# Questionnaire for Suppliers

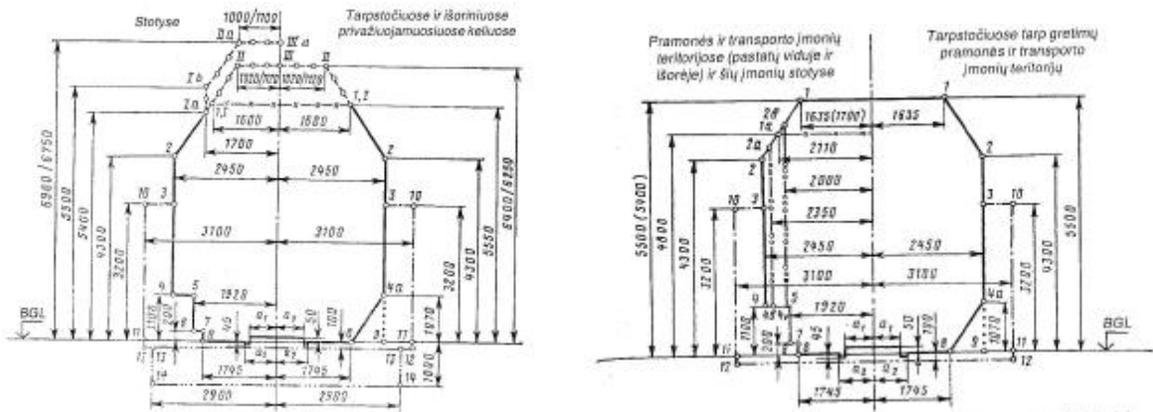Below are the questions we kindly ask you to answer in free-form by 25/11/2020

Answers and any inquiries regarding additional information for the preparation of the answers can be submitted by e-mail justas.baranauskas@litrail.lt or via the CPV IS system (Lithuanian public procurement portal).

| Question | Topic |
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| 1. Which of the subsystems and/or software/information system do you intend to offer for the tender of RAKS? Could you provide descriptions/key specifications of your proposed equipment? | Various |
| 2. What software/information system could you offer to unify the RAKS system solution? | CMS |
| 3. Is your software (application) a central management software (CMS) solution that can store data from different diagnostic systems (subsystems)? Can it collect data from different diagnostic systems (subsystems)? If so, could it integrate diagnostic systems (subsystems) from different manufacturers? What are the requirements for diagnostic systems? Do you see any challenges to integrating systems CMS? How would you suggest managing them? | CMS |
| 4. Does your software store data from different diagnostic systems (hardware) regardless of the manufacturer? What are the requirements for diagnostic systems and their transmission signals to the CMS? | CMS |
| 5. Is your software an existing solution (commercial off-the-shelf)? Is it a solution tailored to a specific order? | CMS |
| 6. What are the requirements for your software (application)? | CMS |
| 7. What data formats, protocols, and methods could be used to send data from sensor controllers to a central DB? What solutions can be used at the sensor controller level? | Various |
| 8. What is the recommended/default period for sending diagnostics data to the central database? How is the data transfer confirmation procedure implemented? | Various |
| 9. Given that the planned RAKS solution would use the Contracting Authority's data network and services, and the RAKS components will be distributed in RAKS check points, stations, Private DC, cloud (or SaaS), please advise how the data network should be organized.<br><br>What are the network requirements (WAN, Internet) for your solutions (e.g. bandwidth, latency, availability)? What data flows need to be anticipated when planning a data transmission network?<br>What are the requirements for a control network LAN? (e.g. number of SW ports, type of ports)? | Various |
| 10. Currently, an increasing share of the rolling stock contains axle boxes with cassette bearings. The operating temperature of such axle boxes is higher than that of conventional axle boxes with roller bearings. Since the existing equipment cannot | RAKS-4 |

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| distinguish axle box types, this results in false alarms generated for wagons with cassette bearings<br><br>Does your proposed hot box and hot wheel detection (RAKS-4) equipment have/can implement algorithms that allow to distinguish axle box types (with cassette or roller bearings) without human intervention and to set different temperature allowance levels accordingly? | |
| 11. The existing gauge measurement system uses a stretched wire.  In case of gauge violation, the wire is severed and an alarm signal is generated. The wire gauge control cannot be adjusted, i.e. one level of gauge violation is determined.<br><br>The rolling stock gauge, controlled according to standing instructions, is defined by a complex line (see diagram at the end of the questionnaire). Can your proposed gauge measurement subsystem detect gauge violations exactly by the definition line (except for the lower gauge), including the upper gauge in electrified sections?<br><br>Does/can the proposed subsystem have one or more levels of gauge violation detection? If more, are there any limitations to violation levels?<br><br>Within what limits and how many levels can be set for lateral gauge violation, as measured from the road axis?<br><br>Within what limits and how many levels can be set for upper gauge violation, as measured from the rail head?<br><br>Does/can your proposed subsystem have a lower gauge violation control function? If so, how many levels can be set and within what limits? | RAKS-6 |
| 12. In some rail sections it is planned to install several subsystems (RAKS-2, RAKS-3, RAKS-6) in a single check point, the outdoor equipment of which is installed on portal structures. LTG is considering the possibility of installing outdoor equipment of different subsystems on the same portal structures in such check points.<br><br>Have you had experience installing outdoor equipment of more than one subsystem on the same portal structure (e.g. RAKS 2, RAKS 3, RAKS 6)? Please confirm that the same portal constructions can be fitted with outdoor equipment of another subsystem from another manufacturer in addition to the one offered by you. If not, please justify why.<br><br>Please also indicate the main parameters of the outdoor equipment (weight, quantities, required dimensions of the portal, installation locations on the portal, requirements for access to the equipment), general requirements for these portal structures and provide installation drawings of your proposed outdoor equipment to identify areas, which must not be affected by any other equipment or structure that prevents the subsystem from performing its assigned function.<br><br>Would it be preferable to you to install the portal structures yourself in the places where only the outdoor equipment of your proposed subsystem will be installed on the portal structure, or would you like the Contracting Authority to do so? I.e. which is preferable to you: delivering a turnkey project or only your part/equipment/software?<br><br>If the portal structures were installed by your company, would you agree to the installation of outdoor equipment of other suppliers' subsystems on these structures? | Various |

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| 13. In some railway sections it is planned to install not one, but more subsystems, in some check points up to five. In such check points, LTG plans to install the equipment of all subsystems in a single room/space. As standard, this would now be a metal container with an internal dimension of about 4x2, 5x2.5 m, containing all the equipment of the subsystems to be installed together with the power supply automation panel, uninterruptible power supply (UPS), heating, cooling and other necessary equipment.<br><br>Please confirm that not only yours but also equipment offered by another manufacturer may be installed in the same container. If not, please justify why.<br><br>Please also indicate the main requirements of your proposed equipment to be installed in the container (dimensions, climatic requirements, layout requirements, access restrictions, etc.). This information would help to determine more precisely the required size of the equipment room. | Various |
| 14. Please indicate the power inputs required to power the subsystem you supply. Please indicate separately the power required to power the equipment from the UPS in the event of an external power failure.<br><br>This information is needed to calculate the required mains power at newly installed RAKS check points.<br><br>Would you wish to install the required power supply yourself, or would you like to have it installed by the Contracting Authority?<br><br>If more than one subsystem is installed in a single RAKS check point, would you prefer installing UPS for your supplied subsystem separately, or would you prefer to use UPS that other to be installed subsystems will use? | Various |
| 15. The premises of each RAKS post will be equipped with a security and fire alarm and electrical input with an automatic transfer switch (ATS). Does the equipment you offer have the ability to integrate these devices and other signals (door opening, etc.) into a common data transmission equipment and transmit them in real time to a common database? | Various |
| 16. Does your RAKS-3 subsystem have a developed image analysis tool. i.e. assess the position of the rolling stock components (doors or hatches) (open, half - open, etc.)? | RAKS-3 |
| 17. Does your RAKS-3 subsystem have the ability to obtain visual footage of the lower section of the rolling stock, withstanding any weather conditions in Lithuania? | RAKS-3 |
| 18. Can the software you offer also perform scheduled maintenance planning functions (i.e. assess the condition of RAKS equipment, including sensors, and provide recommendations for their maintenance / replacement? | CMS |
| 19. It is planned to install RAKS-3 subsystems not at stations or the surrounding areas, but further away, at railway sections where trains run at normal speed. Therefore, please indicate the maximum speed of freight trains your proposed RAKS-3 subsystem is designed for. | RAKS-3 |
| 20. What protocols can RAKS CMS solution use to exchange data with third-party applications? Is there a standard API offered/already used? Provide examples if so. | CMS |

*Rolling stock gauge S and SP Instructions*

## Glossary

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| RAKS | Automated rolling stock control system |
| RAKS-1 | Dynamic weighing subsystem |
| RAKS-2 | Pantograph diagnostics subsystem |
| RAKS-3 | Commercial inspection and rail OCR solution subsystem |
| RAKS-4 | Hot box and hot wheel detection subsystem |
| RAKS-5 | Wheel impact load diagnostics subsystem |
| RAKS-6 | Gauge measurement subsystem |
| CMS | Central management software |