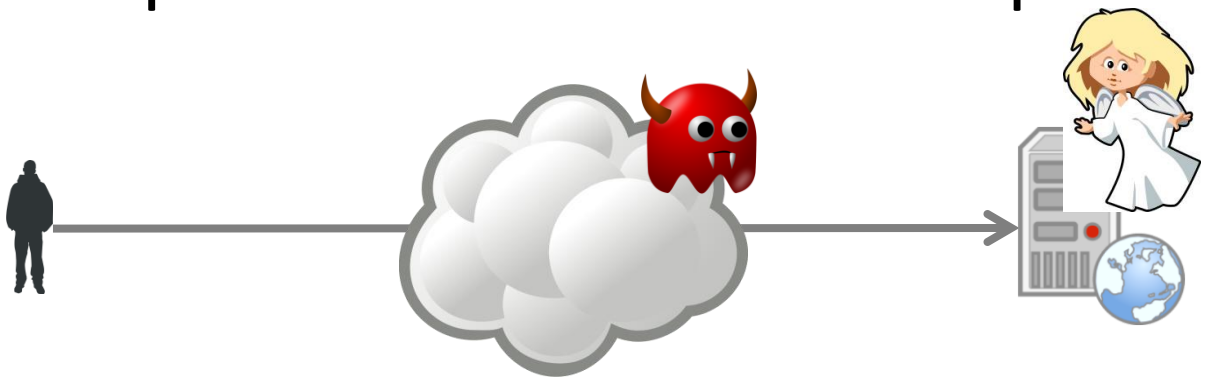
Gradiant

The usual « privacy » scenario

- Protect personal data from third parties



- Data controller is considered **trusted**
  - Data protection to reduce privacy risks
  - But privacy is lost… (Google, Facebook, …)

Privacy by design approach

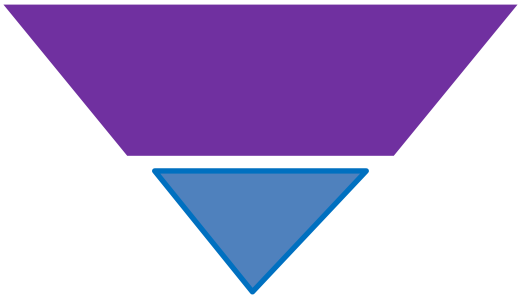
- Protect personal data from **everyone**

- Data controller is considered not **trusted for privacy**
  - Risk reduced by not sharing data
  - No need to trust!

Privacy by design – data minimization

- Collect only necessary data

Usual approach



I want all data

Data I can collect

Data protection compliance

PbD approach

Data I will finally collect (aux data for functionality)

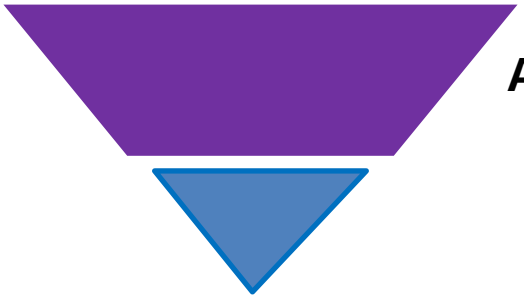
Data I need for the purpose of the system

Example: ePetition case: do I need to know names, address, age,…? Or only whether the person is allowed to sign the petition?

Privacy by design – data minimization

- Example ePetition

Usual approach



All Personal data and behaviour

Some personal data

PbD approach

Some more data to be able to control double-signing

An allowed person signed a petition

Example: ePetition case: do I need to know names, address, age,…? Or only whether the person is allowed to sign the petition?

Privacy by design – what data to protect

Usual approach

Personal data/Personally identifiable information (PII):

- Data related to the individual
- Enough attributes to identify an individual (pseudo-identifiers)

PbD approach

+ Privacy-relevant data:

- Enables linkage of actions/attributes (can become pseudo-identifiers)
- Enable discrimination

ENISA report: "Privacy and Data Protection by Design - from policy to engineering" George Danezis, Josep Domingo-Ferrer, Marit Hansen, Jaap-Henk Hoepman, Daniel Le Métayer, Rodica Tirtea, Stefan Schiffner.

Privacy by design – Use of PETs

- Use of PETs to minimize disclosure while enabling functionality

- PbD applications enabled by PETs
  - **Privacy-preserving Pay as you drive/eTolling/smart metering**: local computations and only billing information sent to the server + auxiliary verification information) [cryptographic commitments]
  - **Privacy-preserving ePetition**: eID proving the value of an attribute (person lives in a city) [anonymous credentials]
  - **Privacy-preserving transportation cards**: use transport without being tracked [anonymous eCash]
  - **Privacy preserving statistics**: compute global use statistics without revealing individual consumptions [secure multiparty computation]

Take aways

- Privacy by Design protects privacy from **all** actors in a system
- Data protection alone **is not** privacy by design ☹
  - Should not be an excuse to not apply further protection
  - Consent is not a blanket solution
  - Application purpose must be well defined for proportionality and minimization
  - Anonymization is not trivial...
- But... Privacy by Design still needs data protection
  - Some applications inherently need to collect sensitive data
  - There are also PETs to support data protection (transparency, consent)

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Thank you for your attention

Questions?

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