



IM-SAFE^{.EU}

INTRODUCTION

Bridges and tunnels are the critical nodes on the transport infrastructure networks which are vital for the functioning and growth of European and regional economy. Unfortunately, this infrastructure is ageing and inadequate to cope with the increasing traffic demands and resilience threats. Such a condition brings high safety risks.

Accurate information from monitoring of structures is crucial to take the right decisions on maintenance and safety; unfortunately, there are gaps in the existing European standards and the monitoring practice at national level.

For maximal safety, availability and cost-effectiveness of transport infrastructure, IM-SAFE envisions a paradigm shift from the time-based/corrective maintenance towards risk-based/predictive maintenance through data-informed decision-making enabled by a new and harmonised European standard for monitoring, including a standardised digitalisation approach. The new standard should be supported and implemented coherently by the public authorities and the industrial stakeholders across Europe.

OBJECTIVE

IM-SAFE aims to support the European Commission and the European Committee for Standardisation (CEN) to prepare a new standard in monitoring for optimal maintenance and safety of transport infrastructure based on a comprehensive insight into the trends, challenges, best practices, and technology developments, including the integration of digital innovations.

As the effectiveness of the new standard depends on societal acceptance, IM-SAFE simultaneously aims to achieve broad acceptance for new standardization and to enable public authorities and industries to contribute to standardization, roll-out, and implementation.

SCOPE

IM-SAFE covers bridges, tunnels and other large infrastructures on the road and railway networks. IM-SAFE deals with the structural / civil engineering part of transport infrastructure and, where relevant, complementary other infrastructure elements, e.g. railway electrical

FUTURE

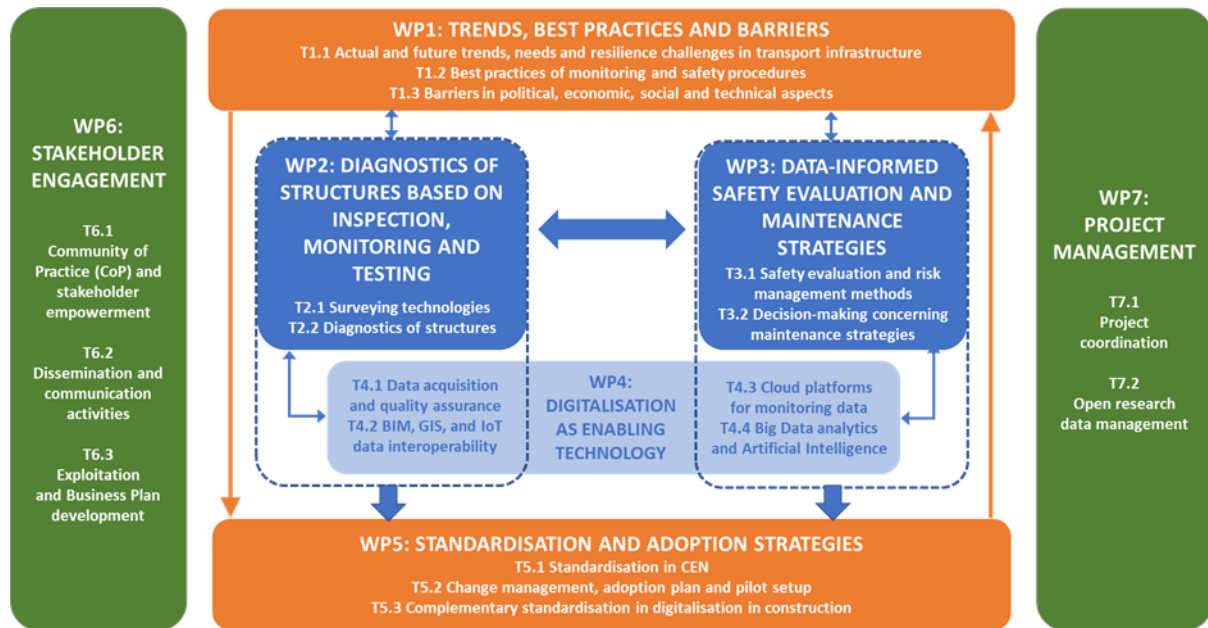
New and harmonized European standard for monitoring, including a standardized digitalization approach provides for meeting safety and availability demands and improved cost-effectiveness of transport infrastructure.

IM-SAFE enables paradigm shift from the time-based/corrective maintenance towards risk-based/predictive maintenance through data-informed decision-making.



The new standard is supported and implemented coherently by the public authorities and the industrial stakeholders across Europe.

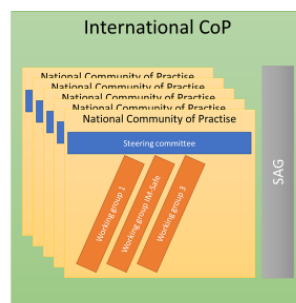
PROJECT APPROACH



COMMUNITY OF PRACTICE (CoP)

Public and industrial stakeholders are building, operating, maintaining and renovating infrastructure on a daily basis; key players in this area. They know about current practice, about innovative methods, about hidden problems, about obstacles to introduce innovation, etc. They have the ability to create and implement new methods and approaches. And they will be the target group for new EU standards. IM-SAFE will involve stakeholders through a Community of Practice. IM-SAFE will create local (national / regional) Communities of Practice, that will be linked through a Pan-European Community of Practice existing of representatives of the regional CoP's. The CoP members will be

asked to give input to the project and discuss findings and results of the project in order to lead the project to supported results.



Exchange of information about current practice, approaches, experiments and pilots, barriers, etc. within countries and on European level can be useful for all involved. For infrastructure owners and operators to learn from good

/ best practices around Europe, for industry to improve their service level according to the needs of owners and operators. Being involved will lead to continues improvement and development. Not being involved will lead to a backlog. Eventually standards will be issued in order to efficiently provide a network with safe structures. Being part of the creation is beneficial, because transition to the new standards will start during the creation.



Within each national/regional CoP, dedicated working groups will be active on specific subjects. These working groups produce input for knowledge documents with best practices and/or input for standards, innovation process, etc. The IM-SAFE project will structure and analyse the information. Leading to a publicly available document / website or tool.

IM-SAFE will organize a national/regional public symposium each year and a European/international conference (preferably in conjunction with a congress of platform/network organizations such as IABSE, fib, FEHRL). And specific workshops/webinars to discuss the prioritized issues of monitoring, maintenance, safety; best practices and lessons-learned; technological developments; input for the new standards; validation of the project outcomes.

The following results will be discussed in the CoP before publicly issued:

- Actual and future context of transport infrastructure monitoring and maintenance
- Online best practice guide
- Recommendations to remove the PEST barriers and prioritisation of risk management areas taking the lessons from recent infrastructure failures
- Online interactive catalogue of surveying technologies for transport infrastructure
- Review of methodologies and instruments for diagnostics of transport infrastructure
- Appraisal of methods for safety evaluation and risk management
- Background materials for implementation of decision-making regarding maintenance strategies
- Guidelines for data acquisition, processing, and quality assurance
- Framework for semantic integration of IoT, BIM and GIS of transport infrastructure
- Proposal for common design of IT platforms for monitoring data of transport infrastructure
- Guidelines for Big Data analytics solutions, including Artificial Intelligence
- Formulation of the EC mandate to CEN and plan of approach for the execution of the mandate
- Technical background materials complementing the EC mandate for CEN

