

infra4Dfuture

Coordination of national efforts in modernizing transport infrastructure and provision of innovative mobility services

- infra4Dfuture will develop a demand-driven overarching strategy and coordination mechanism for the modernization of transport infrastructure including a shared strategic vision on future infrastructure capabilities and common pathways for innovation development and implementation/deployment.
- The initiative is a response to the Horizon 2020 call for proposals '[Coordinating national efforts in modernizing transport infrastructure and provide innovative mobility services](#)' .
- The infra4Dfuture consortium encompasses 20 partners from 17 countries, 19 of them being National Transport Infrastructure Authorities representing the wider community of public infrastructure managers from Europe and associated countries.

The need for coordinated national efforts to adequately meet future transport infrastructure challenges

Facing a variety of emerging challenges and issues, such as climate change, resilience, ageing infrastructure, maintenance under increased capacity requirements, digitalisation, automation, energy and electrification, the National Transport Infrastructure Authorities (NTIA) have urgent needs and requirements for infrastructure innovation. In view of the long cycle times in infrastructure management and the rapid mounting pressure from these challenges on their primary processes, there is a need for fast delivery of ready-to-implement, cost-effective innovative solutions matching the requirements of the NTIA that jointly build the TEN-T network.

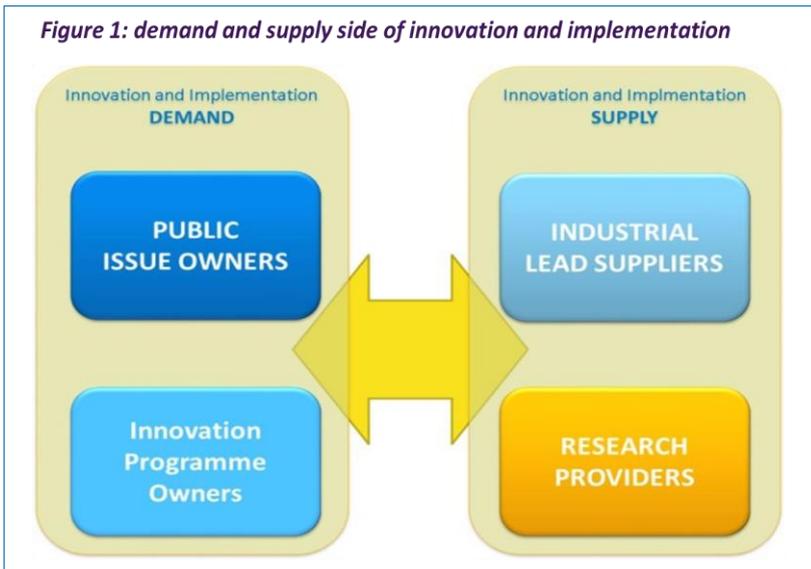
The infra4Dfuture consortium partners have therefore joined forces to develop:

- a strategic coordination mechanism aiming to deliver a concerted cooperation and collaboration across a portfolio of relevant European and national innovation programmes and initiatives;
- a shared strategic vision on future infrastructure capabilities, each capability encompassing a series of innovation focus areas for innovation.

Bringing together demand and supply side of innovation and implementation

infra4Dfuture aims to align demand and supply of infrastructure innovation development and implementation. In view of the long cycle times in infrastructure, the NTIA here designated as '**public issue owners**' (PIO)(see figure 1), have an urgent need for ready-to-implement, cost-effective innovative solutions. Many of the NTIA are working on such solutions in their corporate or national innovation programmes and collaborate on these in various transnational initiatives on common issues.

Figure 1: demand and supply side of innovation and implementation



As funders of innovation from their direct interest these NTIA can be also designated as **'innovation programme owners'** (IPO). However, the group of innovation programme owners is wider and includes the European Commission as well, with their well-known programmes and initiatives (e.g. H2020, CEF). The public issue owners and the innovation programme owners together constitute the demand side for transport infrastructure innovation.

The required innovative solutions are delivered by the respective industry. Ultimately the **'industrial lead suppliers'** provide the innovative solutions. In

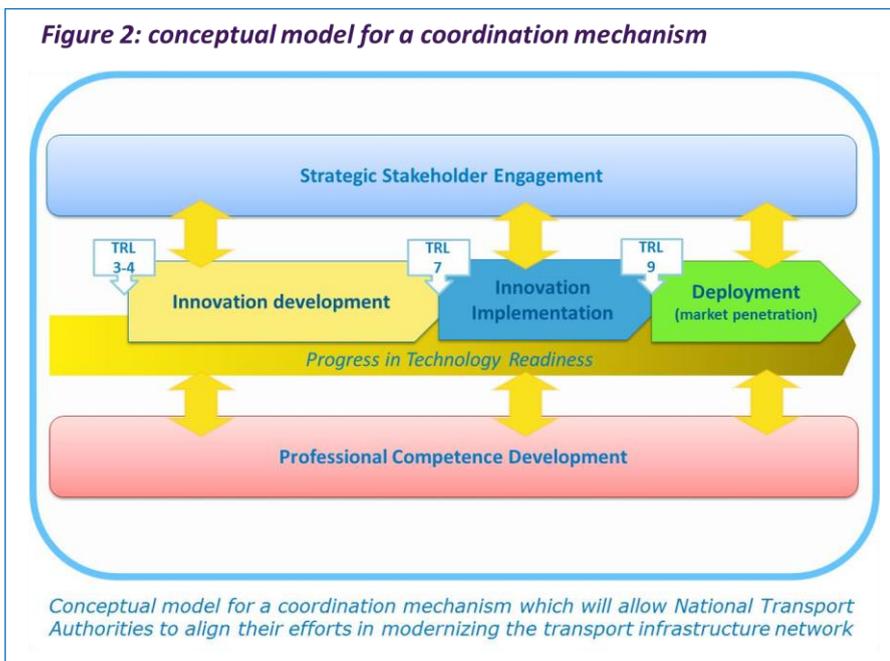
their efforts to deliver viable innovative solutions, the industrial lead suppliers are supported by the community of relevant **research providers** across the gamma of disciplines and technologies. Together industrial lead suppliers and research providers constitute the supply side for transport infrastructure innovation. The research providers also provide the IPO with support in the area of programme development and the PIO with support in the evaluation of research developments.

These four stakeholder groups are organised in a variety of well-known representing platforms, associations and conferences. Therefore, these representing bodies provide efficient and effective access to the (majority of, if not all) relevant stakeholders. For this reason infra4Dfuture will start with engaging with these representing bodies, but also verifying that no relevant stakeholder is missed out under this approach.

infra4Dfuture strategy and coordination mechanism

infra4Dfuture will establish a structured dialogue among relevant stakeholders with the aim to effectuate a demand driven supply of innovative solutions up to higher market penetration. The activities of the resulting coordination mechanism are grouped according to the three key horizontal components as presented in figure 2, which also indicates Technology Readiness Levels (TRL).

Figure 2: conceptual model for a coordination mechanism



Conceptual model for a coordination mechanism which will allow National Transport Authorities to align their efforts in modernizing the transport infrastructure network

The three key components/ activities are:

- an effective and efficient 'Strategic Stakeholder Engagement', resulting in the definition of so called innovation focus areas;
- the development of innovation pathways for each of the defined innovation focus areas ('Progress in Technology Readiness');
- the development of the required professional competences.

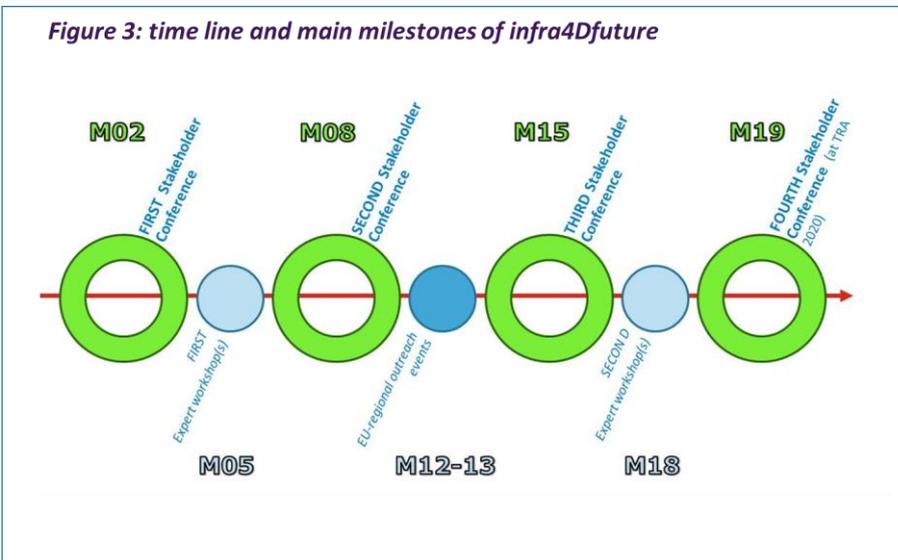
These three components also constitute the foundation for the infra4Dfuture work plan.

The infra4Dfuture coordination mechanism encompasses a novel system that supports efforts to overcome the current fragmentation across organisational and geographical borders. Key to this outcome is the approach that starts from the needs and requirements for innovation that infrastructure authorities of all modes hold in common; categorised in five to seven innovation focus areas. These common focus areas in essence cover innovation needs and requirements of the integrated TEN-T network and would reflect the end-users' interest in optimising the networks functionality and performance in view of the external pressures and challenges/issues.

Structured consultation and dialogue process with stakeholders

The infra4Dfuture approach is based on a sound and coherent consultation and dialogue process with stakeholders. This process will be structured in a sequence of strategic, decision-making conferences and a

supporting, tactical sequence of expert workshops and regional events (see figure 3). These will culminate in the founding of the *infra4Dfuture Stakeholder Platform for Infrastructure Innovation and Implementation (ISPIII)* at the TRA 2020 in Helsinki. ISPIII will ensure a continuance of the coordination mechanism and shared vision beyond the duration of the action. Follow-up ISPIII events will take place at the consecutive biannual TRA conferences, possibly in conjunction with the TEN-T/CEF event.



The result of the structured consultation and dialogue process with stakeholders will be:

- **a concerted rolling transport innovation programme portfolio until 2040.** Such programme portfolio will span a growing number of European, (inter) national and industrial programmes and initiatives (on a voluntary basis).
- **an endorsed coordination mechanism** to guide the deployment of the activities within the respective concerted portfolio; aiming at the effective delivery of demand driven, ready to implement, cost effective innovative solutions.
- **an endorsed framework for professional competence building** in order to support the implementation and deployment of the innovative solutions up to higher market penetration levels. On basis of this framework the stakeholders can engage with relevant parties from education and training also enabling coordinated professional competence development.
- **a strategic stakeholder platform** to deploy the coordination mechanism during a multiannual period (horizon at 2030), involving the relevant stakeholders from public, industry and research.

The infra4Dfuture runtime is 24 months. The expected start date is 1st October 2018.

Expected impacts of infra4Dfuture

- **More ready-to-implement, cost effective innovative solutions** to address the challenges the NTIA are already facing today. This will be enabled by cutting out duplications between the various corresponding innovation programmes and initiatives as well as enabling focused twinning of results and co-programming of next stages in innovation development and implementation.
- **Faster times to market** of the respective innovative solutions enabling a faster response by the NTIA – as the implementing clients – to the demands and needs of the end-users for infrastructure services.
- **Better on target** through concerted cooperation and collaboration of the relevant stakeholders under the guidance of a common, long term innovation ambition from the NTIA. This ambition will provide the ‘sound market perspective’ that the industrial suppliers can use to align their future product and services developments.

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