



*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 653676*



Proactive Enhancement  
of Human Performance in Border Control

# **BODEGA - "Proactive Enhancement of Human Performance in Border Control"**

## **1.6.2015 – 30.9.2018**

Raúl Sevilla, ATOS

# BODEGA - objectives

BODEGA project will investigate and model **Human Factors** in border control to provide innovative socio-technical solutions for **enhancing border guards' performance** of critical tasks, support border management decision-making, and optimize **travellers' border crossing experience**.

BODEGA will develop a PROPER toolbox which integrates the solutions for easy adoption of the BODEGA's results by stakeholders in border control.

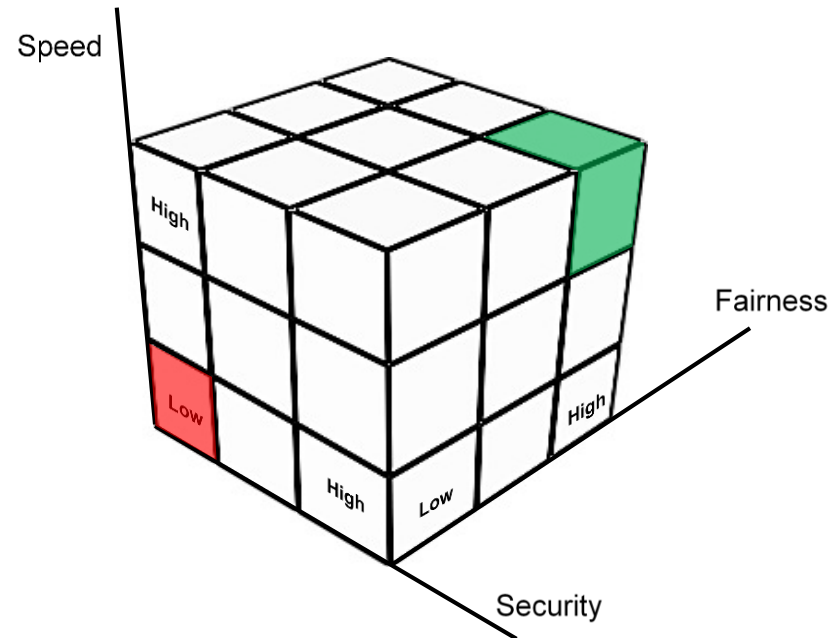


# BODEGA dimensions



# Responsible Research & Innovation

- Address acceptability of process and outcome
- Definition of the 3 key drivers of Performance
  - Speed
  - Security
  - Fairness
- Research Ethics



# Human Factors approach

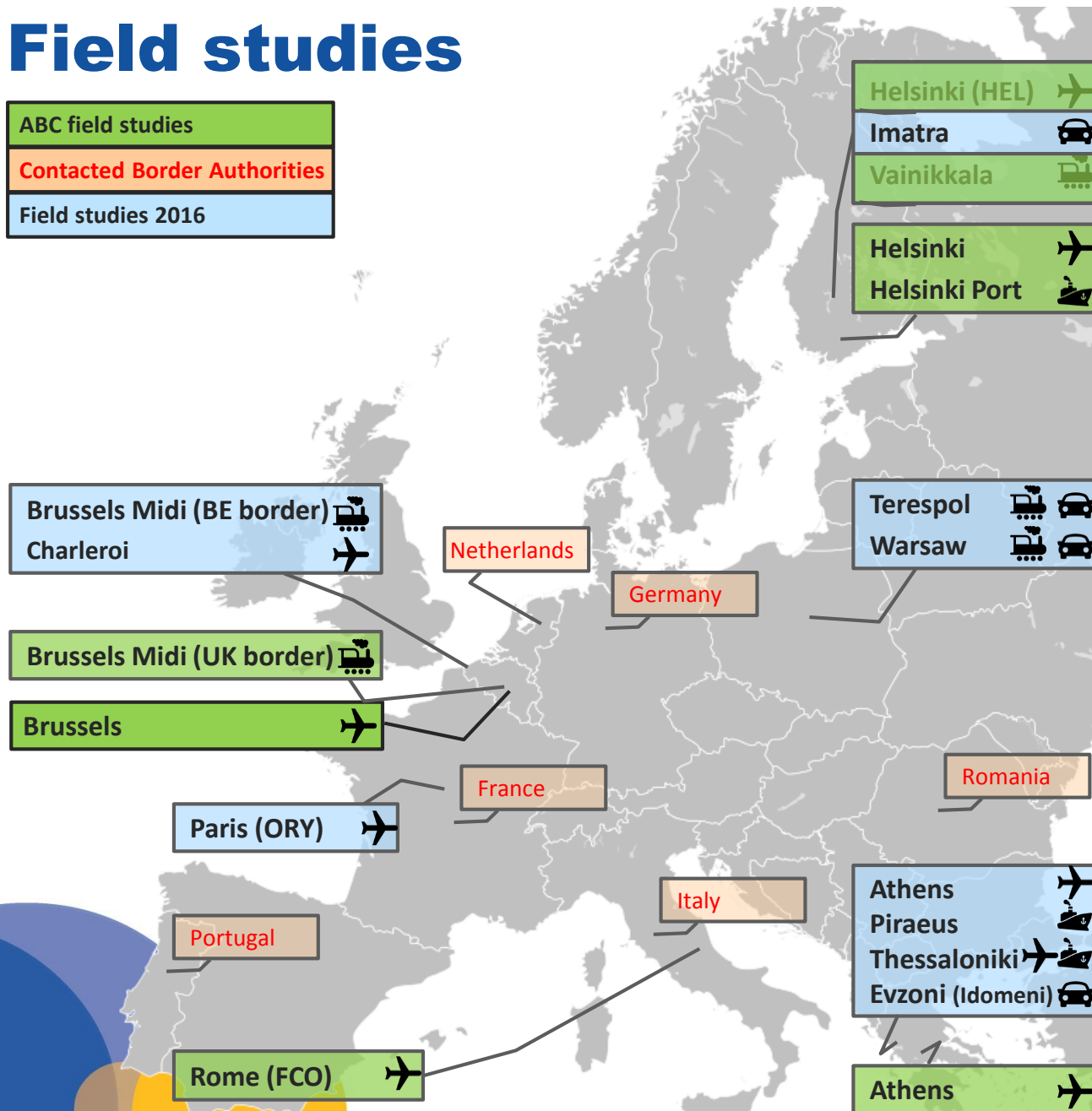
# Field studies

ABC field studies

Contacted Border Authorities

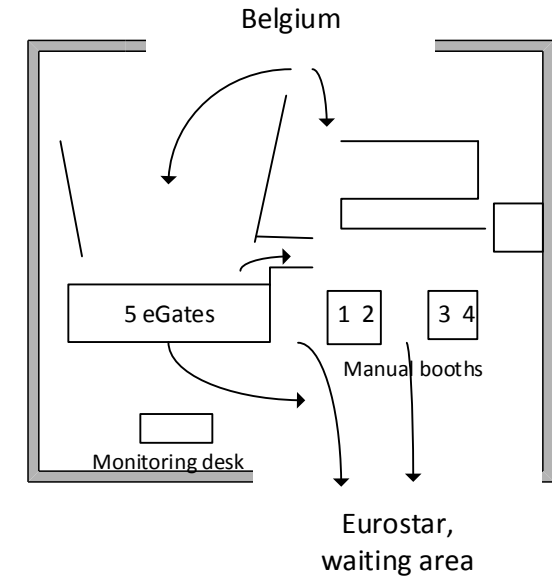
Field studies 2016

6 Countries  
4 Border types  
14 Border check points  
~100 Interviews  
Observations  
Traveller interviews and observations



# Field studies provided different experiences

- Processes and topologies
  - Exception handling
  - Border guard position
  - Monitoring software/tools
- 
- Shift length
  - Shift planning
  - Traveller profiles



# FS Results

- Requires expertise
  - Refined training skills
- Motivational aspects
  - Active contribution to security and to the risk analysis.
  - Social nature of the work,
  - Security of the border/country
  - Mission - customer service and good attitude concerning the country.
- Performance of the Border Guard
  - Security at the border.
  - Interactions
  - Communication with travellers/public
  - Risk analysis is a highly dynamic activity with a very short time constant.
- Teamwork
  - to take good decisions, to receive help, to communicate with traveller, and to manage the flow of travellers

Organisational aspects

Border check tasks, workload

Border check performance

Skills and training

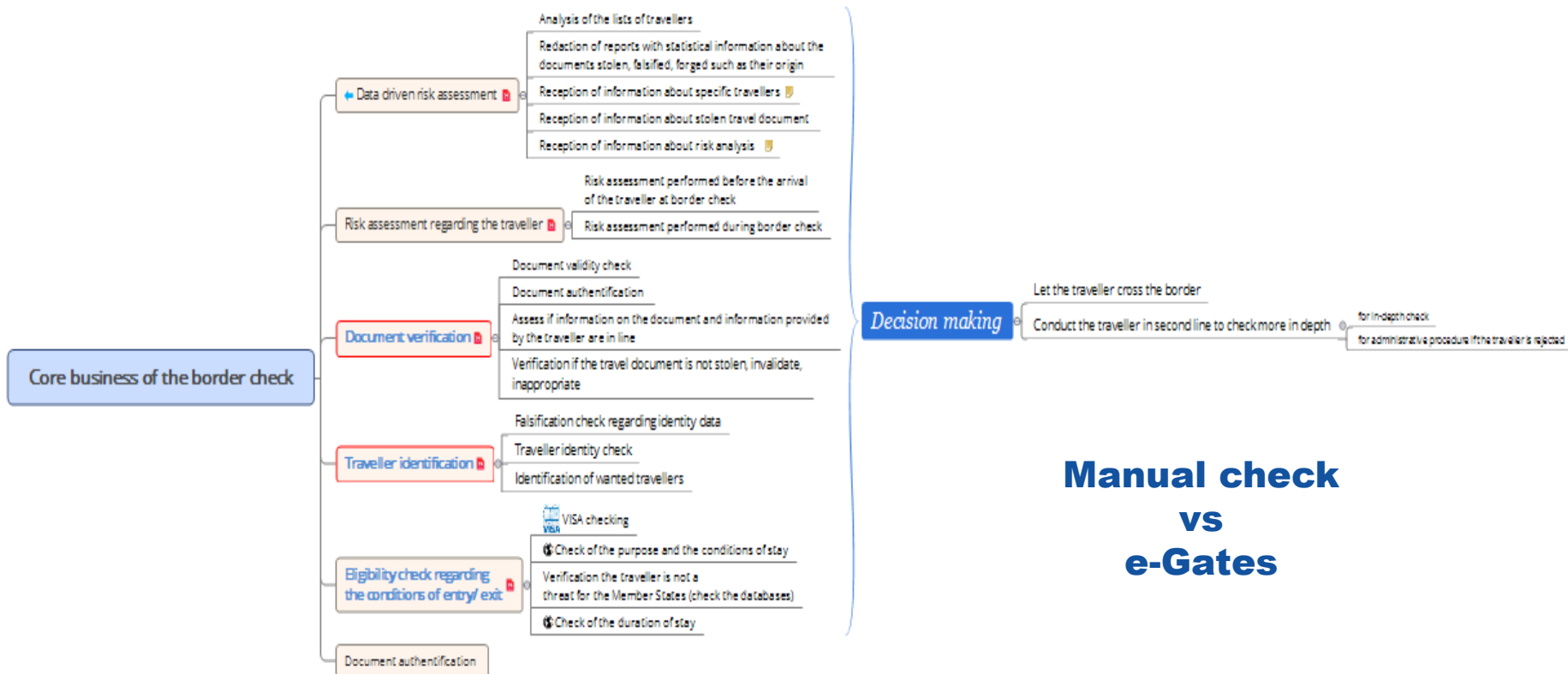
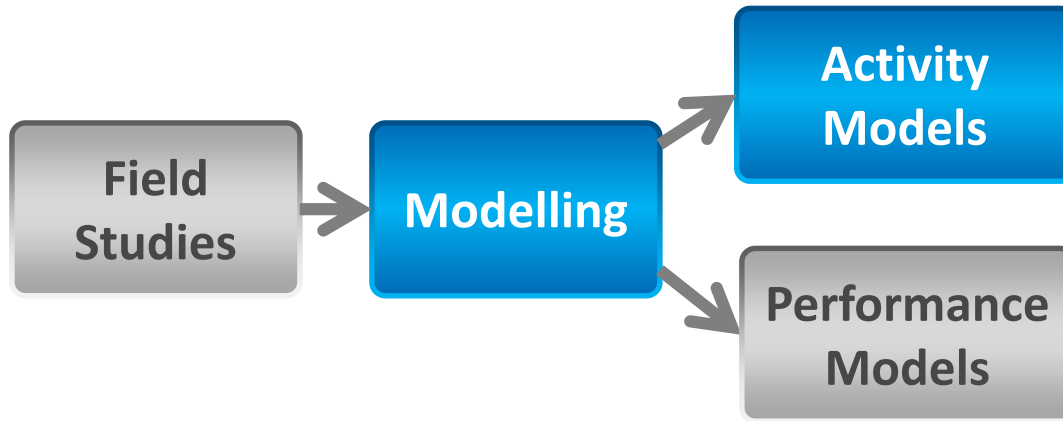
Evolution of BG work

Technology, equipment and environment

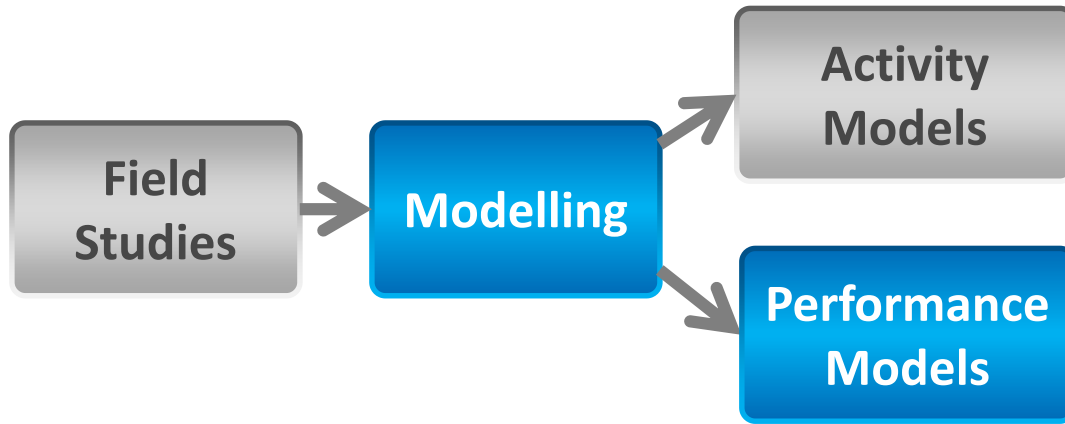
Travellers perceptions

Ethics and legal framing

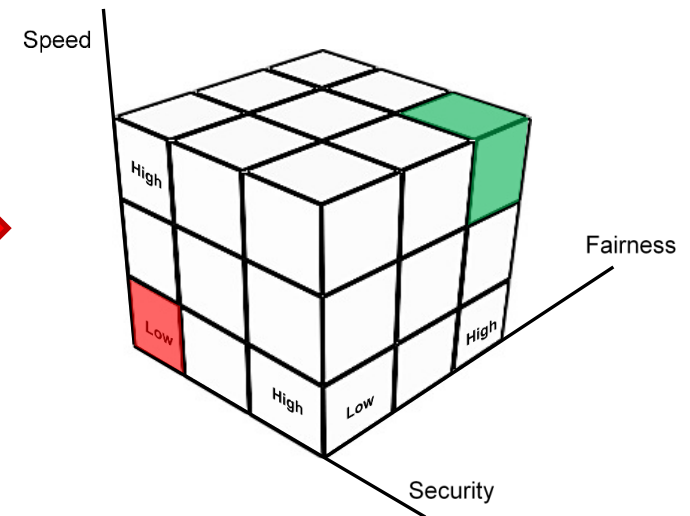
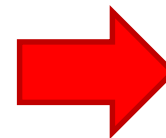


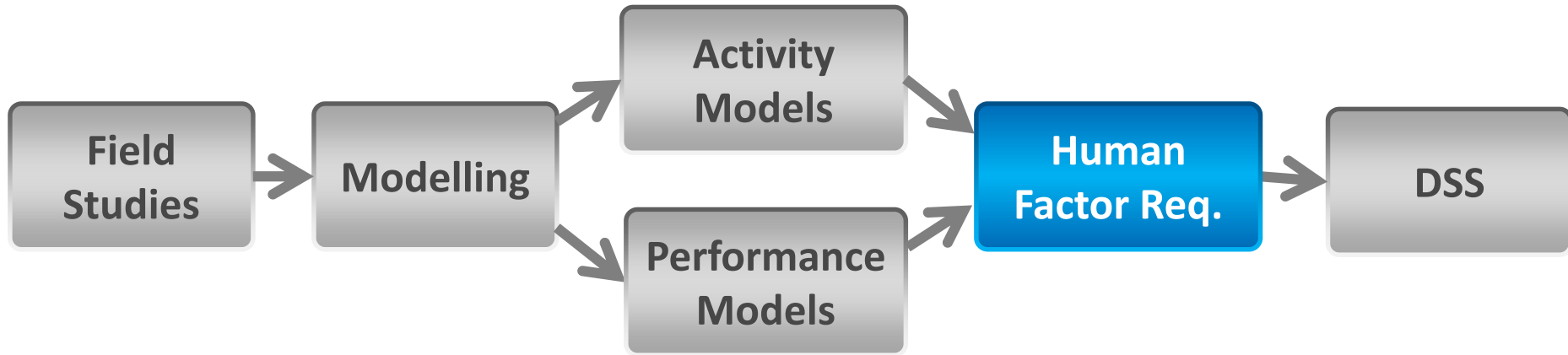


**Manual check  
vs  
e-Gates**



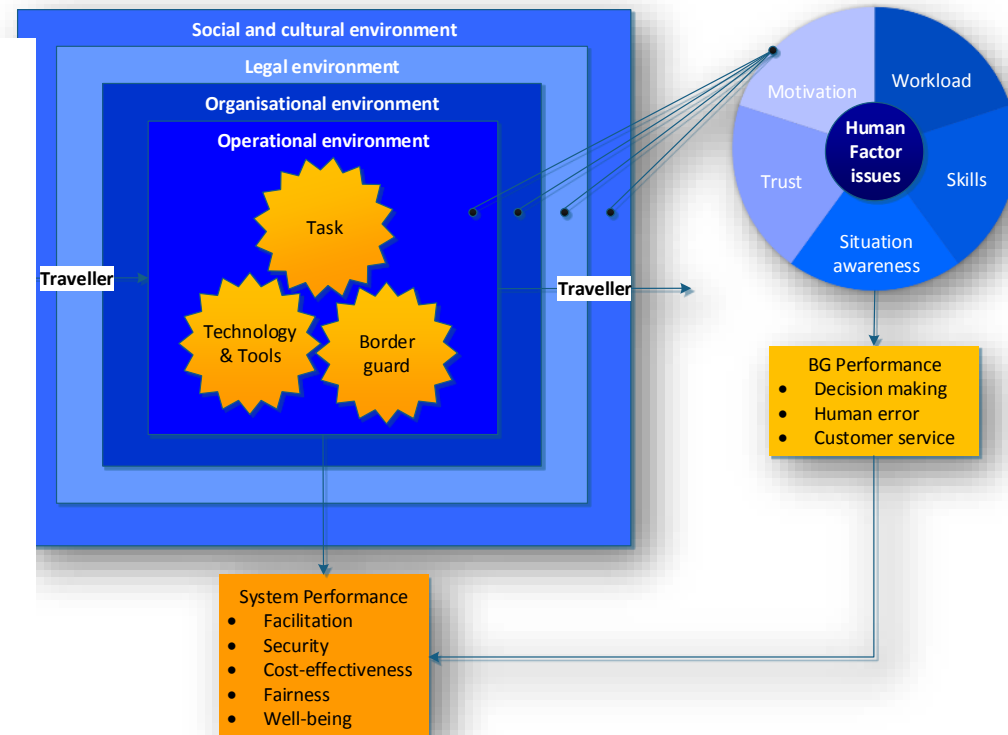
75 factors that affect performance:

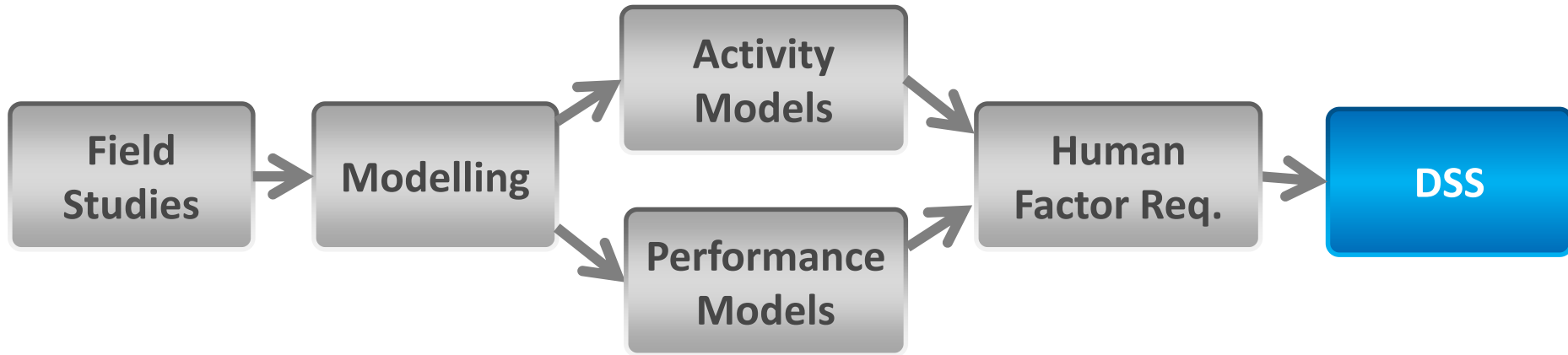




**Recommendations** of what should be taken into account in order to ensure **good performance** and **wellbeing** in border control work by supporting:

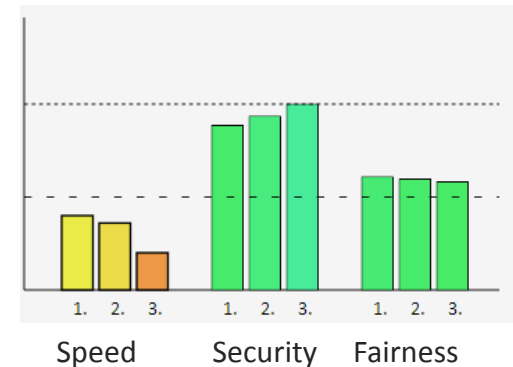
- Recognize the challenges and activities in **current work settings**
- Recognize possible changes in work tasks **after implementing new technologies**



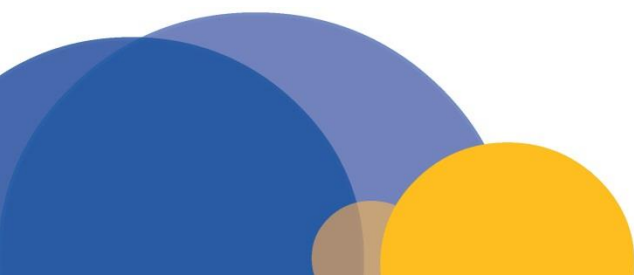


- Provide a tool to leverage the BODEGA Human Factor framework
- Allow BG managers to estimate the impact of new organizational methods, systems, technologies, ...

Performance Model



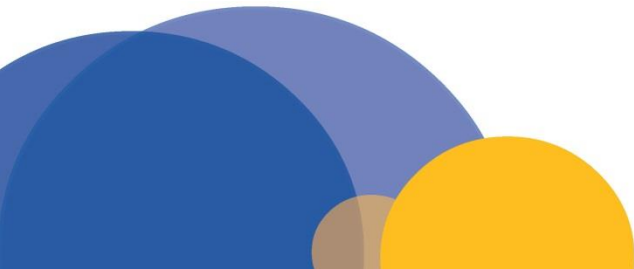
# **Improving travellers experience**



# BODEGA traveller survey

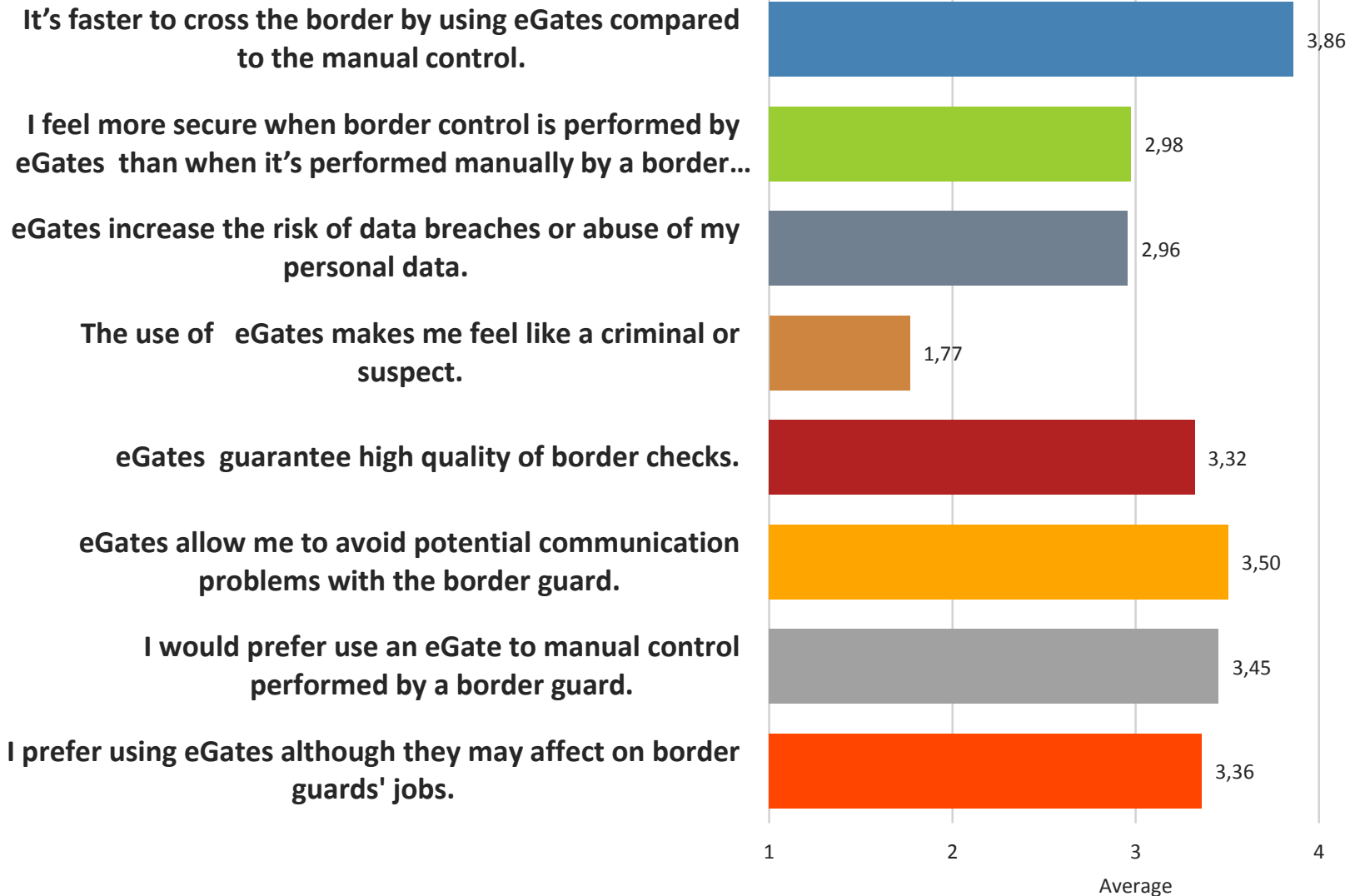
## Target

- Survey to collect travellers experience and thoughts on crossing the Schengen border.
  - a public digital survey
  - available in 8 different European languages
  - Open: <http://bodega-project.eu/> ;
  - <https://response.questback.com/vtt/bodegasurvey>



# What is your opinion about the following statements?

5 = strongly agree, 1 = strongly disagree



# Hybrid game PASS

- To increase the knowledge level of travellers related to border crossing, the card game PASS has access to different digital stories.
- Each story address specific learning objectives, which are derived from the literature review and the field studies.
- The following tables exemplify the list of learning objectives.

Learning objectives	Card Game	Story 1	Story 2	Story 3
<b>General Knowledge : To know</b>				
what are the Schengen Area and member states	X	X	X	X
where to get information about the law requirements to cross the Schengen Area			X	X
the procedure to cross the border (make emphasis what is border control VS customs)	X			
about the Visa Information System (VIS) in general and more details when needed (TCN)				X
about manual and automatic control	X	X		
other				



TCN  
There are different agreements, e.g.  
61 countries can travel visa-free to visit EU up to 90 days  
140 countries require visa to visit the EU

EU travellers  
from 26 countries

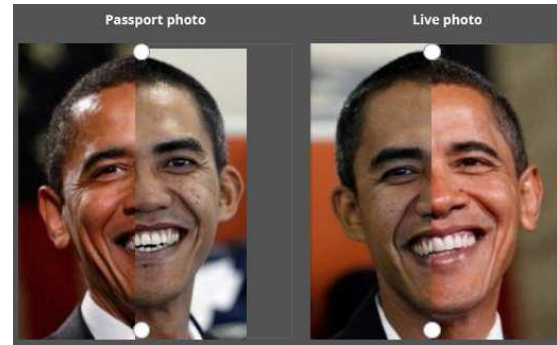




# **Innovative Interaction between Technologies and Humans**



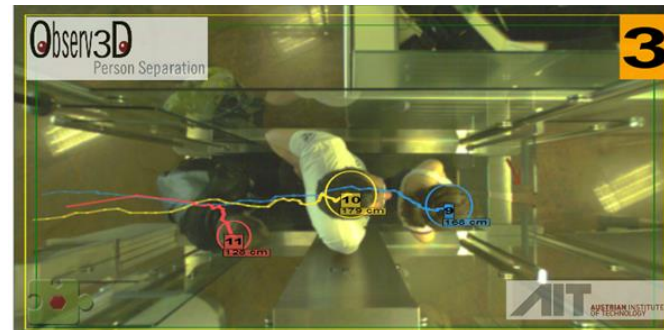
Document verification



Identity verification



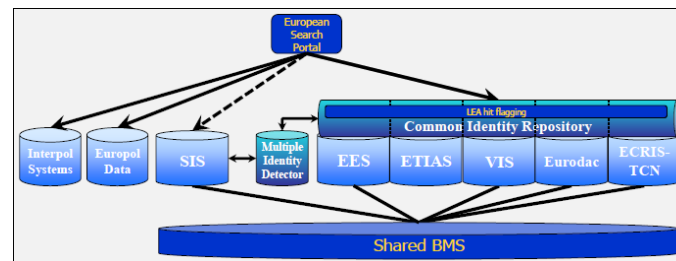
Best-practices for ABC Systems



Video-based analysis



HMI in mobile devices



Data-based risk analysis

# BG Training

- Analysis of existing BG methodologies
- Recommendations and specifications for management and organization of border staff
- Application of **serious gaming** to BG training
  - 4 selected scenarios
  - social interaction
  - tech-savviness
  - document verification



Snapshot of BODEGAME

# PROPER TOOLBOX

happywise.eu/tmp/propertoolboxtest/#/main

Most Visited MOT Google-kääntäjä HPK SPAS: SPlits Analysis S... http://www.mysport.fi... O-training.net My-O eMagz Tampereen lyseon lukio ALMA HPK ARESIBO


## PROPER TOOLBOX

Search Log In


### ABOUT THE PROPER TOOLBOX

The PROPER Toolbox will provide knowledge, best practices, national and European experience and research results that will be used by members to find relevant information to help them in decision making and to improve the whole organisation and human factors conditions.


#### Border Control Authorities



#### Traveler Associations




#### Business/Other Stakeholders



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## Next steps

- Final End User workshop - 09/2018
- Elaboration of a roadmap for future R&D efforts in the field of border control.
- Final Conference – 10/2018 in Tallin. Joint event with EU-LISA

# Thank you!

**For more information, contact:**

**Veikko Ikonen (VTT, Coord)**  
**[veikko.ikonen@vtt.fi](mailto:veikko.ikonen@vtt.fi)**

**Raúl Sevilla (ATOS)**  
**[raul.sevilla@atos.net](mailto:raul.sevilla@atos.net)**