FastPass and EasyPASS

ABC from science to solution

Presentation at Security Printers,

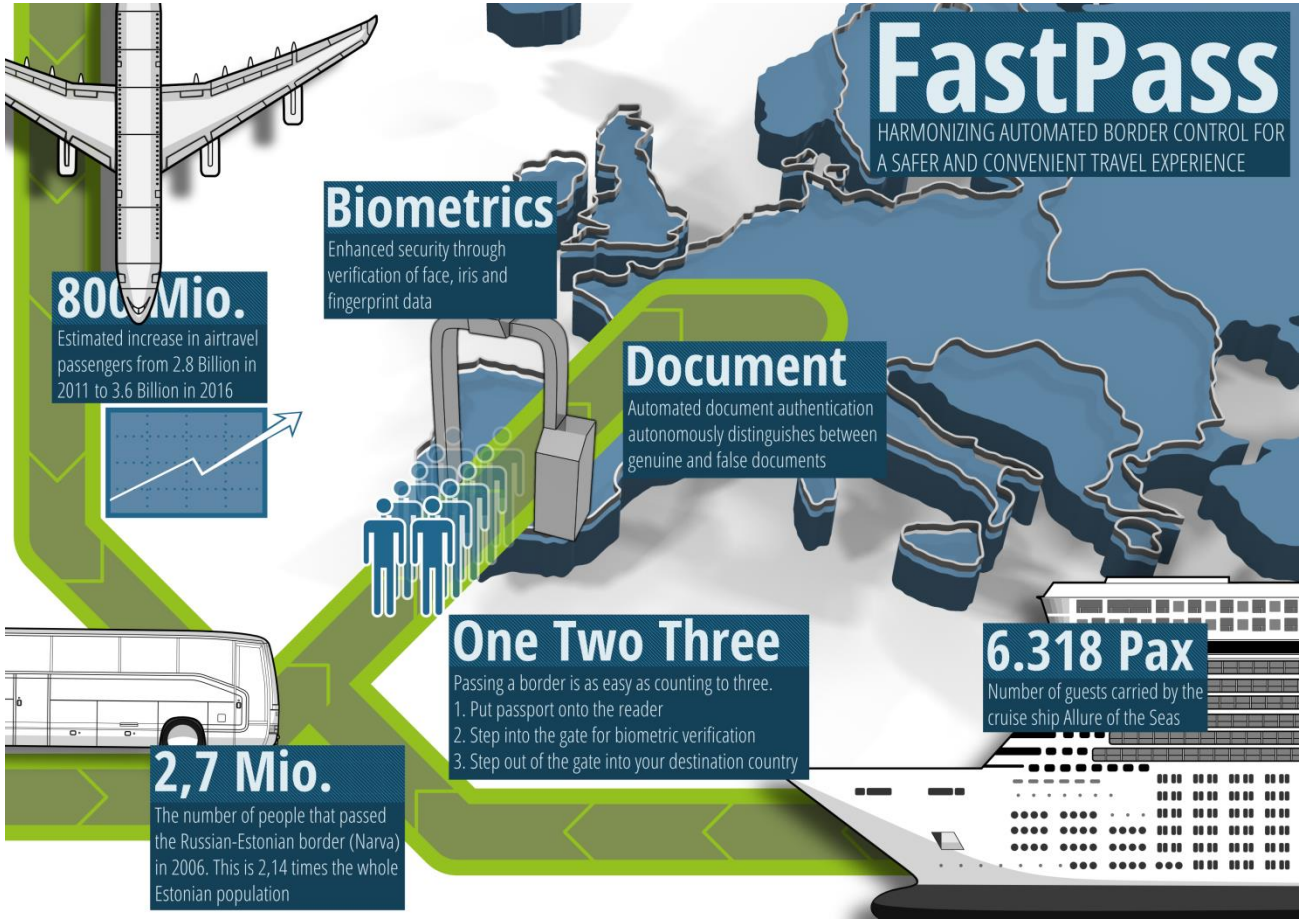
December 6, 2013

The work has been supported by the FastPass project. The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 312583.

Automated Border Control - Motivation

Challenges:

- Passenger flow ↑
- Requirements on the border control process ↑
- System risk assessment ?
- Harmonization ?
- Variety in usage ?



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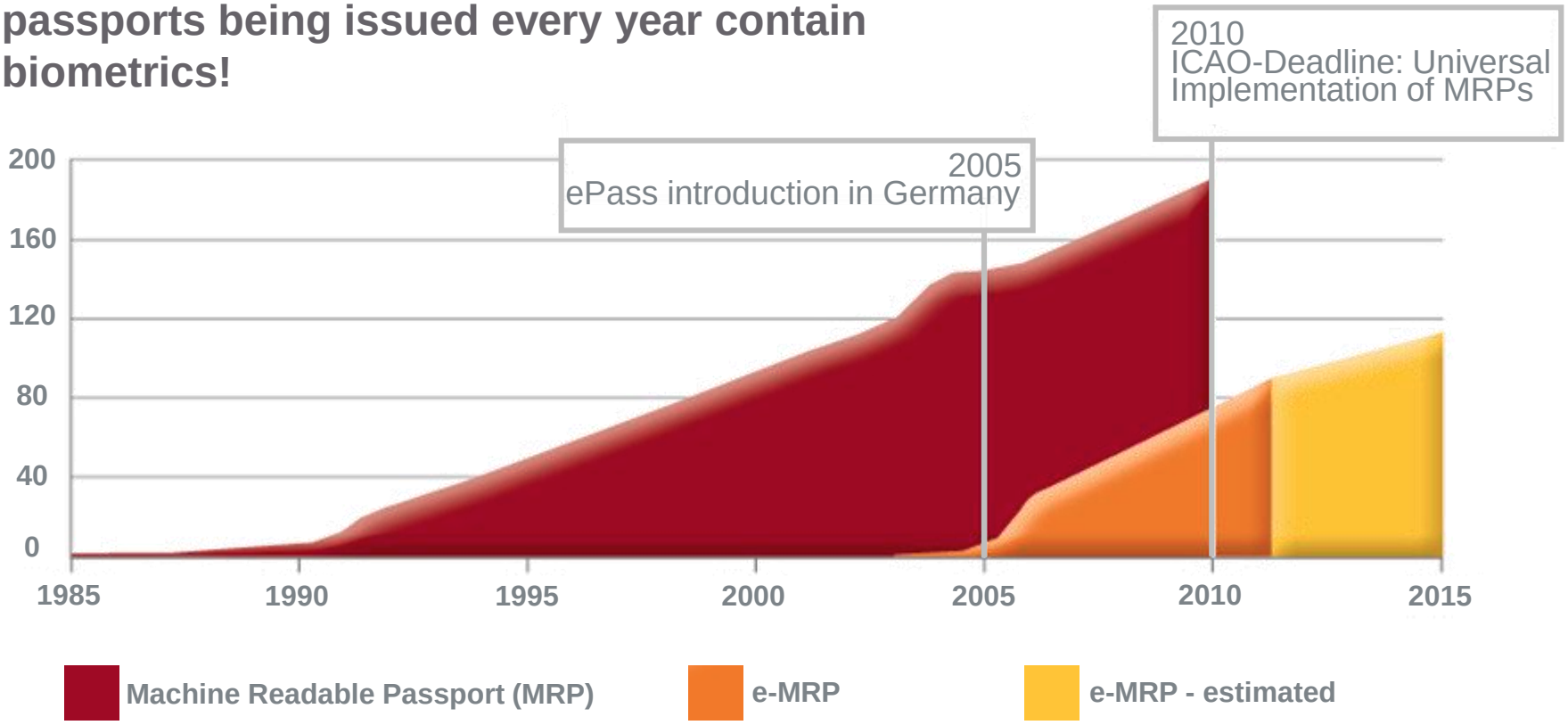
Automated Border Control - Motivation

More than 100 states are already issuing electronic passports and more than 110 of the 140 million passports being issued every year contain biometrics!



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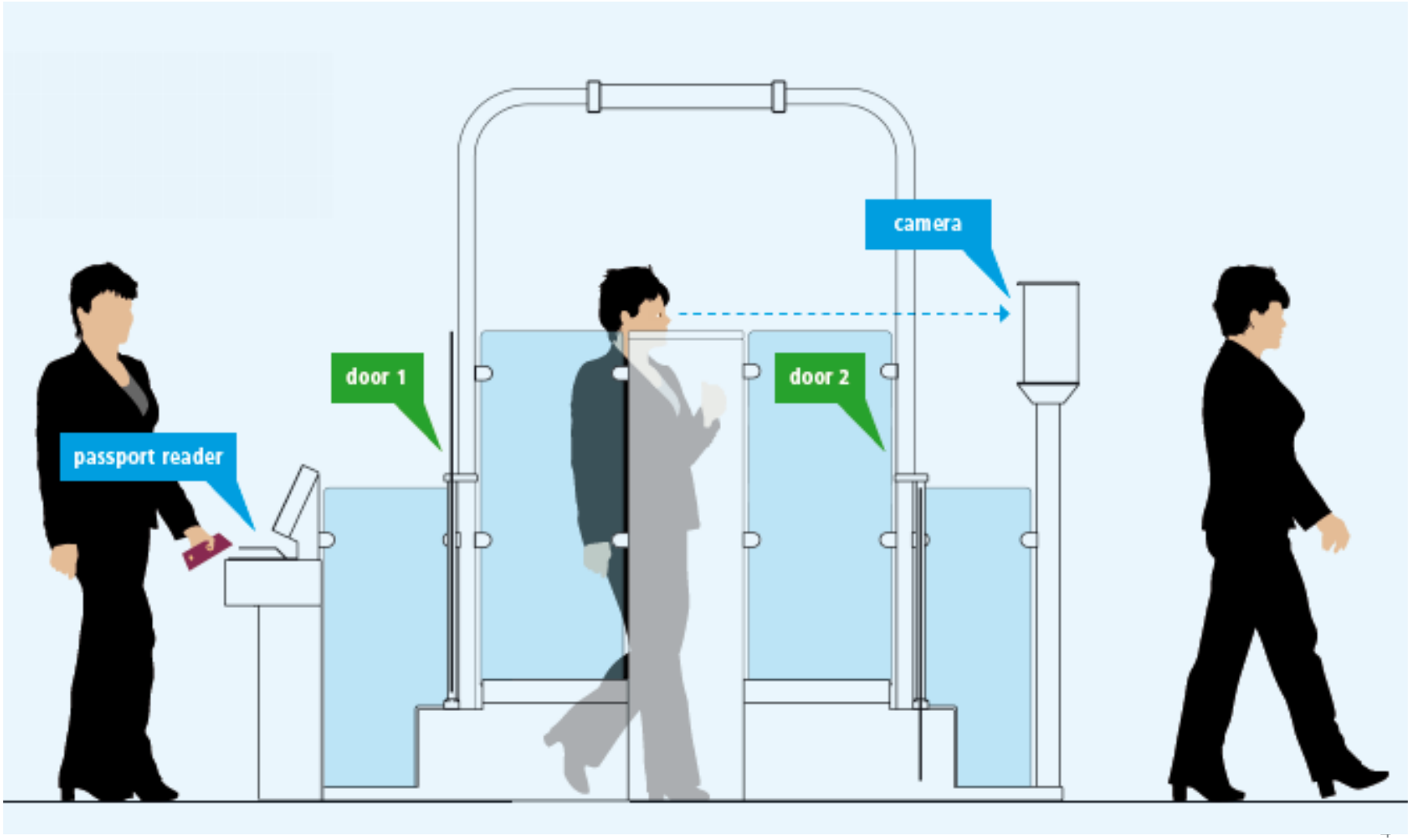
Automated Border Control - Workflow



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FastPass

AUSTRIAN INSTITUTE OF TECHNOLOGY
TOMORROW TODAY

FastPass

A harmonized modular reference system for all European automated border crossing points

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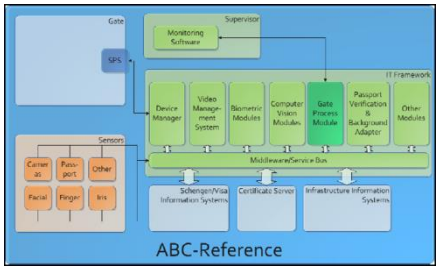
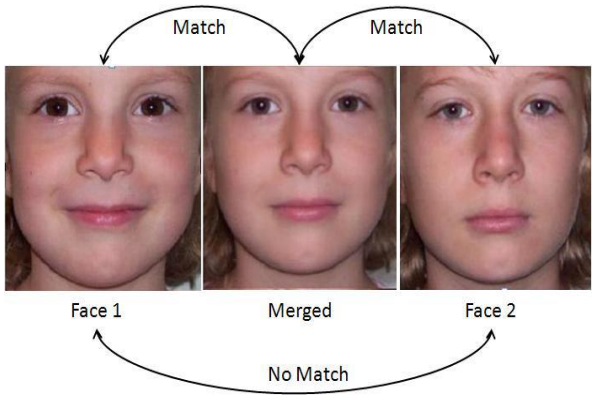
Why do we need research on ABC ?

- **Current systems are limited**
  - No usage by third country nationals
  - No usage by frequent travellers
  - No harmonization and no interoperability
  - No or weak integration into infrastructure processes
- **Current systems are not developed around the user**
  - No harmonized usage
  - No customer interaction and satisfaction management
  - Human factors are not analysed and considered
  - Privacy issues are not properly addressed
- **Current systems have not been security evaluated**
  - Passport security features are only partially checked
  - Biometric spoofing is not fully addressed
  - Passport document lifecycle is not fully addressed





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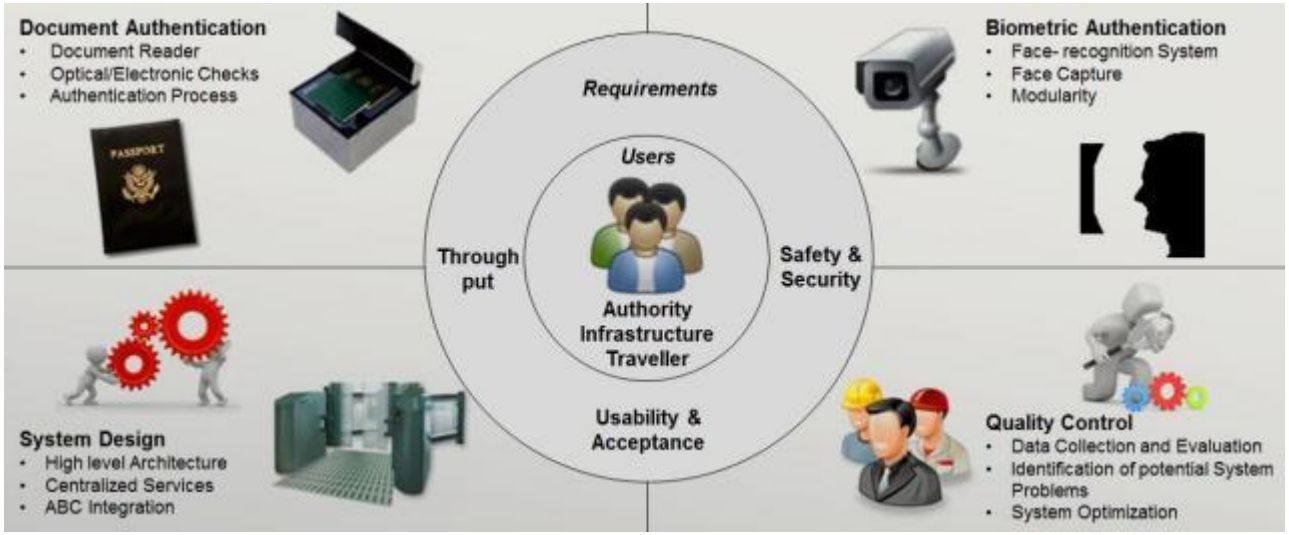
FastPass Project

- Project start: 1.1.2013
- Project duration: 4 years
- Funding: EU FP-7 Security
- Coordinator: AIT Austrian Institute of Technology
- Consortium: 27 partners (3 border authorities, 4 infrastructure operators, 11 industry partners, 5 applied research centers, 4 universities)

Key element:
The users are in the center of innovation



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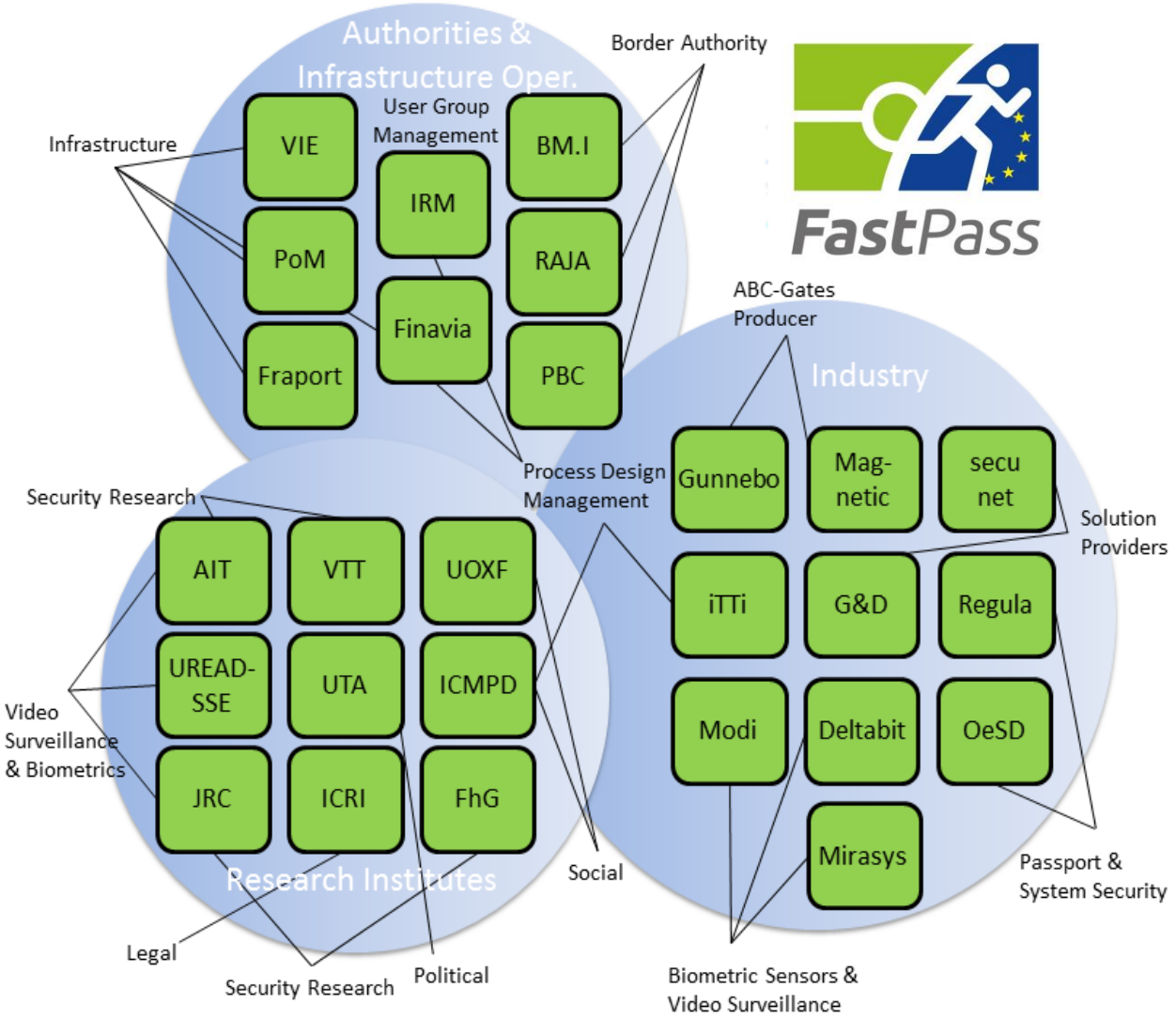
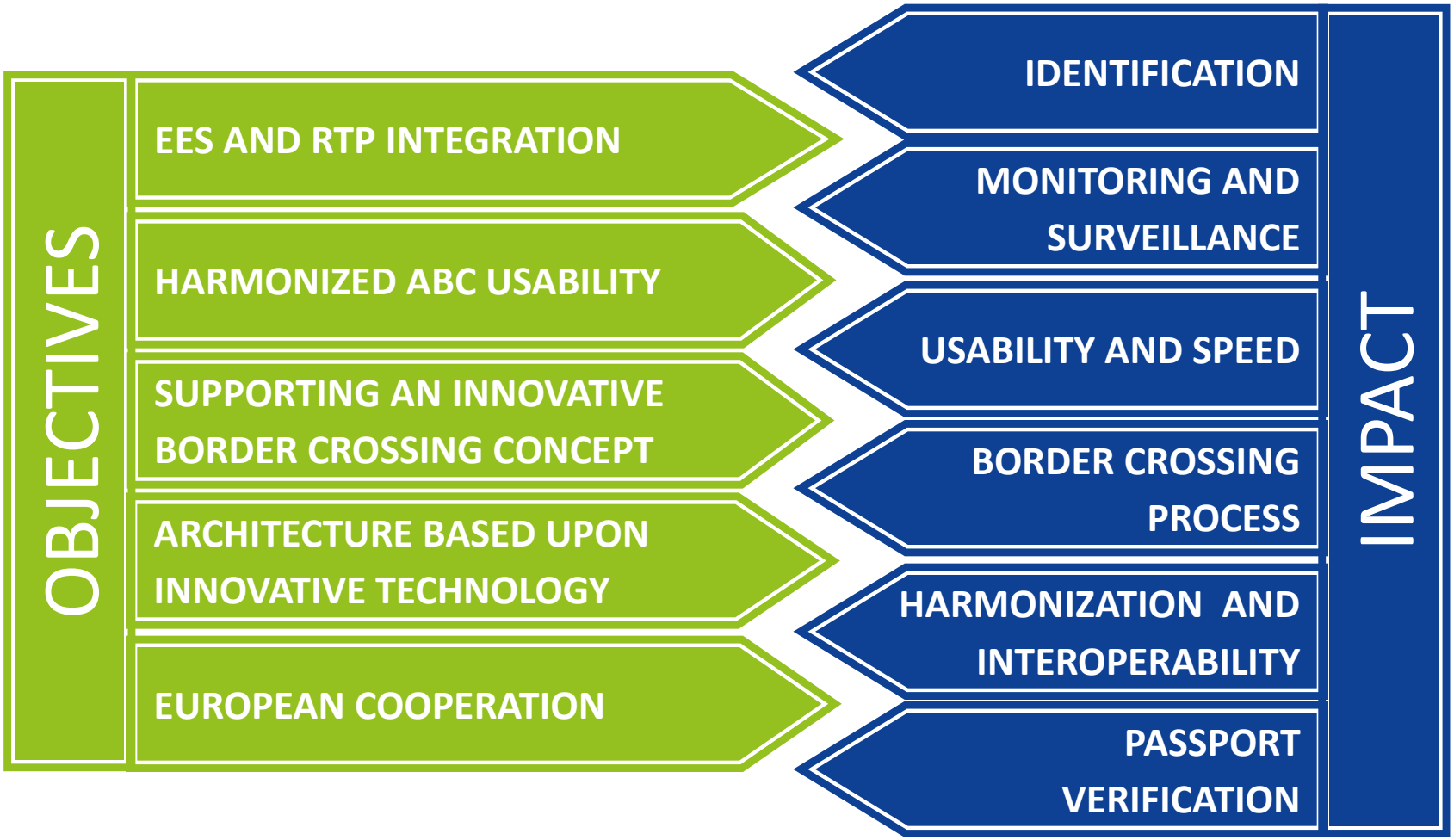
FastPass - Consortium



FastPass Objectives and Impact



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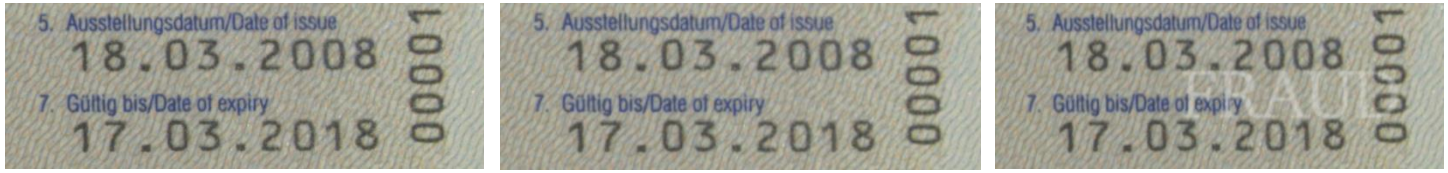
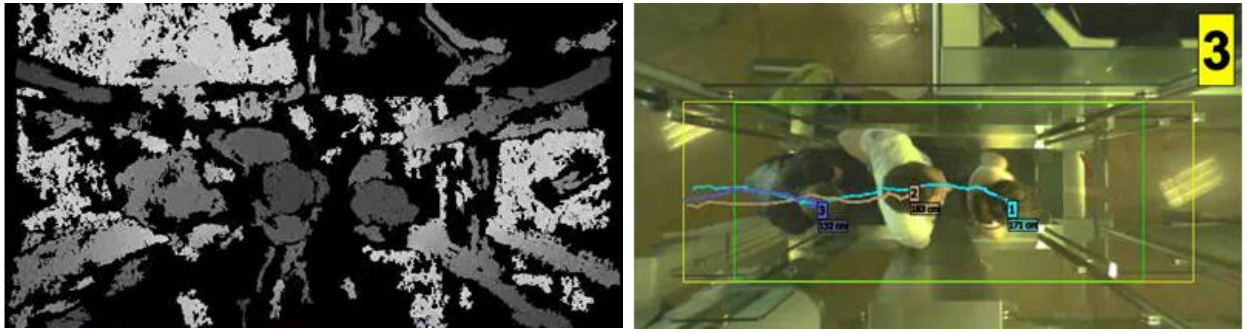
First Key Findings

- Dependability management as key element of a successful deployment
- Document security in the age of ABC



(a) Original (b) Rotated by 0.3 degrees, (c) Text overlaid

- Video surveillance as added value to ABC systems



(a) Depth image (top view camera) (b) video stream with person separation

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EasyPASS – The German eGate Solution

secunet

BUNDESDRUCKEREI

EasyPASS – Overview

- eGate solution currently in operation at Frankfurt Airport, Germany
- Biometric modality = face (1:1)
- Can be used by EU/EER/CH citizens with ePassport & German citizens with national ID Card (Personalausweis)
- 4 self-service eGates, 1 monitoring station

EasyPASS – Project Status

- Operation started in August 2009 as a pilot project of BSI (German Federal Office for Information Security)
- Since April 2010 in regular operation by Bundespolizei (German Federal Police)
- Major roll-out of 90 improved eGates at Germany's (five) largest airports in 2014
- Optional extension by 180 eGates
- Optional extension by fingerprint scanners (3rd country nationals/RTP)

Optimal Passenger Flow
Main Interaction Elements and Positions

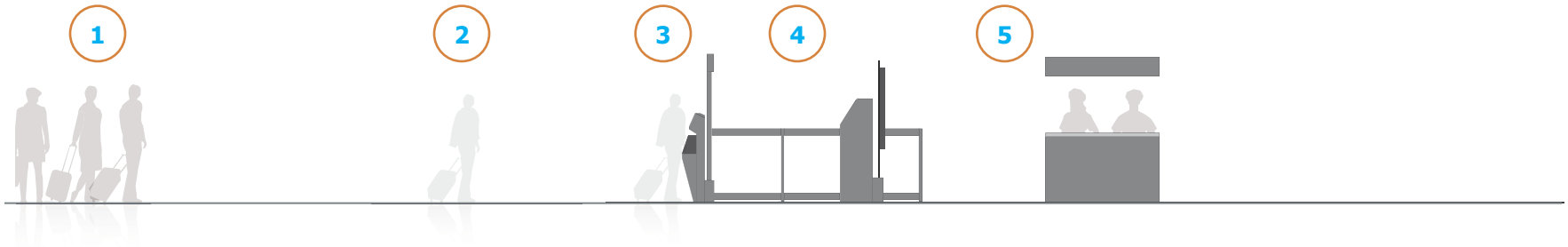
Arc above the entry door of the eGates

Biometric unit with integrated „digital mirror“

Document reading device with monitor

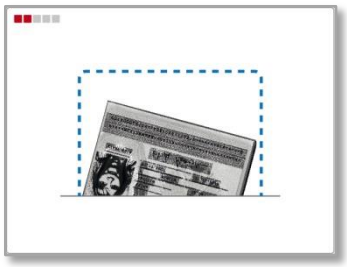
1. **Identifying the border crossing point**
   Interaction with the arcs
2. **Waiting position in front of the eGate**
   Interaction with the arc
3. **In front of the entry door**
   Interaction with the document reader
4. **Within the eGate**
   Interaction with the biometric unit
5. **Leaving the eGate**
   - Direct border crossing
   - Manual control / entry stamp

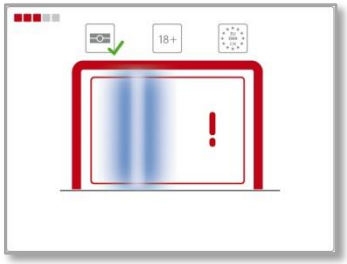
The optimal passenger flow leads to a processing time < 18 seconds



Step 3 - In Front of the Entry Door
Interaction with the Document Reader

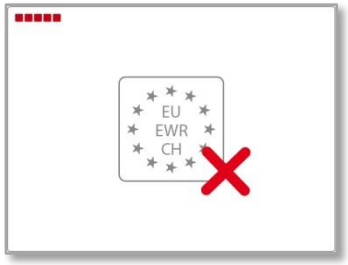
Interactive Graphical User Interface – the key for user acceptance and throughput





Examples:

- Interactive feedback on how to position the document
- Scanner metaphor - prevent the user from retracting the document too early
- Handling error - passport has been removed too early
- Handling error – passport has been placed on the reader with the cover side down
- Traveller has no sufficient eligibility - no EU citizen



Step 4 - Within the eGate
Interaction with the Biometric Unit

Key Factors:

- Camera system automatically adjusts height when traveler enters the eGate
- Camera system faces in the direction of the traveler's movement – no turning necessary
- „Digital mirror" provides feedback to the traveler
- In general, exit door already opens when traveler approaches it

Icon and Animation Examples:

- Handling error – passport has been left on document reader
- Two people in the inner eGate

ABC from science to solutions

USABILITY
HARMONIZATION
STANDARDIZATION

NEW CONCEPTS
AND PROCESSES

IDENTIFICATION
DOCUMENT SCANNING
VIDEO SURVEILLANCE

FEEDBACK

NEW TECHNOLOGIES

STEP BACK
QUESTION
CHALLENGE
RE-IMAGINE

DEMONSTRATION

AIR/LAND/SEA
BORDER

NEW PRODUCT RELEASES

INNOVATION INTERRUPT

OPERATION **IMPROVEMENT** **INNOVATION**

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