



# D5.1 – Methodological Assessment of the Second Foresight Exercise

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Grant agreement number: 101121338      Due date of Deliverable: 31 August. 2024  
 Start date of the project: 1 Sept. 2023      Actual submission date: 26 September 2024  
 Duration: 30 months

**Lead Beneficiary: UGent**  
**Contributing beneficiaries: FMI**

Keywords	
Foresight, law enforcement, border management, civil security	

Dissemination Level		
<b>PU</b>	<b>Public</b>	<b>X</b>
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	
<b>EU CO</b>	Classified information: EU Confidential (Commission Decision 2015/444/EC)	

History			
Author	Date	Reason for change	Release
Jasmine Madjlessi	17/06/2024	Writing - Original Draft	R.1

Christophe Vandeviver	9/07/2024	Writing - Review & Editing	R.1.1
Jasmine Madjlessi	16/07/2024	Writing - Review & Editing	R.1.2
Arne Dormaels	1/08/2024	Writing - Review & Editing	R.1.3
Jasmine Madjlessi	2/08/2024	Writing - Review & Editing	R.1.4
Laure Brévignon-Dodin	27/08/2024	Feedback	R.1.5
Jasmine Madjlessi	29/08/2024	Writing - Review & Editing	R.2
Christophe Vandeviver	29/08/2024	Writing - Review & Editing	R.2.1
Jasmine Madjlessi	31/08/2024	Writing - Review & Editing	R.2.2
Security Advisory Board	02/09/2024	Review and Advice	R.2.3
Jasmine Madjlessi	20/09/2024	Writing - Review & Editing	R.3
Laure Brévignon-Dodin	26/09/2024	Read through for submission	R.3



# 1 Executive Summary

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Foresight is a multi-faceted method used by law enforcement agencies (LEAs) to anticipate and prepare for the future. The AHEAD project aims to develop a user-friendly, evidence-based, and capability-driven approach to help European LEAs better utilize foresight for increasing civil security. The current deliverable is a description and reflection of the methods used to execute the second AHEAD foresight cycle.

Within the AHEAD project, the topic of a foresight cycle is chosen amongst one of the five research topics identified by the European Union (EU) as “Cluster 3” civil security priorities, being fighting crime and terrorism, border management, resilient infrastructure, cybersecurity, and disaster-resilient societies (European Commission, 2023). For the second AHEAD foresight cycle, the topic of border management was selected. Following topic selection, the AHEAD foresight framework involves a three-stage model involving analysis, interpretation, and prospection. In the first stage, a topic is chosen and subsequent STEEPL analysis of weak signals is conducted to develop scenarios. In the second stage, the scenarios are interpreted, or deliberated, during a workshop with law enforcement agents. In the third stage, the contents of the LEA workshop are synthesized into roadmaps for developing capabilities and addressing the challenges presented within the scenarios.

In the first stage of the foresight cycle on border management, the STEEPL analysis of weak signals was conducted as a mixed-method approach trend analysis, including expert consultations and literature reviews from criminological and technological perspectives. Brainstorming and mind-mapping was conducted to develop proto-scenarios, which were further developed and finalized in a two-day scenario generation workshop with various experts in law enforcement, technology, foresight, and criminology. An online STEEPL validation session was subsequently held with various experts asked to deliberate on STEEPL factors that impact or drive the scenario, and to deliberate on whether and when



the scenario might occur. The content of the STEEPL expert meeting was integrated into board game components to be used in the LEA workshop and serve as a guide for facilitators.

The second stage of the foresight cycle involved a two-day LEA workshop using a serious game board. This workshop aimed to help LEAs identify potential criminal threats and assess their readiness to counter these threats. Using the board game, participants explored scenarios, identified potential criminal opportunities, and evaluated their current capabilities. In the third stage of the foresight cycle, the deliberations from the LEA workshop were synthesized into five recommendations that served to guide a roadmap generation meeting. In this meeting, the LEAs who participated in the workshop further discussed the scenarios in terms of relevant stakeholders and readiness for solution implementation.

Following the description of the foresight methods, the framework is evaluated and suggestions for improvements are considered. In sum, Deliverable 5.1 details the methodological approach of the AHEAD project to address border management challenges within the second foresight cycle of the project, utilizing the integration of expert insights, participant involvement, and foresight tools to enhance law enforcement preparedness.



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# List of Acronyms

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<b>Abbreviation / Acronym</b>	<b>Description</b>
EU	European Union
LEA	Law Enforcement Agency
FIMOI	Finnish Ministry of the Interior
FORTH	Foundation for Research and Technology Hellas
POSTEDFIT	People, Organization, Sustainment, Training, Equipment, Doctrine, Facilities, Information, and Technology
STEEPL	Social, Technological, Economic, Environmental, Political, Legal
UGent	Ghent University
WP	Work Package



## 2 Introduction

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Safeguarding civil security stands is a major priority for law enforcement agencies (LEAs). The European Union (EU) has delineated five primary research clusters, representing significant areas of societal impact. These clusters include combating crime and terrorism, managing borders, fortifying infrastructure resilience, safeguarding cyber networks, and promoting disaster-resilient communities. Based on the EU cluster 3 priority areas, the second foresight cycle of the AHEAD Horizon Europe project focused on the theme of border management.

Foresight can be defined as the systemic study of potential futures and their implications. Foresight exercises are valuable tools for helping LEAs to be more prepared to address various civil security challenges. From March to August 2024, the AHEAD project undertook a mixed-method foresight approach to border management, involving a STEEPL trend analysis, scenario development, an LEA workshop with a serious board game, and roadmaps generation. This report offers a detailed description and evaluation of the foresight techniques employed in this cycle, aiming to elucidate their efficacy in navigating the intricate dynamics of border security within the EU context.

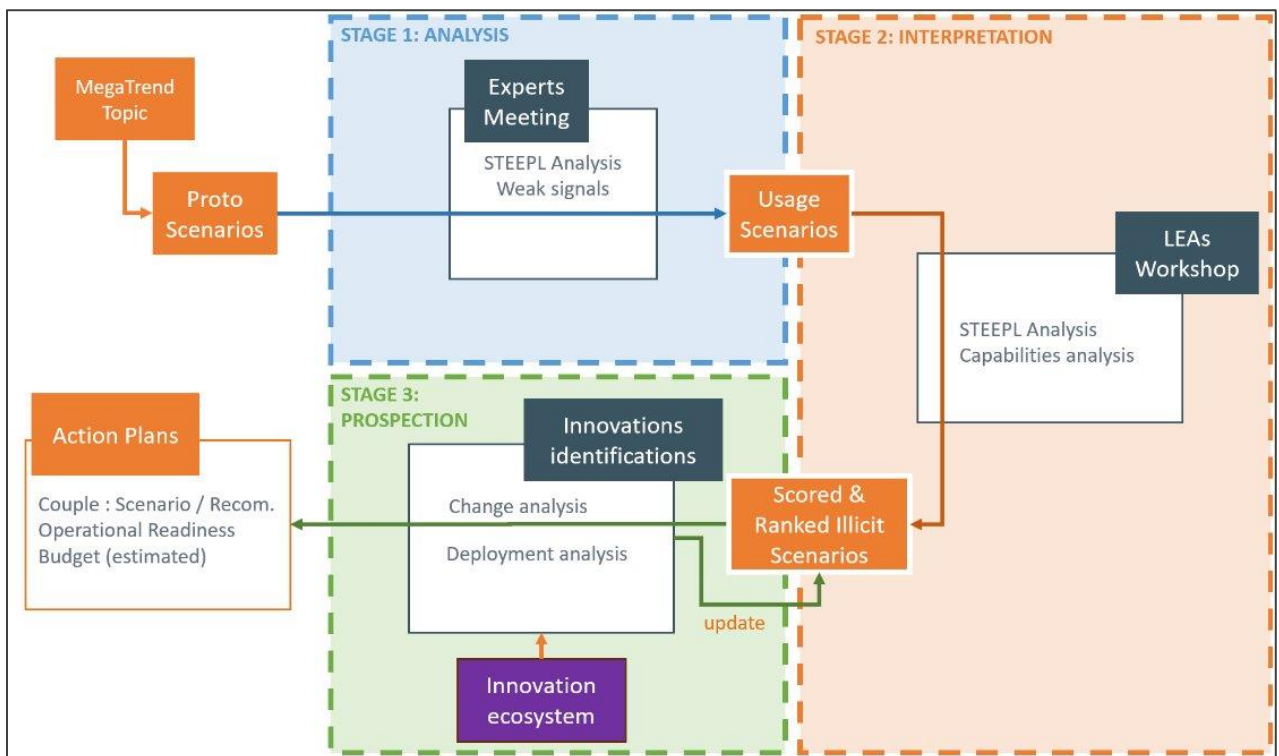




### 3 General Methodology

The AHEAD foresight framework adopts a three-stage model, which encompasses analysis, interpretation, and prospection. During the analysis phase, an evaluation of weak signals is undertaken to guide the formulation of scenarios pertinent to the chosen topic. Subsequently, during the interpretation stage, the scenarios serve as tools for evaluating criminal opportunities and law enforcement's capabilities. Lastly, during the prospection stage, recommendations concerning real-world innovations, changes, and deployments are identified in relation to addressing challenges within the scenarios.

Figure 1: Overview of the AHEAD foresight framework





## 4 Stage 1: Analysis

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The initial phase of the foresight process is a STEEPL analysis of weak signals. STEEPL refers to a context-based perspective on social, technological, environmental, economic, political, and legal factors. For the second foresight cycle of the AHEAD project, the weak signal analysis involved a review of border-related trends to inform the development of future scenarios. The Finnish Ministry of the Interior (FIMOI), Ghent University (UGent), and Foundation for Research and Technology Hellas (FORTH) conducted three independent reviews through expert consultations, a narrative criminology literature review, and an informal technology literature review, respectively. Subsequently, sub-topics were determined by FIMOI through brainstorming and mind-mapping. Once proto-scenarios were drafted by FIMOI, a scenario generation workshop was held to develop and finalize the border management scenarios. Lastly, UGent conducted scenario validation with STEEPL experts.

### 4.1 Trend Review

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#### 4.1.1 Law enforcement trend review

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FIMOI, responsible for Work Package 3 (WP3), “identifying and prioritizing the topics of the Foresight Exercises” conducted a purposive sampling (i.e., an intentional selection of participants based on their expertise) of LEA experts already known to FIMOI to solicit their opinions on border-related trends. These experts were asked to answer questions about border management over email or to forward the questions to other relevant experts, with the goal of obtaining information or materials to further narrow down the scenario topic. The following four questions were sent to 6 EU agencies with expertise in foresight related to border management., being DG home, the Austrian police/border guard, the Spanish National Bureau of Investigation, Europol, the JRC, and Frontex. FIMOI sought to ask questions that were not too many nor too complicated and gave room for the responders to answer by their interpretation and imagination.



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1. What are the most crucial future technologies and capabilities needed in border management in the next 10-15 years?
2. According to your point of view, do you have in mind any specific themes or visions from the technology perspective related to EU external borders or individual EU state borders (internal borders) in the next 10-15 years?
3. In the next 10-15 years, do you see that technology foresight should rather focus on human beings than goods, or something else?
4. Do you have any future scenarios in mind that should be considered?

Nine total responses were received from DG home, the Austrian police/border guard, the Spanish National Bureau of Investigation, and Europol, who provided answers (further described in Deliverable 5.2) or forwarded publications and reports relevant to the questions posed (Appendix A). Using the replies and forwarded materials, a list of relevant technologies was curated by FIMOI. Further, expert opinions were garnered through two meetings with Frontex Border Security Observatory on 5 February and 13 March to discuss scenarios and receive feedback, with five and three Frontex team members respectively. Following the first meeting with the Frontex Border Security Observatory team, it was determined that the border management theme should involve surveillance and situational awareness. Frontex also provided four border management scenarios they had developed and published.

### 4.1.2 Criminology trend review

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Simultaneously, UGent, responsible for Work Package 5 (WP5) “performing the second Foresight Exercise,” conducted a narrative literature review of the major criminological trends affecting EU border management and security. The narrative trend review included a synthesis of trends, threats analyses, signals, and drafted scenarios related to border management and security. The sources were identified through a literature search, although some sources were also taken from a previous AHEAD literature review, the AHEAD Foresight Screening and Benchmarking Analysis (Madjlessi et al., 2023).



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A literature search was conducted specifically to identify border-specific sources to increase information saturation. Sources were identified through a combination of search engines and academic databases (i.e., Google; Google Scholar; ProQuest) in March 2024. Article titles, abstracts, and subject lines were searched using a logical combination of search terms (“foresight” or “threat analysis” or “trend” or “megatrend” or “trend analysis” or “weak signal” or “horizon Europe” or “capabilities” or “defence” or “scenarios” AND “border” or “border security” or “border management” or “border crime” or “migration” or “trafficking” or “smuggling” or “terror”). Reference lists of selected literature were also searched to identify other potentially relevant sources, such as Europol and Frontex.

In addition, sources previously identified for the AHEAD Foresight Screening and Benchmarking Analysis (Madjlessi et al., 2023) were included. This report was conducted to synthesize and evaluate contemporary foresight programs in their sociohistorical contexts. The literature search for this report (Madjlessi et al., 2023) involved a combination of search engines and academic databases (i.e., Google; Google Scholar; ProQuest) from September to December 2023. Article titles, abstracts, and subject lines were searched using a logical combination of search terms (“foresight” or “future studies” or “anticipation” or “technology foresight” or “strategic foresight” AND “capabilities” or “government” or “defence” or “megatrends” or “scenarios” or “strategy”). Reference lists of selected literature were also searched to identify other potentially relevant sources. The United States National Intelligence Council (NIC), Netherlands Ministry of Defence, Dubai Futures Foundation, The European Commission, and the European Defence Agency (EDA), were key sources from the AHEAD Foresight Screening and Benchmarking Analysis used to identify border crimes.

Three major trends were identified, including irregular migration, trafficking, and terrorism. These concerns were related to contextual factors, such as armed conflicts, political extremism, economic instability, demographic changes, environmental crises, global health, supply chains, and humanitarian issues.



### 4.1.3 Technology trend review

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Lastly, AHEAD technical partner FORTH, conducted a review of present and emerging technologies relevant to border management. The report included the importance and challenges of border management, presented various border management systems and security technologies, and explored future technological innovations and their implications. For further details on how the described technology trend review was conducted, refer to AHEAD technical partner FORTH (see Contact).

## 4.2 Scenario Development

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FIMOI, responsible for WP3, began scenario development by narrowing down topics through brainstorming and mind-mapping with three AHEAD members at FIMOI. Using the 14 EU megatrends, WP3 used the Mural platform to brainstorm about the following questions:

- Which trends could lead to changes in border management?
- What kind of scenario would these trends create at borders?
- What types of crimes could be involved?
- What technology is needed to tackle the crime or handle the situation?

As a result, WP3 developed 5 proto-scenarios based on the megatrends, which were shared with the Frontex Border Security Observatory team and the AHEAD External Advisory Board for feedback:

1. Waste transport
2. Illegal fishing
3. Hybrid threats
4. Infectious disease
5. Use of biometrics



#### 4.2.1 Scenario drafting workshop

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The scenarios used in AHEAD's second foresight cycle on the topic of border management were generated in an in-person, two-day workshop in Helsinki, Finland on March 23-24. The workshop was convened to develop the scenarios through deliberative dialogue among foresight experts, technology experts, and law enforcement agents from EU countries affiliated with or linked to the AHEAD consortium. Prior to the workshop, FIMOI and UGent decided to combine illegal fishing and waste transport into one environmental crime scenario, as five proto-scenarios were deemed too many to address in the upcoming LEA workshop. During the first day of the scenario generation workshop, the participants were split into two groups, with each group receiving two scenarios to deliberate from the identified topics. During this period, it was also decided to merge the use of biometrics scenario with the hybrid threats scenario. This resulted in three total scenarios. After brainstorming about potential futures regarding the three scenarios, the groups presented to each other and continued with further discussion. Subsequently, on the second day, three new groups were drawn up and the workshop participants worked together to write drafts of the scenarios before presenting to each other and conducting a final discussion. Following the workshop, the scenarios were edited for English language.

#### 4.2.2 STEEPL Expert Validation

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Two online workshop sessions were held to validate the scenarios with “STEEPL” experts in border management. STEEPL, an acronym for Social, Technological, Environmental, Economic, Political, and Legal, is an important lens to apply to foresight to reduce bias and include more holistic perspectives. Experts included six academics, consultants, and PhD students from Europe and the United States with expertise in security, politics, law, and economics.

Ten experts were initially contacted based on the contribution of Work Package 1 (WP1) in identifying relevant academics and experts. As few experts were available from this list due to



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short timing, 22 additional experts were contacted. These experts were identified through online searches using a logical combination of search terms (“professor” AND “border” or “border management” or “border security” AND “traffic” or “smuggl\*” or “ocean dumping” or “illegal dumping” or “illegal waste” or “migration” or “migrant” or “terror” or “terrorism” or “environment”). This search results included academics, researchers, research groups, professors, consultants, and PhD students.

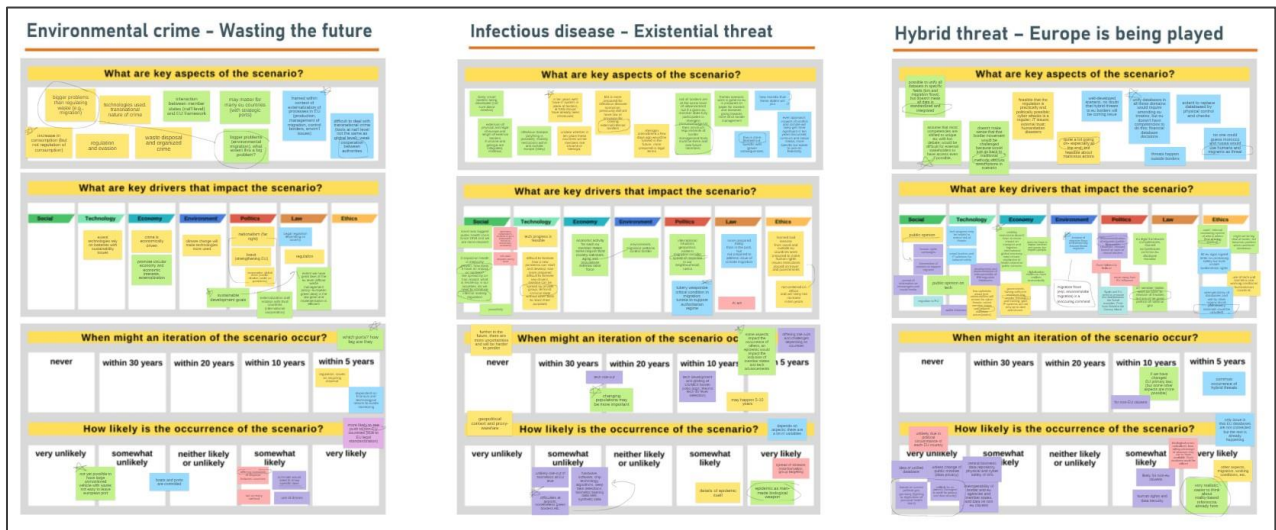
A criterion was set to determine participant eligibility, namely: being an academic, researcher, or practitioner; having expertise or research experience in areas around border management by searching for key terms (e.g., border, immigration, terrorism, trafficking, smuggling, etc.) on academic pages, university sites, publication lists, etc. and preferably having expertise across multiple disciplines. Once identified, experts were contacted over email and formally invited to participate. Two of the experts contacted were in leadership positions of research groups and research organizations relevant to border management, thus they were asked to share the request for contribution to relevant members. Of the 32 experts contacted, six were available to attend the sessions. These experts were from institutions in Germany, Spain, U.S., Croatia, and Poland. Two participants were legal experts with knowledge of terrorism, migration, border management, human rights, and personal data. Two participants were PhD students studying politics and security related to migration, terrorism, and technology. One participant was a consultant with expertise in terrorism, AI, and climate. One participant was an economics expert in migration, refugees, and war.

A Klaxoon board was used to facilitate the online discussion, in which participants were introduced to AHEAD and the project’s aims. Participants were presented with the three scenarios and asked to summarize key aspects of the scenario, to deliberate on STEEPL factors that impact or drive the scenario, and whether and when the scenario might occur.



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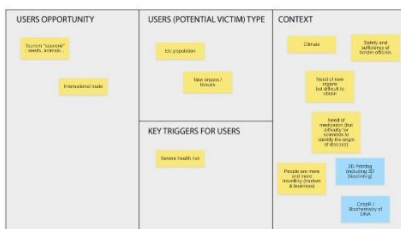
Figure 2: Klaxoon board



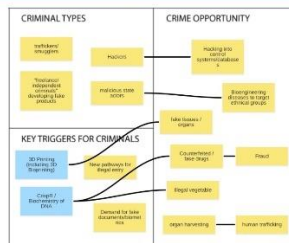
In advance of the LEA workshop central to Stage 2 *Interpretation*, an online internal meeting was held to integrate the findings from the STEEPL workshop into board game components to be used in the LEA workshop. Information from the STEEPL workshop was used to consider Context, User Opportunity, User Type, and Key Triggers for Users, to be presented with the board game to participants at the LEA workshop. Although other sections (e.g., Criminal Types, Crime Opportunity, Key Triggers for Criminals) were also filled with information from the STEEPL workshop, they were not shown to LEA workshop participants but rather aimed to serve as a guide for facilitators in the case that participants needed help or inspiration.

Figure 3 Sample board game clues

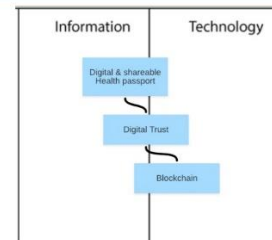
### Scenario 2 : Pandemic - Gameboard



### Scenario 2 : Clues as Criminals



### Scenario 2 : Clues for capabilities







## 5 Stage 2: Interpretation

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### 5.1 LEA Workshop

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An in-person LEA workshop was held over two days. The session was aimed at assisting LEAs in identifying potential criminal threats and assessing their readiness to counter these threats. Facilitators guided participants through the session through the use of a board game to simulate discussion on the scenarios. The workshop had two primary goals. First, it enables LEAs to propose potential threats that criminals might imagine within specific contexts. Second, it helps LEAs list the requirements necessary to accomplish their missions while evaluating their current capabilities. This dual focus ensures that participants not only identify possible threats but also assess their preparedness to deal with these threats effectively.

#### 5.1.1 Ice-Breaker Activity

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Following a brief introduction by the project coordinator in which the structure and aims of the project are described, the session begins with an ice-breaker activity based on the *Sitra Futures Frequency* workshop (Poussa, 2021; Poussa et al., 2021). The activity is meant to foster a collaborative environment in which participants feel comfortable, as well as prompt open-minded thinking about the future. The structure of the ice-breaker begins with participants being asked to share what comes to mind when they hear the word “future.” The purpose of this exercise is to ask a simple question that allows participants to get to know each other, feel more comfortable, and most importantly to demonstrate how each individual’s perception of the future is different and colored by their personal perceptions of the present. In order to guide participants to a less biased and more open-minded perspective of possible futures, this exercise is followed by a brief presentation on the evolution of a seemingly impossible technology that changed the course of society and policing: mobile telephones. The presentation demonstrates how personal and present-day perceptions shape individuals’ ideas about the future, despite seemingly implausible events, changes, or technologies occurring and ultimately transforming



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society. Participants are shown images of the first telephone, examples of foresight into the evolution of telephones, the impact of phones on policing, and provided with Sitra's Future Cones on widening one's perception about possible futures.

Figure 4 Introductory slides



### 5.1.2 Game board

Following the ice-breaker, the game session is facilitated by dividing participants into small groups of 4-5 individuals, each led by a facilitator. Essential materials are provided to each group, including a scenario, a board game mat, key trigger cards related to STEEPL components (Social, Technological, Economic, Environmental, Political, and Legal), envelopes containing scenarios, and other essentials such as stickers, post-it notes, pens, and blank cards.



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Figure 5: AHEAD Game board

AHEAD LEAs Workshop		Topic of the Foresight	Scenario	Date	Version			
<b>Triggers Sources</b> Place related STEEPL cards here								
S	T	En <b>1</b>	Ec	P	L			
<b>USERS OPPORTUNITY</b> Describe the actions / tasks a user could do in the future	<b>USERS / VICTIM TYPE</b> Describe the typical users in terms of socio-economic characteristics	<b>CONTEXT</b> Place the future scenario key drivers here	<b>CRIMINAL TYPES</b> Describe the typical criminal in terms of socio-economic / justice characteristics	<b>CRIME OPPORTUNITY</b> Enumerate the crime opportunities				
	<b>USERS KEY TRIGGERS</b> Enumerate the key triggers from the context that drive users to do tasks		<b>CRIMINALS KEY TRIGGERS</b> Enumerate the key triggers that drive criminals to act in the context	<b>3</b>				
<b>Police Missions</b>								
<b>Prevent</b> How to prevent? What new opportunities?	<b>Protect</b> How to protect? What new opportunities?	<b>4</b>	<b>Investigate</b> How to investigate? What new opportunities?	<b>Enforce</b> How to enforce? What new opportunities?				
<b>Police Capabilities</b>								
<b>People</b>	<b>Organisation</b>	<b>Support</b>	<b>Training</b>	<b>Equipment</b>	<b>Doctrine</b>	<b>Facilities</b>	<b>Information</b>	<b>Technology</b>

v1.4 Dec. 2023

Stage 2 *Interpretation* relies on the board game, serving as a pivotal tool for participants to explore and comprehend potential threats and their agencies' readiness. It is segmented into five key areas:

1. **STEEPL Trigger Cards:** This section acts as a placeholder for the STEEPL trigger cards.
2. **User opportunities:** Here, the scenario to be analyzed is transcribed for study.
3. **Criminal Opportunities:** Participants examine potential criminal opportunities arising from the scenario.
4. **Police Mission Components:** This area outlines the components of the police mission, including prevention, protection, investigation, and enforcement.



5. **Police Capabilities:** Participants identify and discuss the capabilities needed to propose countermeasures against criminal opportunities using the POSTEDFIT framework.

The POSTEDFIT framework, adapted from a military context proposed by Oosthuizen et al. (2008), includes components such as People, Organization, Sustainment, Training, Equipment, Doctrine, Facilities, Information, and Technology. Future iterations will incorporate local frameworks, such as the dimensions of police capabilities by the Swedish Police Authority.

The scenarios are introduced into the serious game with input from STEEPL experts, defining the main context of use, user types, primary triggers (especially technologies), and new opportunities of use. Six decks of cards, representing each of the STEEPL components, are designed to stimulate participant thinking on various scenario aspects. Additionally, an "Uncertainty" card deck includes unpredictable events like pandemics or geopolitical crises, ensuring participants consider a wide range of potential disruptions. Participants utilize tokens representing potential user activities to map out user interactions with new technologies. Each token includes a title, an activity icon, and a brief description. A comprehensive list of emerging technologies, identified through desk studies and reports such as the Gartner Hype Cycle, is also tokenized for the game. These tokens facilitate participants' understanding of how new technologies might be utilized by criminals, further supplemented by tokens depicting different criminal motivations, aiding participants in considering the evolution of traditional crimes with new technologies.

The facilitator presents the scenario and fills in the new opportunities for use by users as defined by the scenario. Participants propose new crime opportunities based on the scenario and their experiences. They use the STEEPL tokens and cards to construct criminal behaviors that exploit new uses and external STEEPL elements. The facilitator can challenge the participants using the STEEPL and "Uncertainties" cards. Participants discuss how these potential crimes impact their missions. They write down their new needs on post-its and place them in the corresponding boxes on the game mat. Participants translate their mission proposals into



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operational capabilities using the POSTEDFIT components. These results serve as inputs for drafting recommendations and an action plan.

Throughout the session, the facilitator's role is to ensure that each group stays on track, provides guidance and challenges when necessary, and fosters an environment of collaborative problem-solving. It was found that a more structured approach to discussion was found preferable and useful, both by the participants and facilitators. This means that, following two unstructured scenario sessions, the third and final scenario session involved asking participants to deliberate on the scenario independently, to write their ideas and share them one-by-one without interruption, unless clarification was needed. This was followed by a discussion within the group.



## 6 Stage 3: Propection

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For the final stage, *Propection*, the recommendations discussed in the LEA workshop were synthesized for further discussion in an online roadmap generation meeting with the same participants.

### 6.1 Roadmap Generation

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The discussions from the LEA workshop were synthesized by UGent, responsible for WP5, into five potential solutions to serve as a roadmap for enhancing security, efficiency, and collaboration in European border management systems. To extract potential recommendations from the LEA workshop discussions, information from post-its used on the board, notes from dedicated note-takers, and reflections from moderators were written down into one document and summarized. Across two groups and three scenarios, participants discussed 33 potential recommendations. Following the LEA workshop, the list of 33 recommendations was narrowed down and combined to ensure each recommendation had a set theme to aid the meeting participants in exploring many different recommendations within a small time period. This resulted in five recommendations, as this number of recommendations was deemed large enough to encapsulate multiple themes discussed in the LEA workshop but was also short enough to explore in a three-hour roadmap generation meeting.

In the roadmap generation meeting, a Klaxoon board was used to facilitate the meeting. Participants were provided the scenarios once more. Then, the recommendations were described and participants were given 12 dots each to rank the recommendations by importance without considering feasibility. Participants were instructed to give at most three dots for a recommendation of higher importance and at least one dot for a recommendation of lower importance.

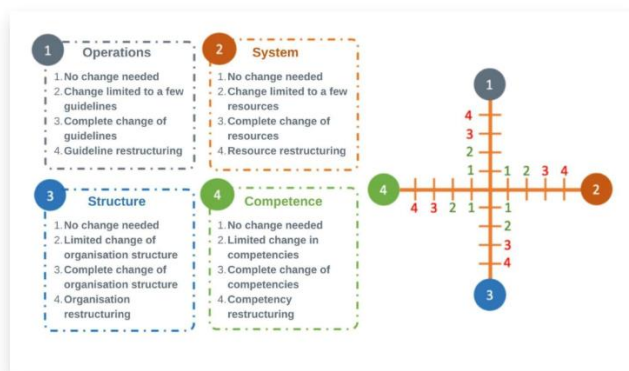
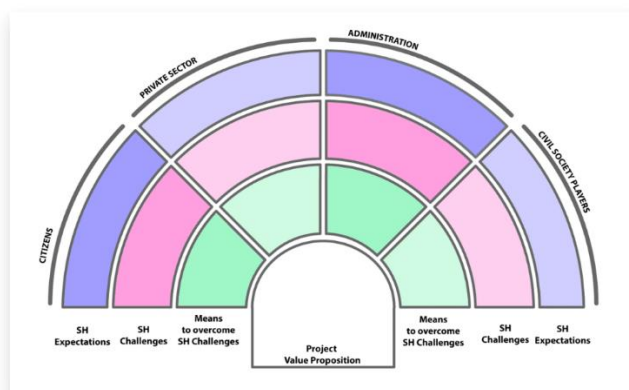
Then, participants were prompted to consider the relevant stakeholders and implementation readiness for each recommendation. Stakeholders included citizens, the private



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sector, administration, and civil society players. For each stakeholder, participants were asked to brainstorm the stakeholders' expectations, challenges, and means to overcome challenges. Following this task, participants were given a readiness grid to rate the preparedness of the EU or their organization to implement the recommendation from 1 to 4, with 1 being very prepared and 4 being very unprepared. Readiness was operationalized based on the Swedish capability model of competence, operations, system, and structure. Competence refers to the experience, knowledge, attitudes, and skills of police personnel, essential for operational effectiveness. Operations management is guided by laws, regulations, and internal guidelines. This area ensures that police operations adhere to legal frameworks and best practices. System highlights the role of IT systems, equipment, premises/vehicles, methods, and data/information in supporting police work. Structure focuses on the organization's responsibility, resources, leadership, and external collaboration, all necessary for coordinated and efficient operations.

Figure 6: Stakeholder and change analysis





## 7 Lessons Learned and Improvement Propositions

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At the conclusion of the three-stage process (e.g., scenario generation, STEEPL validation meetings, etc.), an internal assessment was held to discuss and evaluate the methods used. Further, a feedback survey was conducted with the participants of the LEA workshop to help evaluate the methodological framework. This section describes the evaluation of the foresight methods used and the results of the feedback survey.

### 7.1 Internal Assessment

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An internal evaluation of the foresight process was conducted in The Hague on the 19<sup>th</sup> and 20<sup>th</sup> of June 2024. This meeting included members of the AHEAD consortium, including partners, associated partners, the Dutch police, Ethics Advisory Board, Security Advisory Board members, and two Europol experts. Internal evaluation was generally satisfactory, particularly regarding in-person collaboration and engagement between work packages, AHEAD partners, and foresight participants. Yet, further improvements were considered. Based on the assessment of cost and time and benefit for the foresight framework, we have prioritized the following recommendations. Focusing on the capability model, involving specialized diverse participants, and increasing engagement and participation are the most important improvements based on literature regarding foresight efficacy (Georghiou & Keenan, 2006; Kondo 1992; Rijkens-Klomp & Van Der Duin, 2014; Yoda, 2011). These suggestions for increasing the effectiveness of the foresight exercises would likely require moderate time and cost, and result in a large benefit to the foresight process. Further, improvements aimed at helping LEAs implement a version that works best for individual agencies was also considered. This includes using systemic reproducible methods, truncating the scenario generation process, and integrating weak signals into the framework. These suggestions for improvement would likely require minor time and cost, and result in a moderate benefit.





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First, a greater focus on capabilities is desired for the coming foresight cycles to better provide actionable recommendations. Consultations to explore capability models were held with LEAs conducting research on capabilities (namely, the Victoria police and New Zealand police). Future foresight cycles could further develop the capabilities model to be in-depth and thorough, without being overly complicated to help LEAs explore possible recommendations for the roadmap generation portion of Stage 3 in the foresight cycle. The development of a robust capabilities focus may be the most impactful improvement to future cycles, as it may increase the uptake of foresight recommendations and have implications for policy changes.

Second, greater inclusion of diverse group of participants and experts from various specialized backgrounds was desired. Challenges with time constraints and mobilization of experts may have led to a gap in which some topics (e.g., environmental crime) were not fully explored and expanded upon by experts in the field (e.g., environmental specialists). Greater attention to ensuring both a diverse and specialized participant pool may also glean greater results and more content for scenario generation, the LEA workshop, and roadmap generation. Future cycles could conduct a more thorough expert mobilization protocol earlier in the foresight cycle and set important dates, such as meetings, far in advance to ensure all necessary participants are available. These recommendations have serious implications, as the participants are one of the most important aspects for the efficacy of foresight.

Third, participation and engagement were repeatedly discussed to better foresight efficacy. Participants and AHEAD consortium members present at the scenario generation workshop and LEA workshop found that in-person collaborative engagement was extremely beneficial and effective. Although engagement and collaboration were high during on-site meetings, active participation in online meetings, such as the roadmaps generation meeting, was low. It is possible that the inclusion of more participants, especially those with specialized expertise, outside the AHEAD consortium could produce greater engagement in future cycles. In addition, more in-



person meetings could foster greater collaboration, or alternatively shorter online meetings could help increase participation and engagement.

Fourth, the foresight framework could also further develop systematic, reproducible methods. For example, trend reviews could involve systematic review procedures for literature searches (e.g., article screening) and established qualitative analysis methods (e.g., thematic analysis). Expert consultations, meetings, and workshops could also incorporate existing qualitative research methods (e.g., nominal group techniques, focus group protocols) to increase reliability, or reproducibility. The scenario development process could also be improved in future cycles to better integrate feedback and trends in a systematic, reproducible method. This issue is best exemplified by the feedback from Frontex, the EAB, and STEEPL experts, which stressed the importance of other topics and trends related to border management (e.g., climate induced migration), but which were ultimately not integrated into the scenarios. Future cycles could organize feedback earlier in the scenario generation process and combine meeting with LEAs and STEEPL experts for greater cohesion, consensus, and discussion.

Fifth, the scenario generation process for the second foresight cycle may be too elaborate for LEAs to reproduce within their own organizations. The scenario generation process involved multiple steps, namely literature reviews, brainstorming sessions, consultations with experts, workshops, and STEEPL meetings. Future foresight cycles could explore abbreviating this process to be easier to reproduce, especially for organizations with limited resources. In the next cycle, WP3 and WP6 will utilize AI-generated proto-scenarios to abbreviate and simplify the scenario generation process.

Sixth, the explicit integration of weak signals may be beneficial for LEAs implementing the AHEAD foresight framework within their own organizations. Stage 1 of the foresight framework involves a STEEPL analysis of weak signals. However, weak signals have not been defined or operationalized within the AHEAD project; thus, a review of trends was conducted in tandem with consultations and workshops with experts. It is possible that weak signals were implicitly



addressed within Stage 1, but future cycles could more explicitly integrate weak signals into the framework.

## 7.2 Feedback Survey

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Following the conclusion of the LEA workshop, 15 participants took on online feedback survey via Qualtrics. 10 respondents self-identified as LEAs, two respondents self-identified as specialized experts, and one respondent self-identified as both. An additional survey participant was a partner from UGent and one identified as a consultant and project manager. 10 of the respondents were not part of the AHEAD consortium, whereas five were AHEAD consortium members.

In the survey, respondents were asked to rate and offer feedback on ten categories, being the experts involved, emotional engagement, change of values, establishment of networks, applicability to other contexts, knowledge gained, output created, methods, and future use. For each question category, there was a set of questions in the form of multiple-choice questions with a four-point Likert scale response (i.e., not at all, slightly, very much, extremely), a sliding scale to rate from 1 to 100 with five answer categories (i.e., not at all, slightly, moderately, very, extremely) as well as open-ended questions with free text response. In the survey, a single core question, such as the extent of emotional engagement, was asked multiple times with different phrasing and different question response styles to garner greater granularity of opinions and feedback.

### 7.2.1 Experts Involved

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Respondents generally considered participants knowledgeable on law enforcement, the topic of border management, technology, and foresighting. Specifically, on a four-point scale including not knowledgeable, slightly knowledgeable, very knowledgeable, and extremely knowledgeable, the majority of respondents rated the participants as “very knowledgeable” across the four domains. Respondents also rated the diversity of participants, in terms of



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perspectives and ideas, fields of expertise, and seniority levels. Across three domains, the majority of respondents rated the participants as slightly or very diverse, on a four-point scale from not diverse at all to extremely diverse.

### 7.2.2 Emotional Engagement

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Engagement during the workshop was rated highly. When asked to what extent were participants emotionally engaged (i.e., attentive and committed to participation) during the workshop, 60% of respondents rated participants as very engaged and 40% rated participants as extremely engaged. This was again on a four-point scale from not engaged to extremely engaged. When asked to elaborate on their suggestions for improving engagement, respondents recommended smaller groups, more group building activities, further explanation of expected outputs of the project, and especially more structured moderation to guide through the board facilitate response.

### 7.2.3 Change of Values

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When asked to what extent did the workshop encourage participants to challenge existing assumptions about the future, the majority of survey respondents indicated that it did so slightly (40%) or very much (53%). As there is room for improvement, we would like to increase challenging assumptions for future cycles. Yet, when asked to what extent did the workshop encourage open-minded thinking about potential futures, 67% of respondents indicated very much and 13 % indicated extremely.

### 7.2.4 Establishing Networks

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When asked to assess the extent to which the methodology facilitated collaboration and communication, the majority of respondents indicated very much (53%) or extremely so (33%). Further, when asked about the extent to which the foresight exercise established a network of collaboration between law enforcement agents, non-LEA experts, and futurists, respondents



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indicated not at all (7%), slightly (43%), very much (43%), and extremely (7%). Response to this question indicates room for improvement regarding the establishment of networks in future foresight cycles, as 50% of respondents indicated that a network of collaboration was not at all or slightly established.

When asked about the extent to which the methodology encouraged discussion and sharing of insights, nearly all respondents indicated very much (73%) or extremely so (20%). Further, when asked to rate the effectiveness of the methodology in promoting communication on a scale from 1 to 100, the average response was 69%, or very effective (min-25; max-91). Similarly, when asked to rate the effectiveness of the methodology in sharing expertise from a scale of 1 to 100, the average response was 71%, or very effective (min-47; max-92).

In an open-ended question requesting respondents' suggestions or comments about improving communication and collaborations, participants recommended a more structured discussion approach, to limit one moderator per group, to remove observers, include participants with different backgrounds, "especially people who have knowledge about the topic." Notably, one respondent mentioned the example scenarios about environmental crime should involve specialists from this field.

### 7.2.5 Applicability to Other Contexts

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When asked to what extent the methodology is flexible or adaptable to different contexts, the majority of respondents indicated very much (60%) or extremely (27%). Also, in an open-ended question, respondents were asked to elaborate on the extent to which the workshop affected their interest or willingness to make use of foresight in their organization. Two respondents indicated being slightly more interested or already familiar with foresight. Six others indicated being "very interested," described specific topics they would like to apply such a foresight session to (e.g., "drug smuggling"), and found the use of the board game interesting. One respondent wrote "It has made me think that it is necessary to have more meetings between



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people from different areas and countries and exchange ideas or propose options to strengthen security in Europe.” Another respondent wrote “This practical approach makes foresight less daunting.” These positive responses indicate an interest and a need to utilize foresight, to develop greater exchange of ideas, and to use easy approaches.

### 7.2.6 Knowledge Gained

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When asked to what extent the workshop was able to increase knowledge on the topic of border management, respondents indicated not at all (20%), slightly (27%), very much (40%), and extremely (13%). Notably, 47% percent of respondents indicated either no or slight increase in knowledge about the topic. This result may be attributed to workshop participants being already highly knowledgeable about the topic or may indicate an area for improvement to include more specialized experts in the future.

### 7.2.7 Output Created

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In an open-ended question, respondents were asked what foresight outputs would be most beneficial. Multiple respondents recommended a roadmap for the next coming years, both in the short and long term, more future-oriented scenarios that present problems outside of current contexts, solutions that are applicable to multiple scenarios, the identification of vulnerabilities in LEA capabilities, increased open-mindedness, a list of equipment and technologies to develop and invest in, as well as a network of LEAs engaged in foresight to better exchange thoughts, ideas and knowledge.

### 7.2.8 Methods

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Multiple categories were identified to assess respondents feedback regarding the methods used. Categories of methodological feedback include understanding the methodology, physical resources used, effectiveness of methodology, and satisfaction.



### 7.2.8.1 Understanding

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Respondents indicated some difficulties with understanding the foresight methodology. When asked to what extent respondents felt they understood the methodology being used, responses included slightly (20%), very much (47%), and extremely (33%). Further, when asked whether they encountered difficulties or challenges when taking part in the exercise, respondents indicated not at all (20%), slightly (40%), very much (27%), and extremely (13%). These responses demonstrate room for improvement in explaining and guiding participants through the methodology. When asked to rate the clarity of instructions or guidelines provided for the methodology on a scale of 1 to 100, the average response was 70%, or very clear. The minimum rating was 7 (i.e., not clear at all), whereas the maximum was 100 (i.e., extremely clear). This indicates that the instructions were not completely clear to all participants and multiple styles may need to be utilized to familiarize participants with the methodology.

### 7.2.8.2 Resources

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When asked to what extent were the resources (tools, materials, etc.) required for the methodology readily available, all respondents indicated very much (77%) or extremely (23%).

### 7.2.8.3 Effectiveness

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Respondents indicated that the AHEAD foresight method is effective within law enforcement contexts. When asked to what extent was the method of a workshop appropriate to the context of law enforcement, respondents indicated slightly (14%), very much (50%), or extremely (36%). Further, when asked to rate the overall effectiveness of the methodology in addressing the task on a scale from 1 to 100, the average response was 76%, or very effective (min-42; max 100).

### 7.2.8.4 Satisfaction

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The majority of respondents indicated they were very satisfied or extremely satisfied with the methodology (50% and 29% respectively), albeit 21% of respondents were only slightly



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satisfied. In an open-ended question, respondents were asked to elaborate on what aspects of the methodology were found most valuable. Four participants described participant involvement, encouraging open-mindedness, and exchanging perspectives, ideas, and knowledge as the most valuable aspects of the methodology. In addition, five participants described the content (e.g., red-teaming on criminal types, opportunities, and triggers; linking new crime opportunities to impacts on police missions) and structure of the boardgame (e.g., layout and headers of the board game boxes) as most valuable. In an open-ended question, respondents were also asked what areas for improvement or suggestions could enhance the methodology. Respondents suggested having more time to deliberate on the scenarios, simplifying the methodology and board game, and better explaining how the scenarios were selected or otherwise having a digital foresight tool. Two respondents suggested one moderator per group with more structured facilitation. Three respondents suggested more in-depth instructions on the use of the board game. In sum, respondents were generally satisfied with the methodology, but their feedback indicated there may be room for improvement.

### 7.2.9 Future Use

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Responses regarding future uses of the foresight methodology were generally favorable and respondents provided insightful feedback for improvement. When asked about the likelihood of using the methodology again in future projects or tasks, respondents answered slightly (33%), very much (50%), and extremely (17%). In an open-ended question, respondent was asked whether they would recommend the methodology to others. Of seven answers, six indicated they would recommend the methodology. In their explanation, respondents described that the methodology would be suitable to support dialog and build awareness about foresights, especially at the ministry level and civil authorities who are not so well-accustomed to foresight work. One respondent specifically commended the methodology for favoring the exchange of ideas and experiences but repeated the need to simplify the format. Another respondent said “ I would recommend it since it gives you another perspective, however you have to be open





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mindful and willing to try new things. I don't see this kind of willingness in a lot of people at our police." Only one respondent did not indicate they would recommend the methodology as it was deemed "too complex for national levels."

When asked to rate the likelihood of recommending the methodology on a scale of 1 to 100, the average response was 71%, or very likely. The minimum rating was 40 (i.e., moderately likely), whereas the maximum was 100 (i.e., extremely likely). Similarly, when asked to rate the likelihood of reusing the methodology on a scale of 1 to 100, the average response was 70%, or very likely. The minimum rating was 26 (i.e., slightly likely), whereas the maximum was 100 (i.e., extremely likely).



## 8 Conclusion

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The second cycle of the AHEAD project implemented a mixed-method foresight approach to address the complex and evolving challenges of border management within the EU. By utilizing a three-step model encompassing analysis, interpretation, and prospection, the project evaluated trends, developed scenarios, and derived actionable recommendations. The methodologies employed facilitated meaningful dialogues among participants, encouraging open-mindedness, and the exchange of perspectives.

The evaluation of the foresight methods revealed a high level of satisfaction among participants, with notable appreciation for the collaborative and engaging nature of the workshops. However, feedback also highlighted areas for improvement, such as the need for more structured and reproducible protocols, better integration of feedback, and the inclusion of a more diverse group of experts. These insights will be valuable for refining future foresight cycles. Ultimately, the AHEAD project's foresight methodologies underscore the importance of law enforcement agencies adopting forward-looking strategies. By utilizing foresight, law enforcement can better anticipate and prepare for future threats to enhancing civil security. This proactive approach is essential for staying ahead of emerging challenges and safeguarding society effectively.



## 9 Contact

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# 11 Appendix A

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## 11.1 Forwarded Publications and Reports

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