

Smarter design, construction and maintenance

Specific challenge: Increasing the performance of multi-modal transport infrastructure can be achieved through improving the productivity of the assets. In this context, key in the future will be to reduce drastically traffic disruptions of transport flows from inspection, construction and maintenance activities to accommodate increasing/changing traffic demand. This means fewer, faster, more sustainable and better planned interventions with maximum safety for the workers and other traffic participants.

Scope: Proposals should address one or several of the following activities:

Advanced, quick, cost-effective and flexible (modular) design, manufacturing, construction, maintenance, rehabilitation and retrofitting systems/techniques and materials.

Self-monitoring, self-reporting, non-intrusive inspection and testing methods, including advanced predictive modelling.

Reuse and recycling methods for low energy construction and maintenance of existing infrastructure.

Research in this domain should aim at validation of innovative solutions, targeting specific European geographical areas where either new construction for the completion of an efficient transport network is needed, or advanced maintenance systems are necessary to improve and extend the capacity of the existing network.

Proposals could also include, when suitable, novel design concepts, such as shared space, self-explaining infrastructure, forgiving road sides.

In line with the Union's strategy for international cooperation in research and innovation[1] international cooperation with third countries is encouraged, both with

international partners willing to share advanced know-how, and with third parties (in particular neighbouring countries) needing technology transfer.

SME active participation is strongly encouraged with the aim of fostering open innovation.

New procedures and technologies in using Green Infrastructure to make transport infrastructure more resilient, less-carbon intense, maximising multiple ecosystem services and minimising fragmentation effects should be developed and tested.

Proposals can either focus on technological progress and further advancement in knowledge (Research and Innovation Actions) or on reinforcing networking among operators in all modes with a view to enhance the effectiveness of the sector (Coordination and Support Actions). Proposals should ensure coherence and avoid duplication of efforts with the INFRAVATION EraNet+.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 to 5 million each for Research and Innovation Actions, and EUR 0.5 to 1.0 million each for Coordination and Support Actions, would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals are expected to deliver the following results:

Monitoring and management systems increasing infrastructure capacity and optimising maintenance costs for all transport modes.

New construction and maintenance techniques that enhance the performance and reliability of infrastructure.

Provide innovative and cost-saving approaches to use Green Infrastructure for transport.

Extending the life span of ageing transport infrastructure.

Development and application of effective and efficient materials, technologies and tools to meet cost-effectiveness and sustainability goals.

Reduction of multi-modal infrastructure construction and maintenance energy intensity and subsequent CO₂, pollutants and noise emissions.

The work in this area should support the transition towards zero traffic disruption from inspection, construction and maintenance by 2030 and boost the overall performance

of European transport infrastructure and reduce nuisances generated by transport, such as noise.

Type of action: 1) Research and Innovation Actions; 2) Coordination and Support Actions

[1] COM(2012)497

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