BODEGA

Proactive Enhancement
of Human Performance in Border Control

Optimal task division between Man and Machine for Border Control - Matrix

Keeping in mind that humans remain at the core of border management, the consortium aimed to define the optimal allocation of tasks between humans and machines for Border Control.

The chosen methodology to achieve this goal is the following:

- Starting from the core tasks completed by border guards (defined by Frontex)
- Identifying humans' strengths for each task
- Identifying machines' strengths for each task
- Presenting relevant solutions relying on these strengths
- Discussing the context and process in which they can be used
- Deriving recommendations for future solutions' design and use

The 5 Border Management core tasks

Document	Are the documents authentic and valid ?
Eligibility	Is the person allowed entry based on the information on the document ?
Identity	Is this the person on the document ?
Purpose	Has the person a credible justification and means of subsistance ?
Threat	Is the person not a threat - known registered, unknown behaviour ?

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Starting from this list, desk research, interviews and **field studies have been conducted to better understand the processes implemented for each task both for manual and automated border controls.**

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The next step was to **perform a first assessment of the respective strengths and weaknesses** of humans and machines in the conduct of the core border management tasks as presented in the matrix below.

N.B.: In the case of the machines, the strengths identified are **under optimal operating condition**.


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Document	Non-standard cases Language check Information in context Skill remains needed	Lack of return of experience Learning curve Difficult to verify / reproduce	Speed of process Performance consistency	Non-standard cases Damaged documents No consistency check (ex: Language)
Eligibility	Information in context Travel history visible	Possible calculus mistake Time needed to decipher stamps	Accuracy Speed Easy transmission of data among MS	Ergonomy Non-Standard Visas Cyber attacks / bugs
Identity	Super recognizers Non-standard cases Check consistency ID / person	Possible mistakes Inconsistency of performance Fatigue	Accuracy Speed Performance consistency Degree of certainty	Non-Standard cases Cyber attacks / bugs Database designed (centralised or not)
Purpose	Customized questions Intuition Traveler story's evaluation Traveler appearance	Decision with insufficient information Time needed to verify information	Data collection ? Verification of claims ?	No interaction with travelers Automating process gives clues on BGs methods
Threat	Customized questions Gut feeling Behavioral analysis	Cognitive biases Small amount of parameters considered	Amount of data processed Patterns detection	Technology not mature No interaction with traveler

Conclusion

In a nutshell there are two types of tasks:

- **Conformity verification tasks**: "document", "eligibility" and "identity" are technical tasks and can thus be performed by machines under human supervision N.B.: humans nonetheless need to retain the related manual skills in case of system failure and o manage non-standard cases
- **Intention's assessment tasks**: "purpose" and threat are pertaining to the analysis of human behaviour and should thus be performed by humans, possibly with the assistance of machines

In both cases, Humans should make decisions and be in a position to overcome the automated mode if necessary.

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