D6.2 Evolving CONOPS framework (1st version)

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Abstract

Deliverable D6.2 Evolving CONOPS Framework (1st Version) reports on initial workshop and field research intended to establish an operational baseline for the TRESSPASS project representing the current "as-is" situation for each of the three modalities. An end-user workshop was held in Dublin in December 2018 which led to the drafting of initial proto-CONOPS representations of the key border-crossing point processes and challenges from the perspective of the end-users themselves. The activity-centred CONOPS methodology described in D6.1 was applied which required end-users to identify the key personnel, goals/objectives, tools & technologies, task distribution, organisational context, and rules, in the form of an abstracted but holistic framework indicating the interdependence of all these elements.

The proto-CONOPS work allowed for the orientation of and planning for more concrete and detailed empirical fieldwork studies conducted in Piraeus Port, Schiphol airport, and Terespol land BCP, representing the three different modalities of concern to TRESSPASS. Site visits were conducted by NUIM, KEMEA, and NCSR"D" personnel during April and May 2019 involving 1-2 days per visit. These visits were facilitated and hosted by PPA, RNM, and PBG.

Section 1 outlines the purpose and objectives of the deliverable and section 2 presents the methodological approach taken to acquire the data and perform the analysis. Section 3 discusses the preliminary finding from the Dublin workshop leading to the proto CONOPS descriptions reported here.

Section 4 details the findings from the field studies of the three BCPs in detail in terms of the personnel, tools/technologies, information, and other related resources.

Section 5 presents conclusions and future steps towards the continued evolution of the CONOPS and remaining questions to be addressed.

Project Information

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1.0	31/05/2019	NUIM	**Final version (evolving)**

List of Acronyms and Abbreviations

ACRONYM	EXPLANATION
BCP	Border Crossing Point
CONOPS	Concept of Operations
EC	European Commission
EU	European Union
INIS	Irish Naturalisation and Immigration Service
PBG	Polish Border Guard
RNM	Royal Netherlands Marechaussee
TRESSPASS	robusT Risk basEd Screening and alert System for PASSengers and luggage

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1 INTRODUCTION

Deliverable D6.2 reports the findings from activities conducted towards achieving the objectives of T6.1 and T6.2. This document presents the preliminary findings from the **end-user/stakeholder workshop** that NUIM hosted in Dublin on 11th December 2018 and subsequent **ethnographic field-work** conducted on site with at the three BCP – Schiphol Airport in the Netherlands, the Port of Piraeus in Greece, and Terespol land border in Poland. The Dublin workshop took place as part of a sequence of activities seeking to gather information from end-users/stakeholders about their work on border crossing facilities, the challenges they face and potential solutions in order to develop a proto-CONOPS which would form the foundation for an evolving concept of operations to guide the system development work of the TRESSPASS project. Following from that we were able to return to the end-user partners PPA, RNM, and PBG for further validation and observation of the operational processes involved in managing BCP operations.

What is presented here therefore is the first draft of an evolving concept of operations (CONOPS). What is meant by first draft is the fact that with this reported work we are describing the initial operational baseline of current operational processes involving systems and technologies already in use. This will allow us to subsequently identify the optimal operational role and spatiotemporal placement of TRESSPASS tools and systems in order to achieve improved operational outcomes for secure and efficient border management. Of critical importance here is the human factor within the system. The work of WP6 in general and T6.2 in particular will involve looking holistically at the integrated human, technological, informational, and other resource elements of the TRESSPASS system to ensure that a complete and workable operational concept is achieved, guided by the overall objectives of border management operations.

Towards to end of the project we will have integrated the TRESSPASS solutions into the CONOPS following the pilots and we will then present the final CONOPS model as a guide for the implementation of risk-based solutions to border management beyond the timeframe of the project.

1.1 Aim of this document

The aim of this document is to present the initial draft of CONOPS for all three BCP modalities (land/sea/air crossings) which will form the basis of the evolving CONOPS, fed by emerging data from the development of the TRESSPASS tools as well as empirical findings from WP6 and the pilot evaluations.

The evolving CONOPS will interact with WPs 3-7 which are concerned with the development and integration of the TRESSPASS systems. It will provide those activities with important contextual information about the BCPs in concrete detail and will contribute to the evolution of the CONOPS with details of the emerging technical components of the TRESSPASS system to be demonstrated in the pilots.

1.2 Input / Output to this document

For this document we refer to the work carried out in WP1 (T1.1, T1.2, and T1.3) including requirements analysis, concept development, and scenario development. The results described here are required for T6-3 through to T6.5 to situate the details of the evolving system framework, operational details, and the acceptability information which will come from the PERSONA project. This document and subsequent versions will be used as a reference for WP3-7 in order to set the operational parameters for the technologies. WP8 will also be dependent on the evolving CONOPS in order to plan for the pilots, including the evaluation criteria.

1.3 Overview of agencies involved in the management of the external borders of the European Union

A CONOPS is primarily concerned with describing and highlighting the human role in operational systems. It is therefore our emphasis to place human agency at the centre of our analysis. According to the European Commission's (2010) Guidelines for integrated border management, across EU countries, the agencies involved in border management and their functions are principally the same. Although their titles and specification of tasks may differ, their two main roles are the monitoring of national borders, and the control individuals and goods. Table 1 provides an overview of the agencies typically involved in implementing border management tasks.

Border surveillance and border checks	Customs agencies
Border guard/police (EU)	Customs (EU)
Coast guard	Customs and border protection service
Immigration service	Fiscal and customs police
Customs	Fiscal police/financial guard
Customs and border protection service	Specialised law enforcement agency (e.g. On drugs smuggling)
Armed forces (army, air force, navy)	Border guard
Specialised law enforcement and intelligence agencies	
Inspection of plants and plant products	**Inspection of live animals and products of animal origin**
Phytosanitary inspection (EU)	Veterinary inspection (EU)
(plant) quarantine service	Health and food safety agency
Plant health inspection service	Animal inspection service
Customs	Quarantine service
	Customs
Human health inspection	**Inspection of food and feed of non-animal origin**
Sanitary inspection	Sanitary inspection/veterinary inspection

Public health agency	Health and food safety agency
Health and food safety agency	Customs
Quarantine service	

TABLE 1: BORDER MANAGEMENT AGENCIES

1.4 Initial human factors/security considerations

As described in detail in TRESSPASS D1.2, the management of the external borders of the European Union (EU) involves various stakeholders and different types of collaboration. within and between national organisations, and between organisations of different countries. Operational cooperation between EU States is coordinated by the European Agency for the Management of Operational Cooperation at the External Borders ("FRONTEX") in coordination with national agencies (e.g. national police/border authorities)

1.4.1 Exploitation of the vulnerabilities of risk-based border management systems by adversaries

As was discussed in the TRESSPASS deliverable D1.2, one significant challenge of risk-based border management (RBBM) systems is that they are vulnerable to be exploited by travellers with criminal intent, e.g. terrorists or traffickers. As Jackson et al (2012) have pointed out, terrorists have demonstrated their ability to learn about and adapt to new security measures, whose vulnerabilities they will exploit. Jackson et al. (2012) have examined the vulnerabilities of so-called trusted traveller programmes (TTP)[1] with regards to three scenarios involving terrorists:

1) Terrorists successfully apply for membership in a TTP.

2) Terrorists identify existing members of a TTP and "dupe or coerce them" (p. 2) into carrying out terrorist activities. TRESSPASS D1.2 has also illustrated this point using the example of drug traffickers who may utilise children as drug mules upon finding out that they would be less likely to be checked.

3) Trusted travellers become terrorists through recruitment or radicalisation and carry out terrorist activities.

Jackson et al. (2012) argue that risk reduction depends heavily on the quality of background checks.

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[1] Trusted traveller programmes involve the following three steps: 1) a traveller applies for the programme. 2) The traveller is assessed to verify that s/he meets the programme's criteria. 3) Following approval, the traveller receives the status 'trusted' which reduces the level of security checks (Jackson, Chan, & LaTourrette, 2012).

1.4.2 Over-reliance on technology

Europe's borders are becoming increasingly technologized (Broeders & Dijstelbloem, 2016; Broeders & Hampshire, 2013; Dijstelbloem, Meijer, & Besters, 2011), leading to the view that technology does the jobs of humans better and faster but also changes the substance and nature of policy (Broeders & Dijstelbloem, 2016, p. 1) leading to new opportunities, but also risks and challenges that border guards will have to navigate. Menzel and Hesterman (2018) emphasise the value of utilising technological solutions for risk reduction. However, they caution against an over-reliance on technology highlighting the importance of human intuition. This resonates with the findings in a Dutch case study of the Royal Netherlands Marechaussee's (RNM) Amigo-boras camera system used for migration control (Dekkers, van der Woude, & Koulish, 2018). The research team investigated whether the use of this camera system increased objectivity of officers' decisions. The study found that border guards deemed the system insufficient for the detection of irregular migrants. Consequently, the officers tended to disregard alerts from the system and used their discretion relying on their own intuition and experience in their decision-making processes.

Wong and Brooks (2015) have suggested that since "it is not possible, practical, or necessary to screen all passengers to the very highest level, a risk-based approach can be used to adjust the level of screening that a passenger is subject to. sAccording to Wong and Brooks (2015), behaviour detection techniques, such as "questioning, identification of a set of risk indicators and simple observation" (p. 62) have received mixed reviews. They suggest that in Israel, each passenger is interviewed. Despite its sophistication, the authors argue that this method is impractical in a high-traffic environment. Another issue with behaviour screening may raise concerns about racial and other profiling. A potential solution that was discussed at the Dublin workshop was the implementation of pre-checks to establish the level of risk posed by a passenger. According to Wong and Brooks (2015), this method is currently being used by the US Transportation Security Administration. Pre-screening means that passengers can be transferred to an express lane which would both increase throughput than non-screened lanes and decrease resources. According to the authors, pre-checks might indeed be a helpful approach to dealing with ever-increasing passenger flows. They predict that pre-checks will be used increasingly by border control agents. In Example Two below, participants suggested that in TRESSPASS, controls at departure could be more stringent than at arrival. However, this may be problematic as not all countries may acknowledge the procedures of another country as "equivalent" (Wong & Brooks, 2015, p. 63). However, regardless of novel and more sophisticated approaches to border control, Poole (2008) highlights that the actual dilemma lies in the fact that terrorists will be able to find new ways to sidestep any new measures or technologies implemented.

Another issue which was also highlighted by workshop participants themselves, is the controversial topic of using passenger data, e.g. the analysis of social media profiles. Participants highlighted that in line with GDPR as well as ethical requirements, passengers would need to consent to the analysis of their data.

Workshop participants highlighted the problem of 'siloed' approaches to data management and indicated that in order to implement a risk-based approach, the acquisition and exchange of data needs to be facilitated. It was not entirely clear from the data whether they suggested that information sharing needs to be improved within states and between national authorities, or between states. However, Wong and Brooks (2015) predict that information sharing between states is unlikely, even though it would be desirable.

2 Approach and Methodology

2.1 TRESSPASS Concept of Operations

The overall methodological approach of the project was described in detail in the DoA, and in the previous deliverable "D6.1 Observational studies methodology and research framework". To summarise, TRESSPASS uses a conceptual design activity approach called 'concept of operations' (CONOPS). CONOPS refers to a user-oriented description of a proposed system with respect to its operational use context. In the context of TRESSPASS, we are referring to the risk management processes and systems involved in critical infrastructure. CONOPS seeks to describe the system's functions, the roles and responsibilities of actors within the system, and its relationship to its surrounding dependent systems, along with resource implications. For example, in the context of border management, there are key dependencies between border agencies and civil authorities who need to be considered in the context of risk planning and day-to-day management in a prospective way. Yet, a CONOPS is not a document that provides detail about the requirements of the system. Instead, a CONOPS aims to address higher-level questions about, for example:

- the kinds of innovation or solutions needed;
- its potential role within the operational process or system;
- its impacts on the various actors involved;

Answers to these questions will be gathered through an iterative process involving data collection and analysis, system design, implementation, integration, verification and validation.

The core objective is the development of a document that can clearly communicates the role,
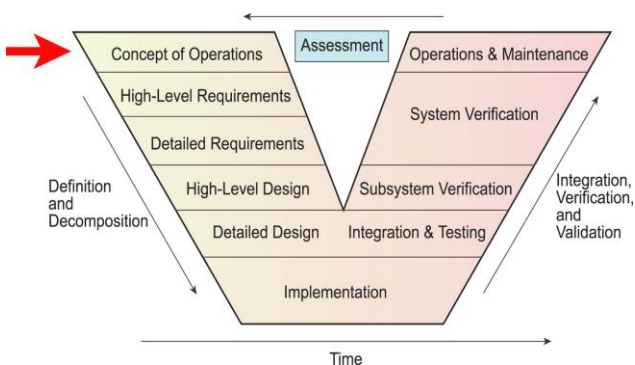
FIGURE 1: CONOPS IN THE "V" DEVELOPMENT CYCLE

responsibilities, and interdependencies of the key actors that reside within that system with respect to the achievement of the overall objective. This will guide the processes of development and implementation. Moreover, the CONOPS will be used to validate that the development solutions will work and to improve operational key performance indicators (KPIs). The CONOPS outlines possible scenarios and explains to decision makers how innovative solutions, or changes to existing solutions, may be implemented.

2.2 TRESSPASS Workshop in Dublin

The TRESSPASS CONOPS strongly emphasises the requirements of end-users/stakeholders and in so doing, takes a human-centric approach. This was demonstrated at the Dublin TRESSPASS workshop on the 11th
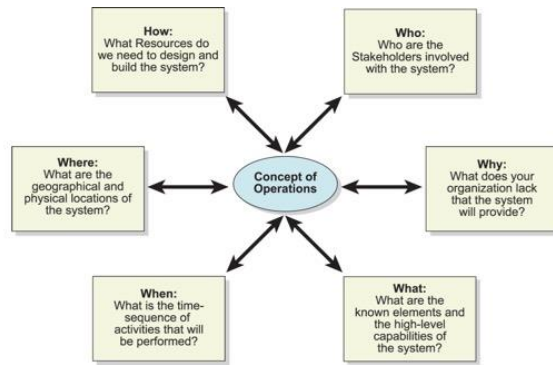
FIGURE 2: CONOPS HEURISTIC

December 2018 which was used to collect some initial data from end-users who work in the following three environments: Air, sea and land. End-users were representatives of the Irish Naturalisation and Immigration Service (INIS), the Piraeus Port Authority (PPA), the Polish Border Guards (PBG) and the Royal Netherlands Marechaussee (RNM). Data collection took place in collaboration with members of the TRESSPASS consortium.

As part of the workshop, we sought to develop a baseline CONOPS grounded in the knowledge and experiences of border control agents. For the purpose of TRESSPASS, we sought to explore the characteristics, security structures and processes of current border crossing points (BCPs). Moreover, we sought to understand what a future, risk-based TRESSPASS CONOPS might look like. We asked the participants to consider the following questions in their evaluation:

- Who are the stakeholders involved with the system?

- What does your organisation lack that they system will provide?

- What are known elements and the high-level capabilities of the system?

- What is the time-sequence of activities that will be performed?

- What are the geographical and physical locations of the system?

- What resources do we need to design and build the system?

FIGURE 3: ACTIVITY SYSTEM FRAMEWORK FOR CONOPS

FIGURE 4: DUBLIN AIRPORT ACTIVITY FRAMEWORK
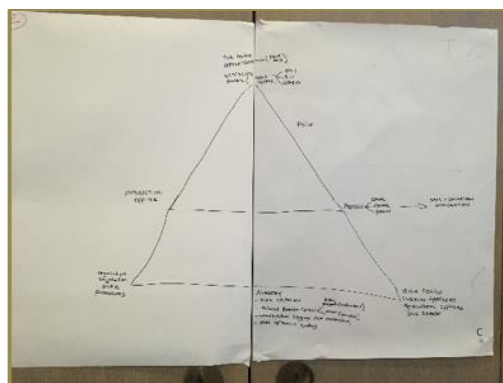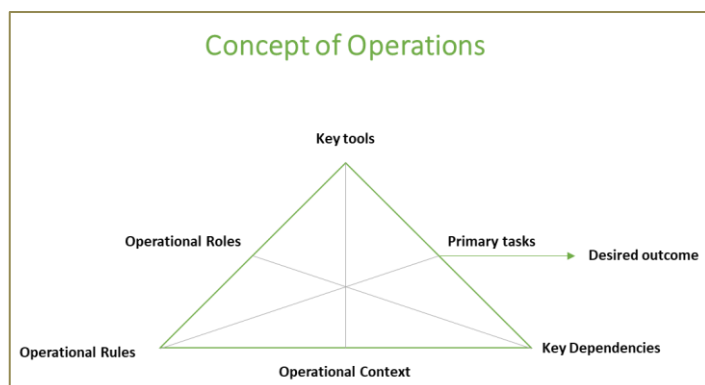
Seeking to get a better understanding of how border control at airports, seaports and at land borders (e.g. international trains) currently operates, end-users were invited to participate in three tasks. Based on Engeström's (1987) activity system, for Task One, end users were asked to identify their operational roles, primary tasks, key tools and desired outcomes. Task Two required end-users to identify the operational context, operational rules and key dependencies. A general activity centred CONOPS is depicted in Figure 3s. Figure 4 shows a CONOPS sketch illustrating the current situation at Dublin Airport.

2.3 Observing the border control operations at sea, air and land border crossing points

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3 FINDINGS FROM THE DUBLIN WORKSHOP – PROTO CONOPS

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3.1.1 Operational context

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3.1.2 Key roles, tasks, tools and inter-dependencies

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3.1.3 Challenges and desired outcomes

3.2 Task 3: Preliminary results from the Swim lanes exercise

3.2.1 Example One: Dublin Airport

3.2.2 Example Two: Schiphol Airport

3.2.3 Example Three: Schiphol Airport

3.2.4 Example Four: Land border control procedure in Poland

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4.2.2 Operational processes at the BCP in Piraeus

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4.2.2.2 Departure

4.2.2.3 Arrivals and transit involving Schengen and non-Schengen countries

4.2.2.4 Departure, arrival and transit processes specific to crew

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4.2.3 Key challenges and opportunities

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4.2.3.1 Description of desired changes

4.3 Schiphol Airport - Description of the current situation

4.3.1 Description of the current situation at Schiphol Airport

4.3.2 Key roles of agencies involved in border control

4.3.3   Key tasks and collaboration between the different border control agencies

4.3.4 Operational processes

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4.3.5 Key challenges and opportunities

4.4 Terespol land BCP

4.4.1 Description of the current situation

4.4.2 Key roles and tasks of agencies involved in border control

4.4.2.1 Equipment used by the PBG for the control of people and cargo.
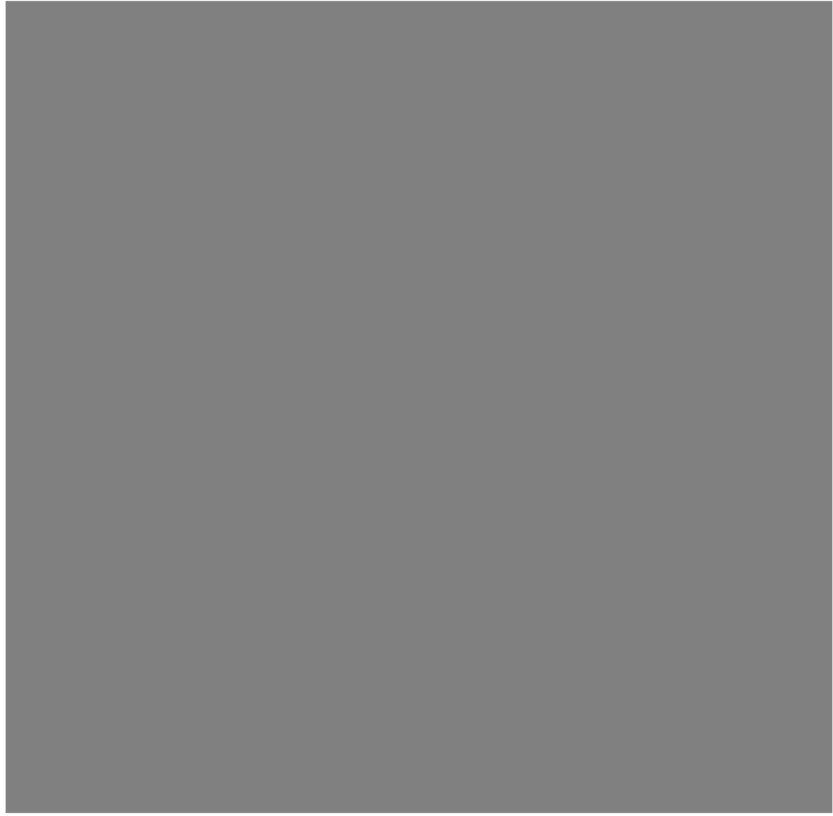
4.4.3 Operational processes

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4.4.3.1 Car and bus crossings at the road BCP in Terespol

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4.4.3.2 Railway crossings

4.4.3.3 Lorry crossings

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4.4.4 Key challenges and opportunities

5 CONCLUSION

5.1 Summary

5.2 Implications and next steps

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