SAFE-10-T

Safety of Transport Infrastructure on the TEN-T Network

**Funding:** European (Horizon 2020)
**Duration:** May 2017 - Apr 2020
**Status:** Ongoing
**Total project cost:** €2,997,000
**EU contribution:** €2,997,000

**Objectives:**

The SAFE-10-T project will develop a Safety Framework to ensure high safety performance while allowing longer life-cycles for critical infrastructure across the road, rail and inland waterway modes. Moving from considering critical infrastructure such as bridges, tunnels and earthworks as inert objects to being intelligent (self-learning objects) the SAFE-10-T project will provide a means of virtually eradicating sudden failures. This will be achieved by:

- The Safety framework will incorporate remote monitoring data stored in a BIM model that feeds into a decision support framework (DST) that enables decisions to be made automatically with maintenance prioritised for elements exhibiting stress.
- A major advance that will be achieved in the project is that the algorithms at an object level and at a network level will incorporate machine learning to train the system to evolve with time using available monitoring data.
- A trans-disciplinary approach with experts in Artificial Intelligence and big data management working with owners, engineers with expertise in risk and modelling, and sociologists to make decisions.
- Major European infrastructure managers (Rijkswaterstaat for roads and inland waterways and Network Rail) will undertake demonstration projects at critical interchanges and nodes of the TEN-T transport network.

The project will achieve significant impact in asset management by:

1. By moving to intelligent objects that communicate their safety condition during extreme events we will provide a means of virtually eradicating sudden catastrophic failure of infrastructure objects.
2. The project will use Open Linked Data formats to manage all data and inputs from other sources. Mitigation actions can be taken and warnings of the increased risk level can be transmitted to other agencies and the public.
3. Demonstrate the concept of fully interconnected transport networks on the TEN-T

**Parent Programmes:**
H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport

**Lead Organisation:**

Gavin And Doherty Geosolutions Ltd

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**EU Contribution:** €302,500

### Partner Organisations:

**Istituto Di Sociologia Internazionale Di Gorizia - ISIG**

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**Organisation Website:**
http://www.isig.it

**EU Contribution:** €141,875

**Virtus It Limited**

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**EU Contribution:** €250,000

**Roughan & O'donovan Limited**

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**EU Contribution:** €290,879

**Infrastructure Management Consultants Gmbh**

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**EU Contribution:** €168,750

**Ministerie Van Infrastructuur En Waterstaat**

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**EU Contribution:** €50,000

**Network Rail Infrastructure Limited**

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<table>
<thead>
<tr>
<th>EU Contribution: €47,500</th>
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<tbody>
<tr>
<td><strong>Technische Universitat Berlin</strong></td>
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EU Contribution: €26,250

Technologies:
Artificial Intelligence, Big Data management and decision support frameworks
Rail infrastructure safety through artificial intelligence
Development phase: Demonstration/prototyping/Pilot Production

STRIA Roadmaps: Infrastructure
Transport mode: Road transport
Transport sectors: Passenger transport, Freight transport
Geo-spatial type: Other