INTERNATIONAL UNION OF RAILWAYS

Questions and Answers

Tender “AI4SAFEBEHAVE”

Reference: AI4SAFEBEHAVE-TENDER-2024-04-15

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1	18/06/2024	First publication, questions and answers from n°1 to n°4.
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Questions and answers – Tender “AI4SAFEBEHAVE” reference AI4SAFEBEHAVE-TENDER-2024-04-15		
N°	**Question**	**Answer**
Q1	**Intellectual Property Rights:** We noted that the draft contract stipulates the transfer of all intellectual property rights, including software, source codes, and algorithms developed during the project, to UIC without additional costs. Given the significant investment and development efforts in our AI analytics software, we are keen to understand if there is flexibility in the terms related to the ownership and licensing of IP. Specifically, we are interested in exploring options such as:	In case service provider’s offer is selected, UIC may consider a licensing set up that needs to be exclusive to UIC’s benefit in the railways’ activities in the following territory: Netherlands, Denmark, United Kingdom, Italy and Sweden. The licence shall provide entitlements to UIC to use the software free of charge and shall allow UIC to proceed (either by UIC or by Service Provider, or by a third party) with the maintenance, hosting, and extra developments on the software without restrictions in the territory. Service provider will be requested to provide all element necessary to such extent (transfer of the algorithms, source codes and related explanatory documentation).

	• Licensing the technology to UIC while retaining ownership of the underlying IP. • Structuring the agreement to allow shared IP rights or defining specific boundaries for the IP that must be transferred versus what can be retained by the contractor.	
Q2	**Sensor Requirements:** Could you please provide more details on the specific types of sensors that are considered valid for this project? We are particularly interested in knowing if there are any requirements related to: • Weather-agnostic performance • Maintenance-free operation • Mean Time Between Failures (MTBF) or lifecycle expectations	The intrusion detection software should work in all weather conditions, although reduced visibility will clearly be a factor. The system must be able to identify objects that can be detected by the human eye. Therefore, the specific sensors will be cameras fed with AI software. Tenderers must include any reservations relating to maintenance and expected downtime. Some participants of the project (countries told in Q1) have some indications and rules to be respected in this domain. In the next phases, the sensors to be used based on the proposed solution will be analysed. Bidders should include their technical and technological requirements, proposal of location where it will be implemented, adaptability to our guidelines and the constraints of the infrastructure/service placement will be agreed during the project and that will be agreed during the project. Obviously, according to the tender, level crossings and platforms will be the preferred locations for these sensors.
Q3	**Field Trial Locations:** We would also appreciate more information regarding the location of the field trials. Understanding where these trials are planned to take place will help us prepare more effectively for the logistical aspects of the project.	A minimum of three trial sites across Europe. These sites will be decided between members, so they will take place in three of the countries listed in Q1.
Q4	**AI solution development** Do you expect the bidders to develop an AI solution for	What the UIC needs is the delivery of a system, including source codes, algorithms, etc., so that we, as

	detection or do you would prefer to find a suitable, exciting solution that you can license and integrate into your systems? Please provide a detailed description of the technical scope of this tender to clarify what is included and what is excluded.	individual recipients, can further refine and adapt it so that we can integrate / use it in our members' systems. From our experience of an AI model to detect people on tracks, UIC members have learnt that the system needs to be calibrated to each specific camera location. This is due to visual background noise, reflections from lights or sunlight (depending on weather, time of day and year) etc. Whether the supply is based on an off-the-shelf platform or developed from scratch by the supplier is not really an issue, as long as we (countries told in Q1) have full access to manipulate the software, code, algorithms etc. supplied. The whole idea is to create a standard solution across the UIC member states that everyone can benefit from - and that each company can adopt and work on individually. It is true that there are many existing algorithms for people detection. However, the supplier may choose to develop a completely new algorithm, although this may not be advisable. Obviously, the system should not detect passengers inside a train or passengers exiting or entering through an open door.
Q5	Intellectual Property Rights: While we understand and appreciate the flexibility towards a licensing setup exclusive to UIC's benefit within specified territories, we seek further clarification on how UIC envisions the ownership of IP developed uniquely for this project. Specifically, considering our business heavily relies on the proprietary nature of our sensor solutions, how can we ensure that our foundational IP remains protected while contributing to the project's goals?	It is a requirement that source codes and algorithms are made freely available to UIC and its partners. The main purpose of this tender is to obtain standardized systems/algorithms to detect railway trespassing for the benefit to all UIC partners. For competitive reasons, the contract will not be awarded to a company that cannot meet this requirement. Other intellectual property that may relate to the delivery belongs to the supplier. The corresponding items need to be clearly stated in the answer to the proposal.
Q6	Intellectual Property Rights: Could you specify if there is room for negotiating a hybrid model where critical IP components are licensed non-exclusively, allowing us to maintain our competitive edge in the market?	Please refer to answer to Q5.
Q7	Sensor Requirements:	The system shall be capable of detecting persons on railway tracks under normal lighting conditions,

	In response to your specification for camera-based sensors integrated with AI software, we wish to highlight the challenges associated with outdoor surveillance in harsh railway environments characterized by dust, dirt, and variable weather conditions. Given our extensive experience in developing perimeter surveillance solutions, we propose that setting performance-based specifications, such as Probability of Detection (POD), False Alarm Rate (FAR), and Mean Time Between Failures (MTBF), might be more beneficial. This approach would ensure that the technology deployed is both robust and efficient, regardless of the specific type of sensor technology used. Could UIC define these performance objectives instead of prescribing specific technologies? This would allow vendors like us to propose solutions that meet or exceed these standards while employing our best technologies.	including electric lighting under the conditions normally prevailing on a platform and in the railway, track running alongside that platform. The objective of the tender is to receive a system with necessary algorithms which enable users to detect rail trespassing in real-time with a high accuracy and which meets the requirements as stated above and in the tender document. Similar system/algorithms already in place in railway sector are heavily based on vision technology, which is very accessible for many companies that has surveillance cameras. However, the vendor is also free to propose alternative technological solutions given they can live up to the requirements of accuracy and real-time performance. The chosen contractor must develop a software which proves the ability to detect persons with an accuracy of at least 98%. In case the contractor would commit to a lower accuracy percentage, this is needs to be duly justified in the technical offer, keeping in mind that this will impact the ranking of the tenders. This also applies to the approach of calculation.
Q8	Field trials Regarding the locations for field trials mentioned to be decided among members in the specified countries, could you provide preliminary insights into the environmental and infrastructural challenges expected at these sites? This information is crucial for us to tailor our sensor solutions to fit the exact needs and constraints of the project.	There may be railway tracks along platforms that are covered with a roof and platforms that are not. As a general rule, platforms will be above ground and exposed to daylight during the bright hours of the day. In all cases, there will be at least electric light that illuminates the platform in accordance with international standards (TSI requirements). This is just an indication and does not preclude other configurations keeping in mind that the solution has to be designed to envisage as many situations as possible. Many examples of track configurations are available on google maps.
Q9	Benchmark What specific criteria will be used to select and evaluate best practices during the	The potential supplier is expected to justify why the chosen best practices are the right ones to rely on. This includes benchmarking to similar solutions which may already be operational in the market. Especially accuracy, speed of detection, cost, maintenance etc.

	benchmarking in the last semester of 2024?	
Q10	Maintenance and update of the software How does the project plan to handle the maintenance and updates of the software and systems developed after their initial deployment?	The maintenance and development work that lies after the end of the project is not covered by the tender. Companies that chose to adopt the system after the tender will themselves be responsible for the maintenance, development and updates. It will be natural, but cannot be expected, that the company that wins the contract will also be involved in such a work.
Q11	Accuracy of 98% What specific criteria will be used to evaluate the accuracy of the proposed solutions, and how will an accuracy below 98% be justified in the technical proposal?	The company that wins the contract is expected to be able to document an accuracy of at least 98% on actual real life trespassing incidents (can be done with e.g. actors). In principle, the contract will not be awarded to a company that does not meet this requirement. Please see answer to Q7.
Q12	Your current position is to owe your own system, including source codes, algorithms, etc. As a company developing a software, our business model is based on licence-selling. It means we cannot give full access to the source code, but we only give access to the usage of the software via licences.	Please refer to answers to Q1 and Q5.