

Terms of Reference

Research Study -
Artificial Intelligence (AI) - based
capabilities for the European Border
and Coast Guard (EBCG)

1. Background and context

1.1. General considerations

The European Border and Coast Guard Agency (Frontex) was established by Regulation (EU) 2016/1624 of the European Parliament and of the Council of 14 September 2016 on the European Border and Coast Guard and amending Regulation (EU) 2016/399 of the European Parliament and of the Council and repealing Regulation (EC) No 863/2007 of the European Parliament and of the Council, Council Regulation (EC) No 2007/2004 and Council Decision 2005/267/EC.

The Frontex Regulation establishes a European Border and Coast Guard to ensure European integrated border management at the external borders with a view to managing the crossing of the external borders efficiently. This includes addressing migratory challenges and potential future threats at those borders, thereby contributing to addressing serious crime with a cross-border dimension, to ensure a high level of internal security within the Union in full respect for fundamental rights, while safeguarding the free movement of persons within it. The main tasks of the Agency which are directly or indirectly associated with this study include:

- Monitoring migratory flows and carrying out risk analysis regarding all aspects of integrated border management.
- Carrying out a vulnerability assessment, including assessing Member States' capacity and readiness to face threats and challenges at their external borders.
- Supporting the development of technical standards for equipment, especially for tactical-level command, control and communication as well as technical surveillance to ensure interoperability at Union and national level;
- Fighting organized cross-border crime and terrorism at the external borders by supporting Member States in cooperation with Europol and Eurojust.
- Supporting the training of Member States' border guards, other relevant staff and experts on return, including the establishment of common training standards.
- Participating in research and innovation in the control and surveillance of the external borders.
- Developing and operating information systems that enable swift and reliable exchanges of information regarding emerging border-management risks, illegal immigration and return; cooperating with the Commission, Union bodies, offices and agencies as well as the European Migration Network.
- Assisting in the development and operation of EUROSUR and the development of a common information-sharing environment, including interoperability of systems.

According to the stipulations of the European Border and Coast Guard Agency Regulation

- The Agency shall proactively monitor and contribute to research and innovation activities relevant for European Integrated Border Management including the use of advanced border control technology. The Agency shall disseminate the results of that research to the European Parliament, to the Member States and to the Commission.
- The Agency shall assist the Member States and the Commission in identifying key research themes. The Agency shall assist Member States and the Commission in drawing up and implementing the relevant Union framework programmes for research and innovation activities.
- The Agency may plan and implement pilot projects regarding matters covered by the Frontex Regulation.

2. Objectives

The research study shall aim at responding three main questions:

- Which border security areas⁴ are expected to benefit the most from AI-based solutions in the short, medium and long term perspective?
- Which new AI concepts, techniques and solutions are expected to have the highest perceived relative advantage for the EBCG community?
- How to maximize the benefits of AI technology in the border management environment while minimizing its risks? Of key relevance for this questions are the risks associated with the existing legal, ethical and technological constraints.

Other questions that are expected to be indirectly answered by this research study:

- Where have AI solutions been implemented until now globally in the border security domain (representative examples, best practices, costs, actors)?
- Which are the main fora, institutions, initiatives, events related to AI in the security domain globally, which focuses on border security?
- Which specific research and innovation projects could accelerate the integration of AI-based solution in the area of border security?

3. Description of the assignment

This tender consists of two (2) Work Packages (WPs).

For the mentioned Work Packages (Chap. 3.1), the Contractor must:

- Address the needs expressed in the Terms of References;
- Follow an appropriate research design and methodology;
- Use up-to-date data and information based on reliable, objective, accurate and traceable sources and collection methods;
- Provide credible, comprehensive and valid findings and conclusions derived from a sound analysis of the gathered data;
- Produce timely and high-quality reports.

3.1. Description of the Work Packages

The below listed WPs are suggested to achieve the aim of the study. A detailed description of the work plan has to be provided by the tenderer as part of its technical offer.

WP1- Review of new AI technologies and solutions and their potential application in border security to develop new functionalities enhancing and impacting future border security capabilities

A review of new AI- based disruptive technologies in the civilian and military sectors is the first aim of this WP. Based on this review, an analysis and description have to be done of the relevant work and existing initiatives worldwide to develop components and related functionalities for AI-based border security applications. The contractor shall perform an estimation of the future strategic border security capabilities which will be strongly

⁴ Focusing on IBM components and specific tasks of the European Border And Coast Guard Agency

acceptable, the Contractor shall amend the report (in 5 working days) based on Frontex further recommendations, observations and comments. Should Frontex still not consider it acceptable, Frontex will consider that the Contractor fails to perform his obligations.

The report approved by Frontex shall be delivered also on paper in 1 original and 2 copies.

Indicative timeframes:

- For delivering the draft report pertaining to Work Package 1, the Contractor shall not exceed 6 months from the date of the kick-off meeting;
- For delivering the draft report pertaining to Work Package 2, the Contractor shall not exceed 8 months from the date of the kick-off meeting;

4.2. Study report

The Contractor shall submit the Study report to Frontex at the latest 9 months after the date of the kick-off meeting. The Study report shall compile the results of the 2 Work Packages.

The Study report shall also include:

- An abstract of no more than 200 words;
- An executive summary of maximum six pages (format A4, font size 12). The executive publishable summary should be edited separately of the final report, identifying the key conclusions and recommendations;
- Specific identifiers provided by Frontex which shall be incorporated on the cover page.

After the receipt of the Study report, Frontex will have 10 working days in which to analyze it and either approve it or reject it, formulating in the latter case recommendations, observations, comments that shall be taken into consideration by the Contractor for elaborating a new Study report (in 10 working days) which shall likewise be subject to the just above mentioned provisions. Should Frontex still not consider the new report acceptable, Frontex will formulate further recommendations, observations, comments that shall be taken into consideration by the Contractor for elaborating (in 5 working days) a new Study report. Should Frontex still not consider it acceptable, Frontex will consider that the Contractor fails to perform his obligations.

A PowerPoint presentation on the full project should be delivered at the final meeting, with the objective to use it as reference presentation for future meetings.

5. Experts

The involvement of experts in the domains relevant to the study is considered to be instrumental in the achievement of the purpose of the contract. Therefore, as a general rule, the contract must be executed by the experts identified and named in the offer.

5.1. Experts profile

- a) All experts (minimum 2 persons) must have a university degree and at least 5 years of professional experience in Artificial Intelligence or technology research. A short description of the professional experience shall be provided in the tender offer;
- b) The experts must be fluent in written and spoken English (native-speaker level, C2);

Apart from the general expert requirements listed above, the team should include the following expertise:

kick-off meeting, the contractor shall submit the final Management Plan taking into account the outcomes of the kick-off meeting. The contractor is expected to deliver the draft agenda for the kick-off meeting at least one week before the meeting and the final agenda including Frontex comments at least one day prior to the meeting.

- **1 day workshop** to be held approximately at T0+2 months in Frontex premises (details to be agreed during the Kick-off meeting), with the participation of Frontex and Member States representatives, to collect qualitative data. The design of the workshop will be done by the Contractor with Frontex support. Frontex will provide the reimbursement of the Member States' participants, the conference room and IT equipment.
- **2 days of on-site interviews** with selected Frontex stakeholders and a **brainstorm session** with Frontex research and innovation experts.
- **Interim progress review meeting** to be held approximately at T0+4 months at Frontex premises, unless otherwise agreed between Frontex and the Contractor;
- **Final meeting** to be held at T0+9 months at Frontex premises. During the meeting, the contractor will present the study/results and related deliverables to Frontex and Member States.

All meetings shall include a power point presentation of the work progress and a presentation of the status & overview of the remaining activities. Two weeks before each meeting (in case of the kick-off meeting one week before the meeting) the contractor shall provide the Frontex Project Manager (PM) with the draft agenda and material to be presented/discussed/approved during the upcoming meeting. The contractor shall provide the final agenda including Frontex PM's comments the day before the meeting, at the latest. The minutes of the meeting, gathering the relevant information/incorporating issues discussed during the meeting, and any related documentation (e.g. presentations made, materials distributed), shall be provided by the contractor to Frontex within one week from the date of the meeting. Before the minutes are finalized, the contractor shall provide draft minutes for review/comments by Frontex.

Apart from the meetings mentioned above, the contractor shall have regular contacts with the Frontex PM to monitor contract implementation.

The Contractor is expected to demonstrate its capability to effectively manage the contract in order to deliver all of the required services. The draft **Management Plan** to be presented during the kick-off meeting shall include as a minimum:

- provide evidence that the Contractor takes responsibility for the general objectives of the study, including the organization of the workshop, demonstrates a good understanding of the subject matter, the scope of the study and that the required results will be produced;
- propose any potential relevant modification in the logic of the study to improve its results;
- explain the organization, methods and means intended to be used in the study; present the work break down structure proposed and its compliance level with the functional and technical specifications;
- explain the reporting structure: work progress, achievements, risks and difficulties, mitigating measures to reduce and manage risk levels (including those factors that might impact negatively on meeting the timelines of the study) and report on corresponding actions, updates proposed to the project structure and schedule;
- quality control system applied to the service foreseen, concerning the quality of the deliverables, the language quality check, and continuity of the service in case of absence of a member of the team.

Describe in detail your proposed approach and methodology, including methods of collecting data/information and specific sources of data. If appropriate to the study, the proposed criteria for sampling and rational, and the proposed sample.

9.2. Work and communication plan

A work plan for data collection, analysis, reporting, elaboration of deliverables, milestones, and meetings foreseen throughout the project (communication plan). The timelines mentioned in the ToR may be confirmed.

9.3. Quality assurance

Detail the proposed quality assurance method, including who will do the quality assurance for the study. It should also include a description of how comments and corrections received from the main stakeholders will be handled.

9.4. Risk assessment and management plan

Describe the potential risks for the implementation of this activity that may impact the quality and timely completion of the expected results. Describe the measures that will be put in place to mitigate these risks.

9.5. Team organization

Describe the proposed team and the main profiles, competences and responsibilities of each role, Curriculum Vitae and copies of diplomas and certificates, and a description of how the experts comply with the requirements mentioned in chapter 5.

10. Administrative information

10.1. Intellectual property rights and disclaimer

It is under the Contractor's responsibility to obtain the necessary rights and ensure that all sources utilized for producing the deliverables of the present service's contract may be used by Frontex with unlimited access. All costs incurred in the licensing of the necessary property rights shall be included in the price of the tender.

The owner of all documentation will be Frontex. Frontex reserves the right to publish the reports and study under its own name.

The following disclaimer should be included by the authors in all documents and publications:

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10.2. Declaration of confidentiality