

# Privacy by Design – The case of Automated Border Control

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## Overview:

- (Automated) border control;
- Identity management in (Automated) Border Control;
- Function creep;
- Privacy by Design;
- Privacy by Design Applications
  - Automated Erasure
  - Attribute-based credentials
  - Pseudo-identities

# (Automated) Border Control and Function Creep

by Diana Dimitrova

## Identity Management

by Jessica Schroers



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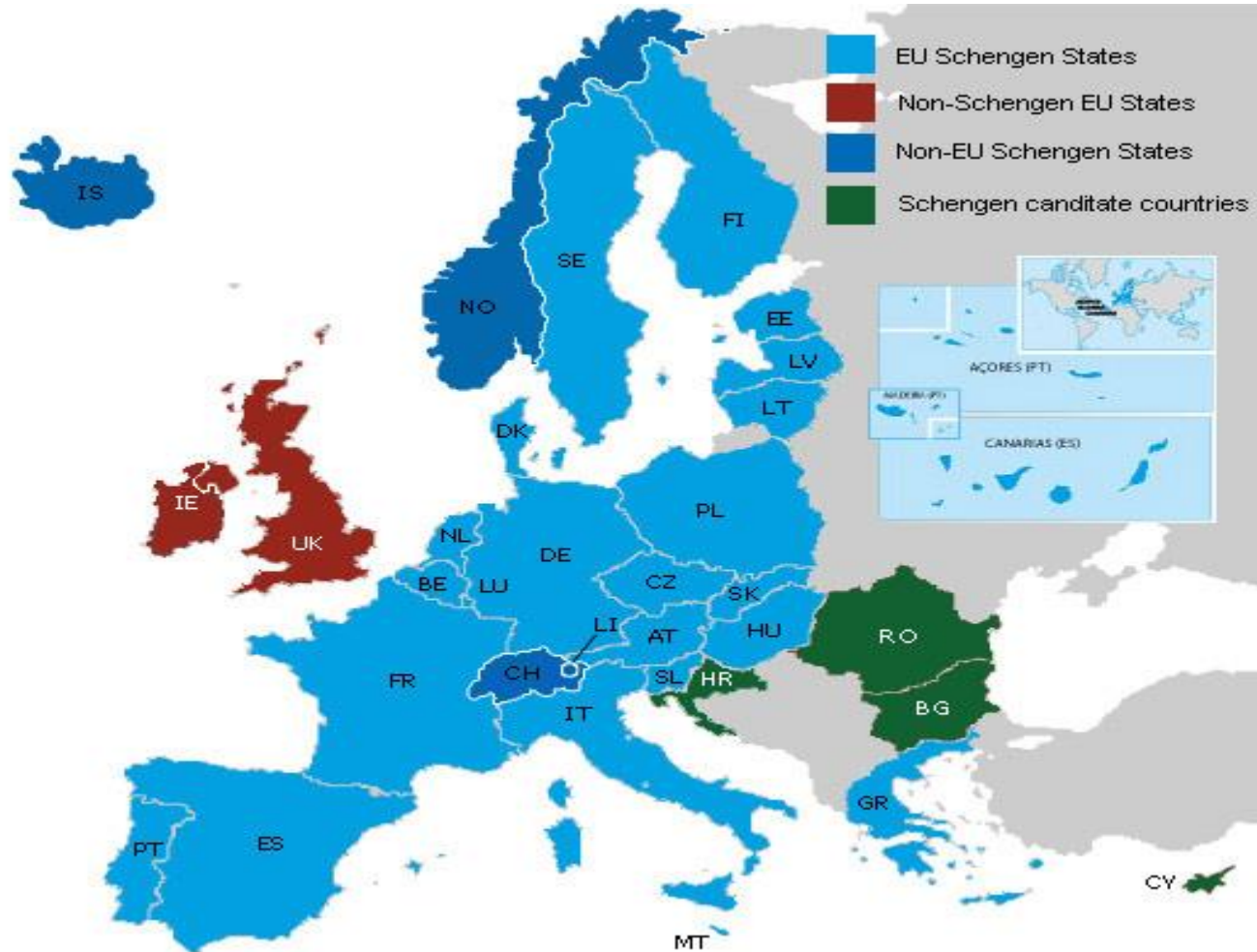




# Globalisation

# What is Schengen?

**Schengen Acquis** =  
abolition of checks  
at internal borders,  
while tightening  
controls at  
external borders.  
Schengen Borders  
Code makes a  
distinction  
between Third  
Country Nationals  
and EU/EEA/CH.



# Automated Border Control



# Automated Border Control (ABC)

- ✓ No formal definition adopted yet, despite growing number of national ABC programmes (e.g. PRIVIUM, PARAFE, EASYPASS, etc.):

***“ABC means a fully automated system which authenticates the travel document, establishes that the traveler is the rightful holder of the document, queries border control records and on this basis automatically verifies the conditions governing entry laid down in Article 5(1).”***

*(Smart Borders Package, Proposed amendment No. 562/2006 (COM (2013) 96 final))*

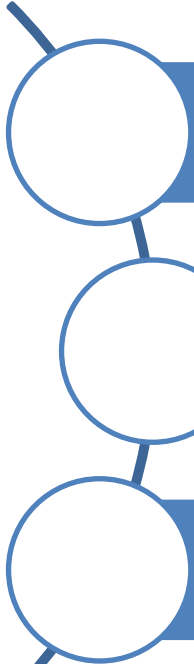
- ✓ How is it regulated?  
The Schengen Borders Code regulates manual border control.





# Border check elements for EU/EEA/CH

Schengen Borders Code (Article 7.2) requires a minimum check: establishment of identity on the basis of a travel document :



Validity – expired?

Authenticity – forged?

Lost/stolen/invalidated/misappropriated – search databases on documents (e.g. relevant section in SIS II).

In addition, non-systematic check in databases on persons (e.g. SIS II, national databases).



Manual  
Border  
Control

Automated  
Border  
Control

Registration

National issuing authority → Passport

RTP:  
Registration  
and evtl. token

Authentication

Visual comparison of  
passenger with photo  
on passport;

Non-systematic check  
in databases on  
persons: discretion of  
border guard.

**Automated**  
verification of live  
**biometrics** with  
passport chip data  
or against  
databases;

Algorithm for non-  
systematic check in  
databases on  
persons?



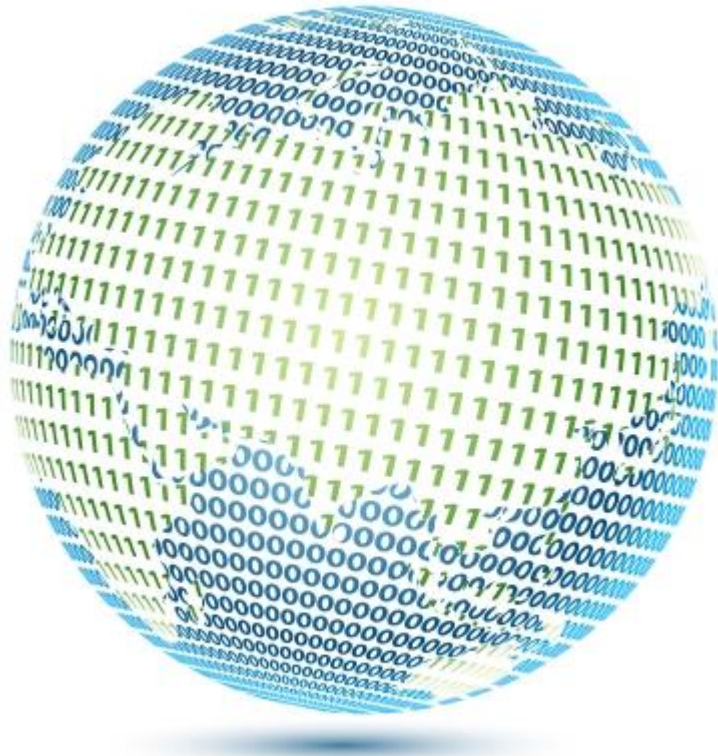
PRIPARE



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# Big Data and Automated Border Control



Big data:  
“... extract new insights  
[...] in ways that change  
... the relationship  
between citizens and  
governments.”

V. Mayer – Schoenberger & Cukier, 2013

# Data Protection Implications: Function creep

Function creep: “gradual widening of the use of a system or database beyond the purpose for which it was originally intended” (EDPS, 2012)

Part of “big data” trend?

Biometric data: contains sensitive info. From facial recognition to fingerprints

Centralized or decentralized storage: RTP/interaction with e-Gate

# Data Protection Risks?

(Central)  
Storage

- Biometric data not deleted after crossing the border and creation of some RTP databases.
- Makes data available for re-use and loss of control of travelers over their own data.

Interoperability of  
databases

- Between databases created in the context of ABC and other (e.g. police) databases.
- Biometrics become universal (interconnection) key.

Law-enforcement  
access

- Example (here third country nationals) EURODAC : innocent persons under general suspicion. Proposed EES.
- Consequences of mismatches?

# Privacy by Design

## The concept

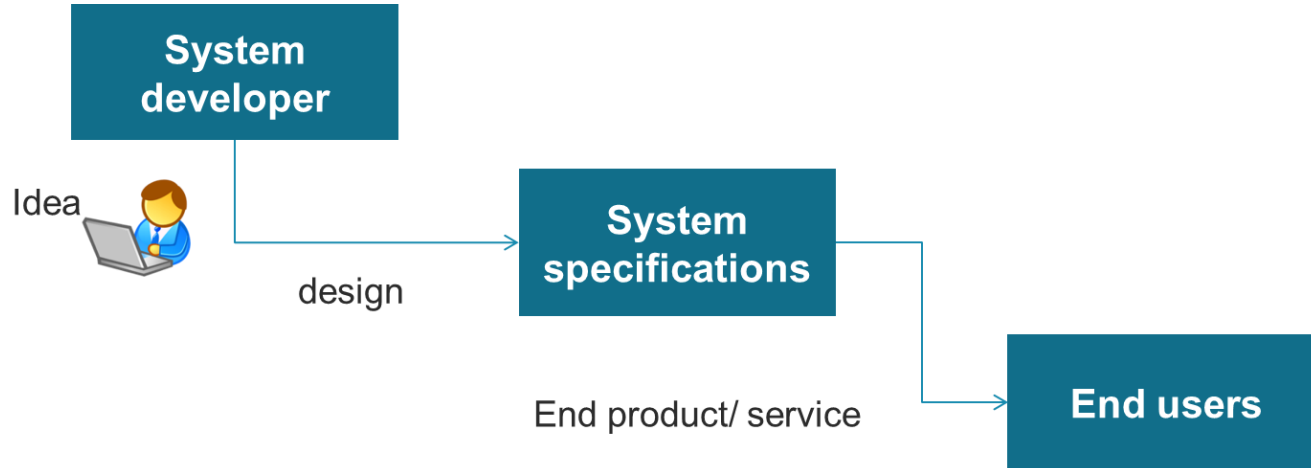
by Pagona Tsormpatzoudi



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# Privacy by Design in the design process



## Privacy as a **mindset**

To identify and mitigate privacy risks from the very beginning at **technical** and **organisational** level

# Privacy by Design – concept development

***From Directive 95/46/EC...***

- ✓ Data minimisation principle (Article 6.1 b & c)
- ✓ Obligation to security (Article 17 & Recital 61)

***and the launch of the overall discussion on  
Privacy Enhancing Technologies (“PETs”)***

“A coherent system of ICT measures that protects privacy by eliminating or reducing personal data or by preventing unnecessary and/or undesired processing of personal data, all without losing functionality of the information systems (European Commission, 2007)”



# Privacy by Design – concept development

## *...to the draft general data protection regulation*

- ***Preparatory works:*** “...in order to efficiently implement Privacy by Design, there is **need** to provide for the principle of "privacy by design" into the data protection legal framework” (EDPS opinion, 2010)
- ***Recital 61:*** “*The principle of data protection by Design requires data protection to be embedded within the entire life cycle of the technology, from the very early design, right to its ultimate deployment, use and final disposal*”.

# Privacy by Design Applications

## Automated Erasure

by Pagona Tsormpatzoudi

## Attribute-based credentials

by Jessica Schroers,  
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Pagona Tsormpatzoudi

## Pseudo-identities

by Pagona Tsormpatzoudi



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# Automated Erasure



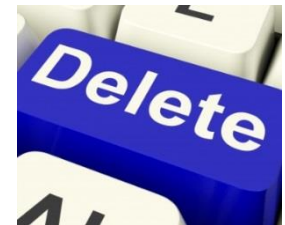
## In Automated Border Control:

Registration:

erasure of original image of biometric data

Authentication:

Erasure of biometric data after the transaction with the e-gate



# Automated Erasure vs. Proportionality

Further uses of data vs. risks to privacy



# Attribute-based credentials



- **Authentication on the basis of certain attributes, no identification**

- **Schengen Borders Code:**

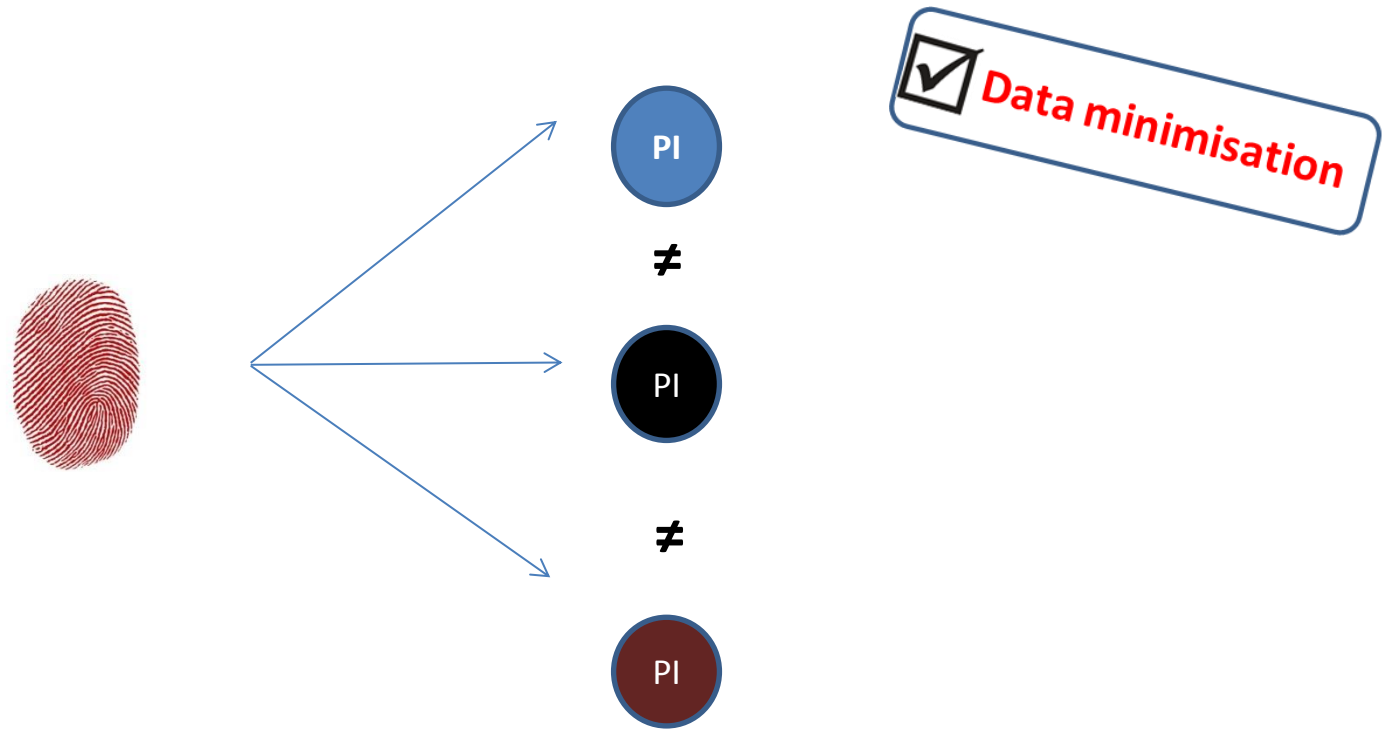
Checks on persons and passports require processing of several categories of personal data

# What attributes?

- For systematic checks:
  - EU/EEA/CH national (over 18)
  - Expiry date in the future
  - Passport number not in a database for lost/stolen documents
- For non-systematic checks? ??



# Pseudo-identities





# Pseudo-identities – advantages

**ISO/IEC 24745  
requirements:**

**irreversibility,  
unlinkability,  
revocability**

- retrieval of the original biometric data only by the enrolled data subject
- Diversifiable
- Revocable
- Adjustable in any architecture for ABC / integration in existing verification methods

# Is Privacy by Design a solution?

# Thank you!

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