# Space for Level Crossing Safety ITT – Webinar

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## Welcome to our webinar



#### Before we start.....

- Please keep your microphones muted during the webinar and make sure your webcam is switched off.
- You can use the chat box at any time to submit your questions. They will be addressed during the Q&A at the end of the webinar





## Agenda



#### 1. Welcome

- 2. ESA Business Applications and Space Solutions
- 3. Presentations on the importance of Level Crossing Safety
  - a) Level crossing perspective from ERA (EU Agency for Railways)
  - b) Potential Applications and Opportunities (Rail Safety and Standards Board in UK)
- 4. Space for Level Crossing Safety ITT
  - a) Scope and Objectives of Feasibility Study
  - b) Space-based Assets
  - c) Topics of Relevance
  - d) How to Apply
- 5. Q&A

## **ESA Business Applications and Space Solutions**



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Commercial exploitation of space assets, data and capabilities addressing technical feasibility and business development. development of operational services for

a wide range of users through the combination of different systems, and support in creating viable

companies as well as to existing companies



https://business.esa.int

## Space for level crossing safety ITT







#### Level Crossing Perspective from ERA

Jo De Bosschere (Head of ERTMS Unit)



# EUROPEAN UNION AGENCY FOR RAILWAYS



#### **Potential Applications and Opportunities**

Chris Harrison (Futures Lab Systems Engineer)



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## Space for Level Crossing Safety ITT



- 1. ESA-STAR Reference: 1-11664 (official information)
  - a) https://esastar-publication-ext.sso.esa.int/ESATenderActions/details/56933
- 2. (indicative) Opening Date: 17/04/2023
- 3. (indicative) Closing Date: 09/06/2023
- 4. Supporting information available at:
  - a) <u>https://business.esa.int/funding/intended-tender/space-for-level-crossing-safety</u>

## Scope and Objectives of Feasibility Study



- 1. Aim of study is to assess the feasibility, from both technical and business points of view, of an innovative product / service to improve level crossing safety using one or more space-based assets
  - a) Technical feasibility includes development of a proof of concept
  - b) Viability considering economic and non-economic aspects (e.g., regulatory requirements, certification)
  - c) Definition of service implementation roadmap
- 2. Consultation and engagement with stakeholders is essential
  - a) Investigating user needs, validating requirements
  - b) Understanding existing solutions and practices
  - c) Validating proposed product / service concept
  - d) Understanding elements influencing viability
- 3. Examples of target users and stakeholders (non-exhaustive)
  - a) Railway infrastructure managers
  - b) Railway undertakings
  - c) Road authorities and local councils

## esa







#### Earth Observation Satellites (SatEO)

Providing an effective and frequent way to **monitor land** and **resources** and can also facilitate **change detection**.

E.g., to support monitoring of level crossings and surrounding areas, possibly used in combination machine learning and other sensors / images for detection of obscuration of level crossing controls, sighting distances, etc.

#### Satellite Navigation (SatNav / GNSS)

Enabling global positioning and navigation functions.

E.g., to support positioning of trains, road vehicles and pedestrians, activation of warning systems by train, in-vehicle warnings with cooperative ITS, localisation for asset condition monitoring, etc.

#### Satellite Communications (SatCom)

Providing ubiquitous coverage, enabling an extension of reliable and secure connectivity to complement terrestrial communications, including satellite-based Internet of Things.

E.g., to enable collection of data from level crossings or on-board trains in rural areas with limited terrestrial connectivity, to facilitate the collection of safety data for analysis and risk management.

## **Space-based Assets**

Space-based assets such as SatNav, SatEO and SatCom can be enablers of innovative services for improving level crossing safety, with the potential to substantially reduce the cost that accidents, injuries, and fatalities at level crossings have on European railways and society.



## **Topics of Relevance**



#### Including (but not limited to):

- a) Improved level crossing warnings to road users and/or pedestrians e.g.,
  - i. Cooperative intelligent transport systems
  - ii. Innovative technologies for reducing lifecycle costs of warning systems at level crossings
  - iii. Cost-effective treatments for low-exposure level crossings
- b) Automated level crossing condition monitoring e.g.,
  - i. Checking that level crossing controls and railway controls are not obscured by vegetation or other visual impediments
  - ii. Checking condition of level crossing road surface, or other conditions that could affect the safety of the crossing
- c) Enhancing the collection of level crossing safety data e.g.,
  - i. The detection of unsafe level crossing behaviours
  - ii. Monitoring of user compliance
  - iii. Collection of level crossing usage statistics

Use cases shall be proposed by companies and supported by potential customer/users



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## What we offer



We offer funding and support to companies, both for business case assessment and for the development of new, space-based services. Our offer includes:

- a) Technical & commercial guidance
- b) Access to our network and partners
- c) Use of the ESA brand for your service
- d) Zero-equity funding
- e) ESA will co-fund 80% of the acceptable cost, up to a maximum of €200K, per awarded study.



## How to Apply



- 1. Register by completing the online questionnaire on the esa-star Registration System (this provides the minimum 'light registration')
  - a) <u>https://esastar-emr.sso.esa.int/</u>
- Visit esa-star Publication (<u>https://esastar-publication-ext.sso.esa.int/</u>) and search for this opportunity (1-11664) to download the official tender documentation. Official documents will include proposal templates, a draft contract, and additional information about this opportunity
- 3. Use the official documents to prepare your proposal
- 4. Write your proposal and obtain a Letter of Support from your National Delegation (Authorisation of Funding).
  - a) https://business.esa.int/national-delegations
- 5. Submit your proposal via esa-star tendering by the deadline.

Q&A



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