

Technology facilitating Free Travels in the Schengen Area

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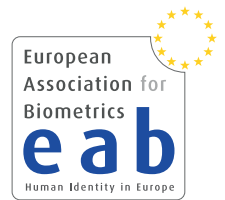
European Association for Biometrics

2021-07-09

<https://eab.org/>



Representing a Group Opinion



European Association for Biometrics (EAB)

- EAB is a **non-profit**, nonpartisan **association**
- EAB supports all sections of the ID community across Europe, including **governments**, NGO's, **industry**, associations and special interest groups and **academia**.



EAB experts involved

- C. Busch, F. Deravi, D. Frings, E. Kindt, R. Lessmann, A. Nouak, J. Salomon, M. Achcar, F. Alonso-Fernandez, D. Bachenheimer, D. Bethell, J. Bigun, M. Brawley, G. Brockmann, E. Cabello, P. Campisi, A. Cepilovs, M. Clee, M. Cohen, C. Croll, A. Czyżewski, F. Deravi, B. Dorizzi, M. Drahansky, P. Drozdowski, C. Fankhauser, J. Fierrez, M. Gomez-Barrero, G. Hasse, R. Guest, E. Komleva, S. Marcel, G. Marcialis, L. Mercier, E. Mordini, S. Mouille, P. Navratilova, J. Ortega-Garcia, D. Petrovska, N. Poh, I. Racz, R. Raghavendra, C. Rathgeb, C. Remillet, U. Seidel, L. Spreeuwers, B. Strand, S. Toivonen, A. Uhl

Assumptions

Authors of EAB position paper

- appreciate the **benefit** of the Schengen area and the free movement of citizens in the EU
- **hope** that reintroduced intra-Schengen physical **border controls** and even closed borders will **disappear**
- seek technology, which is **compliant** with ethical principals and **fundamental rights**
- support **demographic fairness** for AI and non-AI-based systems
- anticipate that we discuss technology and steps, which will NOT require a change of the **legal framework**

Perspective

- fully functioning and **resilient** Schengen area

Drivers for the Discussion

Motivation for members states to establish external and internal border controls

- increase of **migration**



Image source: www.zdf.de

- threat of **terror attacks**



Image source: www.nytimes.com

- threat of **pandemic** spread

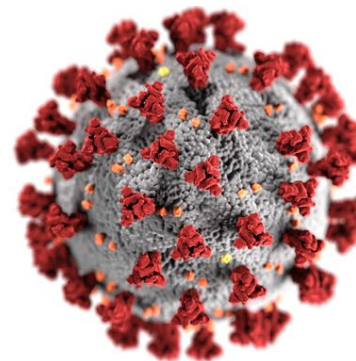


Image source: www.pei.de

External Borders

Situation of **existing** technology

- modern technologies at the border provide promising solutions facilitating legitimate travels

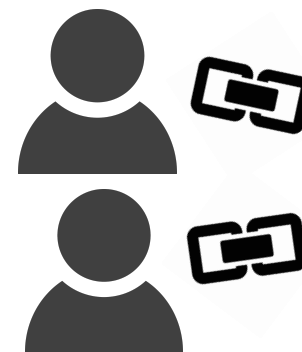
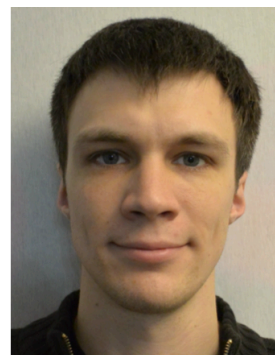
- ▶ automated border gates with **biometric verification**



Image source: secunet, idemia, vision-box

- **prevent** morphing attacks

- ▶ with **live enrolment** equipment (as in Sweden, Norway, Denmark)



No Internal Borders

No physical checks

- no waiting times - and „free“ travel



Image source: www.theguardian.com

Compensatory measures

- technology that can provide risk mitigation in the absence of physical checks

Technology Categories

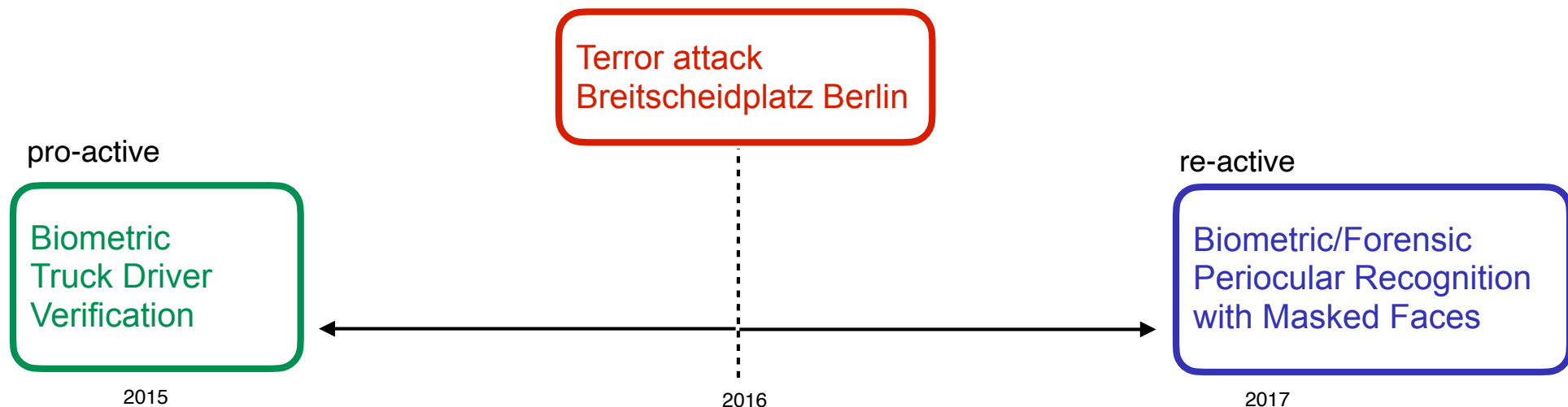
Security risk mitigation by

- compensatory measures

We distinguish

- **re-active** measures
- **pro-active** measures

Example:



Technology Example

Controlling large good vehicles

- biometric driver recognition

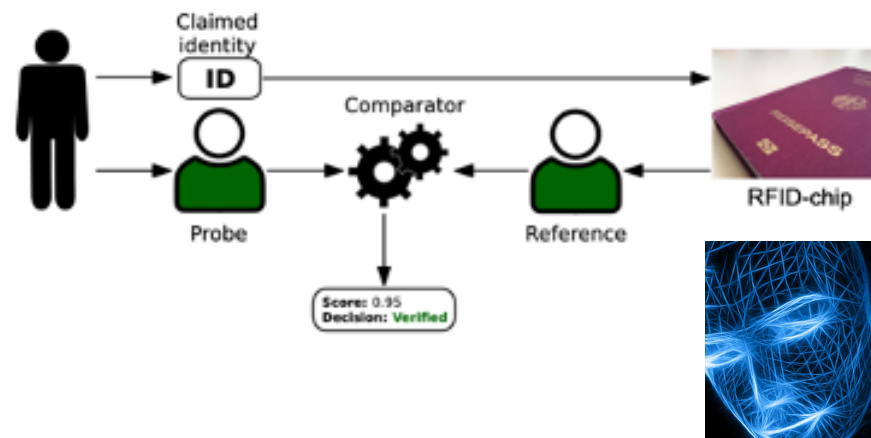


Image source: www.nytimes.com



Image source: www.creativecommons.org

- computer vision based number plate recognition of vehicles
- computer vision based detection of large good vehicles
 - ▶ vehicles close to critical areas raising an alarm (e.g. nuclear power-plant or pedestrian streets)
- forget the non-matches to watch lists, to minimize impact on privacy

Technology Example

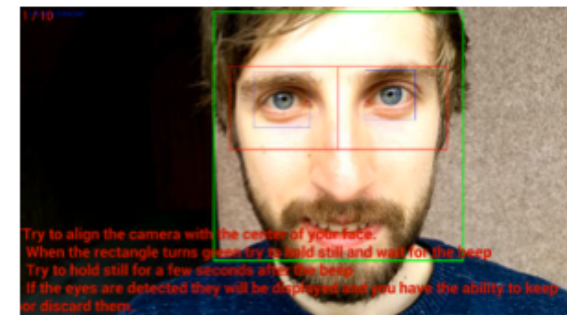
Computer vision based **tracking** of **movements**

- to verify identities, **different modalities** can be applicable
 - ▶ **face recognition** with **masked** faces



Image source: www.english.elpais.com

- ▶ **iris** and **periocular recognition** at a distance
 - e.g., biometric corridor
 - combined with surveillance system
 - drone based system



Technology Example

Self-registration of travelers

- combination with Smartphone interaction
- Transfer of **vaccination** status



Image source: www.computerbild.de

Technology Example

Standardised birth certificates (long term benefit)

- definition of an ISO/IEC standard for birth certificates
 - ▶ and the registration of such certificates by a global institution (i.e., United Nations)
 - ▶ biometric link to a persistent biometric characteristic which does not change over the live time of a human



Human readable data	
Given Names	Surname
Date of birth	ID No.
Nationality	Place of birth
etc.	
Signature of parents	

Machine readable data	
Encoding of left index finger	
Encoding of left iris	

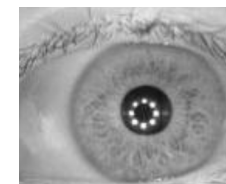


Image source: FIDELITY, FVC04, CASIAv3

Technology and Control Infrastructure

Absence of internal border control
does not mean no control

- **physical checks** at internal borders are replaced by undisturbing and **invisible control** technology
 - ▶ **no queuing** at internal border and again „just in time delivery of goods“
 - ▶ vision based systems
 - ▶ recognition and tracking



Image source: www.monster.fandom.com



Image source: www.creativecommons.org



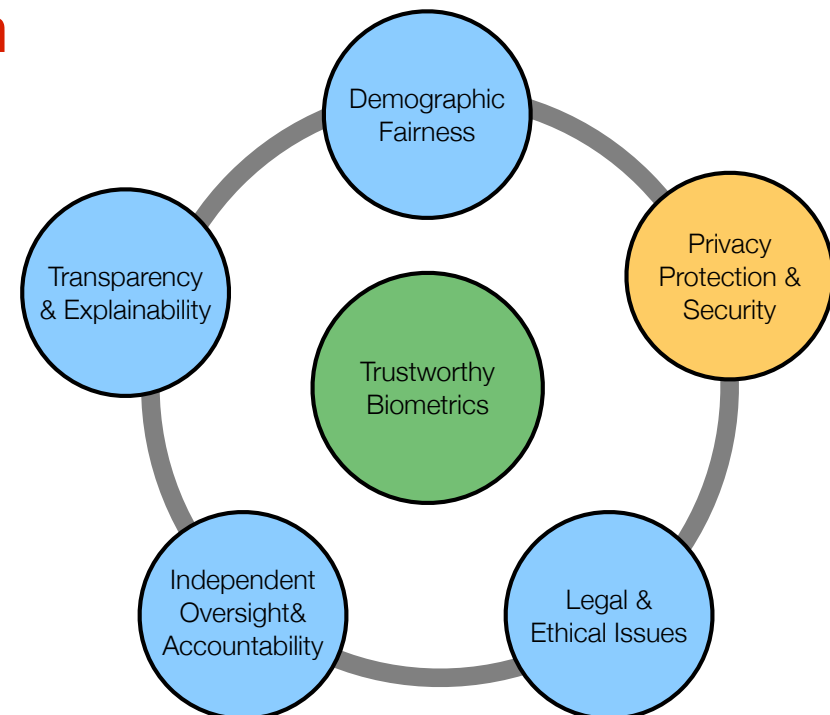
Trustworthy Biometrics

Acceptance of technology

- technology itself often considered as threat
- in case of **terror** attacks, pro-active and re-active **technology** is **expected to exist** and to be used by investigators

Increase trust in technology can be achieved by

- security and **privacy by design**
- public consultations and information campaigns
- and other factors ...



Balance Technology and Privacy

Increased use of deployed technology may lead to decrease in privacy

- Deployed control points and **existing infrastructure**
- **Activation** of technology only **in crisis** situations e.g. after a terror attack (and risk increase)
- **Proportionate** use of new technology



Image Source: <https://www.flaticon.com>

The full EAB-position paper is available at:

https://eab.org/files/documents/2021-05-06_EAB-position_Facilitating_Free_Travel_in_the_Schengen_Area.pdf

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