

# Cross-border health research with Privacy Enhancing Technologies after Schrems II

Triin Siil  
Privacy Engineering Consultant

# Agenda

1. Data protection obstacles to cross-border health research
2. Privacy-enhancing technologies (PETs) as the way forward

The background is a blue-toned grid of squares. In the center, there is a pixelated, low-resolution image of a person with dark skin and short hair, wearing a blue garment. The person appears to be looking forward. The overall aesthetic is digital and abstract.

# Data protection obstacles to cross-border health research

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# EU data protection law

## EU Charter of Fundamental Rights

1. **Respect for private and family life**, including home and communications (Article 7)
2. **Right to the protection of personal data** (Article 8) – fair processing, specified purposes, legal basis, right of access, right of rectification.



# EU data protection law

## General Data Protection Regulation (GDPR)

- General provisions, including scope and definitions
- Principles
- Rights of the data subject
- Responsibilities of the controller and processor
- **Transfers of personal data to third countries** or international organisations
- Independent supervisory authorities
- Remedies/liability/penalties
- Specific data processing situations



# Means of transfer outside the EU territory

A transfer of personal data to a third country may take place where:

1. **adequacy decision by the European Commission** – the Commission has decided that the third country ensures an adequate level of protection
2. **appropriate safeguards** – the controller or processor has provided appropriate safeguards and on condition that enforceable data subject rights and effective legal remedies for data subjects are available
3. **derogations for specific situations** – data subject consent, contract with or in the interest of the data subject, important reasons of public interest, legal claims, vital interests of the data subject or others, transfer from a publicly available registry, etc.





# Schrems II case

GDPR Recital 104: „The third country should offer guarantees ensuring **an adequate level of protection essentially equivalent to that ensured within the Union**”

Schrems II case:

1. the USA does not offer such guarantees
2. **supplementary measures can be used to compensate the lack of such guarantees**

# Obstacles to cross-border health research

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## Remove obstacles to sharing health data with researchers outside of the European Union

[Heidi Beate Bentzen](#), [Rosa Castro](#) , [Robin Fears](#), [George Griffin](#), [Volker ter Meulen](#) & [Giske Ursin](#)

[Nature Medicine](#) 27, 1329–1333 (2021) | [Cite this article](#)

## Open science and sharing personal data widely – legally impossible for Europeans?

Giske Ursin & Heidi Beate Bentzen

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To link to this article: <https://doi.org/10.1080/0284186X.2021.1995894>

*Annual Review of Biomedical Data Science*

## Exchange of Human Data Across International Boundaries

Heidi Beate Bentzen

Norwegian Research Center for Computers and Law, Faculty of Law, and Centre for Medical Ethics, Faculty of Medicine, University of Oslo, Oslo, Norway;  
email: [h.b.bentzen@medisin.uio.no](mailto:h.b.bentzen@medisin.uio.no)



NSHG-PM

21 December 2020

**Comments on EDPB Recommendations 01/2020 on measures that supplement transfer tools to ensure compliance with the EU level of protection of personal data**



# Privacy-enhancing technologies (PETs) as the way forward

# EDPB open to PETs

- 18.06.2021 European Data Protection Board (EDPB)  
Recommendations 01/2020 on measures that supplement transfer tools to ensure compliance with the EU level of protection of personal data
  - Annex 2 “Examples of supplementary measures”
    - 2.1. Technical measures
      - Encryption
      - Pseudonymisation
      - Split or multi-party processing = PET

# Choice of PETs

**Aggre-  
gation**

**Pseudony-  
misation**

**Anony-  
misation**

**Differential  
privacy  
(DP)**

**Federated  
learning  
(FL)**

**Fully  
homo-  
morphic  
encryption  
(FHE)**

**Multi-party  
computa-  
tion (MPC)**

**Zero-  
knowledge  
proofs**

**Synthetic  
data**

**Trusted  
execution  
environ-  
ments  
(TEE)**

## Other policy initiatives

- **USA:** The American Data Privacy and Protection Act (ADPPA), a set of prize challenges
- **UK:** Information Commissioner's Office (ICO) draft guidance on privacy-enhancing technologies (PETs), a set of prize challenges
- **Estonia:** the PET program to be introduced as part of the Digital Society Agenda
- **Singapore:** Infocomm Media Development Authority's PET sandbox
- **G7:** 2022 roundtable of G7 data protection and privacy authorities concluded that "a particular focus amongst the G7 should be on privacy enhancing technologies (PETs)."

# PETs presume a new paradigm

Need to support the transition to a new paradigm with **no-Single-Point-of-Trust/Liability/Failure**

Data sharing → **Computation sharing**

Secure transfer → **Secure computation**



# Takeaways





1. Accept **a broader spectrum of PETs** as adequate supplementary measures for data transfers
2. Conduct publicly annotated **lighthouse projects** involving:
  - PET experts
  - Legal experts
  - Medical experts
  - Business experts
  - Policy experts





# Thank You!

Triin Siil  
[Triin.Siil@cyber.ee](mailto:Triin.Siil@cyber.ee)

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