Open Market Consultation
Preliminary Report

Results of the Open Market Consultation webinars for the future Pre-Commercial Procurement of R&D services on the security domain to remotely stop vehicles
and outline of upcoming OMC activities

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A Prior information Notice (PIN) has been published in TED on 3 March 2025 to announce the Open Market Consultation on potential future procurement activity (notice publication number: 50219295-e1f6-41e7-bce6-858a514d4db9-01).

The original language of this open market consultation is English.

Abbreviations and acronyms

AI	Artificial Intelligence
ANPR	Automatic Number Plate Recognition
CET	Central European Time
EAFIP	European Assistance for Innovation Procurement
EC	European Commission
EU	European Union
GDPR	General Data Protection Regulation
IPR	Intellectual Property Rights
OMC	Open Market Consultation
PBG	Public Buyers Group
PCP	Pre-Commercial Procurement
PIN	Prior Information Notice
R&D	Research and Development
RFI	Request For Information
SMEs	Small and Medium Enterprises
SOTA	State Of the Art
TED	Tenders Electronic Daily
TRL	Technology Readiness Level

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1. The INTERCEPT project

During the last decades, criminal activities and terrorist attacks in Europe using motor vehicles have shown an increasing trend in terms of the number of incidents, target types and victims reported. Traffic stops are one of the most common, yet most risky, tasks a police officer undertakes. Traffic-related fatalities rank No. 2 for LEAs each year due to traffic-related events. The list of causes often includes high-risk vehicle events, such as pursuits, which can quickly lead to death or injury. A driver who is impaired, carrying illegal weapons or drugs, facing unpaid tickets or driving a stolen vehicle may make a foolish decision to evade police rather than face often lesser consequences. In fact, an astonishing 91 per cent of police pursuits are precipitated by nonviolent offences but result in thousands of deaths and injuries to police officers, innocent bystanders and suspects each year.

In general, there are different security threats and incidents related to motor vehicles which represent several security concerns to LEA and citizens. The most relevant scenarios are: high-speed pursuits, stolen cars, DUIs (Driving Under the Influence and terrorism.

Therefore, LEAs throughout the globe are convinced that providing an effective means to remotely stop a vehicle is fast becoming a priority. The development of a safe and controlled system to enable remote stopping has the potential to directly save lives.

Thus, in the continuity of i) the EU strategic impacts of Cluster 3 in the Horizon Europe Strategic Plan 2021-2024 with regards to better protection of the EU and its citizens against crime and terrorism; ii) the strategic objectives and priorities regarding the protection of citizens in public spaces detailed in the EU Security Union Strategy; and iii) the Joint Technical Specifications with regards "Stopping vehicle - engine shut down technology" issued by the i-LEAD (Innovation – Law Enforcement Agency's Dialogue) police practitioners working group, the main focus of INTERCEPT is to enhance EU Law Enforcement Authorities capabilities and provide them effective means to remotely and safely stop vehicles which represent imminent and high security threats to citizens

and society, by identifying technology gaps to solve in order to reduce existing vulnerabilities and improve security efficiency.

The INTERCEPT project is a Coordination and Support Action involving a collection of security end users' needs, knowledge exchange between stakeholders, implementation of desk research and analysis, and the conduct of educational initiatives to support the preparatory activities for a PCP. The main objective of INTERCEPT is to urge innovations beyond the state of the art by working towards a more effective means of stopping vehicles remotely. In this context, INTERCEPT aims to define common security needs and translate them into use cases to identify technological gaps and establish concrete R&D requirements as a baseline to prepare a PCP of solutions that enhance the protection of people, infrastructures, and public spaces in EU cities.

1.1. PCP challenge and main requirements

The envisaged future PCP – i.e. a joint procurement of R&D services – is intended to be launched to reinforce public demand-driven innovation in the security domain. PCP has the potential to be an effective demand-side innovation action and a useful tool to close the gap between supply and demand for innovative solutions. Solutions are expected to achieve TRL 7-8.

The future PCP should deliver successful, innovative and fully tested product(s) and/or service(s) that meet the common need of the PBG to procure research, develop innovative marketable solutions, speed up the time-to-market and provide the best value for money.

The PBG aims to develop an innovative solution to tackle the use cases concerning stopping vehicles remotely, namely:

1. Use Case 1: Complex threat and pursuit scenario by car vehicle.
2. Use Case 2: Urban agile threat involving high-powered motorcycles and electric bikes.
3. Use Case 3: Distressed driver operating a large passenger coach.

1.2. Use cases

At the beginning of the INTERCEPT project, the consortium working in close collaboration with the User Observatory Group defined six operational use cases. These use cases were designed to represent a diverse range of high-risk scenarios in which law enforcement and emergency response units may be required to act swiftly and decisively. Each use case reflected different types of threats and operational challenges commonly encountered in urban and interurban environments. The six initial use cases were as follows:

- Use Case #1 – Vehicle ramming attack in a public market;
- Use Case #2 – High-speed pursuit in urban surroundings;
- Use Case #3 – Large coach with distressed driver;
- Use Case #4 – High-speed pursuit following ANPR alert;.
- Use Case #5 – Organised criminal use of high-powered motorcycles and electric bikes;
- Use Case #6 – Hostage-taking and vehicle ramming.

These scenarios served as the foundation for understanding operational needs and technological gaps. Following an in-depth analysis of the most pressing security threats, operational limitations, and the shared priorities of end users, the consortium refined and consolidated the original six scenarios into three core use cases. This process ensured that the project would remain focused on addressing the most critical challenges with the highest potential impact on public safety and operational efficiency.

1.2.1. Use Case 1: Complex threat and pursuit scenario by car vehicle

This comprehensive use case presents a realistic and escalating threat scenario in which a vehicle initially flagged by an ANPR system engages in a series of criminal activities, including an intentional vehicle ramming attack in a crowded urban area, a high-speed pursuit through city streets, and an eventual cross-border chase. The incident reflects the multi-dimensional nature of modern security threats and highlights the range of response challenges and capability gaps faced by LEAs.

1.2.2. Use Case 2: Urban agile threat involving high-powered motorcycles and electric bikes

A series of luxury store robberies in central Paris is linked to a criminal gang using high-powered motorcycles and electric bikes to execute smash-and-grab thefts and evade police through narrow streets and pedestrian zones. The operation demonstrates the growing use of agile vehicles by organised crime networks and the complex urban environment challenges faced by law enforcement.

1.2.3. Use Case 3: Distressed driver operating a large passenger coach

A large 81-seater intercity coach travelling through central London during evening rush hour begins to behave erratically. Passengers on board observe the driver exhibiting signs of severe emotional distress, prompting widespread panic. The coach becomes a mobile hazard, weaving unpredictably through traffic, and presenting a severe safety risk on the city's arterial routes.

1.3. Use Case Requirements

The LEAs participating in the INTERCEPT project have listed the functional requirements the future solution should cover. The requirements were divided into different categories representing different steps of an incident as presented below.

Threat Detection and Identification: The system should enable real-time identification of high-risk vehicles and hazardous substances, detect dangerous driving behaviours, and assess environmental conditions that may affect threat recognition and response.

Before Incident: Ensure reliable threat verification, resource readiness, inter-agency communication, risk assessment protocols, and public alert systems are in place prior to initiating a pursuit.

During Incident: The system must enable real-time tracking, adaptive strategy updates, reliable multi-agency communication, and situational awareness while ensuring safe and controlled neutralization of the target vehicle through measures like deceleration mechanisms, engine control influence, and road-based stopping tools, all with minimal risk to bystanders and infrastructure.

After Incident: Implement secure and efficient tools for evidence collection, event documentation, damage assessment, and post-operation evaluation to support investigations, legal processes, and continuous improvement.

Environmental Adaptation: Solutions must adapt to diverse environmental and geographic conditions, including adverse weather, challenging terrains, and varying pursuit environments, while mitigating associated risks.

External Coordination: Establish robust protocols, interoperable systems, and clear communication tools to enable effective inter-agency and cross-border collaboration, ensuring compliance with international protocols and operational consistency across diverse agencies.

Legal and Regulatory: Ensure all pursuit-related systems and actions comply with relevant laws and regulations on vehicle interventions, data protection, transparency, and proportionality at local, national, and EU levels.

Other Requirements: User-Centred Requirements; Public and Community Interaction; Evaluation and Feedback.

1.4. Results of SOTA analysis

A macro-level analysis of the total stock of relevant patents was conducted using the IPlytics tool to examine the relevant technologies. Keywords were used to identify patents related to each of the three use cases. The results of the IPR search, along with the proposed technologies based on this search, are listed below.

1.4.1. Use Case 1: Complex threat and pursuit scenario by a car vehicle

IPR search results:

- RFID tags to track vehicles.
- Cloud-based communication platforms to ensure cross-border tracking and coordination.
- Emergency vehicle prioritisation and real-time location sharing.
- Real-time vehicle identification and coordination with law enforcement.
- Video & audio analytics for detecting suspicious or criminal behaviour.
- Behavioural pattern recognition to identify criminal activity or dangerous driving behaviour.
- A first sensing system (e.g., ANPR, RFID, facial recognition) identifies the object at a known location, and a second sensing system (e.g., basic cameras, radar) tracks the object over a wider area.

- A traffic model to convert raw sensor data into vehicle trajectory information (e.g., speed, idling time, acceleration patterns).
- A device designed to stop an approaching vehicle by deflating its tires, using upward-facing spikes to puncture the tires, making it an effective immobilisation tool for target vehicles.

Technologies:

- Automatic Number Plate Recognition (ANPR): Detects and reads vehicle license plates from captured images.
- Autonomous Driving Control Systems.
- Emergency Stop Systems.
- Vehicle-to-Device Communication.
- Sensing and Tracking Infrastructure.
- Character Recognition (OCR): Extracts the alphanumeric number from the plate image.
- Artificial Intelligence (AI): Core engine for automation and decision-making.
- On-Demand Roadway Stewardship Systems: Dynamically deploys monitoring and enforcement functions in urban areas.

1.4.2. Use Case 2 – Urban agile threat involving high-powered motorcycles and electric bikes

IPR search results:

- Multi-camera drone surveillance with thermal imaging for real-time vehicle detection.
- Real-time tracking of high-risk or unauthorised vehicles in border zones, highways, and restricted areas. Utilises AI, camera sensors, and inertial sensors to detect unusual traffic events.
- Identifying reckless driving, vehicle malfunctions, and external factors affecting traffic incidents.
- Analysing high-risk vehicle behaviours and alerting law enforcement in real time.
- Identifying violations such as excessive speeding, illegal lane changes, and reckless driving, key indicators of criminal intent.

- Helping track vehicles involved in violations and intervening before incidents escalate.
- A system that includes a graphical user interface (GUI) for triggering alerts based on real-time drone observations. (patent number).
- Enabling the centralised coordination of numerous drones, making it suitable for large-scale or complex monitoring operations.
- An analytical recognition system that works with multiple camera types, including fixed traffic cameras and aerial drone-mounted cameras.

Technologies:

- Monitoring Control Units.
- Emergency Event Detection.
- Drone Base Station Communication.
- Data Analytics and Decision-Making Algorithms.
- Real-Time Communication.
- Ultra-Wideband (UWB): Used for precise distance measurement and spatial awareness.
- Network Communication: Facilitates data exchange between the UAV, user device, and remote systems.
- Automated Drone Deployment: A drone is instructed to image the incident area based on computed coordinates.
- Real-Time Video Streaming: Live footage from both fixed cameras and drones is displayed for operator assessment.

1.4.3. Use Case 3 – Distressed driver operating a large passenger coach

IPR search results:

- An AI-assisted vehicle deceleration & emergency stop system.
- Real-time monitoring of driver state and vehicle speed.
- Automatic emergency stop and deceleration options for hazardous situations, which works for autonomous and manually driven vehicles.
- Enables non-lethal vehicle stopping, ideal for hazardous or high-risk vehicle intervention.
- Remote monitoring of vehicle and speed control.

- Secure stopping methods for high-risk vehicles in critical zones.
- Sensors are used to detect the driver's presence and continuously monitor their psychological state. Safe mode stop. (Upon detecting driver incapacity, the system initiates a safe stopping manoeuvre).
- An emergency stop system that can receive stop signals from non-driving users in the vehicle. If the required number of signals is received in time, the vehicle is immediately stopped or slowed down.
- Safe mode stop. (Upon detecting driver incapacity, the system initiates a safe stopping manoeuvre). AN: FR2212069A (EU).

Technologies:

- Autonomous Emergency Stop Execution.
- Target Vehicle Identification.
- Remote monitoring of vehicle operations.
- Behavioural pattern recognition.
- Driver Monitoring System (DMS): Detects abnormal driver states (e.g., drowsiness, incapacitation).
- Remote Control Enablement: Authorises remote vehicle operation after the autonomous stop.

2. Purpose of the Open Market Consultation

This document describes the preliminary results of the Open Market Consultation (OMC) of the INTERCEPT project for the future **Pre-Commercial Procurement (PCP) of Research & Development (R&D) services** on the security domain to enhance the capabilities of European law enforcement authorities and provide them with effective means to safely stop vehicles remotely. The preliminary results are based on the national webinars and the RFI questionnaire.

The OMC aims, on the one hand, to inform technology vendors regarding the potential future PCP and, on the other hand, to understand their capabilities to satisfy the procurers' needs and to obtain their input on the viability of the procurement plans and conditions as described in the OMC document and annexes.

In sum, the objectives of this OMC activities are to:

1. Validate the findings of the State-Of-The-Art (SOTA) analysis and the viability of the set of technical and financial provisions.
2. Raise awareness of the industry and relevant stakeholders regarding the upcoming PCP.
3. Collect insights from the industry and relevant stakeholders (including users) to fine-tune the tender specifications.

The OMC was published through a Prior Information Notice (PIN) in the Tenders Electronic Daily (TED) on 3 March 2025. The rules and objectives of the INTERCEPT OMC, as well as information about the challenges, the potential public buyers, and the PCP approach were described in the OMC document with Annexes. This document was published on the INTERCEPT website (https://intercept-horizon.eu/).

Market parties and end users were also requested to fill out a questionnaire in the EU Survey. The preliminary deadline to fill out the questionnaire was 23 May 2025. The intention of the questionnaire was to explore the market 'as-is', and to find out more about practitioners' needs and requirements regarding the future PCP. Therefore, there could not be wrong or right answers. The responses to the questionnaire could

not contain any confidential information. The information obtained will be used as input for the procurement strategy and conditions.

This OMC is performed under the law of the lead procurer (Kentro Meleton Asfaleias - KEMEA), which is Greek law.

This document aims to present the preliminary results to the market following the review of all supplier questions and responses. It is intended to support technology providers in preparing for the upcoming e-pitching sessions and the main OMC event in Warsaw on 25 June 2025. All information submitted by technology vendors is considered commercially sensitive; therefore, no specific details will be shared with other suppliers. Only general findings are summarised and presented in this report. The final report, detailing the outcomes of the OMC activities, will be published on the INTERCEPT website on 4 July 2025.

3. Activities & timetable

The OMC is planned to take place in the form of:

- A main (hybrid) event in Warsaw (Poland) on 25 June 2025. This event will be carried out in English and broadcasted online.
- A series of webinars in different EU languages held from 9 to 15 May 2025. This activity is completed at the time of submitting this report.
- E-pitching sessions in English will be held from 3 to 5 June 2025.
- Request for Information (RFI) – a questionnaire using the EU Survey tool for technology providers and end users. This activity is completed at the time of submitting this report.
- Other activities as deemed necessary within the scope of the project.

The timetable of activities and required actions of the OMC is as follows:

Date	Event
3 March 2025	Publication of the Prior Information Notice (PIN) on TED.
7April 2025	Publication of the OMC documents on the project's website: https://intercept-horizon.eu/ Publication of the RFI questionnaire: 1. Technology providers: https://ec.europa.eu/eusurvey/runner/Intercept-OMC_RFI_for_TechnologyProviders 2. End users: https://ec.europa.eu/eusurvey/runner/Intercept-OMC_RFI_for_End-Users
9 May 2025 10:00 – 12:00 CET	OMC webinar in Spanish
12 May 2025 10:00 – 12:00 CET	OMC webinar in English
12 May 2025 12:30 – 14:30 EET	OMC webinar in Greek
13 May 2025 10:00 – 12:00 CET	OMC webinar in French
13 May 2025 12:30 – 14:30 EET	OMC webinar in Finnish
14 May 2025 12:30 – 14:30 CET	OMC webinar in Italian
15 May 2025 10:00 – 12:00 CET	OMC webinar in Polish

15 May 2025 12:30 – 14:30 CET	OMC webinar in Slovak
23 May 2025	Deadline for the submission of questions via the RFI questionnaire
30 May 2025	Publication of preliminary OMC report based on the findings from the OMC webinars
3 June 2025	E-pitching session 1
4 June 2025	E-pitching session 2
5 June 2025	E-pitching session 3
25 June 2025	OMC event in Warsaw
4 July 2025	Publication of the OMC findings, including all questions and answers to the OMC questionnaire.
4 July 2025	Closure of the OMC.

The INTERCEPT consortium is entitled to adjust the planned activities and the timetable above, and to include new activities at any time according to the needs and responses of the market. Furthermore, it may decide to terminate the OMC for its own reasons at any time. In that case, the INTERCEPT consortium will publish such modifications or termination on TED and the project's website (https://intercept-horizon.eu/).

3.1. OMC webinars

Parties interested in participating in the eight online events were requested to register through an online form. A total of 73 people registered for the OMC webinars, including people from public organisations, private organisations, start-ups, SMEs, large organisations and universities/ research organisations. A total of twenty-three (23) attendees participated in the English webinar, twelve (12) in the French, nine (9) in the Slovakian, and twenty-nine (29) in the Spanish webinar. There were either no registrations nor no attendance for the Greek, Finnish, Italian and Polish webinars, but the presentation materials prepared for those sessions were uploaded to the project's website.

The agendas of the OMC webinars are included in Annex I.

The webinars within the framework of the OMC were recorded. The video recordings are available on the INTERCEPT website together with the slides from the meetings.

- Videos: https://intercept-horizon.eu/for-industry/#:~:text=forming%20a%20consortium.-,Videos,-Play

- Presentation materials: https://intercept-horizon.eu/for-industry/#:~:text=Play-,Knowledge,-Open%20Market%20Consultations

3.1.1. Q&A from the OMC webinars:

Q: We currently have existing vehicle-stopping solutions that are not yet remotely operated. We have already initiated R&D efforts to develop remote capabilities. Should our RFI submission focus on the existing system, the ongoing development, or both?

A: Yes, we encourage you to provide information on both your existing vehicle-stopping solutions and the ongoing R&D efforts to develop remote capabilities. The RFI includes multiple sections – such as technology readiness levels (TRLs), existing patents, and current capabilities – where you can specify the maturity and scope of each solution. There are dedicated fields for detailing both current technologies and future developments, including areas where further R&D is underway. Please complete all relevant sections of the RFI as thoroughly as possible. This information will be reviewed by the project team and used to assess suitability for the identified use cases. Based on this assessment, we may reach out for further discussions or clarifications. At this stage, it's important to provide a comprehensive overview, even if some elements are still under development.

Q: When we submit any information to you, will it be treated as confidential and reviewed solely within your team, or is there a possibility it will be shared more broadly within the wider community?

A: Yes, your submission will be treated as confidential. However, please note that our project partners will have access to the responses for evaluation purposes. When we publish any findings, such as in the EMC report, all information will be anonymized and aggregated – no company names, proprietary technologies, or confidential details will be disclosed. That said, publicly available information, such as registered patents, may be referenced to a limited extent. If your submission includes sensitive or export-controlled material that you do not wish to be shared or even anonymized in any public-facing documentation, please make that explicitly clear in your RFI response. We will ensure such information is handled accordingly and with the appropriate level of confidentiality.

Q: The technology we may be able to offer for some of your use cases under the UK government framework is subject to export control regulations. As such, while I can share a certain amount of information in the public domain, more detailed technical data is classified as export-controlled. To disclose that level of detail, I would need to obtain an export license from the UK government, which requires specifying the recipients of the information. If the recipient is a single organization within one country, the process is straightforward. However, if the information is to be shared across multiple countries or within a multinational group, the licensing process becomes more complex. Therefore, some of our responses may initially remain at a high level and in the public domain, with further technical details contingent upon obtaining the necessary export approvals.

A: We fully understand the restrictions associated with export-controlled technology. For the RFI, please provide only the information you are legally authorised and comfortable sharing. If more detailed technical data is needed during the evaluation process, we will contact you directly to explore next steps, which may include appropriate confidentiality measures or export licensing arrangements. At this stage, we are primarily focused on gaining an overview of the capabilities and relevance of your solution to our use cases. Detailed technical specifications are not immediately required. A high-level summary is entirely appropriate, and further discussions can follow if needed.

Q: Could you clarify the definition of 'remote' as used in the documentation? I noticed that some tools are described as remotely deployed or remotely operated, yet it is also stated that an officer is required on-site. In such cases, it seems the system is not entirely remote. Does 'remote' refer to remote control during operation, remote deployment capability, or something else? Additionally, does the need for on-site installation affect whether a system is considered truly remote?

A: We are still in the process of refining the exact requirements, but our current understanding of 'remote' primarily refers to the ability to stop a vehicle without direct physical intervention by law enforcement officers. The aim is to avoid traditional methods such as physical interception with police vehicles or the use of manual spike systems. Ideally, the system should enable remote activation either autonomously or

via remote control without requiring officers to be in close proximity to the target vehicle during the stopping process. That said, we recognize that some systems may still require on-site setup or installation, and we're open to reviewing different levels of remote capability. These distinctions will help us assess the feasibility and maturity of various solutions.

Q: Are you specifically seeking a fully autonomous solution, or would a semi-autonomous system also be considered?

A: At this stage, we are not specifically seeking a fully autonomous solution. The current intent is to maintain a level of human oversight, where law enforcement retains the authority to make the final decision regarding intervention. While a solution may include autonomous features such as detecting high-risk behaviour or identifying target vehicles the actual execution of a stopping action should remain under the control of law enforcement personnel. That said, the precise level of autonomy is still being evaluated in consultation with end users, and final requirements will be shaped based on their operational needs. Ultimately, any proposed solution must be acceptable to and approved by the relevant law enforcement agencies before deployment.

Q: Will solutions that enhance officer safety also be considered, even if they address the use case indirectly? It seems relevant to the overall operational effectiveness and could be an important part of the broader scope.

A: Yes, solutions that enhance officer safety are certainly within the scope of consideration, even if they address the use case indirectly. Within the INTERCEPT project, each use case includes a broad set of requirements not only for remote vehicle stopping, but also for detection, communication, environmental considerations, and pre- and post-incident actions. Importantly, this list of requirements is not final. During the main OMC event, we will be actively engaging with both technology providers and end users to identify additional functionalities and operational needs that may be relevant. This is an ideal time to propose features such as officer safety enhancements that could contribute to the overall effectiveness and usability of the system.

Q: I noticed that the document references existing systems for stopping or tracking vehicles, and we also provide similar solutions currently available on the market. Would you be interested in receiving information about these existing products as potential additions to the current scope? If so, would they require separate RFI submissions, or can they be included within the same response?

A: Yes, existing technologies and solutions are still highly relevant at this stage. As this is an ongoing study, we are still in the process of finalising the requirements and defining the common challenge and use cases. Submitting information on mature, market-ready systems can help us better understand the current technology landscape and inform the shaping of the final scope. You may include these existing products within the same RFI submission, provided it is clear which parts of your response relate to which solution. If the technologies come from different manufacturers and are represented by you as a distributor, please clearly distinguish between them. A separate submission is only necessary if the solutions are substantially different or involve different stakeholders requiring separate evaluation.

Q: In cases where we represent another system from a different manufacturer and country – as a distributor – would it be necessary to submit a separate RFI for that solution, or can it be included within our existing submission?

A: Firstly, it's important to note that the RFI is not a formal application but rather a tool for gathering information. Ideally, we prefer that each organisation submits a single response. However, we understand that there may be cases such as when you're representing a different manufacturer from another country as a distributor where submitting additional information from a different perspective may be necessary. In such cases, it is acceptable to submit more than once, especially if the solutions are distinct or associated with different manufacturers. We are flexible in this regard. That said, it would be very helpful if you clearly indicate in your submission which solution corresponds to which organisation or manufacturer. This will allow us to accurately categorise and analyse the responses during the evaluation process.

3.2. E-pitching sessions

As part of the preparatory activities leading up to a future procurement procedure, e-pitching sessions serve as a structured platform for early engagement between public

buyers and technology suppliers. These virtual meetings allow suppliers to present innovative solutions aimed at addressing specific procurement challenges defined by the public sector.

The primary objectives of the e-pitching sessions are to facilitate early dialogue between the public sector and market participants, identify relevant and innovative solutions that meet specific public sector needs, and foster a competitive and transparent procurement process.

The process begins with a clear definition of the procurement challenges by the public buyers and the communication thereof to potential suppliers in advance. Suppliers then prepare tailored presentations that demonstrate how their solutions respond to these challenges. Each supplier is given a 15-minute time slot to present. The presentation typically starts with an overview of the economic operator, followed by a detailed explanation of the proposed solution, including its relevance to the challenge, R&D activities, technical capabilities, anticipated benefits, and how it aligns with the needs of the procuring entity. Following the presentation, a five-minute question and answer session allows public procurers and other stakeholders from the consortium to engage directly with the supplier. This interaction is intended to clarify specific points and assess the suitability of the proposed solution.

In the context of the INTERCEPT project, the e-pitching sessions are scheduled to take place from 3 to 5 June 2025. The PowerPoint template that will be used during the e-pitching sessions is attached in Annex III along with the agenda.

3.3. OMC event in Warsaw

The central event of the INTERCEPT Open Market Consultation (OMC) activities will take place on 25 June 2025 in Warsaw, in a hybrid format, running from 11:00 to 17:15. This event serves as a key moment of engagement between public procurers and the market, providing a platform for dialogue, feedback, and mutual understanding ahead of a future procurement process.

An OMC is a structured dialogue in which procurers seek insights from the market to better understand its capacity to meet identified needs. This interaction helps bridge the gap between the demand side (public sector) and the supply side (technology

providers), ensuring alignment between procurement objectives and what the market can realistically deliver.

At the Warsaw OMC event, procurers will present their findings from the prior-art and IPR analyses, the standards landscape, contractual frameworks, and project feasibility studies. Technology providers will be invited to contribute insights on structuring the procurement phases, resource planning, and identifying and mitigating key risks. The event will also focus on validating operational needs, exploring relevant technologies, and assessing innovation potential and readiness levels.

Additionally, the event will provide space to discuss future collaboration, including the formation of consortia, and explore mechanisms to encourage participation – particularly by SMEs. These exchanges are intended to refine the tender preparation process and support the co-development of impactful, innovative solutions.

Registration for the OMC event in Warsaw remains open until 14 June 2025 and can be accessed via the following link: https://intercept-horizon.eu/for-industry/#omc_register_now.

3.4. Matchmaking event

As part of the INTERCEPT OMC event taking place on 25 June 2025 in Warsaw, a dedicated matchmaking session will offer participating technology providers the opportunity to present their company and demonstrate their capabilities in addressing the specific needs of public buyers.

Following these introductory presentations, structured time slots will be allocated to facilitate direct interactions among technology providers. This will enable participants to expand their professional networks and explore potential opportunities for forming consortia in preparation for future procurement activities.

Registration for the matchmaking session remains open until 14 June 2025 and can be accessed via the following link: https://intercept-horizon.eu/for-industry/#omc_register_now.

4. Summary of the replies to the RFI questionnaire

The Request for Information surveys are part of the OMC of the INTERCEPT project. Two surveys were created, including the targeted questions for **technology providers** and **end users**.

The RFI questionnaire collected input from technology providers on solutions for the remote and safe stopping of vehicles. It focused on company profiles, existing or emerging technologies, and their suitability for six predefined high-risk use cases. Providers were asked to describe key technical features, safety mechanisms, development timelines, and readiness levels. The questionnaire also explored innovation compared to the current state-of-the-art, use of patents or standards, and any technical or operational barriers. Additional input on risks and support needed for development was also requested.

On the other hand, the RFI questionnaire for end users aimed to understand operational needs, technical expectations, and legal considerations related to remote vehicle-stopping solutions. Respondents were asked to share organisational details, the frequency and context of high-risk incidents, and rank the relevance of the six INTERCEPT use cases. Input was gathered on current tools, critical technical requirements, preferred environments for testing, and integration needs. The questionnaire also explored legal, ethical, and societal concerns, as well as end users' willingness to engage in testing, certification needs, and procurement constraints.

The (preliminary) results summarised below will be considered when drafting the tender documents for the future PCP.

After completing the analysis of the responses, the INTERCEPT Consortium will publish a final OMC report, scheduled for release on 4 July 2024. The purpose of this report is to inform the market and relevant stakeholders ahead of the upcoming e-pitching events and to support transparent, broad-based information exchange. All responses received through the EU Survey have been fully anonymised. As such, the report will present only aggregated findings and summarised insights derived from the collected data. The final OMC report will be made publicly available on the official INTERCEPT project website.

4.1. Technology providers

Based on the feedback provided in the EU Survey questionnaire for the technology providers, the respondents belong to start-ups, SMEs and private organisations as indicated in the figure below.

The participants who replied to the EU Survey questionnaire are from organisations in Spain, the United Kingdom and France.

		Answers	Ratio
Start-up		1	20.00 %
SME		2	40.00 %
Public organisation		0	0.00 %
Private organisation		2	40.00 %
R&D institute/University		0	0.00 %
Other (Please indicate below.)		0	0.00 %
No Answer		0	0.00 %

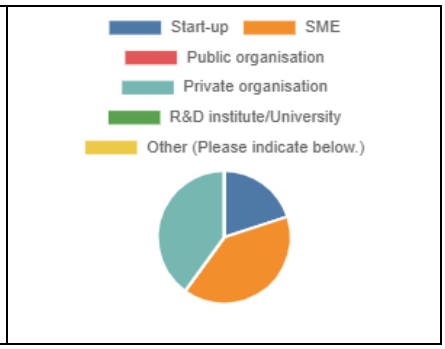


Figure 1: Type of organisations that replied to the Request for Information for end users using the EU Survey tool.

4.1.1. PCP challenge and requirements

1- Are you aware of any existing or emerging technologies that could enable the remote stopping of vehicles in high-risk situations (as described in INTERCEPT)?

A majority (60%) of respondents confirmed awareness of existing or emerging technologies capable of remotely stopping vehicles. These include RF-based solutions, OTA (over-the-air) control systems, AI-supported UAVs, and novel physical intervention devices.

		Answers	Ratio
Yes		3	60.00 %
No		2	40.00 %
No Answer		0	0.00 %

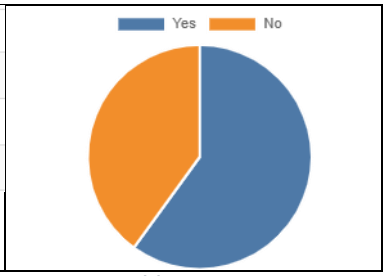


Figure 2: Awareness of remote vehicle-stopping technologies among providers.

2- Are you currently developing or have you developed any solution relevant to any of the following use cases? (Tick all that apply and describe briefly.)

All five respondents are engaged with at least one relevant use case:

- **Use Case 2 (High-speed pursuit in urban areas)** was covered by all.

- Use Cases 1, 4 (Vehicle ramming, ANPR pursuits) followed.
- Use Cases 5 and 6 (e-bikes, hostage-taking) were less frequently addressed.

One provider developed a real-time tracking system (SARO) that uses a launcher-deployed device to track vehicles remotely. Another proposed a drone-based UAV system capable of pursuing vehicles in GNSS-denied environments. A third is working on vehicle perception and control integration with OTA compatibility. One solution focuses on neutralising engines through RF disruption. Another proposes a compact mechanical system for stopping vehicles using a remote-controlled launcher.

		Answers	Ratio
Use Case 1: Vehicle ramming attack in a public market.		3	60.00 %
Use Case 2: High-speed pursuit in urban surroundings.		5	100.00 %
Use Case 3: Large coach with distressed driver.		2	40.00 %
Use Case 4: Pursuit following ANPR alert.		3	60.00 %
Use Case 5: Criminal use of motorcycles/e-bikes.		1	20.00 %
Use Case 6: Hostage-taking and vehicle ramming.		1	20.00 %
No solution was developed for any of the use cases above.		0	0.00 %
No Answer		0	0.00 %

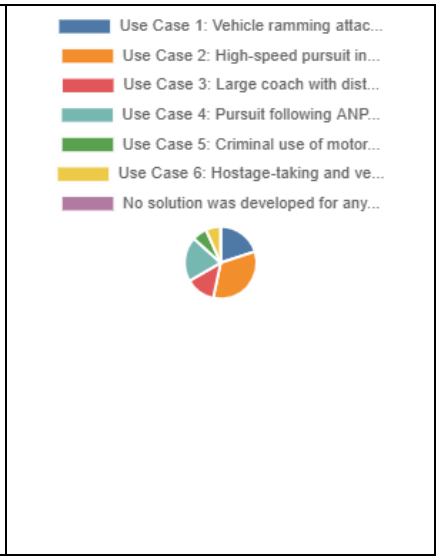


Figure 3: Relevance of proposed technologies to INTERCEPT use cases.

3- What are the most critical technical functionalities or performance parameters your solution would focus on (e.g., real-time tracking, safe neutralisation, communication systems)?

The following functionalities have been stated:

- Real-time vehicle tracking through satellite and inertial systems.
- Safe engine neutralisation, either electronically (RF or OTA) or physically (mechanical intervention).
- Situational awareness and perception, with AI-driven detection of behaviour patterns.
- Secure communication and command infrastructure, especially in urban and GNSS-challenged environments.

Core functionalities focus on **operational precision**, **safety**, and **integration**, reflecting the complexity of deployment in live, public environments.

4- What are the safety mechanisms and fail-safe features your solution would include to avoid collateral damage or unintended consequences?

Diverse approaches to safety and collateral damage prevention were described:

- One RF system restricts its effect to a brief, directional burst, staying within human-safe thresholds.
- UAV-based systems include autonomous return-to-home, collision avoidance sensors, and AI-based decision logic to prevent crashes.
- Mechanical solutions prioritise remote operation to ensure user safety and distance from the target vehicle.
- Physical trackers are designed for non-lethal contact, with training emphasised for precision in deployment.
- In vehicle-integrated systems, trajectory planning algorithms and automated control aim to ensure safe stops.

5- Do you foresee any technical or operational barriers in implementing remote vehicle-stopping systems?

Commonly identified barriers include:

- Legal restrictions, particularly around RF transmission, geolocation, and public safety.
- Dependency on in-vehicle connectivity (e.g., OTA capability) for some systems.
- GNSS and network availability affecting tracking systems.
- Environmental conditions (e.g., tunnel use, temperature extremes) affecting physical deployment.
- Public misunderstanding of certain technologies (e.g., DEW, RF), requiring clearer communication and education.

		Answers	Ratio
Yes		4	80.00 %
No		1	20.00 %
No Answer		0	0.00 %

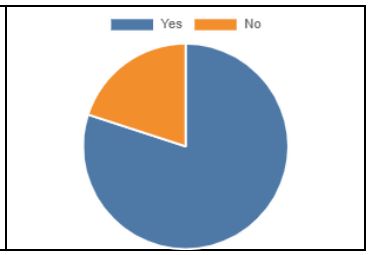


Figure 4: Perceived barriers to implementation

6- Can you identify relevant needs that have not been described in the market consultation document?

Only one provider mentioned a gap in the consultation documents: the public perception of technologies like microwave-based systems, which are often misunderstood. They stressed the importance of clarifying that these are non-kinetic, safe solutions and recommended more robust public-facing education strategies.

		Answers	Ratio
Yes		1	20.00 %
No		4	80.00 %
No Answer		0	0.00 %

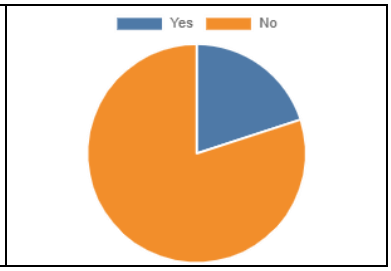


Figure 5: Unaddressed needs identified.

7- If you were to develop the solution for *use case 1 Vehicle ramming attack in a public market*, please provide your estimated time allocation (in months) for each of the following phases: (Total should not exceed 30 months.)

- **Phase 1: Solution Design (months):**
- **Phase 2: Prototype Development (months):**
- **Phase 3: Validation & Demonstration (months):**
- **Please briefly justify your estimated time:**

Please provide your estimated budget for *use case 1 Vehicle ramming attack* in a public market (in Euros) for each phase:
Note: Please be aware that there is a predefined budget allocation for this PCP project, and the total available budget will be divided across phases and participating contractors. The exact budget allocation remains confidential at this stage of the consultation.

- **Phase 1: Solution Design (€):**
- **Phase 2: Prototype Development (€):**
- **Phase 3: Validation & Demonstration (€):**
- **Please briefly justify your estimated budget distribution:**

Only two providers submitted full, quantifiable responses for time and budget estimates. One estimated 3 months for design, 12 months for prototype development, and 6 months for validation, noting overlapping phases to keep the total under 18 months. Their budget ranged from €100,000 for design to €500,000–750,000 for prototyping and €100,000–200,000 for validation, justified by hardware integration, dataset generation, and live environment testing. Another estimated 6 months for each phase, with a total cost of €520,000 distributed across design (€120,000), prototype (€320,000), and demonstration (€80,000), with clear mention of engineering, subcontracting, and police field testing.

8- If you were to develop the solution for *use case 2 High-speed pursuit in urban surroundings*, please provide your estimated time allocation (in months) for each of the following phases: (Total should not exceed 30 months.)

- **Phase 1: Solution Design (months):**
- **Phase 2: Prototype Development (months):**
- **Phase 3: Validation & Demonstration (months):**
- **Please briefly justify your estimated time:**

Please provide your estimated budget for *use case 2 High-speed pursuit in urban surroundings* (in Euros) for each phase:
Note: Please be aware that there is a predefined budget allocation for this PCP project, and the total available budget will be divided across phases and participating contractors. The exact budget allocation remains confidential at this stage of the consultation.

- **Phase 1: Solution Design (€):**
- **Phase 2: Prototype Development (€):**
- **Phase 3: Validation & Demonstration (€):**
- **Please briefly justify your estimated budget distribution:**

Three respondents gave detailed time and cost estimates. One reported 3 months for design, 2 months for prototype development, and 1 month for validation, with a budget of €60,000, €40,000, and €20,000. Another specified 12 months for design, 14 months for development, and 4 months for demonstration, with a budget of €360,000, €1,440,000, and €600,000. A third stated 3, 12, and 6 months respectively, and corresponding budgets of €100,000, €500,000–750,000, and €100,000–200,000. A fourth also provided figures consistent with the ones they had proposed for Use Case 1, stating the same values and work scope.

9- **If you were to develop the solution for *use case 3 Large coach with a distressed driver*, please provide your estimated time allocation (in months) for each of the following phases: (Total should not exceed 30 months.)**
   - **Phase 1: Solution Design (months):**
   - **Phase 2: Prototype Development (months):**
   - **Phase 3: Validation & Demonstration (months):**
   - **Please briefly justify your estimated time:**

Please provide your estimated budget for *use case 3 Large coach with a distressed driver* (in Euros) for each phase:
Note: Please be aware that there is a predefined budget allocation for this PCP project, and the total available budget will be divided across phases and participating contractors. The exact budget allocation remains confidential at this stage of the consultation.

   - **Phase 1: Solution Design (€):**
   - **Phase 2: Prototype Development (€):**
   - **Phase 3: Validation & Demonstration (€):**
   - **Please briefly justify your estimated budget distribution:**

Only one provider submitted estimates for this use case, indicating 6 months each for design, prototype development, and validation. The budget was €150,000 for design, €100,000 for development, and €200,000 for demonstration. The justification mentioned adapting the system to specific requirements and vehicle types.

10- If you were to develop the solution for *use case 4 High-speed pursuit following the ANPR alert*, please provide your estimated time allocation (in months) for each of the following phases: (Total should not exceed 30 months.)

- **Phase 1: Solution Design (months):**
- **Phase 2: Prototype Development (months):**
- **Phase 3: Validation & Demonstration (months):**
- **Please briefly justify your estimated time:**

Please provide your estimated budget for *use case 4 High-speed pursuit following the ANPR alert* (in Euros) for each phase:
Note: Please be aware that there is a predefined budget allocation for this PCP project, and the total available budget will be divided across phases and participating contractors. The exact budget allocation remains confidential at this stage of the consultation.

- **Phase 1: Solution Design (€):**
- **Phase 2: Prototype Development (€):**
- **Phase 3: Validation & Demonstration (€):**
- **Please briefly justify your estimated budget distribution:**

Two providers gave full estimates for this use case. One reported 3 months for design, 2 months for prototype development, and 1 month for validation, with a budget of €60,000, €40,000, and €20,000. Another listed 3, 12, and 6 months with respective budgets of €100,000, €500,000–750,000, and €100,000–200,000. The justifications referred to prior development stages, continued R&D, and field validation needs. One noted ongoing work with a national interior ministry, and another explained that real-world validation of ammunition and launcher efficiency was still in progress.

11- If you were to develop the solution for *use case 5 Organised criminal use of high-powered motorcycles and electric bikes*, please provide your estimated time allocation (in months) for each of the following phases: (Total should not exceed 30 months.)

- **Phase 1: Solution Design (months):**

- **Phase 2: Prototype Development (months):**
- **Phase 3: Validation & Demonstration (months):**
- **Please briefly justify your estimated time:**

Please provide your estimated budget for *use case 5 Organised criminal use of high-powered motorcycles and electric bikes* (in Euros) for each phase:
Note: Please be aware that there is a predefined budget allocation for this PCP project, and the total available budget will be divided across phases and participating contractors. The exact budget allocation remains confidential at this stage of the consultation.

- **Phase 1: Solution Design (€):**
- **Phase 2: Prototype Development (€):**
- **Phase 3: Validation & Demonstration (€):**
- **Please briefly justify your estimated budget distribution:**

No provider submitted complete estimates for time or budget.

12- If you were to develop the solution for *use case 6 Hostage-taking and vehicle ramming*, please provide your estimated time allocation (in months) for each of the following phases: (Total should not exceed 30 months.)

- **Phase 1: Solution Design (months):**
- **Phase 2: Prototype Development (months):**
- **Phase 3: Validation & Demonstration (months):**
- **Please briefly justify your estimated time:**

Please provide your estimated budget for *use case 6 Hostage-taking and vehicle ramming* (in Euros) for each phase:
Note: Please be aware that there is a predefined budget allocation for this PCP project, and the total available budget will be divided across phases and participating contractors. The exact budget allocation remains confidential at this stage of the consultation.

- **Phase 1: Solution Design (€):**
- **Phase 2: Prototype Development (€):**
- **Phase 3: Validation & Demonstration (€):**

- **Please briefly justify your estimated budget distribution:**

No provider submitted complete estimates for time or budget.

13- What are the main risks or uncertainties in the R&D process for your proposed solution?

Most respondents highlighted technical and environmental factors as the main sources of uncertainty:

- Adhesion-based solutions cited performance variability of the glue in extreme temperatures and potential safety issues if not properly deployed. One noted the need to refine the ammunition and launcher components as a major R&D focus.
- A solution based on UAVs mentioned integration challenges across subsystems and the complexity of achieving safe autonomous navigation in dense environments.
- Providers working on embedded vehicle systems noted the difficulty of securing infrastructure for remote vehicle control, as well as the lack of access to real-world datasets for algorithm training.
- One respondent indicated that although core electronic components were finalised, external factors like legal approval and operational testing conditions remained potential risks.

14- Are there particular operating environments (e.g., tunnels, city centres, rural roads) where your solution would face challenges?

Some of the providers acknowledged that their solutions would face challenges in specific settings:

- Tracking technologies dependent on GNSS could be hindered in **tunnels** or **urban areas with signal obstruction**.
- UAV-based systems face risks in confined spaces like tunnels, where maneuvering is limited and the consequences of failure are severe.
- Adhesive tracking solutions may be affected by **freezing temperatures**, which could reduce glue performance.

- One respondent noted **cellular coverage** as a limiting factor for continuous data transmission during tracking.
- Physical launchers may be constrained by deployment accuracy and road surface conditions.

		Answers	Ratio
Yes		2	40 %
No		2	40 %
No Answer		1	20 %

Figure 6: Challenging operating environments.

15- Are there specific types or classes of vehicles that your solution is designed for or particularly effective against? *(Please select all that apply and provide details where applicable.)*

If applicable, please describe any limitations or performance differences your solution may have across different vehicle types:

All five respondents confirmed support for **passenger cars and light commercial vehicles**. Other capabilities varied:

- Most solutions extended to **heavy-duty trucks, buses/coaches**, and **electric two-wheelers**, though some caveats were noted:
- Adhesive-based trackers require a broad surface to attach securely; motorcycles may pose a safety risk due to potential imbalance upon impact.
- One system had not been tested on buses and could not confirm performance.
- Embedded sensor systems noted variation in calibration depending on the vehicle class and sensor configuration.

One respondent also noted a need for testing on **outboard engines** and **UAVs**, implying multi-domain applicability.

		Answers	Ratio
Passenger cars		5	100 %
Vans / light commercial vehicles		5	100 %
Heavy-duty trucks/lorries		4	80 %
Motorcycles/mopeds		2	40 %
Electric scooters/e-bikes		3	60 %
Buses/coaches		3	60 %
Agricultural or construction vehicles		2	40 %
Other (Please indicate below.)		1	20 %
No Answer		0	0 %

Figure 7: Vehicle types supported.

16- Are there any legal/regulatory constraints (e.g. national transport laws, safety standards, frequency usage) you foresee?

Four of the five respondents reported identifiable regulatory barriers:

- **RF-based solutions** are subject to national transmission licensing, with approval varying across countries.
- **Geolocation tracking systems** often require prior authorization from judicial authorities in line with proportionality principles (notably referenced in France).
- UAV deployment in **urban areas** requires flight permits and additional operational approvals.
- Privacy and data protection compliance (e.g., GDPR) was noted, especially concerning facial recognition and license plate data. One provider had implemented real-time anonymization for these data types.

		Answers	Ratio
Yes		4	80 %
No		1	20 %
No Answer		0	0 %

Figure 8: Legal or regulatory constraints.

17- Can you provide any other recommendations regarding the challenges?

Two providers offered additional recommendations:

- One emphasised the urgency of developing a **non-lethal vehicle tracking solution**, particularly for high-speed noncompliance scenarios frequently encountered by police in urban areas.

- Another encouraged a clear **definition of operational use cases** and **early engagement with end users** to ensure practicality, especially for deployment planning and technical integration with law enforcement workflows.
- A provider working on RF-based systems stressed the need for **public education** to counter misconceptions related to terms like "microwave" and "radiation," which may hinder acceptance despite proven safety standards.

		Answers	Ratio
Yes		2	40 %
No		3	60 %
No Answer		0	0 %

Figure 9: Recommendations regarding the challenges.

4.1.2. State-of-the-art analysis

1- Do you think there is room for technological development beyond the state of the art? Please explain.

All five respondents answered "yes" and provided detailed explanations. One provider emphasised innovation in the mechanical and adhesive design for vehicle tracking devices. Unlike traditional systems that rely on magnets or piercing mechanisms, their approach focuses on reliable, high-performance adhesion upon impact using a specialised glue delivery component engineered for durability and precision.

Another provider working on UAV technology pointed out several limitations in current drone systems, especially under urban and GNSS-denied conditions. They highlighted the need for improvements in AI-based behaviour prediction, real-time adaptive navigation, robust low-latency communications, and smart fail-safe mechanisms like emergency landing and onboard diagnostics.

A third response indicated potential progress in road user behaviour prediction and cooperative perception, specifically through enhanced communication technologies between systems.

A fourth respondent stated they are focusing on making their high-powered RF system more compact and lightweight. They also mentioned exploring alternative power sources to align with electric vehicle platforms.

The fifth provider noted that current solutions, such as tire-deflation systems do not fully stop a vehicle. Their proposed concept claims to bring the vehicle to a complete stop within a few meters, which they described as a unique advancement compared to existing tools.

2- What is the current Technology Readiness Level (TRL) of your solution(s)? Please indicate the TRL for each relevant use case, if applicable.

One provider reported TRL 7 for Use Cases 2 and 4. Another stated TRL 3 for Use Case 2. A third indicated TRL 5 for Use Cases 1 through 4. One solution based on RF described the core effector system as TRL 8–9 but clarified that final integration into a host platform would place the complete system at TRL 6–7. Another respondent reported TRL 2 for Use Cases 1 and 2 and left other use cases unaddressed.

3- What improvements beyond the state-of-the-art would your solution introduce?

One respondent stated that their solution introduces improvements through the integration of advanced artificial intelligence for autonomous tracking, behaviour recognition, and real-time decision-making. Their system also operates in GNSS-denied environments using visual-inertial navigation and maintains secure communication in interference-prone zones. Additional features include autonomous emergency landing and predictive maintenance, contributing to reliability in urban deployment.

Another provider highlighted their non-lethal RF-based technology, which disables a vehicle's engine while allowing the driver to maintain control. They emphasised that the system can be deployed covertly, potentially leaving the occupants unaware of how the intervention occurred—unlike conventional physical interventions.

The other three providers did not submit any explanatory content in response to this question or left the section blank. One included a placeholder reference to the next question but gave no actual answer.

4- Do you rely on any patented technology or standards?

Two providers stated that they rely on patented technology. One of them listed several patents related to camera systems and vehicle perception, including filings in Germany, Spain, Japan, and the USA. Another mentioned specific standards such as ISO/IEC for AI, digital twins, and multimedia data processing. Other respondents confirmed they do not rely on any patented technologies or standards.

5- Are there existing patents or intellectual property barriers that could limit your solution's development or deployment? Please explain.

All five providers stated there were no known intellectual property or patent barriers that would limit the development or deployment of their solutions.

4.1.3. Miscellaneous

1- What information do you still need to make a good plan of action for the development and/or implementation of solutions suitable to address the challenge?

One provider requested more detailed information regarding available budgets, technical requirements of operational personnel, and specific descriptions of the deployment environments. They also asked for a timeline and performance specifications that the solutions should meet. Another mentioned the need to engage with potential end-users to better understand practical expectations and vehicle platform integration.

2- Do you have specific requirements to achieve the functionalities that INTERCEPT should take into account?

One provider noted that integration needs would vary depending on whether the system is to be overt or covert and who—either the end-user or OEM—would handle installation. Another stated that understanding host vehicle platforms is essential for planning and ensuring proper system fit. Others responded with "no" or left the section unanswered.

3- What are the risks associated with the development and implementation of a solution that tackles the functional needs of INTERCEPT?

One respondent identified legal and regulatory risks, particularly around permissions to use certain technologies and concerns related to public perception of terms like "microwave" and "radiation." Another pointed out potential failures in prototype performance and the uncertainty of real-world implementation, though they indicated they had backup strategies. One also mentioned the lack of real-world data and infrastructure as possible obstacles to deployment.

4- Do you have any suggestions and/or remarks?

Two providers contributed with suggestions. One emphasised the severity of vehicle non-compliance incidents in Europe and the urgent need for safe intervention tools, noting the number of injuries among officers due to such events. Another mentioned that their RF system requires export licenses per organisation—even within the same country—and suggested that this regulatory complexity should be considered in planning.

4.2. End users

Based on the feedback provided in the EU Survey questionnaire, the respondents belong to public organisations as indicated in the figure below.

The participants who replied to the EU Survey questionnaire for end users are from organisations in Spain, France and Finland.

		Answers	Ratio
Public Organisation		3	100.00 %
Private Organisation		0	0.00 %
Other (Please indicate below.)		0	0.00 %
No Answer		0	0.00 %

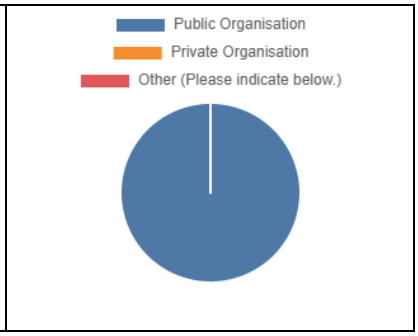


Figure 10: Type of organisations that replied to the Request for Information for end users using the EU Survey tool.

4.2.1. Operational Needs & Gaps

1- In your day-to-day operations, how often do you encounter high-risk situations involving vehicles (e.g., pursuits, threats, incapacitated drivers)?

Respondents were asked how often they encounter high-risk situations like pursuits, threats, or incapacitated drivers. The results show that:

- 66.67% of respondents encounter such situations frequently (multiple times per week).
- 33.33% encounter them rarely (less than once per month).

		Answers	Ratio
Rarely (e.g., less than once per month)		1	33.33 %
Occasionally (e.g., 1-2 times per month)		0	0.00 %
Regularly (e.g., once per week)		0	0.00 %
Frequently (e.g., multiple times per week)		2	66.67 %
Very Frequently (daily or almost daily)		0	0.00 %
No Answer		0	0.00 %

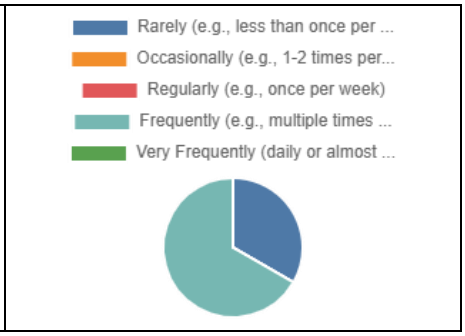


Figure 11: Frequency of encountering high-risk vehicle situations in day-to-day operations.

2- Which of the six INTERCEPT use cases is most relevant to your context? Please rank them from 1 (most relevant) to 6 (least relevant).

Respondents ranked the six INTERCEPT use cases. In their view, the most relevant were:

- Use Case 2 – High-speed pursuit in urban surroundings: **Highest average score (5.33)**.
- Use Case 1 – Vehicle ramming in a public market: Score 4.33.
- Use Case 4 – ANPR alert pursuit and Use Case 5 – Criminal use of motorcycles: Tied at 3.33.
- Use Case 6 – Hostage-taking & vehicle ramming: 2.66.
- Use Case 3 – Large coach with distressed driver: Least relevant with a score of 2.0.

High-speed pursuits, particularly in urban contexts, is seen as the most relevant challenge. Conversely, issues involving distressed drivers in large coaches appear less pertinent to these respondents.

	1	2	3	4	5	6	Score
Use Case 1 – Vehicle ramming attack in a public market	33.33% 1	0% 0	33.33% 1	33.33% 1	0% 0	0% 0	4.33 3
Use Case 2 – High-speed pursuit in urban surroundings	33.33% 1	66.66% 2	0% 0	0% 0	0% 0	0% 0	5.33 3
Use Case 3 – Large coach with distressed driver	0% 0	0% 0	0% 0	0% 0	100% 3	0% 0	2 3
Use Case 4 – High-speed pursuit following ANPR alert	0% 0	33.33% 1	33.33% 1	0% 0	0% 0	33.33% 1	3.33 3
Use Case 5 – Organised criminal use of high-powered motorcycles/e-bikes	33.33% 1	0% 0	0% 0	33.33% 1	0% 0	33.33% 1	3.33 3
Use Case 6 – Hostage-taking and vehicle ramming	0% 0	0% 0	33.33% 1	33.33% 1	0% 0	33.33% 1	2.66 3
No Answer	0.00 % 0						

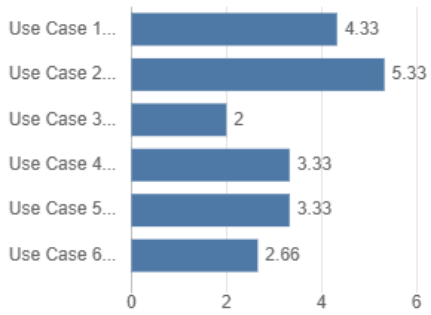


Figure 12: Relevance ranking of INTERCEPT use cases by End Users.

3- What existing tools or strategies do you currently use for remote vehicle intervention (if any)?

When asked about current strategies or tools, all respondents reported having no such tools, or only limited tools applicable solely during pursuits (e.g., "None", "non-existing", "pursuit only").

There is a significant technology gap; existing tools are either non-existent or not suitable for broader scenarios. This reveals a strong need for the development and deployment of new, versatile remote vehicle-stopping solutions.

4.2.2. Technical Expectations & Constraints

1- What would be your top 3 requirements for a remote vehicle-stopping solution? (e.g., effectiveness, response time, operator control, minimal public disruption)

Key priorities identified across responses include:

- Effectiveness.
- Response time.
- Minimal public disruption.
- operator control and usability for end-users.

2- In which environments would it be most important to test these technologies? (Please tick all that apply.)

Respondents identified **urban streets and highways** as the top priority environments for testing, each selected by 100% of participants. **Public events/open markets** also ranked highly (66.67%), while rural roads were selected by one-third. One participant also highlighted waterways (sea and lake areas), indicating an interest in broader operational contexts beyond land-based traffic.

The high emphasis on dense urban settings and highways suggests a focus on public safety, crowd control, and pursuit scenarios. The mention of waterways opens an avenue for exploring cross-domain solutions, particularly in border security or smuggling contexts.

		Answers	Ratio
Urban streets / dense city centres		3	100.00 %
Rural roads		1	33.33 %
Highways / motorways		3	100.00 %
Tunnels or underpasses		0	0.00 %
Public events / open markets		2	66.67 %
Transport hubs (airports, train stations)		0	0.00 %
Industrial or logistics zones		0	0.00 %
Other (Please specify below.)		1	33.33 %
No Answer		0	0.00 %

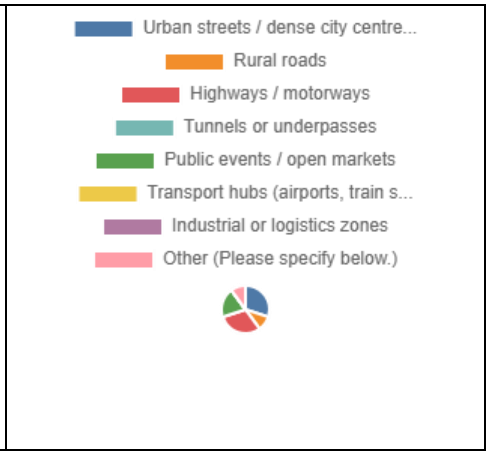


Figure 13: Preferred operational environments for testing remote vehicle-stopping technologies.

3- What level of operator involvement would you prefer?

Two-thirds of respondents favoured manual control, while one provided a nuanced view suggesting a context-dependent hybrid model. For scenarios like blocking access to public spaces, fully automated "electronic gate" systems were preferred. In contrast, manual control was seen as necessary during dynamic events such as pursuits—paralleling the operation of counter-UAS (unmanned aerial systems) technologies.

		Answers	Ratio
Fully automated (system detects and acts without human input)		0	0.00 %
Semi-automated with human confirmation (system proposes action, human confirms)		0	0.00 %
Manual control only (operator initiates and executes all actions)		2	66.67 %
Other (Please indicate below.)		1	33.33 %
No Answer		0	0.00 %

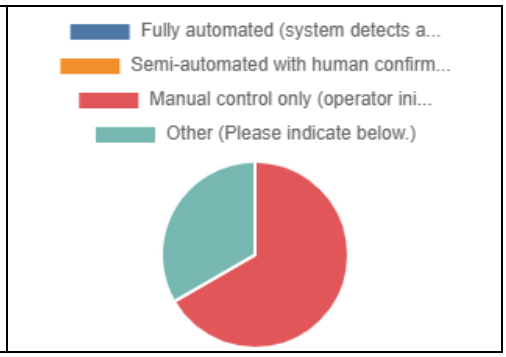


Figure 14: Preferences for operator involvement in vehicle-stopping scenarios.

4- Are there specific communication or integration standards a solution would need to comply with in your jurisdiction? (Select all that apply, or specify others)

The most frequently cited requirements were integration with national police ICT systems and secure, encrypted communications (66.67% each). Other needs included compatibility with ANPR/vehicle databases and compliance with GDPR (33.33%). A custom response also stressed compliance with electromagnetic regulations, which may relate to operational safety or interference concerns.

		Answers	Ratio
Integration with national police ICT systems		2	66.67 %
Secure and encrypted communications		2	66.67 %
Compatibility with ANPR or vehicle databases		1	33.33 %
V2X (vehicle-to-everything) communication protocols		1	33.33 %
Compliance with EU/National data protection regulations (e.g., GDPR)		1	33.33 %
There is none.		0	0.00 %
I do not know.		0	0.00 %
Other (Please indicate below.)		1	33.33 %
No Answer		0	0.00 %

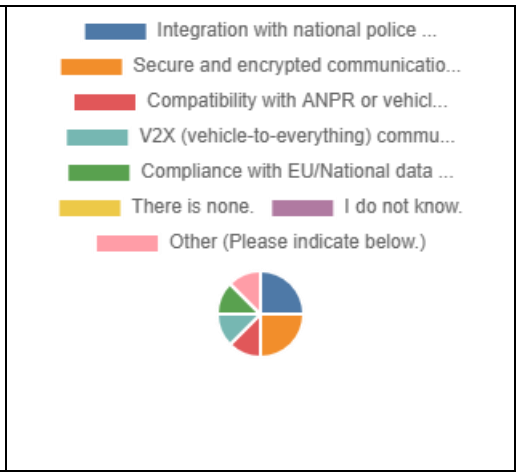


Figure 15: Required integration and communication standards.

4.2.3. Legal, Ethical & Societal Considerations

1- Are there national or regional laws that could restrict or govern the use of remote vehicle-stopping systems in your country? Please explain.

Two-thirds of respondents affirmed the existence of legal constraints. The following elaborations have been provided:

- Fundamental legal grounds for interfering with citizens' rights.

- Regulatory concerns spanning CEM (counter-electronic measures) and ethical use of vehicle-installed technologies.

		Answers	Ratio
Yes		2	66.67 %
No		1	33.33 %
No Answer		0	0.00 %

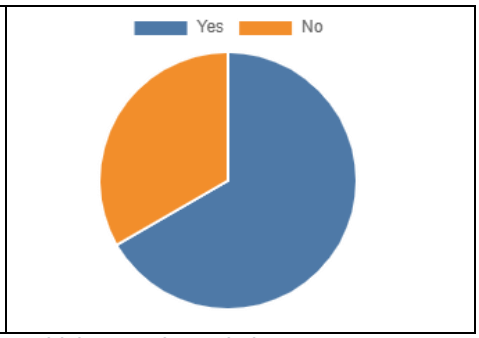


Figure 16: Legal considerations affecting the use of remote vehicle-stopping solutions.

2- What are the main ethical concerns or public perception risks in using such technologies? (Please select or describe briefly.)

Participants expressed multiple concerns:

- Lack of public trust and potential harm (66.67% each).
- Risks related to surveillance, disproportionate use, and misuse by authorities were also cited frequently.

		Answers	Ratio
Risk of misuse or abuse by authorities		1	33.33 %
Lack of public trust in automated interventions		2	66.67 %
Potential harm to suspects or bystanders		2	66.67 %
Concerns about surveillance or tracking		2	66.67 %
Disproportionate use in certain communities		2	66.67 %
No major concerns were identified.		0	0.00 %
Other (Please indicate below.)		0	0.00 %
No Answer		0	0.00 %

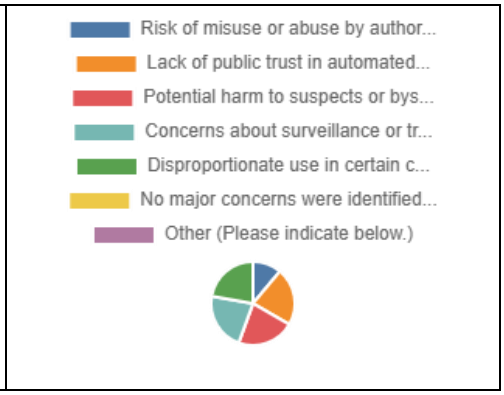
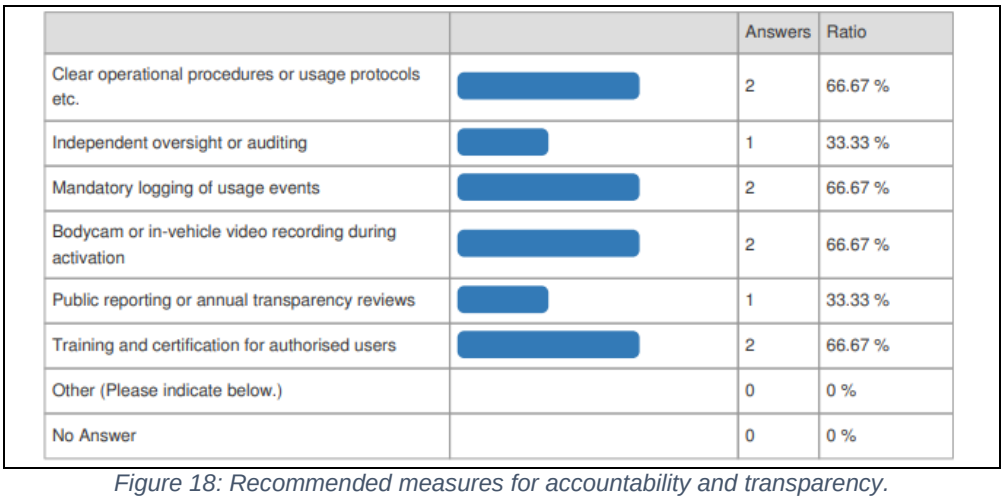


Figure 17: Ethical and public perception risks identified by End Users.

3- How would you ensure accountability and transparency in the use of remote vehicle-stopping tools? (Tick all that apply or explain.)

Respondents emphasised:

- Clear protocols, event logging, and video documentation (66.67% each).
- Training/certification and independent oversight were also seen as important (33.33%).



		Answers	Ratio
Clear operational procedures or usage protocols etc.		2	66.67 %
Independent oversight or auditing		1	33.33 %
Mandatory logging of usage events		2	66.67 %
Bodycam or in-vehicle video recording during activation		2	66.67 %
Public reporting or annual transparency reviews		1	33.33 %
Training and certification for authorised users		2	66.67 %
Other (Please indicate below.)		0	0 %
No Answer		0	0 %

Figure 18: Recommended measures for accountability and transparency.

4.2.4. Feasibility, Procurement & Testing

1- Would your organisation be interested in participating in testing or piloting such a solution?

All respondents (100%) expressed interest in participating in testing or piloting a remote vehicle-stopping solution. There is strong engagement and willingness from end users to support early-stage development through real-world testing.

		Answers	Ratio
Yes		3	100 %
No		0	0 %
No Answer		0	0 %

Figure 19: End User interest in testing and piloting activities.

2- Would you require a certification or third-party evaluation before adopting a new system?

- 66.67% indicated uncertainty about the need for certification ("I do not know yet").
- 33.33% stated certification is not required.

		Answers	Ratio
Yes		0	0 %
No		1	33.33 %
I do not know yet.		2	66.67 %
No Answer		0	0 %

Figure 20: Certification and evaluation requirements for adoption.

3- Are there budgetary or procurement constraints that may affect participation in future PCP activities?

- 66.67% were unsure whether constraints would apply.
- 33.33% indicated there are no current constraints.

		Answers	Ratio
Yes		0	0 %
No		1	33.33 %
I do not know yet.		2	66.67 %
No Answer		0	0 %

Figure 21: Budgetary and procurement constraints for PCP participation.

4- Do you have any feedback or suggestions regarding the tender preparation or functional requirements?

One respondent emphasised that the system must prioritise **safety for bystanders** and the **proportionality of intervention**. A key concern was that the solution should not pose greater risks than the threats it aims to neutralise—for example, it should not introduce more harm in the process of stopping a vehicle than allowing the pursuit to continue.

5. Conclusions

The INTERCEPT OMC engaged **both end users and technology providers across Europe** to gather insights into current operational challenges and the technological landscape related to remote vehicle-stopping solutions. The consultation attracted contributions from public security authorities and private sector innovators, providing a diverse and informative view of needs, capabilities, and constraints.

End users emphasised that high-risk vehicle incidents occur frequently, particularly in urban environments. Among the six proposed use cases, scenarios involving **high-speed pursuits and vehicle ramming attacks were deemed most relevant**. Respondents noted that current intervention tools are largely absent or limited to pursuit contexts, highlighting a significant operational gap. Effectiveness, response time, and minimal public disruption were ranked as the top priorities for any future solution. Legal, ethical, and public trust considerations—especially relating to surveillance, proportionality, and safety—were also identified as essential factors to address in system development and deployment.

Technology providers reported a variety of innovative solutions in progress or under development, including adhesive-based tracking devices, autonomous UAV systems, remote RF-based engine disablement tools, and integrated perception and control platforms. Most providers confirmed awareness of existing technological options but noted considerable room for advancement beyond the current state of the art. Key areas of innovation include AI-driven behaviour prediction, GNSS-independent tracking, secure communication in complex environments, and miniaturisation of intervention technologies. Providers also cited practical challenges such as system reliability in diverse conditions, legal authorisations for use, and the need for standardisation across different vehicle types and deployment scenarios.

There was a broad consensus among participants on the importance of interoperability, user control flexibility and compliance with data protection and national regulations. While several providers expressed readiness to participate in prototyping and validation, others noted that further claritications on technical

requirements, legal frameworks, and funding parameters would support more targeted development planning.

Overall, the OMC confirmed both the high demand from end users and the strong potential from the market to develop safe, effective, and legally compliant remote vehicle-stopping solutions. The findings will guide the design and structuring of the future PCP of the INTERCEPT project.

Annex I. Agenda of the OMC webinars

Hours	Topic
10:00 – 10:15	Introduction to the INTERCEPT project
10:15 – 10:30	Introduction to Pre-Commercial Procurement
10:30 – 10:45	INTERCEPT Procurement Strategy
10:45 – 11:00	Presentation of the use cases and associated needs
11:00 – 11:15	Presentation of the state of the art
11:15 – 11:30	OMC objectives and organisation of the activities
11:30 – 11:45	Open discussion
11:45 – 11:50	Conclusions

Annex II. Agenda of the OMC event in Warsaw

OMC event

25June 2025

Address: Władysława Orkana 14, Warsaw, Poland

AGENDA

Hours	Topic	Presenter
10:45 – 11:00	Coffee break and arrival	
11:00 – 11:15	Welcome and Introduction to the INTERCEPT project	PPHS
11:15 – 11:30	Introduction to Pre-Commercial Procurement	CORVERS
11 30 – 11:45	INTERCEPT Procurement Strategy	KEMEA
11:45 – 12:15	Presentation of the state of the art	DIGINNOV + CORVERS
12:15 – 12:30	OMC objectives and activities	PPHS
12:30 – 12:50	Presentation of the use cases and associated needs	PPHS/DIGINNOV
12:50 – 14:00	Lunch break	
14:00 – 15:30	Workshop / questions about main aspects PCP Survey on the use cases	PPHS
15:30 – 17:00	Matchmaking session (on-site) • introduction to the matchmaking session, • presentations of suppliers, • matchmaking session	Technology providers
17:00 – 17:15	OMC closure	PPHS

Annex III E-pitching sessions agenda and PowerPoint template

Hours	Topic
max 3 minutes	Company overview
max 3 minutes	Presentation of existing solutions
max 3 minutes	R&D efforts and capabilities
max 3 minutes	Presentation of how the solution answers Use Case 1 – Complex threat and pursuit scenario by a car vehicle?
max 3 minutes	Presentation of how the solution answers Use Case 2 – Urban agile threat involving high-powered motorcycles and e-Bicycles ?
max 3 minutes	Presentation of how the solution answers Use Case 3 – Distressed driver operating a large passenger coach?
max 5 minutes	Q&A session

E-pitching sessions
[name of your company]

INTERCEPT project

[date]

Co-funded by
the European Union

Company overview

1 slide – 3 min max

Existing solutions

1 or 2 slides – 3 min max

R&D efforts and capabilities

1 or 2 slides – 3 min max

Co-funded by the European Union

4

How does your solution answer Use Case 1 – Complex threat and pursuit scenario by a car vehicle?

- <Prepare this slide only if your solution answers use case 1>

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How does your solution answer Use Case 2 – Urban agile threat involving high-powered motorcycles and e-Bicycles ?

- <Prepare this slide only if your solution answers use case 2>

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How does your solution answer Use Case 3 – Distressed driver operating a large passenger coach?

- <Prepare this slide only if your solution answers use case 3>