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BODEGA
Proactive Enhancement of Human Performance in Border Control

Future outlook

Sirra Toivonen, VTT

Objectives

BODEGA

1.6.2015 – 31.10.2018

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.



AGENZIA DELLE DOGANE E DEI MONOPOLI
VTT
Rajavartiolaitos Gränsbevakningsväsendet The Finnish Border Guard
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY TOMORROW TODAY
THALES
UNIVERSITÉ DE NAMUR
uic INTERNATIONAL UNION OF RAILWAYS
HappyWise
SciencesPo CEVIPOF
ubium
Zanasi & Partners
Atos
CEIS
cea
GROUPE Imprimerie Nationale

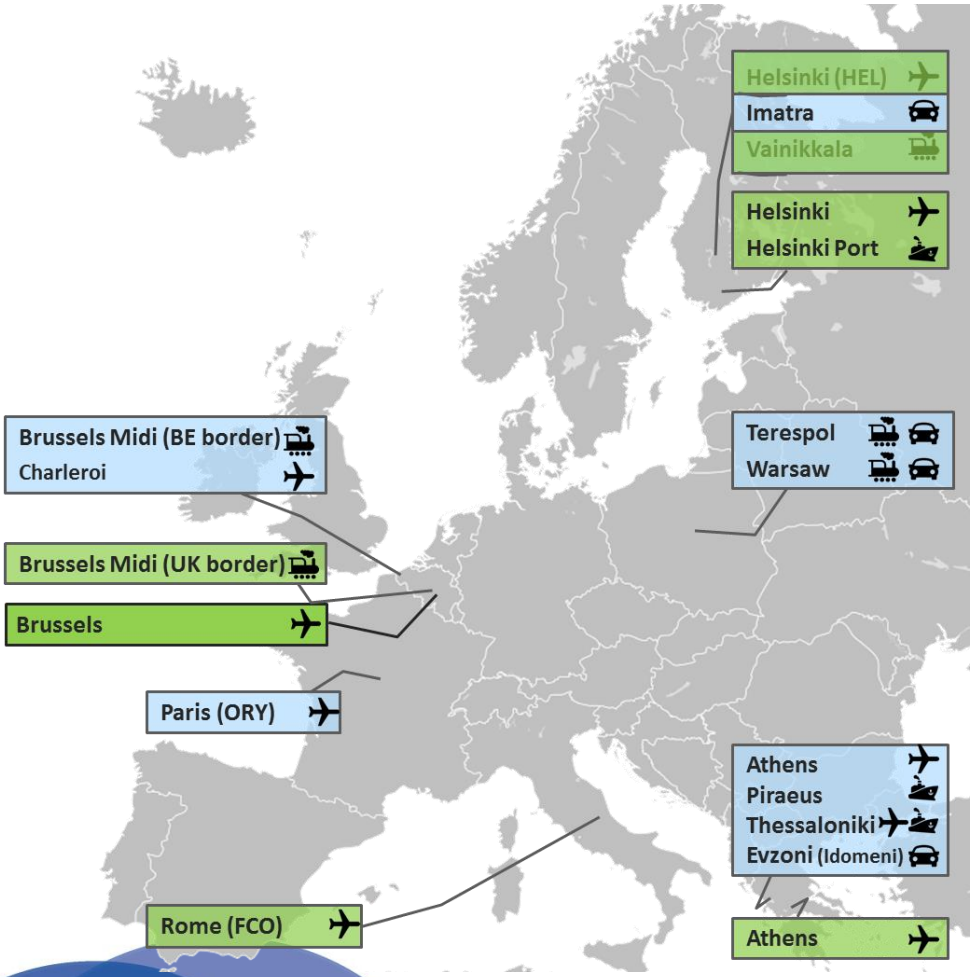
Human Factors

"*The scientific discipline concerned with the* ***understanding of the interactions among humans and other elements of the system*** *and the profession that applies theory, principles, data, and methods to design in order to* ***optimize human well-being and overall system performance***" https://www.iea.cc



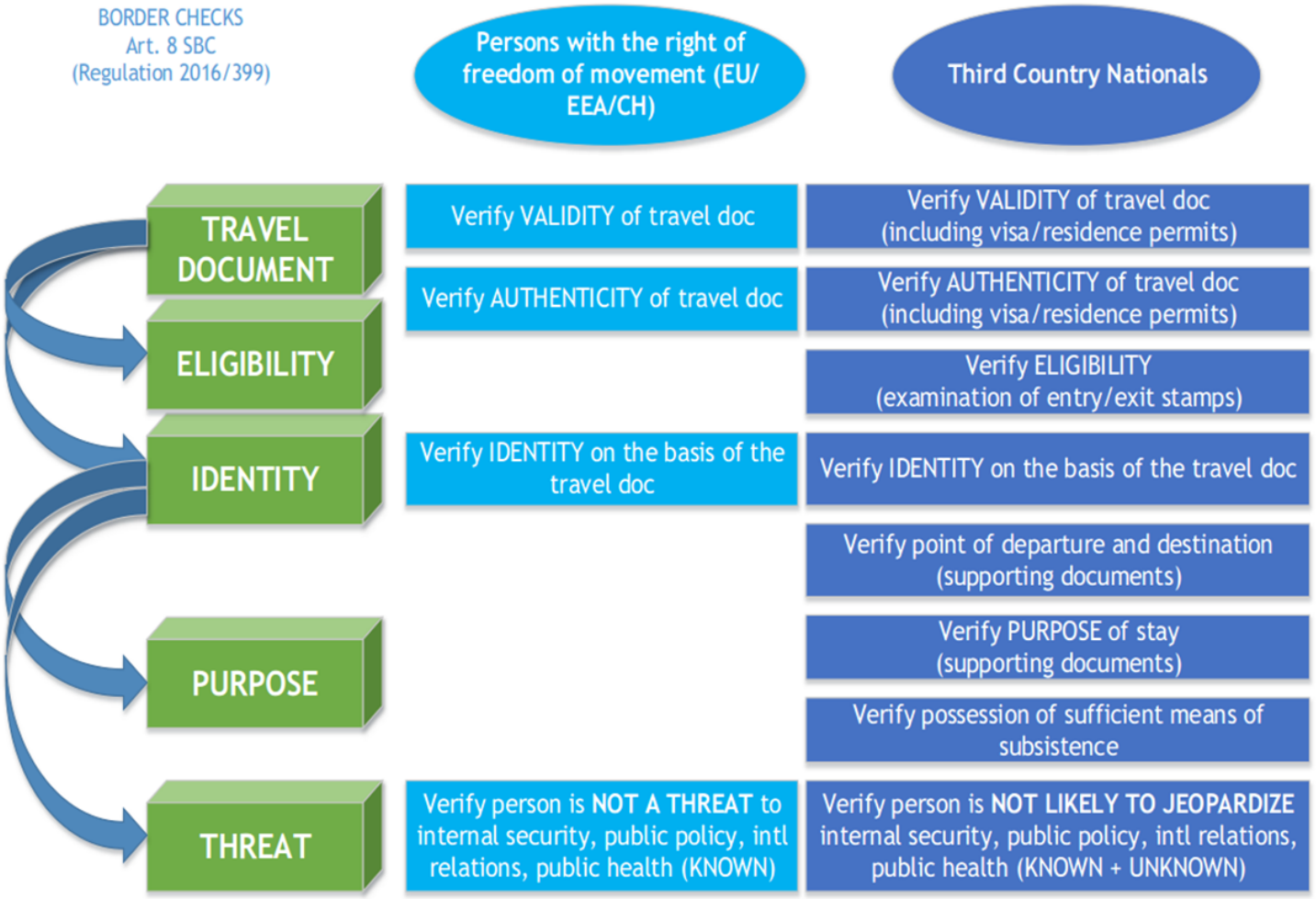
Ergonomics helps harmonize things that interact with people in terms of people's needs, abilities and limitations.

Field studies



- 7 Countries
- 4 Border types
- 14 BCPs
- ~100 Interviews and/or observations
- Traveller interviews and observations

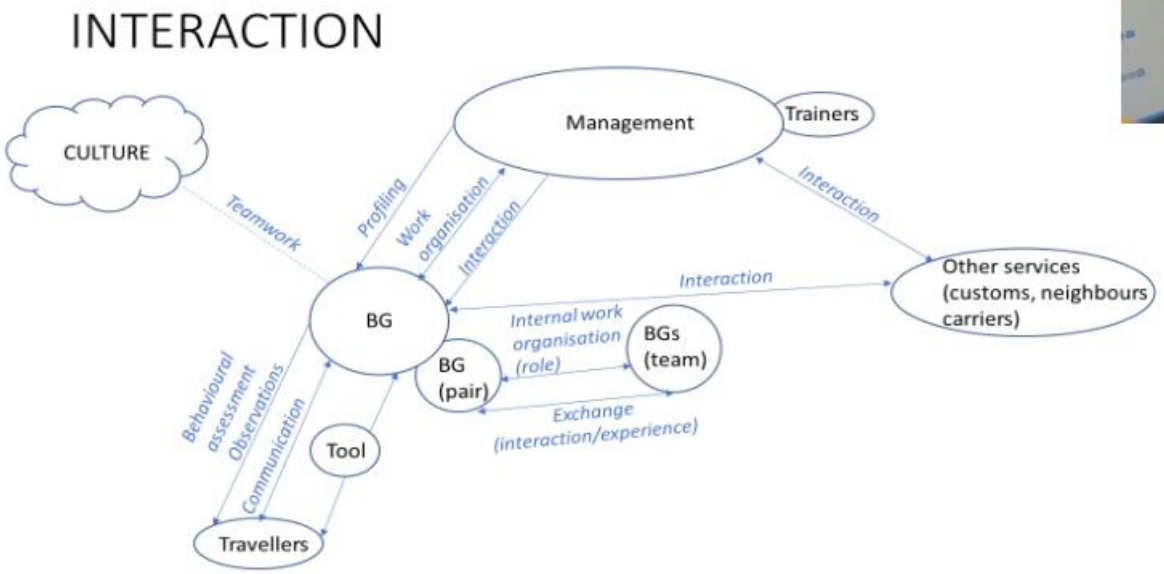
A Decision-making challenge



Model of organisation: Interaction

- In manual check





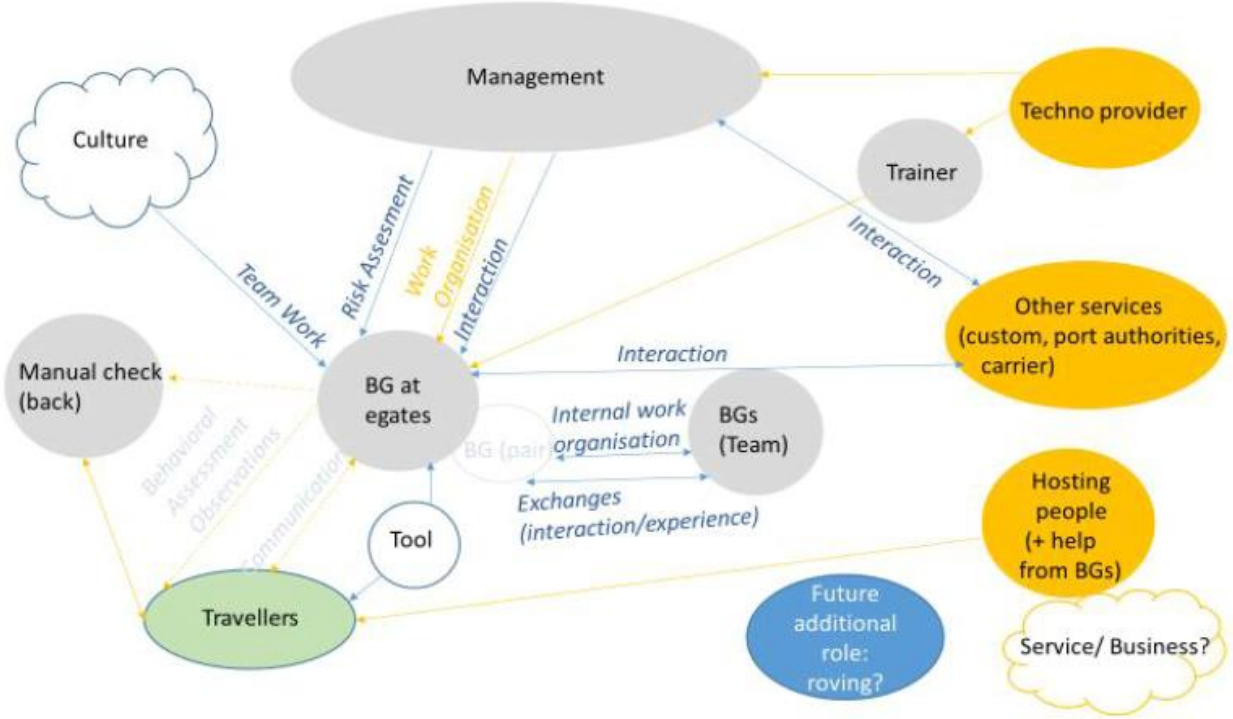
Main results

- Team work
- Direct interaction with travellers and documents
- Tools (scanner/datadase check) integrated in the activity
- Tight interaction with management

Model of organisation

- With eGates





Main changes on the model of organisation:

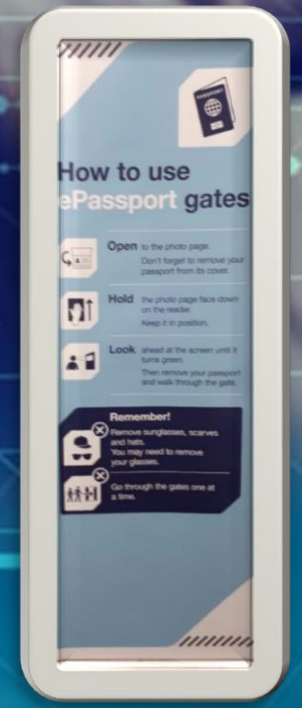
- New stakeholders in the organisation
- No direct contact with travellers (only remote vision) and documents
- Team work/work in pair
- Interaction/co-habitation with other stakeholders
- Impact on management (techno provider)

Part of a broader mega trend - Digitalisation with automated processes and self-service

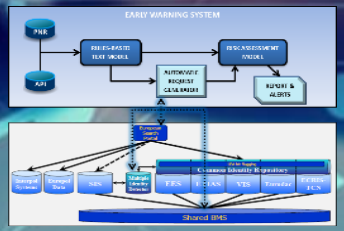






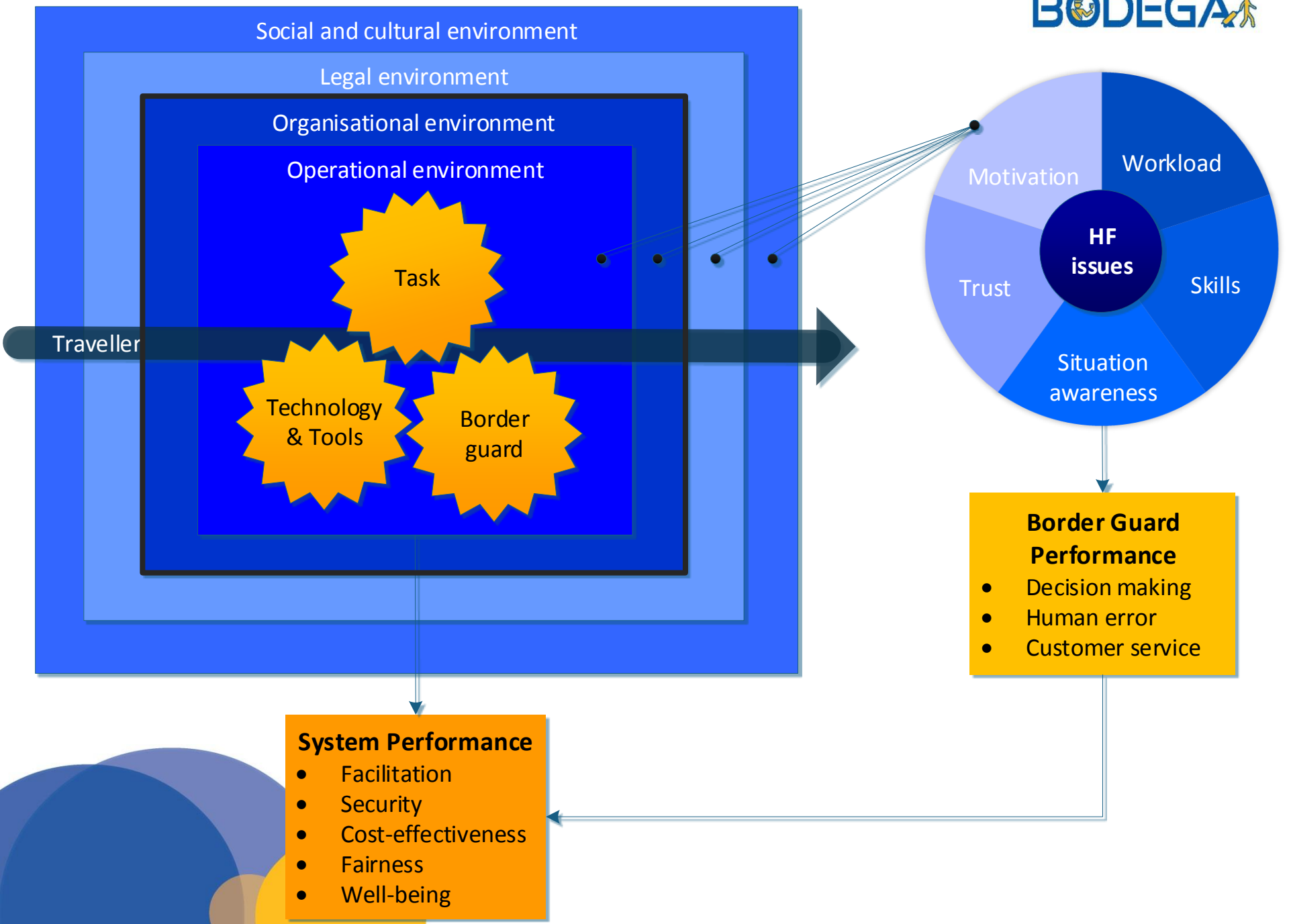








www.cerillion.com/Products/SaaS/Cerillio


Social and cultural environment
Legal environment
Organisational environment
Operational environment
Task
Technology & Tools
Border guard
Traveller
Motivation
Workload
HF issues
Trust
Skills
Situation awareness
Border Guard Performance
Decision making
Human error
Customer service
System Performance
Facilitation
Security
Cost-effectiveness
Fairness
Well-being

Human factors to support future effective and efficient border checks



Optimised performance: the process and technology development and implementation fully support the first line work and decision-making

- Change management
- Indicators development
- Control Processes
- Tools and equipment
- Resources, skills
- Decision support tools

- Traveller process and guidance
- Privacy and fundamental rights

- Intelligent analysis
- Situational awareness
- Risk and threat analysis
- Innovative interactions between technology and Human
- Ergonomics

BODEGA Traveller UDL Framework

Context

Technology

Affective Engagement

Learning Transformation

Pedagogy

after the traveller has passed the border control

at the precise moment the traveller is being controlled at the border

when the traveller arrives to the BCP and before being at the border check

at home or in a hotel while preparing for the trip knowing they will cross a BCP



UDL=Universal Design for Learning

Result

TOOLS

BODEGA DSS

Decision-Support System for border guards managers to assess the potential impact of improving different human factors in a Border Crossing Point.

BodeGame

Simulation type education game running in web-browser. BodeGame was created in this project as proposal for using games in the education of border guards.

PASS

PASS is a hybrid card game about border crossing. You can challenge your friends into a card game anywhere you want or test your knowledge about border crossing with the digital online stories.

Identity Verification with Fingerprints

In the Border Control Process, fingerprints are being used to perform identity verification (i.e. inspect travellers' identity), based on fingerprintes stored on electronic travel document or databases (i.e. the Visa Information System), and thus allows for precise and fast identification of travelers.

HMI Design for Mobile Border Control Solutions

In the Border Control Process, a border guard has to perform multiple checks on a traveler. These include identity verification (based on the photos/fingerprints) stored on a travel document, or based on fingerprints stored in a central database like the VIS), background checks (i.e. via accessing policing databases like the SIS or Interpol databases).

Checklist for utilising e-learning in border guard training

RECOMMENDATIONS, GUIDANCE AND OTHER DOCUMENTS

Human factors recommendations

under construction

Technical recommendations on border guard equipment

under construction

Thank you!

