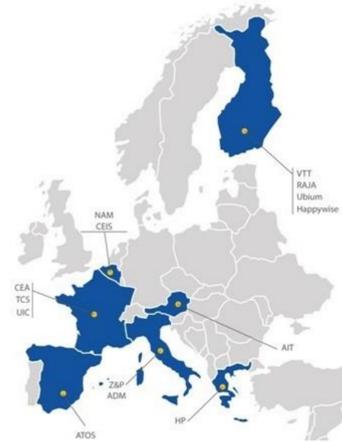




Proactive Enhancement of Human Performance in Border Control



<https://bodega-project.eu/>



BODEGA builds a novel set of knowledge about human factors in border control, having in mind the technological solutions that will inexorably alter working conditions. BODEGA gathers expertise about human factors and proposes recommendations to improve the overall performance in border control and therefore contribute to the effectiveness and security of European borders.

The research is aligned with Responsible Research and Innovation framework to ensure the work and developed solutions are ethically and societally compatible and investigate properly the foreseen future with smart borders. The project focuses on human and organizational factors of border control technologies and processes and examines the effects of introducing innovative technologies into key border guard tasks, traveller's performance and behaviour and to the total border control system in different operational environments.

BODEGA delivered notable results accessible through the PROPER Toolbox Platform (<https://happywise.eu/tmp/propertoolboxtest/index.html>), an online environment designed to provide stakeholders access to a set of solutions for improving EU border management from a human factor point of view. The platform includes guidelines, recommendations, technology tools, interactive contents and other resources for stakeholders to translate and use within their operational contexts.

The work resulted in a number of recommendations that have an impact on:

- the border guard well-being (improvements of environmental working conditions and improvement of the equipment provided),
- the organisation and management of border guard organisations (change management, shift work, cooperation, motivation),
- the border security (improvements of automatic border control tools implementations),
- the interaction between border guards and travellers.

Human Factors Framework

An outcome of the human factors research work in BODEGA is the Human Factors Framework that models and describes the human factor issues that affect border guard and system performance.

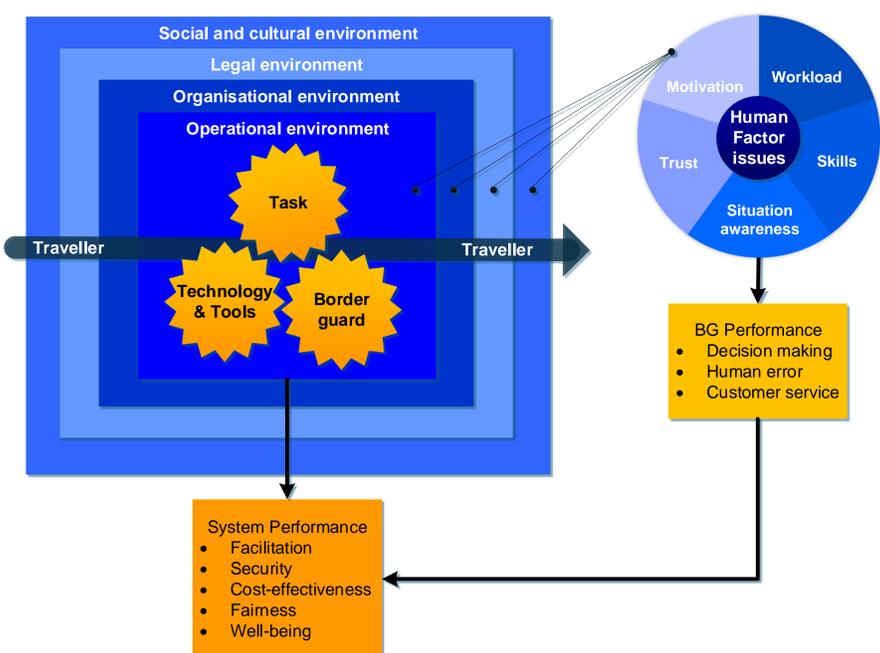


Figure 1. The HF framework aims at forming a comprehensive model on the human factors in border guards' work and inter-relations of them. The framework describes the different layers and functional actors that together form the overall operational environment for border checks. All these factors contribute to the system performance and to border guards' ability to perform their work efficiently as well as their general well-being.

Future R&D Roadmap

Systemic and sustainable development of a border control process requires parallel research and development activities on processes and human factors to ensure smart human support and efficient human machine interaction. Still, intelligent human support requires trust on the functioning of the technology, as well as, transparent management, legislation, ownership and processes related to data collection and utilization.

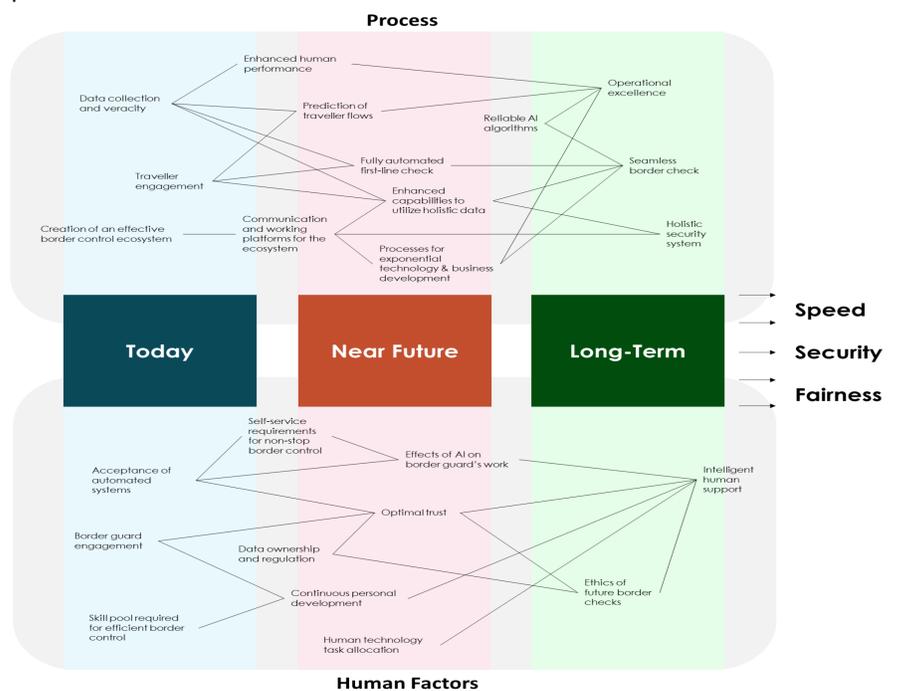


Figure 2. The proposed R&D roadmap is divided into two sections: general process development activities and human factor development activities, which illustrates the parallel research needs for human factors and general system development.

