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Project Number:	**824269**
Topic:	**MG-2-4-2018 – Coordinating national efforts in modernizing transport infrastructure and provide innovative mobility services**
Type of Action:	**Coordination and support action (CSA)**

D4.6 Information package for the strategic stakeholder conferences, including TRA 2020-Nr.1

Version 1.0

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Reviewer(s):	Maria Boile
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Dissemination level:	☒ PU - Public ☐ CO - Confidential, only for members of the consortium (including the Commission) ☐ RE - Restricted to a group specified by the consortium (including the Commission Services)

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Abbreviations

Abbreviation	Definition
CEDR	Conference of European Directors of Roads
EIM	European Rail Infrastructure Managers
H2020	Horizon 2020 EU Research and Innovation Program
EC-DG MOVE	European Commission's Directorate-General for Mobility and Transport
EC-INEA	European Commission's Innovation and Networks Executive Agency

Executive summary

This document includes the information package for the 1st Strategic Stakeholder Conference of the infra4Dfuture project. It has been produced by the Centre for Research and Technology Hellas (CERTH) / Hellenic Institute of Transport (HIT) team with input from infra4Dfuture coordinator (RWS).

This document consists of the description of all the information and promotional material that will be provided to the high level participants of the first i4Df Stakeholder Conference, which will take place in Brussels on 11 December 2018. It includes: the first i4Df leaflet, the "Transport infrastructure capabilities for 2040" document, the 1st Stakeholder Conference Agenda, and the Conference Power Point Presentation.

For strategical reasons only National Transport Infrastructure Authorities and Innovation Programme Owners are invited to the 1st i4Df Stakeholder Conference. These stakeholders will start with the demarcation of infrastructure that i4Df will cover and the exploration of future capabilities, focus areas and competences needed, with a horizon of 2040. For following expert workshops and stakeholder conferences a wider group of stakeholder will be invited, including Industrial Lead Suppliers and Research Providers. The documents and other materials from the 1st i4Df Stakeholder Conference, presented in this document will provide the basis for next steps through following i4Df expert workshops, EU regional outreach workshops and stakeholder conferences..

1 Introduction

infra4Dfuture (i4Df) is a 24-month project under the H2020 topic of MG-2-4-2018- "Infrastructure Innovation for the Future".

infra4Dfuture aims to 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.

Facing a variety of emerging challenges, such as climate change, resilience, ageing infrastructure, maintenance, digitalisation, automation, energy and electrification, the National Transport Infrastructure Authorities (NTIA) have urgent requirements for infrastructure innovation. In view of the long cycle times in infrastructure management and the rapid mounting pressure from these challenges, 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 encompasses 20 partners from 17 countries, 19 of them being NTIA, joining 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 focus areas for innovation.

infra4Dfuture is based on a sound and coherent consultation and dialogue process with relevant 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. These will culminate in the founding of the infra4Dfuture Stakeholder Platform for Infrastructure Innovation and Implementation (ISPIII) at the TRA 2020. ISPIII will ensure a continuation 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.

1.1 Purpose of the document

D4.6 includes the requisite information package for the 1st Strategic Stakeholder Conference that will be held in Brussels on 11 December 2018.This sound information package has been developed appropriately reflecting the high level of the event.

D4.6 information package includes both printed and digital material in order to maximise the dissemination of the scope and impacts of the project to the high-level participants that will attend the Conference. The deliverable refers to Task 4.3

2 First i4Df leaflet

The project leaflet is an essential tool to raise awareness on the project. For the needs of 1st Stakeholder Conference, a first leaflet was prepared by RWS, including basic information regarding i4Df project and the consortium. Printed copies of the leaflet will be distributed to the high-level participants of the 1st Stakeholder Conference, ensuring that the core information will be widely spread.

The leaflet is a twofold A4 flyer. It provides the following information: Project logo, origin, stakeholder engagement, approach, content, expected outcomes, consortium partners and coordinator contact details (see Annex I).

A more illustrative leaflet will be developed for further dissemination.

3 Transport infrastructure capabilities for 2040

''Transport infrastructure capabilities for 2040'' document has been developed within WP1 and presents the reference base for further elaborating on i4Df ambition: a common, systemic vision on surface transport infrastructure capabilities for 2040 i.e. with a view to achieving a single European Transport Area servicing the same transport market (passengers, bulk products, containers). This common vision will serve as a guiding framework for cooperation and collaboration between infrastructure managers, innovation programme owners, relevant industry and supporting research on infrastructure development, innovation needs and their implementation actions.

In its current version (see Annex II), it will serve as input for the first i4Df Stakeholder Conference on 11 December 2018, in order for the participants to discuss and conclude on the infrastructure capabilities for 2040, as well as on first notions on the innovation focus areas and required professional competences. After processing the output of the conference, the document will be used to guide further elaboration by senior advisors and experts from relevant public, industry and research stakeholders.

4 1st Stakeholder Conference Agenda

The agenda of the 1st Stakeholder Conference that will be held in Brussels on 11 December 2018 is presented in Table 1. The agenda has been sent to the high-level participants that will attend the conference.

Table 1 1st i4Df Stakeholder Conference Agenda

AGENDA INFRA4DFUTURE STAKEHOLDER CONFERENCE 11 DECEMBER 2018		
TIME	**ACTION**	**SPEAKER**
9.00 – 9.30	Registration and welcome coffee/tea	
9.30 – 9.40	Opening	Cees Brandsen Rijkswaterstaat
9.40 – 9.50	EC-DG MOVE and i4Df	Torsten Klimke
9.50 – 10.00	EC-INEA and i4Df	Andreas Boschen
10.00 - 10.10	TEN-T and i4Df	Gudrun Schulze
10.10 – 10.30	CEDR and i4Df	Steve Philips
10.30 – 10.50	EIM and i4Df	Hans Ring
10.50 – 11.10	Introduction to i4Df project and event	Peter Wilbers Rijkswaterstaat
11.10 – 11.30	Break	
11.30 –11.40	Objective of the event and explanation of the discussion sessions	Ruud Smit Rijkswaterstaat
11.40 – 12.05	Discussion tables – round 1	moderators
12.05 – 12.10	Rotating	
12.10 – 12.35	Discussion tables – round 2	moderators
12.35 – 13.55	Lunch	
Group picture with i4Df logo	10 min max	
14.05 – 14.30	Discussion tables – round 3	moderators
14.30 – 14.35	Rotating	
14.35 – 15.00	Discussion tables – round 4	moderators
15.00 – 15.15	Break	
14.20 – 15.30	Next steps in the development	Ruud Smit Rijkswaterstaat
15.30 – 15.45	TRA 2020 and i4Df	Ari-Pekka Manninen
15.45 – 16.00	Wrap up and adjournment	Cees Brandsen Rijkswaterstaat

5 Conference Power Point Presentation

A Power Point Presentation will be presented by RWS during the 1st Stakeholder Conference. During this presentation, RWS will make an introduction to the i4Df project and present the event objectives and work forms. Subsequent presentations will be made by conference participants, representatives of other organizations (EC-DG MOVE, EC-INEA, CEDR and EIM) (see Annex III)

6 Conclusions

Deliverable D4.6 presents the material to be distributed to the high-level participants of the i4Df 1st Stakeholder Conference. The Conference will be attended by high-level representatives of National Transport Infrastructure Authorities and Innovation Programme Owners. These stakeholders will start with the demarcation of infrastructure that i4Df will cover and the exploration of future capabilities, focus areas and competences needed, with a

horizon of 2040. For following expert workshops and stakeholder conferences a wider group of stakeholders will be invited, including Industrial Lead Suppliers and Research Providers.

For the participants of the 1st i4Df Stakeholder Conference in Brussels on 11 December 2018 an information package has been prepared, including a leaflet, a document on “transport infrastructure capabilities”, the agenda of the conference and a power point presentation. This package will be updated and enriched for the following stakeholder conferences in order to adapt to the participants and provide up to date information on the project progress and findings.

ANNEXES

ANNEX I: First i4Df leaflet

Coordinating Transport Infrastructure Innovation and Implementation

Building a strategy and coordination mechanism for future demand-driven multimodal transport infrastructure innovation and implementation

infra4Dfuture origin

Transport infrastructure managers have an urgent need for innovative solutions that are cost-effective and readily implementable in their operations. These operations comprise of the basic physical and organisational structures and facilities needed for the operation of the transport network. This includes buildings, access roads and flanking supply networks for power and data/information.

Acknowledging the large commonality in the challenges each of them needs to address, nineteen infrastructure managers from Europe, Turkey and Israel have joined forces in in the infra4Dfuture (i4Df) initiative to deliver a effective coordination mechanism for demand driven infrastructure innovation and implementation up to larger network scales. The i4Df initiative is financed as a Coordinated and Support Action (CSA) by the European Commission with a duration from 1 October 2019 to 30 September 2020 (Grant Agreement No 824269). In addition, the initiative is supported by the Conference of European Directors of Roads (CEDR) and the European Rail Infrastructure Managers (EIM).

Combined, the i4Df consortium partners are responsible for managing transport infrastructure that cover the largest part of the TEN-T network. Through the support from CEDR and EIM the initiative achieves virtual complete leverage of the results across the European transport system. i4Df joins forces to address common transport infrastructure challenges.

1

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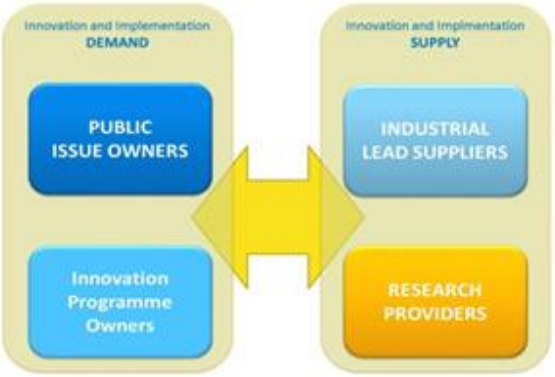
Coordinating Transport Infrastructure Innovation and Implementation

infra4Dfuture stakeholder engagement



The coordination mechanism will build on a structured dialogue between relevant stakeholders from public, industry and research. In this dialogue the demand side for innovation and implementation is formed by the public infrastructure managers as the 'issue owners' and hence the implementing client for innovation, and European and transnational public programme owners as funding client. The supply side in the dialogue is formed by relevant industry as lead supplier of innovation, and supporting research providers.

infra4Dfuture approach

In order to build awareness, understanding, trust and endorsement, over de course of the project runtime (until 30 September 2020) four high level Stakeholder Conferences will be organised in which high level representatives from the four mentioned stakeholder groups will discuss and conclude on the (strategic) content and workings of the mechanism. The high level Stakeholder Conferences are supported by expert workshops and EU-regional outreach events.

Following endorsement of the coordination mechanism in the fourth high level Stakeholder Conference that is planned in conjunction with the TRA conference in Helsinki in April 2020, its roll-out will focus on concertation of a portfolio for European and transnational innovation programmes for the next decade.

2

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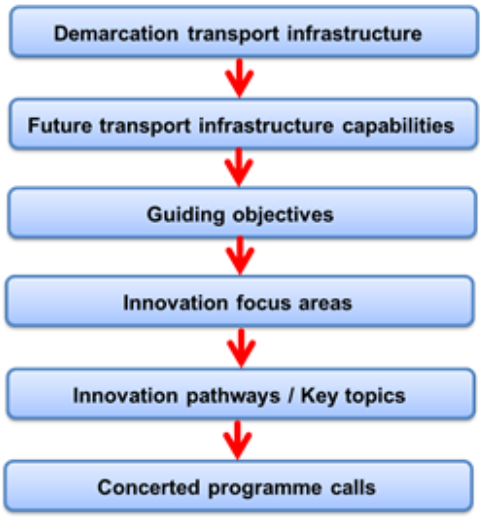
Coordinating Transport Infrastructure Innovation and Implementation



infra4Dfuture content

The i4Df coordination mechanism will drive effective demand driven innovation and implementation from a common vision on the key capabilities of infrastructure management in 2040 and corresponding guiding objectives. From this common vision the innovation focus areas will be derived that framework the pathways for innovation development and implementation, resulting in the demarcation of specific topics and corresponding calls across the concerted portfolio of European and transnational programmes.

infra4Dfuture impact

The overall objective of delivering the i4Df coordination mechanism is to enable effective, demand driven infrastructure innovation and implementation ensuring noticeable benefits for the transport system's end-user. More in particular the impact of rolling out the i4Df coordination mechanism will be:

- **More ready-to-implement, cost effective innovative solutions** to address the challenges infrastructure managers are facing (already today). This will be enabled by cutting out duplications between the various corresponding innovation programmes as well as by enabling focused twinning of results, and structured gate reviewing of next stages in innovation development and implementation.
- **Shorter time to market** of the respective innovative solutions, enabling a faster response by the infrastructure managers – as the implementing clients- to the demands and needs of the end-users for infrastructure services. This will be enabled by anticipating follow-up stages along the designated innovation pathways towards deployment of cost-effective solutions. .
- **More on target solutions** through concerted cooperation and collaboration of the relevant stakeholders under the guidance of a coherent set common, long term objectives from the public infrastructure managers. This approach will ensure appropriate 'market perspective' for industrial suppliers' innovation actions and initiatives.

I4Df will deliver maximum impact from innovation and implementation funding.

3

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Coordinating Transport Infrastructure Innovation and Implementation

infra4Dfuture outcomes:

- ***Concerted rolling transport innovation programme portfolio until 2040,*** *spanning European, and transnational innovation programmes*
- ***Comprehensive coordination mechanism,*** *supported by the relevant stakeholders, to guide the development and deployment of the activities within the respective concerted portfolio of programmes with aim to drive the effective delivery of demand driven, ready to implement, cost effective innovative solutions.*
- ***Supported framework for professional competence building*** *in order to support the implementation and deployment of the innovative solutions up to larger network scales. On basis of this framework the stakeholders from education and training can be engaged.*
- ***Strategic stakeholder platform*** *to deploy the coordination mechanism during a multiannual period – 2021-2027 involving the relevant stakeholders from public, industry and research and guiding from a common vision on infrastructure capabilities for 2040.*

infra4Dfuture consortium partners

The i4Df initiative concerns a collaboration of nineteen transport infrastructure authorities (or their representatives) from seventeen countries in Europe, Turkey and Israel.

Organisation	country	Organisation	country
1. Rijkswaterstaat (Ministerie van Infrastructuur en Waterstaat)	NL	11. bmvit (Bundesministerium für Verkehr, Innovation und Technologie	AT
2. Liikennevirasto	FI	12. Ministerio de Fomento	ES
3. Agentschap Wegen en Verkeer	BE-FL	13. Infraestruturas de Portugal	PT
4. Latvijas Valsts Celi	LV	14. MINISTERSTWO INFRASTRUKTURY	PL
5. Vejdirektoratet	DK	15. MGMiŻS (Ministry of Maritime Economy and Inland Navigation)	PL
6. Traffikverket	SE	16. CERTH/HIT	GR
7. Statens Vegvesen	NO	17. Ministère de la transition écologique et solidaire	FR
8. BMVI (Bundesministerium für Verkehr und digitale Infrastruktur)	DE	18. NETIVEI ISRAEL	IL
9. BASt (Bundesanstalt für Straßenwesen)	DE	19. Karayollari Genel Müdürlügü	TR
10. ANAS S.p.A.	IT	20. TUV Rheinland Consulting	DE

infra4Dfuture coordinator contacts

- Peter Wilbers, Rijkswaterstaat, peter.wilbers@rws.nl, +31622907912
- Richard van der Elburg, Rijkswaterstaat, richard.vander.elburg@rws.nl, +3125098927

4

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ANNEX II: Transport infrastructure capabilities document

Coordinating Transport Infrastructure Innovation and Implementation

Transport infrastructure capabilities for 2040

A common innovation ambition of transport infrastructure managers in view of their investment challenge

Version: Draft for discussion in the 1st i4Df Stakeholder Conference.

Date: 27 November 2018

Executive summary

A well performing transport infrastructure network is essential for achieving the European ambitions and goals on competitiveness, growth and jobs, achieve alignment with the UN Agenda 2030 and related sustainability goals, which the EU has played an important role in shaping. Its sustained provision involves a major investment challenge to the public infrastructure owners and managers. This investment challenge is the key driver for the infrastructure managers' ambition to cooperate on infrastructure innovation and implementation actions, starting with the next multi-annual financial framework of the European Commission (2021-2027).

This document presents the reference base for further elaborating on this cooperation ambition: a common, systemic vision on surface transport infrastructure capabilities for 2040 i.e. with a view to achieving a single European Transport Area servicing the same transport market (passengers, bulk products, containers) . The common vision will serve as a guiding framework for cooperation and collaboration between infrastructure managers, innovation programme owners, relevant industry and supporting research on infrastructure development, innovation needs and their implementation actions.

In its current version it is the input to the first i4Df Stakeholder Conference on 11 December 2018 in order to discuss and conclude on the infrastructure capabilities for 2040 as well as on fist notions on the innovation focus areas and required professional competences. After processing the output of the conference, the document will be used to guide further elaboration by senior advisors and experts from relevant public, industry and research stakeholders.

1

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Coordinating
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Introduction

In the i4Df initiative, transport infrastructure is defined as the physical and organizational structures and facilities needed for the operation of the transport network. This includes the linear road and rail bodies themselves, buildings, the power and data/communication supplies and interconnections to all stakeholders, as well as governance and management across the line of sight from Minister to market.
In geographical terms this concerns the TEN-T comprehensive networks and relevant supporting sections of the regional and municipal transport infrastructure network. Under the i4Df initiative, the focus is on the road and rail infrastructure network, being the most extendedly webbed networks across Europe, sharing significant commonalities for innovation and implementation, and encompassing all relevant nodes and terminals with waterborne and airborne transport.

Furthermore, the initiative considers 'infrastructure capabilities' to designate basic objectives/benefits/ requirements that infrastructure managers are required to provide to the end-user. As a concept they are independent, but as a set, they work interdependent. From various references and consultations, three infrastructure capabilities for 2040 have been identified:

> ***Infrastructure optimally meeting end-user needs.*** *The ability to provide the optimal transport infrastructure network capacity and to accommodate ever increasing transport needs, balancing cost, performance, and risk, delivering infrastructure as a service to society.*
>
> ***infrastructure meeting environmental and social sustainability needs.*** *The ability to embed transport infrastructure networks in their immediate surroundings, optimally balancing interests from economy, society and environment.*
>
> ***Infrastructure achieving added value from digitalisation.*** *The ability to harvest the benefits from digitalisation in the own, internal processes of transport infrastructure management (e.g. planning, design, construction, operation, end-of-life) as well as in the relation between transport infrastructure management and its end-user (smart mobility and logistical services, individual end-users).*

For each capability, guiding objectives for 2040 are presented, together with a first set of corresponding innovation focus areas that are key to achieving these objectives for 2040, and first notions on the required development of professional competences. Whereas the capabilities provide the strategic framework for coordinating innovation and implementation actions across a portfolio of European and transnational programmes, the innovation focus areas and required professional competences provide the tactical framework by defining the specific challenge for innovation and implementation to be addressed under the respective capability, as well as the corresponding expected impacts.

2

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Coordinating
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Infrastructure optimally meeting end-user needs

The ability to provide the optimal transport infrastructure network capacity and to accommodate ever increasing transport needs, balancing cost, performance, and risk, delivering infrastructure as a service to society.

Guiding objectives for 2040

- Full accommodation of the anticipated development in transport demand across the network, achieving effective alignment between the surface infrastructure networks.
- Effective ownership throughout the whole infrastructure lifecycle, starting from planning and design, up to end of functional life of the asset.
- Effective integration of innovation and implementation across the delivery process chain
- Significant reduction of total cost of ownership (TCO) e.g. with 30%.
- Towards zero fatalities and severe injuries of infrastructure workers.
- Resilient infrastructure concepts facing natural and man-made hazards, including climate change adaptation.

Innovation Focus Areas (not exhaustive)

- Integrated, pro-active infrastructure planning, design, (re-)construction, and maintenance, with zero intrusion to transport flows.
- Reliable (evidence based) risk based scenarios and strategies for optimising the integrated network on reliability, availability, maintainability and safety, matching expectations with reality.
- Responsible procurement, including rapid and reliable innovation delivery driving net benefits
- Understanding end-user user needs and requirements
- ...

Required professional competences

- ...

3

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Coordinating
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Infrastructure meeting environmental and social sustainability needs.

The ability to embed transport infrastructure networks in their immediate surroundings, optimally balancing interests from economy, society, and environment.

Guiding objectives for 2040

- Minimise the impact of noise/vibration, and pollutant emissions
- Achieve energy neutrality of the infrastructure management process
- Minimise carbon footprint across the infrastructure delivery process chain
- Facilitate the energy transition of the surface transport system.
- Improve user appreciation of services and performance provided
- Compliance to COP21 and Agenda 2030/UN targets for sustainable development
- ...

Innovation Focus Areas (not exhaustive)

- Resource efficient manufacturing, construction and operation
- Integration with refuelling and recharging infrastructures
- Energy management strategies, including effective and efficient integration with decentralised energy generation.
- Next generation noise/vibration abatement measures
- Advanced approaches and strategies for coherent area and corridor planning -multimodal, multi scalar, and multi objective
- Green procurement
- ...

required professional competences

- ...

4

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Coordinating
Transport Infrastructure
Innovation and
Implementation

Infrastructure achieving added value from digitalisation.

The ability to harvest the benefits from digitalisation in the own, internal processes of transport infrastructure management (e.g. planning, design, construction, operation, end-of-life) as well as in the relation between transport infrastructure management and its end-user (smart mobility and logistical services, individual end-users).

Guiding objectives for 2040

- Full accommodation of deployment of smart mobility concepts (freight, passenger) through emerging concepts for automated mobility e.g. CCAM in road and ATO in rail.
- Physical and virtual infrastructure aligned with data networks and energy grids.
- Seamless data and information use and provision across the transport infrastructure network and logistic chain.
- Digital service provision to stakeholders is a standard element in infrastructure management.
- Improved information and data apportionment from the infrastructure to the end-user.
- ...

Innovation Focus Areas (not exhaustive)

- Infrastructure based supporting systems and services, including standard data interfaces, enabling seamless data and information flows.
- Secure and resilient data and information provision across the integrated network (road, rail, water, air)
- Advanced concepts, approaches and strategies to obtain added value from live data, from an integrated transport system's perspective, acknowledging similar developments in transport means and logistical and mobility services e.g. AI, MaaS, IoT, AR.
- Understanding and mapping end-user data and information needs and requirements.
- Information based Asset Management, e.g. big data analysis and AI.
- Understanding and mapping end-user data
- ...

required professional competences

- ...

5

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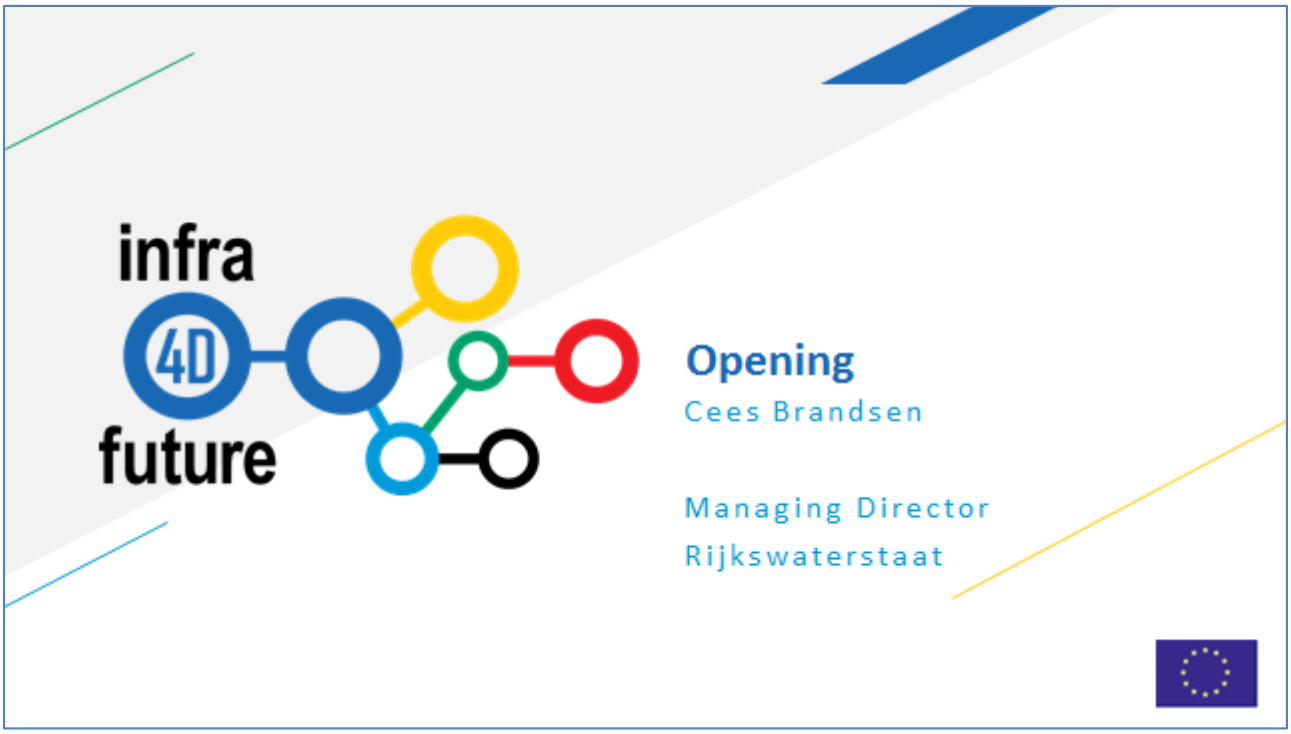
ANNEX III: Conference Power Point Presentation



infra
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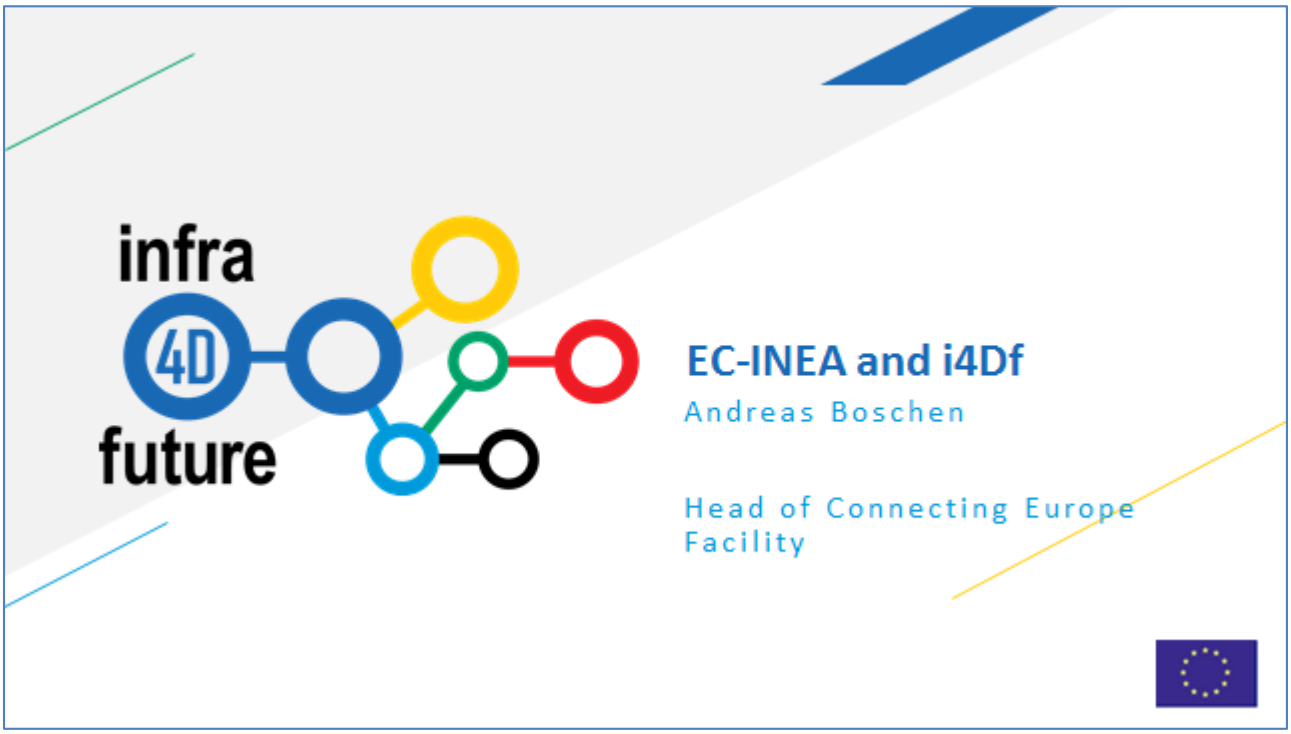
future
EC-DG MOVE and i4Df
Torsten Klimke
Deputy Head of Unit
MOVE/B3 – Innovation and Research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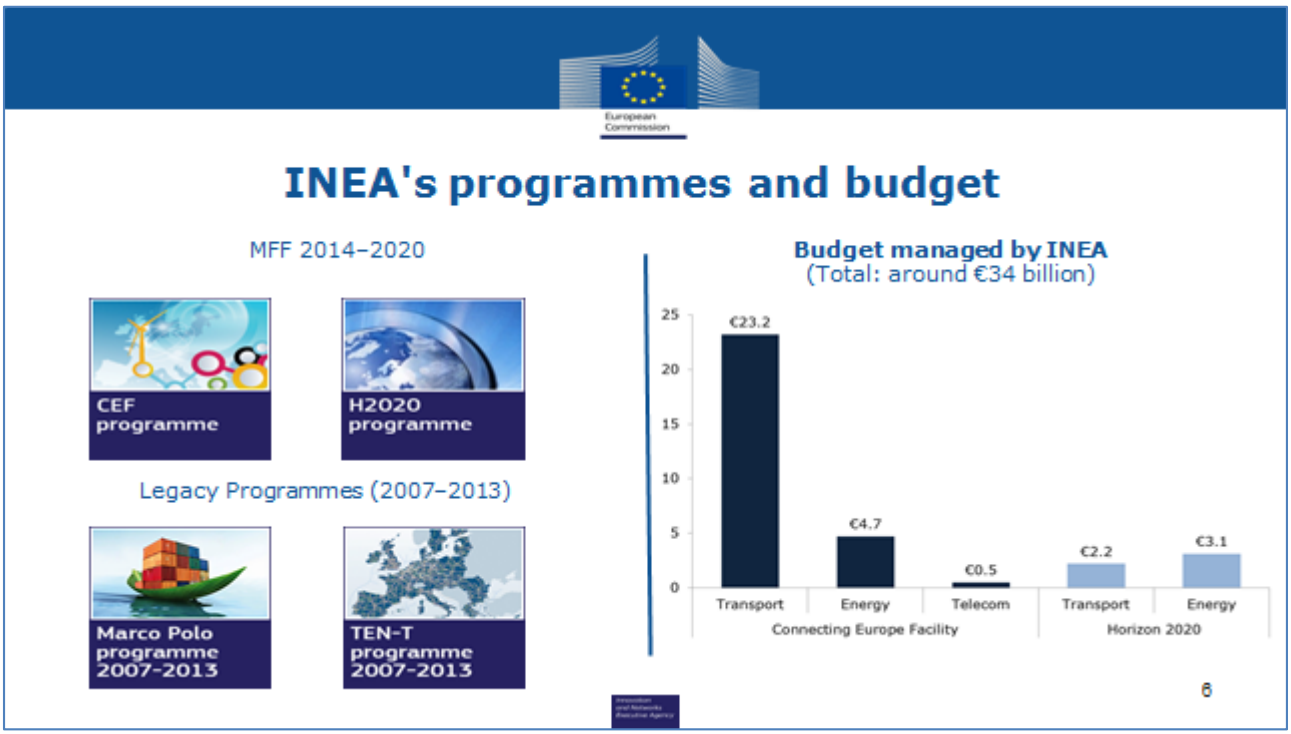
EC-INEA and i4Df
Andreas Boschen
Head of Connecting Europe Facility

SYNERGIES BETWEEN HORIZON 2020 AND THE CONNECTING EUROPE FACILITY (CEF)
1st i4Df Stakeholder Conference
11 December 2018
Andreas BOSCHEN
Head of CEF Department, INEA


INEA's programmes and budget
MFF 2014–2020
CEF programme
H2020 programme
Legacy Programmes (2007–2013)
Marco Polo programme 2007-2013
TEN-T programme 2007-2013
Budget managed by INEA
(Total: around €34 billion)
€23.2
€4.7
€0.5
€2.2
€3.1
Transport
Energy
Telecom
Transport
Energy
Connecting Europe Facility
Horizon 2020
6

Connecting Europe Facility (CEF)

- Europe 2020 Strategy, Strategy for Growth & Jobs
- A dedicated Fund for infrastructure financing, covering all EU Member States
- CEF financial support mainly in the form of grants (co-funding)...
- ... but increased use of innovative financial instruments to attract private financing towards infrastructure financing including blending

7

Connecting Europe Facility - CEF

one instrument - common objectives - three sectors

CEF

Reg. 1316/2013

TRANSPORT

*Reg. 1315/2013**

ENERGY

*Reg. 347/2013**

TELECOM

*Reg. 283/2014**

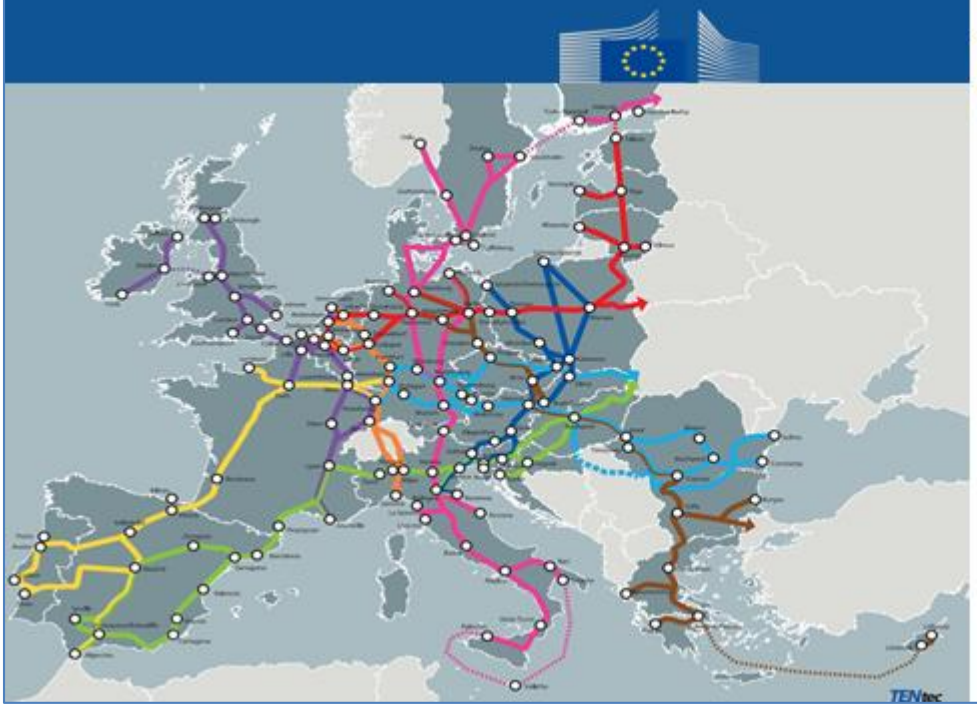
*Common Aim: Accelerate investment in **Trans-European Networks (TEN)***

** TEN Guidelines*

CEF Transport

- **Dual layer approach**:
  - Comprehensive Network (accessibility to all regions) by 2050
  - Core Network (strategically most important parts) by 2030
- **Main priorities/objectives**:
  - Major cross-border projects and projects addressing main bottlenecks on 9 TEN-T multimodal Corridors - Implementation of horizontal priorities
  - Bridge missing links & Improve integration of transport modes
  - Reduce environmental impact of transport, focusing on decarbonisation
  - New technologies and innovation (e.g. electrification, LNG, ITS)
  - Foster the implementation of coherent digital infrastructure
  - Connect TEN-T network with neighbouring countries

9



Transport Core Network corridors

- 9 multi-modal corridors for passenger/freight transport

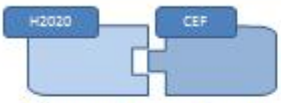
10

From R&I to deployment

Research & Innovation - **Horizon 2020**

Deployment of infrastructure **CEF**

TRL



= **Complementary**

Projects achieving different results but complementary to advance technology development and deployment.

CTA identified: Alternative fuels, Electric Mobility, Maritime Safety and Logistics.

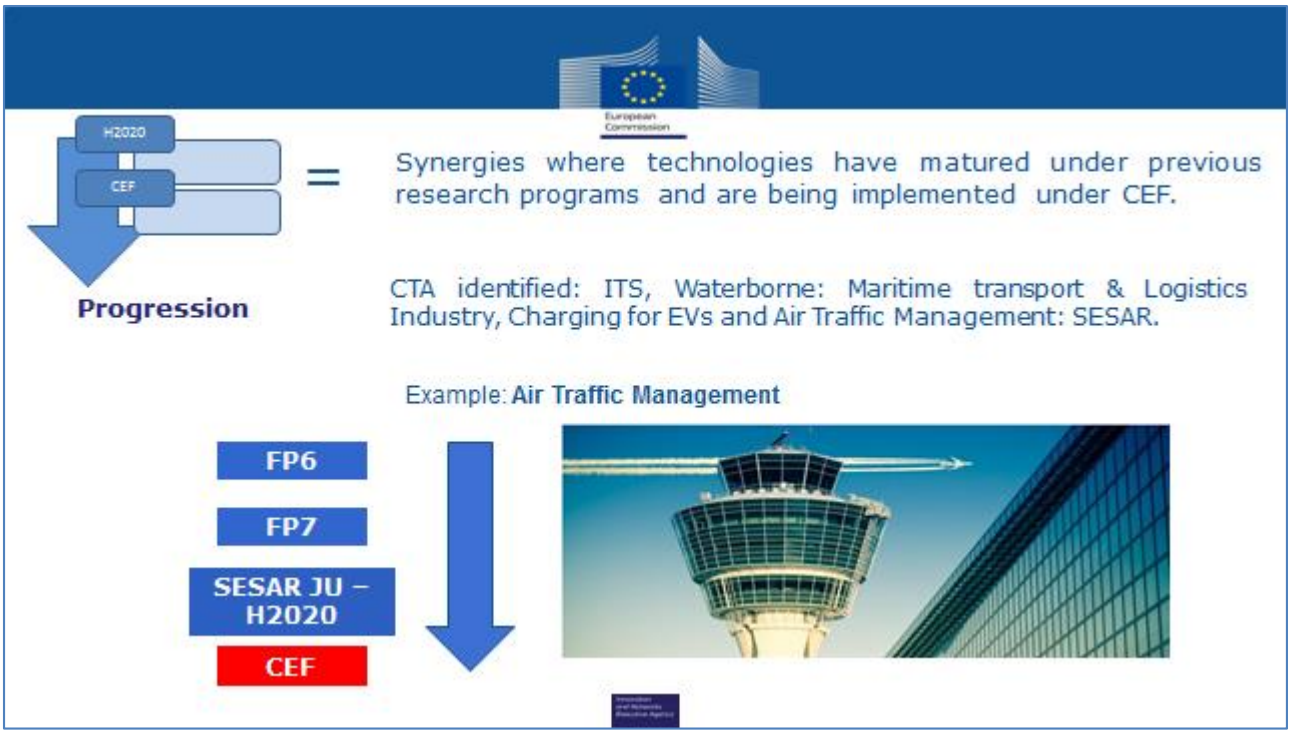
Example: **Electric Mobility**

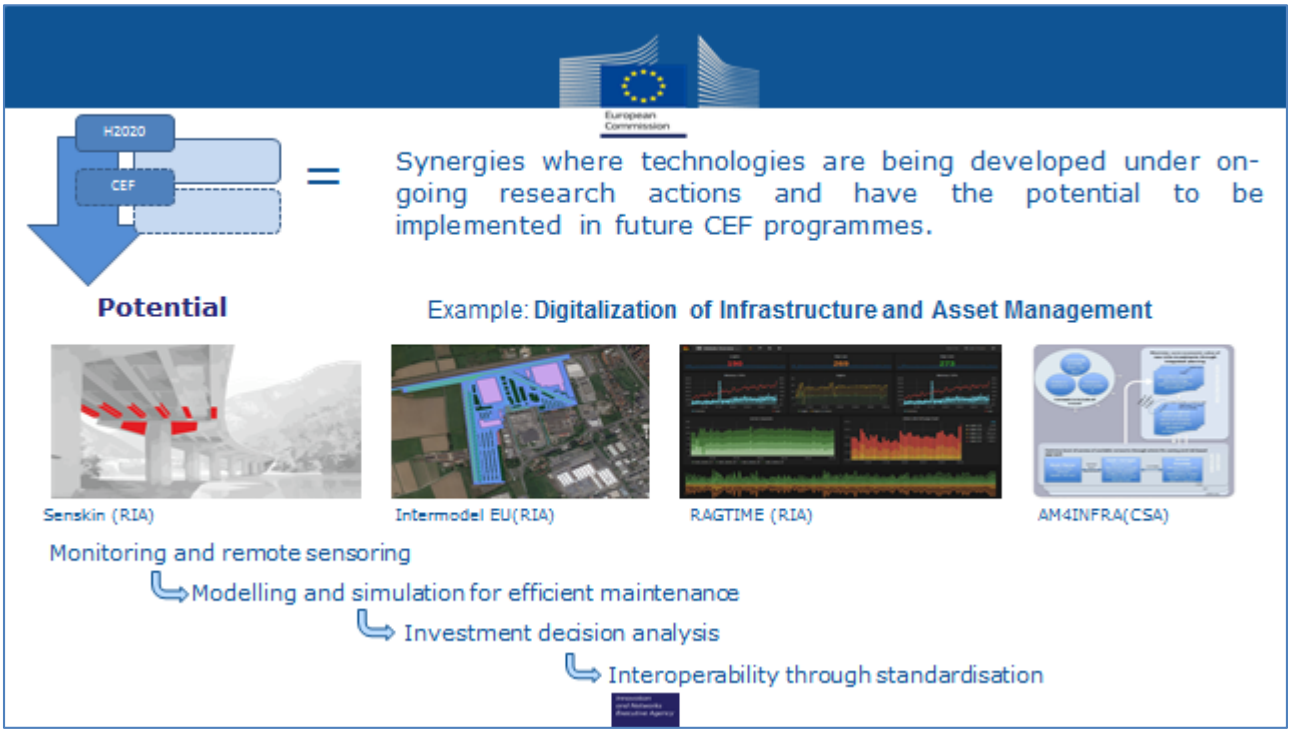
NeMo
(2016-2019)

H2020

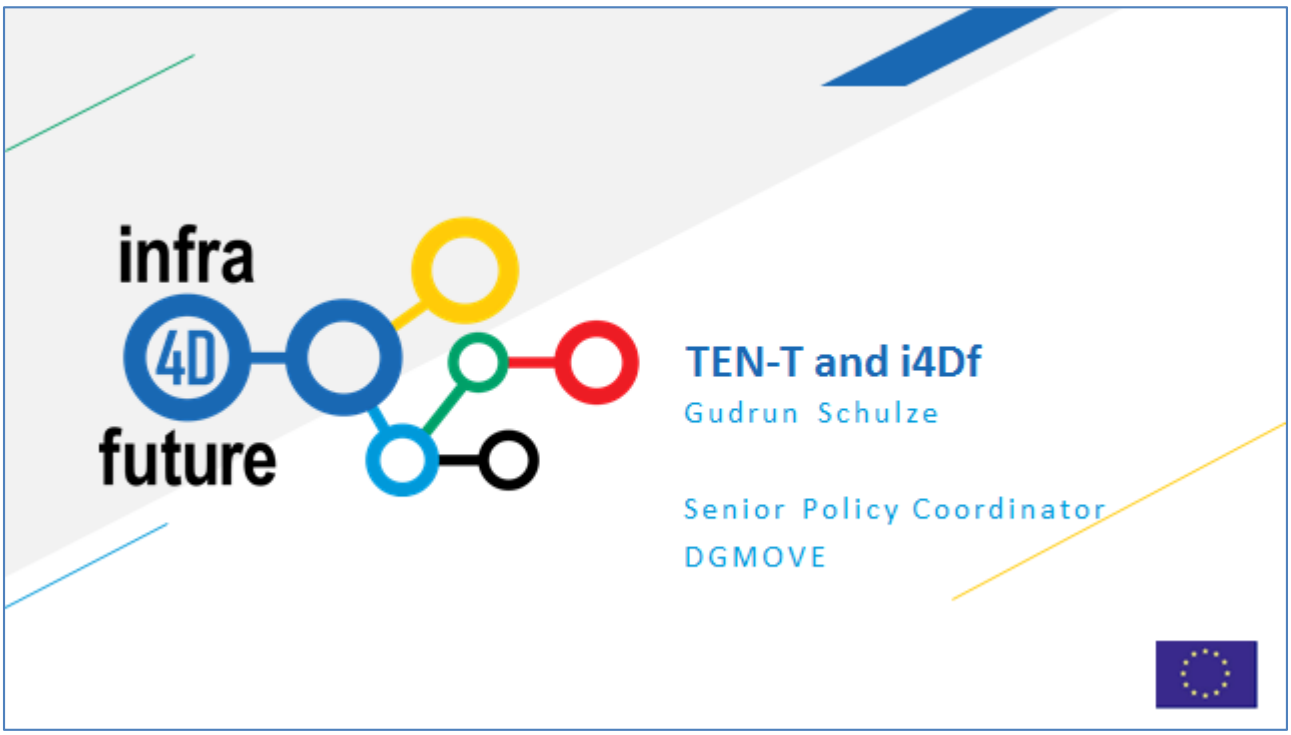
EVA+Electric Vehicles Arteries in Italy and Austria
(2016-2018)

CEF


H2020
CEF
=
Progression
Synergies where technologies have matured under previous research programs and are being implemented under CEF.
CTA identified: ITS, Waterborne: Maritime transport & Logistics Industry, Charging for EVs and Air Traffic Management: SESAR.
Example: Air Traffic Management
FP6
FP7
SESAR JU – H2020
CEF


H2020
CEF
=
Potential
Synergies where technologies are being developed under on-going research actions and have the potential to be implemented in future CEF programmes.
Example: Digitalization of Infrastructure and Asset Management
Senskin (RIA)
Intermodel EU(RIA)
RAGTIME (RIA)
AM4INFRA(CSA)
Monitoring and remote sensoring
Modelling and simulation for efficient maintenance
Investment decision analysis
Interoperability through standardisation

For more information
inea@ec.europa.eu
http://ec.europa.eu/inea
@inea_eu
Look for INEA!
Thank you!
15


infra
4D
future
TEN-T and i4Df
Gudrun Schulze
Senior Policy Coordinator
DGMOVE

infra
4D
future
CEDR and i4Df
Steve Philips
Secretary-General CEDR

CEDR
Conférence Européenne
des Directeurs des Routes
Conference of European
Directors of Roads
CEDR's priorities in transport infrastructure innovation (and its organisation)

Overview

- Who is CEDR?
- Strategic objective
- Common road authority challenges
- Support for arena for innovation
- Aims of CEDR collaborative research
- Choice of instruments
- Structured approach for deployment
- Five stages to deliver innovation
- CEDR commitments
- CEDR commitment to I4DF

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Who is CEDR?

"CEDR is an organisation of European national road administrations that promotes Excellence in the Management of Roads" (CEDR Mission)

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Strategic objective

"Innovation is a part of the CEDR strategic objective '
to help NRAs to keep ahead of the curve, anticipate future trends and prepare them to face new challenges'
and that innovation will shape NRAs' future core business as well as the legislation that frames their activities.' "

CEDR Governing Board, 2018

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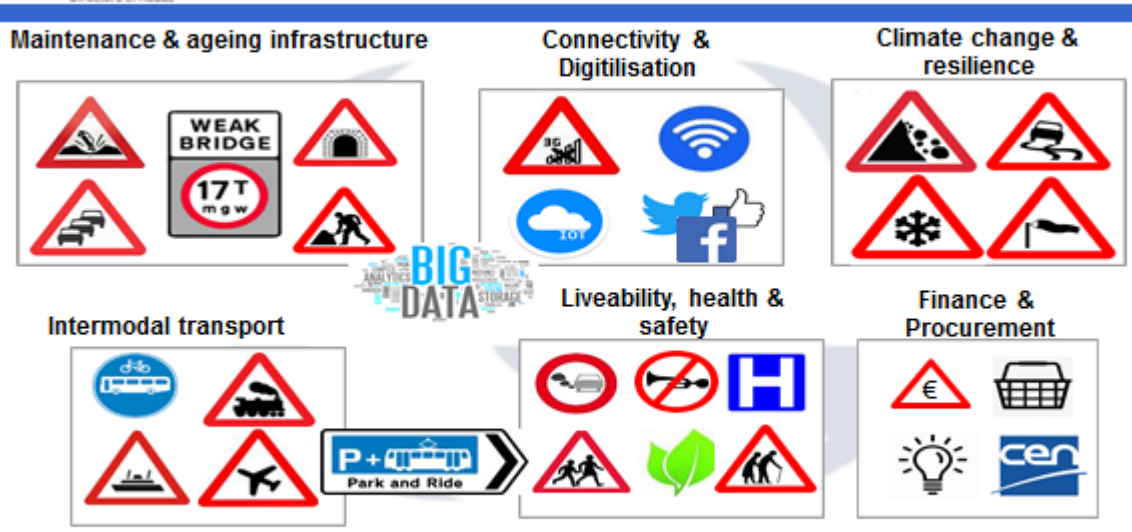
Common road authority challenges



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Support for arena for innovation

23

Aims of CEDR collaborative research

- Reduced duplication of research
- Exchange of knowledge
- Improved quality of research
- International best practice
- Better value for money

- Reduce barriers to implementation

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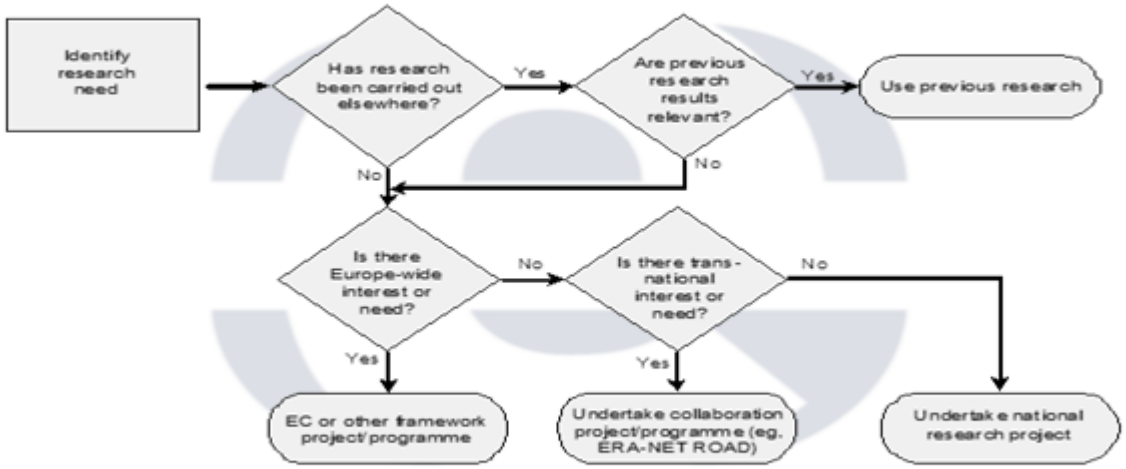
Choice of instruments



ERA-NET ROAD 4-step process for deciding where to place research needs

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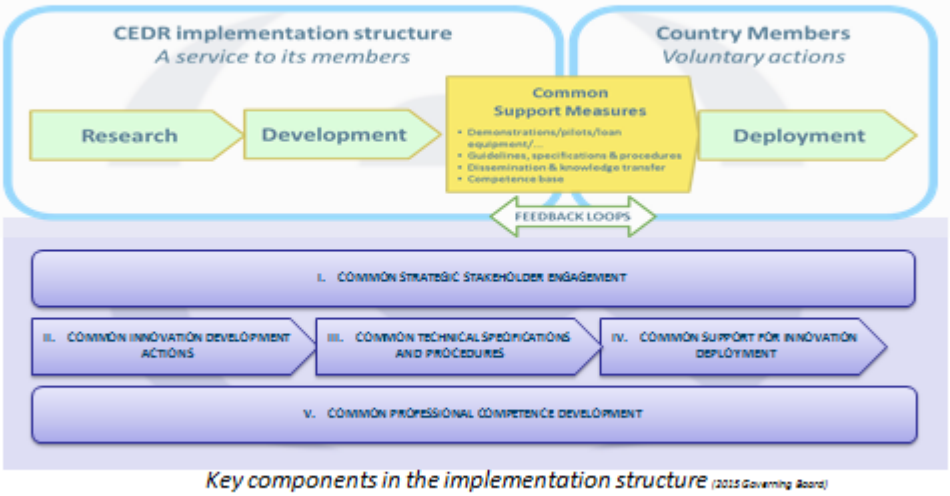
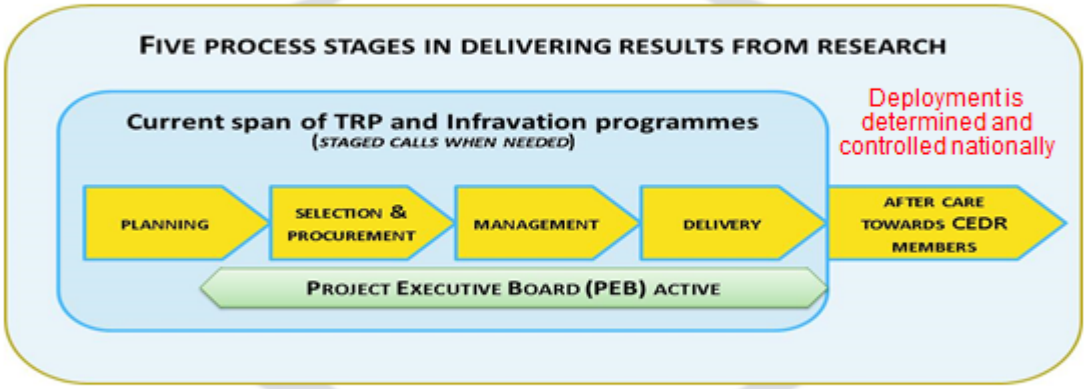
Structured approach for deployment



Key components in the implementation structure (2015 Governing Board)

26

Five stages to deliver innovation



'Towards a CEDR Implementation Framework' (2016 Governing Board GB27/20)

27

CEDR commitments

- ... supported the Finnish proposals for raising the profile of infrastructure in TRA by strengthening the link with TEN-T activities [..].
- ... should meet with the EIM Board to agree cooperation on innovation activities. [..] proposals for cooperation between CEDR and EIM in the framework of TRA.
- [..] WG Innovation to provide recommendations on establishing a framework for implementing relevant research results through CEF calls for proposals.
- [..] develop proposals for [..] establishing a PPP with relevant industry stakeholders to deliver an innovation development and implementation programme on Cooperative, connected and automated mobility.

(2018 Governing Board decisions 31/10, 31/11, 31/15 and 31/16).

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CEDR commitment to I4DF

Letter of Intent for the Infra4Dfuture CSA initiative

Coordination of CEDR activities with the CSA initiative Infra4Dfuture

Agreement between CEDR and Rijkswaterstaat (project coordinator Infra4Dfuture), the parties,

Whereas:

- CEDR has operated a transnational research programme since 2006 which has opened to external funding partners from all European public-sector agencies and to the US Federal Highway Administration. This programme is coordinated by a Working Group (WG) Innovation operating under the mandate of the CEDR Governing Board. In 2013, CEDR also launched the Infravation ERA-Net plus with top-up funding from the European Commission. CEDR has an MoU with the European Rail Infrastructure Managers (EIM) to address common challenges and opportunities including innovation.
- The Dutch national infrastructure authority, Rijkswaterstaat is the coordinator of the Infra4Dfuture CSA initiative. Rijkswaterstaat is a founder member of CEDR and coordinates the Infravation programme.

Both parties agree to work together on the following project objectives:

- Infra4Dfuture is designed to develop an overarching strategy and coordination mechanism for future demand-driven multimodal infrastructure innovation.
- Infra4Dfuture will highlight topics such as:
  - allocation and detection of transport infrastructure innovation needs to the most suitable platforms;
  - strategic stakeholder engagement and a stronger dialogue with industry on research needs assessment;
  - improving dissemination and implementation processes of transport infrastructure innovation and supporting research results
  - alignment of transport infrastructure innovation and research agendas, programmes and ambitions.
- Infra4D future will facilitate an optimised exchange of transnational, cross-modal information that will provide better, faster access to essential information enabling transport infrastructure authorities earlier and better founded decision-making on policy and strategic planning and future investments.

- The GB agreed to continue to contribute to the Infra4DFuture project, including through the co-organisation of workshops at GB meetings in October 2019 and at TRA2020 with the High-Level meetings of Infra4DFuture stakeholders from EC and industry.
- The GB recognised [CEDR's WG Innovation's] role as advisory body to the I4DF project

(CEDR Governing Board decisions GB31/12 and 31/13)

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EIM and i4Df

Hans Ring

Deputy Director

Trafikverket

European Rail Infrastructure Managers
EIM
EIM
Mandate, Activities, Innovation
Presentation Infra4DFuture
Tuesday, 11th December 2018
Brussels, Belgium

European Rail Infrastructure Managers
EIM
Table of Contents
1 EIM in a nutshell
Basic facts
Business environment
4 main areas of activity
2 EIM promotes innovation
Market trends & political priorities
Horizon Europe (Shift2Rail)
Opportunities & Challenges
3 Infra4DFuture
Multimodal TEN-T
Cooperation with CEDR

1 EIM in a nutshell - I

EIM in a nutshell

Founded:	March 2002
Legal entity:	AISBL (International Non-Profit Association)
Office:	Brussels, Belgium
Coverage:	11 countries
Members:	12 full members and 3 associate members
President:	Pier Eringa (ProRail)
Executive Director:	Monika Heiming

Mission

promotes the development, improvement and efficient delivery of rail infrastructure in the EU
represents its members' political, technical and business interests to all relevant EU institutions
supports business development by providing a forum for cooperation

Vision

supports an open and seamless European rail network, promoting a safe and sustainable transport system

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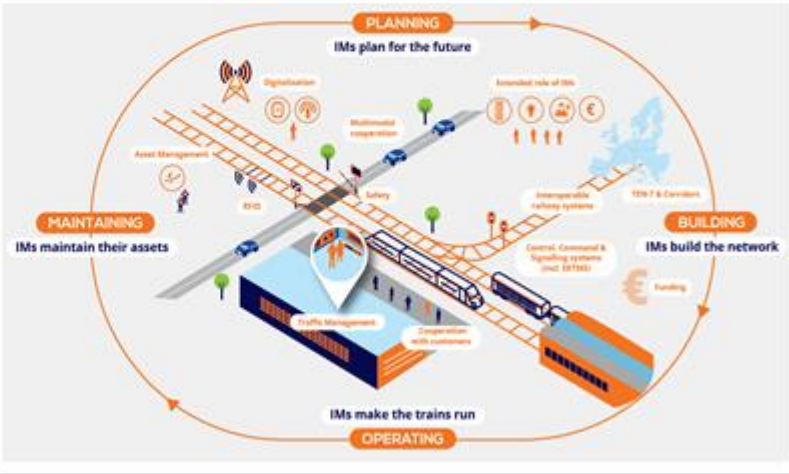
1 EIM in a nutshell - II

Business environment

The value chain:
- Planning
- Building
- Operating
- Maintaining

The functions:
- Extended role
- Multimodality
- Interoperability
- Safety
- ERTMS & Signalling
- Customer management
- Traffic management
- Asset Management
- Digitalisation
- Cyber-/Security



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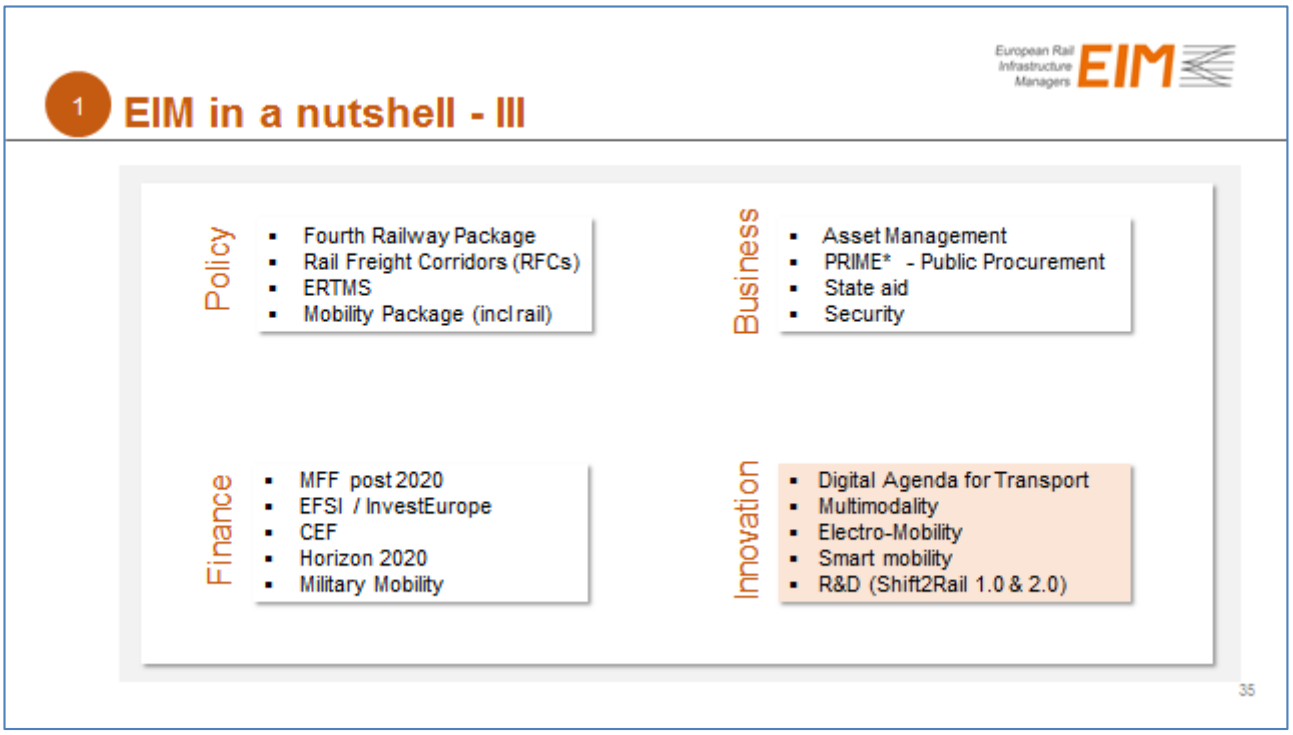
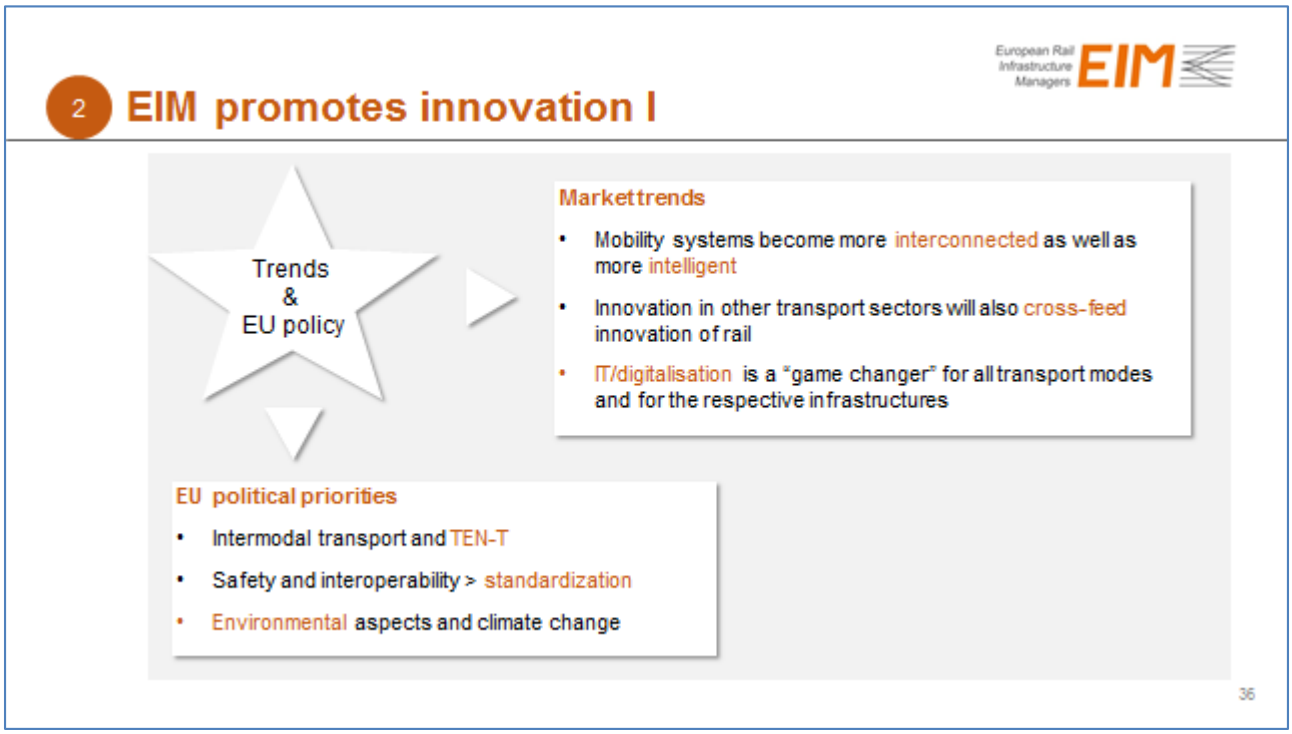

1
EIM in a nutshell - III
European Rail Infrastructure Managers EIM
Policy
Fourth Railway Package
Rail Freight Corridors (RFCs)
ERTMS
Mobility Package (incl rail)
Business
Asset Management
PRIME* - Public Procurement
State aid
Security
Finance
MFF post 2020
EFSI / InvestEurope
CEF
Horizon 2020
Military Mobility
Innovation
Digital Agenda for Transport
Multimodality
Electro-Mobility
Smart mobility
R&D (Shift2Rail 1.0 & 2.0)
35


2
EIM promotes innovation I
European Rail Infrastructure Managers EIM
Trends & EU policy
Market trends
Mobility systems become more interconnected as well as more intelligent
Innovation in other transport sectors will also cross-feed innovation of rail
IT/digitalisation is a "game changer" for all transport modes and for the respective infrastructures
EU political priorities
Intermodal transport and TEN-T
Safety and interoperability > standardization
Environmental aspects and climate change
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2 EIM promotes innovation II

EIM promotes Horizon Europe II

Shift2Rail will become more multimodal involving research and innovation projects for several transport modes

Shift2Rail

Overall Horizon Europe budget: EUR 97.6 billion (vs EUR 77 billion for H2020)

1. **Excellent Science** — 25 % of the budget
   - European Research Council
   - MSCA
   - Research Infrastructures
2. **Global Challenges (Missions)** — 58 % of the budget
   - 5 Clusters: Health; Resilience & Security; Digital & Industry; Food & Natural Resources; Climate, Energy & Mobility
3. **Open innovation** — 15 % of the budget
   - European Innovation Council (EIC)
   - Support to Innovation Ecosystem
   - Financial Infrastructures

2 EIM promotes innovation III

Opportunities

- Lobby: Importance of rail-related R&D recognised by all stakeholders;
- Funding: EC keen to maintain financial resources for Shift2Rail;
- Cooperation: Importance of cooperation with Shift2Rail confirmed by European standardisation bodies;
- Traffic management: Inclusion of traffic management in Shift2Rail II;
- Indicators: More key performance related output (indicators);
- Competitiveness: Quicker innovation uptake by market and EU institutions;
- EU: New strategy for Horizon Europe.

Challenges

- Funding: Shift2Rail will be obliged to seek for alternative funding from EU Member States (which have signed bilateral R&D initiatives with foreign countries, e.g. CN);
- Projects: level of underspent resources in the Shift2Rail programme totals 5%-10%. If not used before 2020, funds will be lost;
- Finance: EC keen to see financial vs 'in kind' contributions from industry;
- Innovation: EC and industry need to speed up technical readiness level (TRL) to remain competitive and innovative on global level;
- Competitiveness: 'Safety first' approach (IP2) may slow down innovation process vs automotive industry.

3 Infra4DFuture I

European Rail Infrastructure Managers EIM

TEN-T will become multimodal

- Rail
- Road
- Digital

NB: EC to revise TEN-T guidelines in 2019/20

The value chain around TEN-T will become multimodal

- Planning (e.g. NUVIT)
- Construction
- Marketing / Sales (MaaS)
- Operations (mobility management)
- Maintenance

NB: I4DF to feed TEN-T revision ?

3 Infra4DFuture II

European Rail Infrastructure Managers EIM

4 members of EIM participate in the I4dF consortium

- Trafikverket
- ProRail
- IP
- FTA

Strong cooperation with CEDR

- via TRA2020
- Bilateral / multilateral topics

Multimodality

Road/Rail cooperation

TEN-T

TRA 2020

European Rail Infrastructure Managers
EIM
Let's create the innovative infrastructure of tomorrow together today
Thank you for your attention
EIM
www.eimrail.org
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infra 4D future
Introduction to i4Df
Peter Wilbers
infra4Dfuture Programme Coordinator

Coordination and Support Action

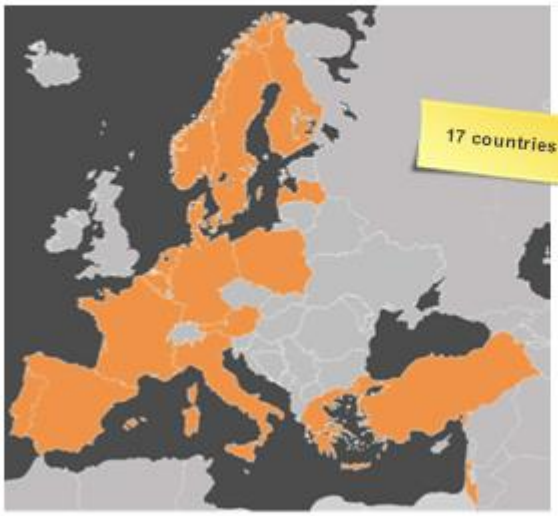
H2020 MG-2-4-2018: 'Coordinating national efforts in modernizing transport infrastructure and provide innovative mobility services'

- ***Develop a coordination mechanism*** *that will allow National Transport Authorities to align their efforts in modernizing the transport infrastructure network;*
- ***Identify new roles and competences for the infrastructure managers/operators*** *to respond to the new and future functionalities of the transport infrastructure;*
- ***Consolidate partnerships and alliances*** *between the transport infrastructure stakeholders and the research community;*
- ***Continue the coordination activities for information exchange and cross-cutting fertilization*** *between projects funded under Horizon 2020, CEF and national schemes for the optimal exploitation of the results.*

infra4Dfuture consortium

Organisation	country	Organisation	country
1. Rijkswaterstaat (Ministerie van Infrastructuur en Waterstaat)	NL	11. bmvit (Bundesministerium für Verkehr, Innovation und Technologie	AT
2. Liikennevirasto	FI	12. Ministerio de Fomento	ES
3. Agentschap Wegen en Verkeer	BE-FL	13. Infraestruturas de Portugal	PT
4. Latvijas Valsts Ceļi	LV	14. MINISTERSTWO INFRASTRUKTURY	PL
5. Vejdirektoratet	DK	15. MGMiŻS (Ministry of Maritime Economy and Inland Navigation)	PL
6. Trafikverket	SE	16. CERTH/HIT	GR
7. Statens Vegvesen	NO	17. Ministère de la transition écologique et solidaire	FR
8. BMVI (Bundesministerium für Verkehr und digitale Infrastruktur)	DE	18. NETIVEI ISRAEL	IL
9. BASt (Bundesanstalt für Straßenwesen)	DE	19. Karayolları Genel Müdürlügü	TR
10. ANAS S.p.A.	IT	20. TUV Rheinland Consulting	DE

infra4Dfuture country coverage



infra4Dfuture ambition and duration

- Development of an overarching strategy and coordination mechanism
  - for future demand-driven multimodal infrastructure innovation and implementation
  - that will allow National Transport Infrastructure Authorities to align their efforts in modernizing the transport infrastructure network

Demand-driven, multimodal

- Duration: 1 Oct 2018 – 30 Sep 2020

infra4Dfuture outcomes

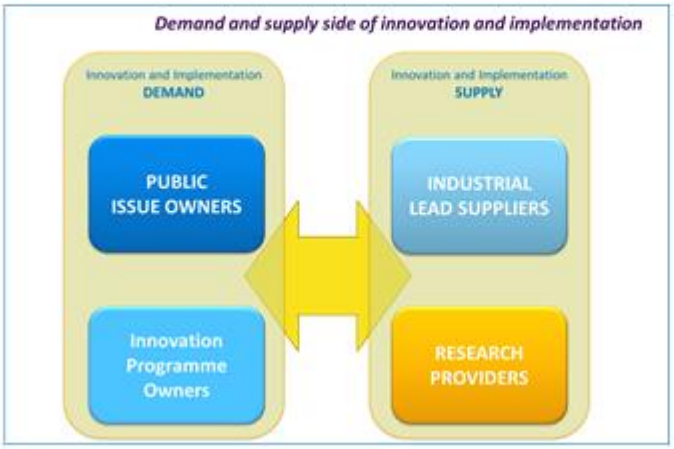
- Concerted rolling portfolio of innovation programmes and initiatives
  - European, (inter) national
- Supported coordination mechanism involving relevant stakeholders
  - To drive the effective delivery of innovative solutions
- Supported framework for professional competence building
  - To support the implementation and deployment of the innovative solutions
- Strategic stakeholder platform
  - infra4Dfuture Stakeholder Platform for Infrastructure Innovation and Implementation (ISPIII)
  - To deploy the coordination mechanism

infra4Dfuture impact

Quicker benefits for the end-user

- More ready to implement, cost-effective innovative solutions
  - Less duplications, gaps and mismatches
  - Twinning & co-programming of a rolling portfolio
- Shorter time to market
  - Active involvement of industry, research and programme owners
  - Staged gate reviewing process on relevant KPIs
- More on target
  - Guidance/orchestration from concrete infrastructure capabilities in 2040

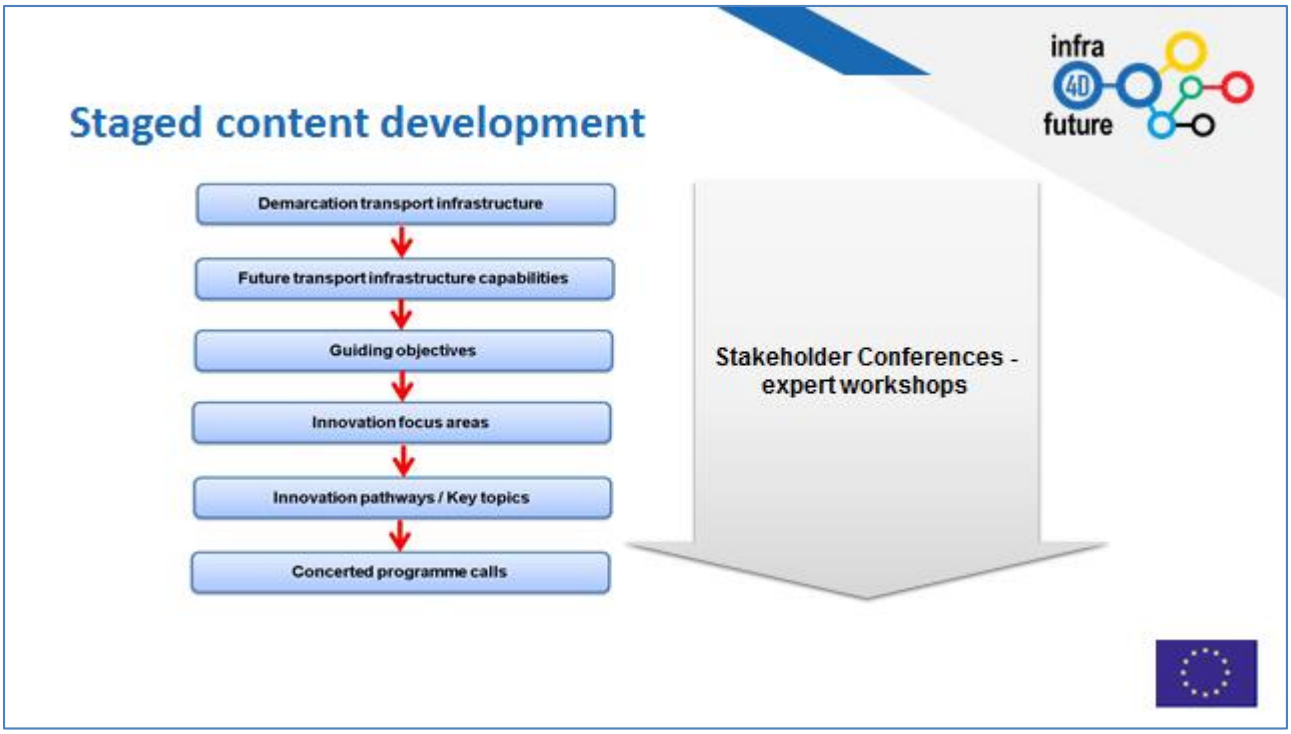
infra4Dfuture stakeholder groups

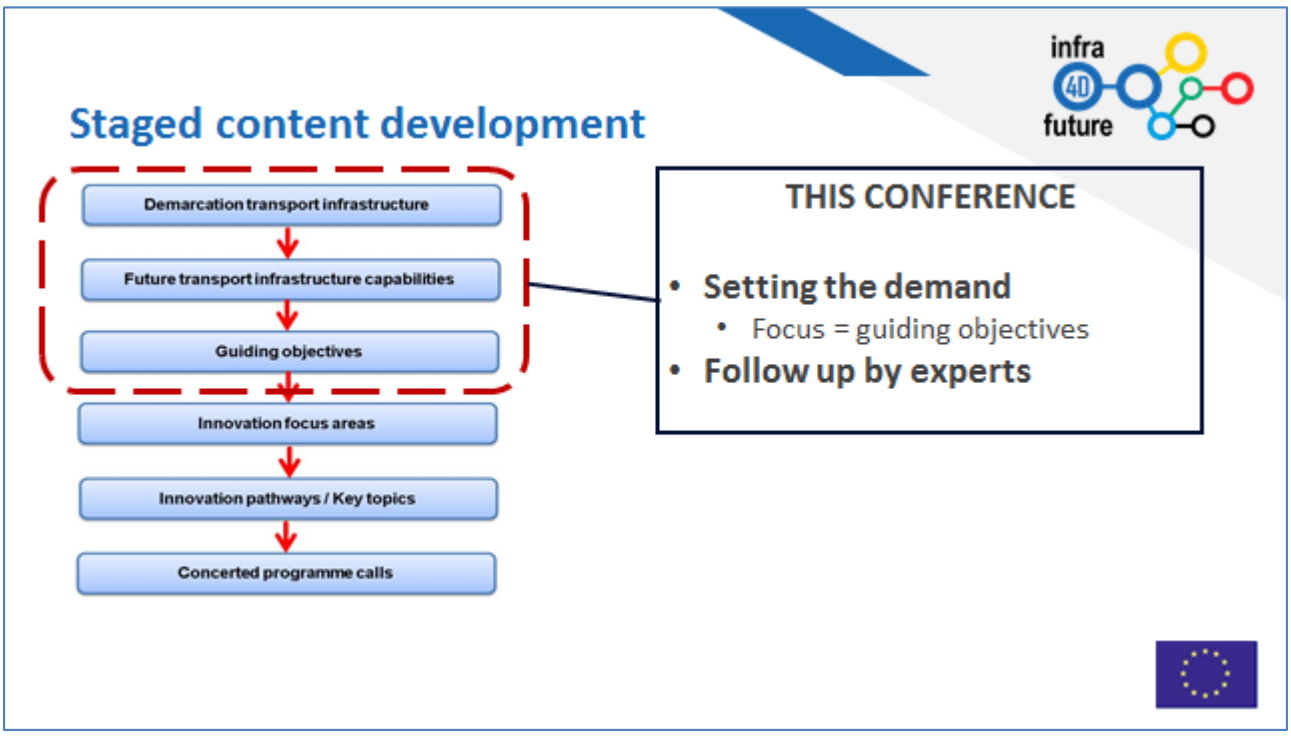


infra4Dfuture starting points

- Consortium composed of National Transport Infrastructure Authorities (or their representatives)
- Initiative owned by i4Df consortium supported and (funded by) the EC
- Initiative is innovation demand driven: Public Issue Owners and Innovation Programme Owners are in the lead
- Industry is 'lead supplier', research providers are in support
- Innovation needs emerge from investment challenges from the various societal challenges
- Horizon is 2040

i4Df is an evolving initiative


Staged content development
Demarcation transport infrastructure
Future transport infrastructure capabilities
Guiding objectives
Innovation focus areas
Innovation pathways / Key topics
Concerted programme calls
Stakeholder Conferences - expert workshops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Concerted programme calls
THIS CONFERENCE
Setting the demand
Focus = guiding objectives
Follow up by experts

infra4Dfuture contacts
Coordinator:
Peter Wilbers, Rijkswaterstaat
• Mail to:
peter.wilbers@rws.nl
• Phone:
+31622907912
Co-manager:
Richard van der Elburg, Rijkswaterstaat
• Mail to:
richard.vander.elburg@rws.nl,
• Phone:
+3125098927

Coffee break I

infra
4D
future
Event objective and work form
Ruud Smit
Innovation Manager Europe
Rijkswaterstaat

Objective of the event:
A common vision
for
infrastructure innovation needs and requirements
• Your input to "Infrastructure capabilities for 2040" paper

4 rounds – 4 subjects to address:

- *Demarcation of infrastructure*
- *Infrastructure optimally meeting end-user needs*
- *Infrastructure meeting environmental and social sustainability needs*
- *Infrastructure achieving added value from digitalisation*

Work form: World Café

building up from, adding on to:

- *Peer-to-peer discussion – 25 minutes per round*
- *Provide quick takes → bulleted notions, direct on sheet*
- *First focus = guiding objectives for 2040*
  - *Second focus = Innovation Focus Area's & Required Competences*

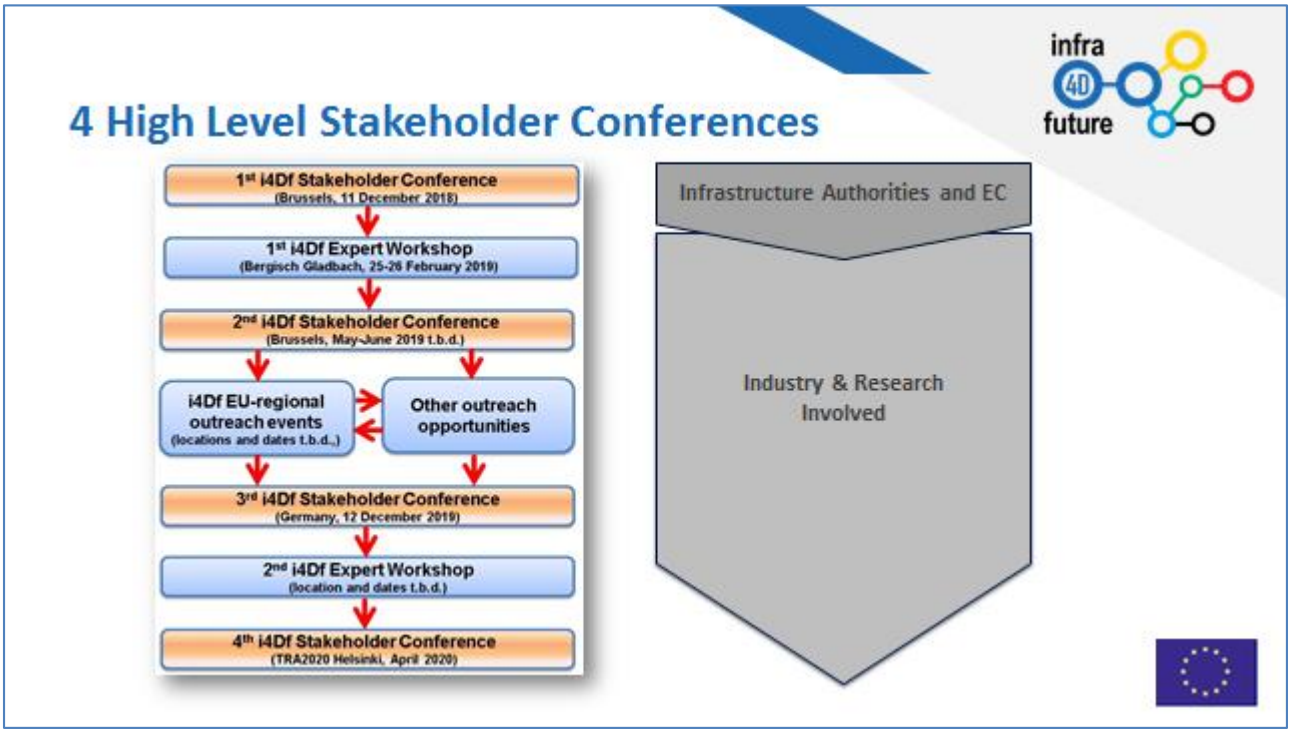
infra
4D
future
Discussion tables –
round 1-2

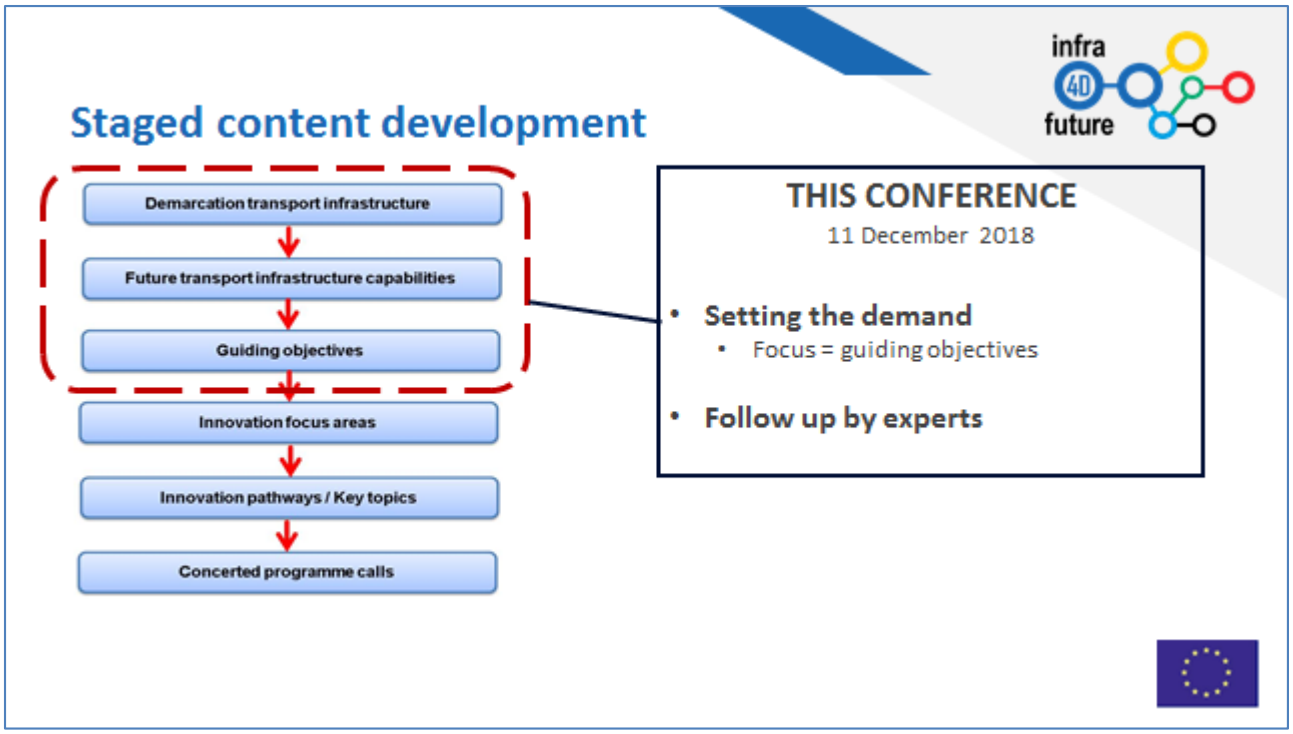
infra
4D
future
Lunch

infra
4D
future
Discussion tables –
round 3-4

infra
4D
future
Coffee break II

infra
4D
future
Next steps in the development
Ruud Smit


4 High Level Stakeholder Conferences
infra
4D
future
1st i4Df Stakeholder Conference
(Brussels, 11 December 2018)
1st i4Df Expert Workshop
(Bergisch Gladbach, 25-26 February 2019)
2nd i4Df Stakeholder Conference
(Brussels, May-June 2019 t.b.d.)
i4Df EU-regional outreach events
(locations and dates t.b.d.)
Other outreach opportunities
3rd i4Df Stakeholder Conference
(Germany, 12 December 2019)
2nd i4Df Expert Workshop
(location and dates t.b.d.)
4th i4Df Stakeholder Conference
(TRA2020 Helsinki, April 2020)
Infrastructure Authorities and EC
Industry & Research Involved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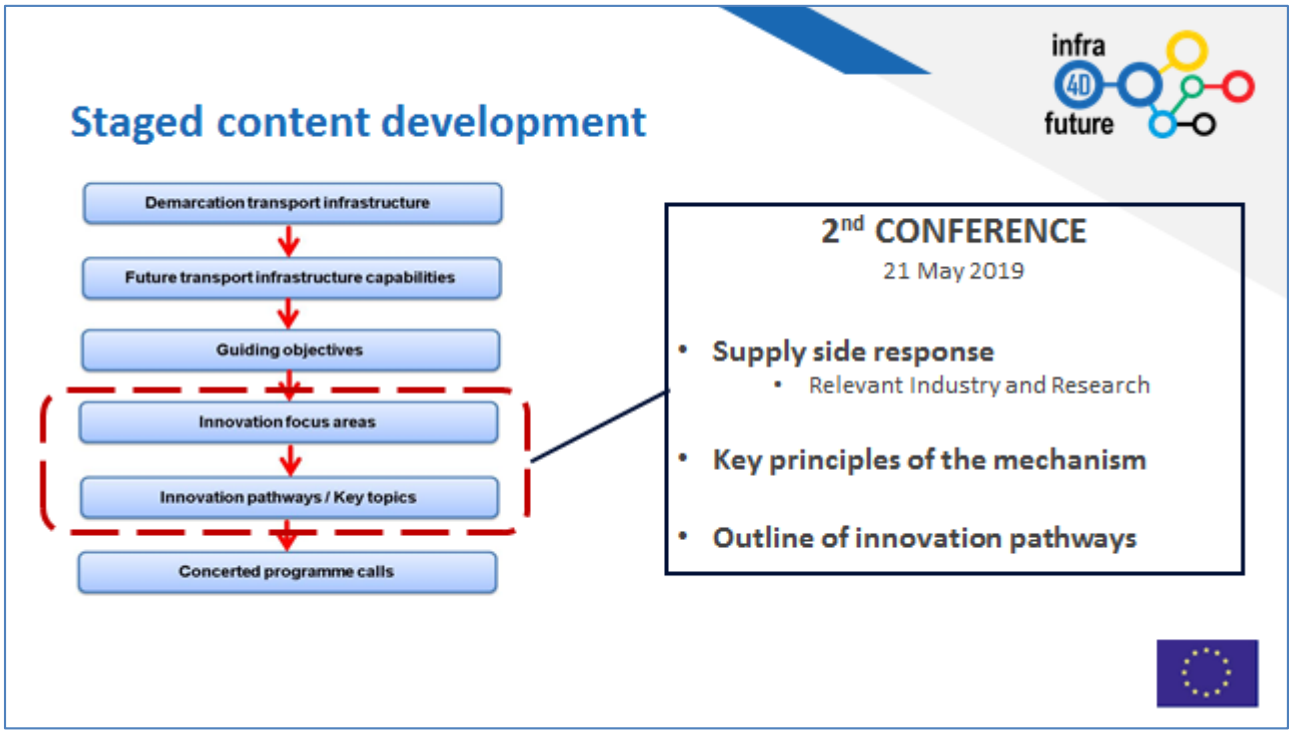
THIS CONFERENCE
11 December 2018
Setting the demand
Focus = guiding objectives
Follow up by experts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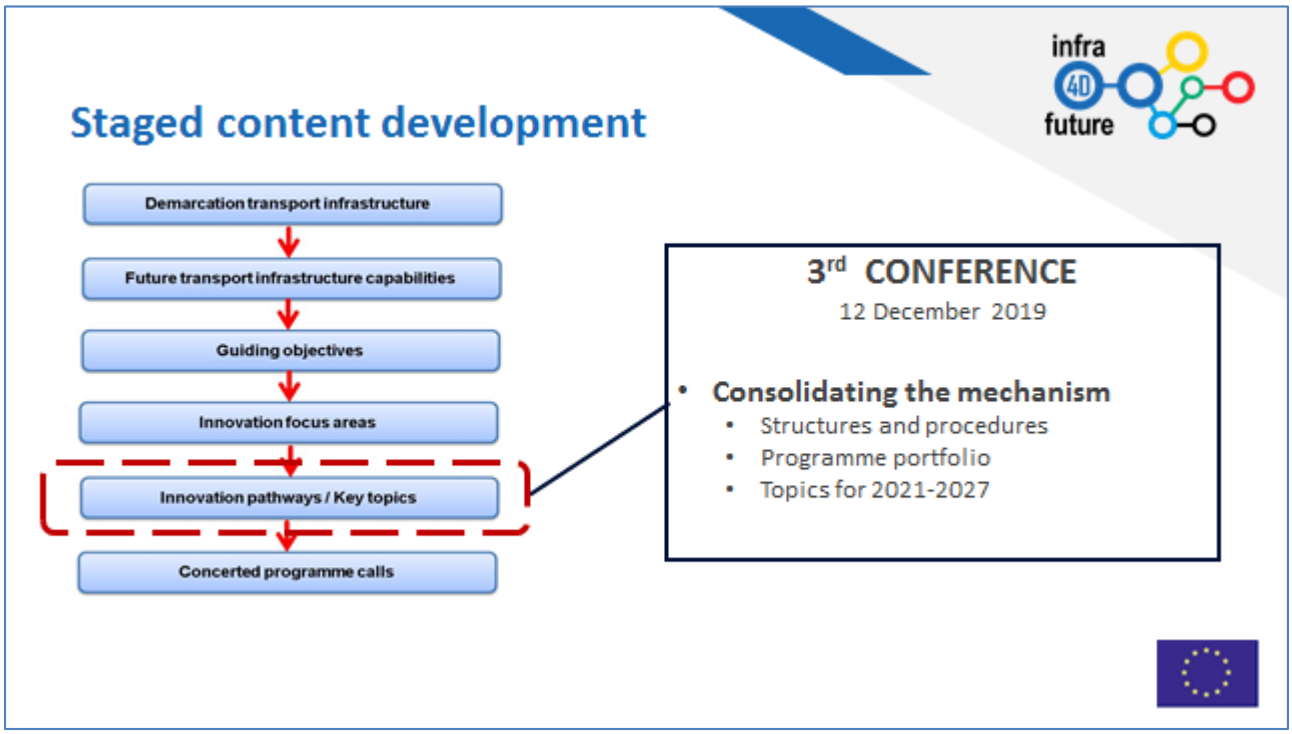
Innovation pathways / Key topics
Concerted programme calls
2nd CONFERENCE
21 May 2019
Supply side response
Relevant Industry and Research
Key principles of the mechanism
Outline of innovation pathways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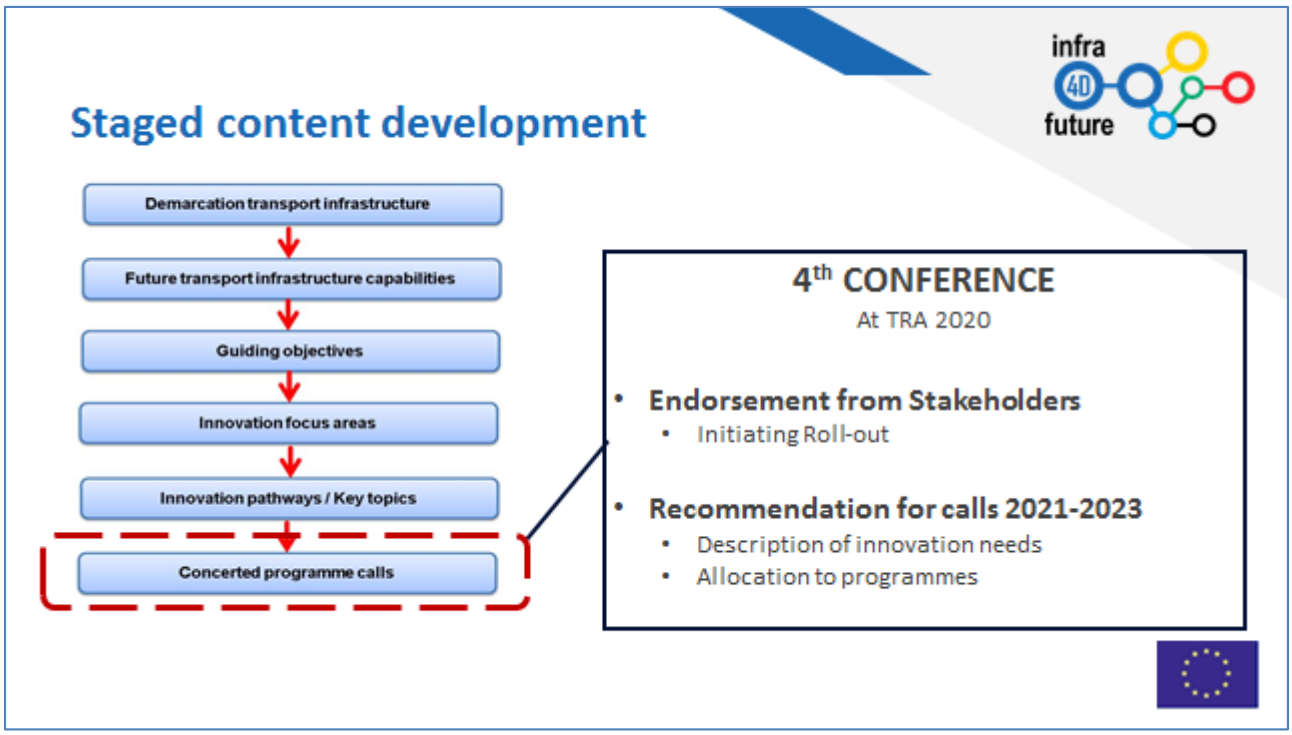
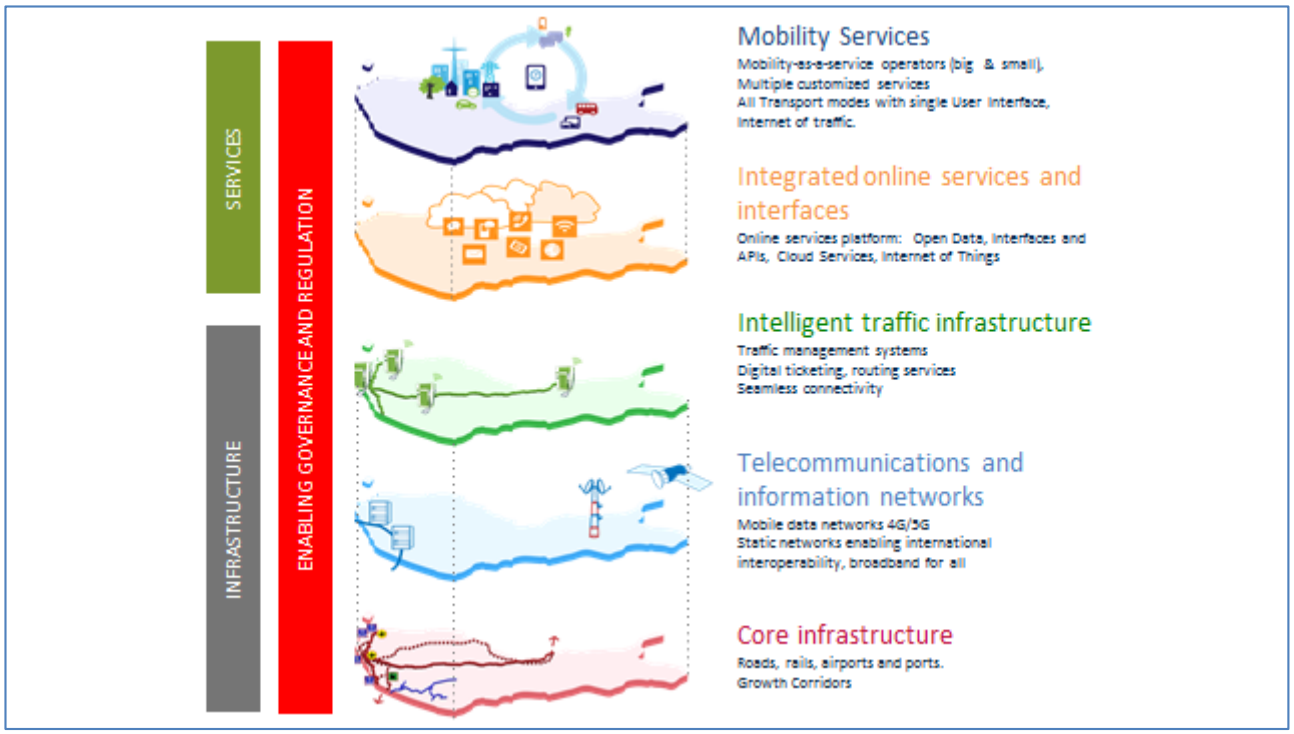
Innovation pathways / Key topics
Concerted programme calls
3rd CONFERENCE
12 December 2019
Consolidating the mechanism
Structures and procedures
Programme portfolio
Topics for 2021-2027

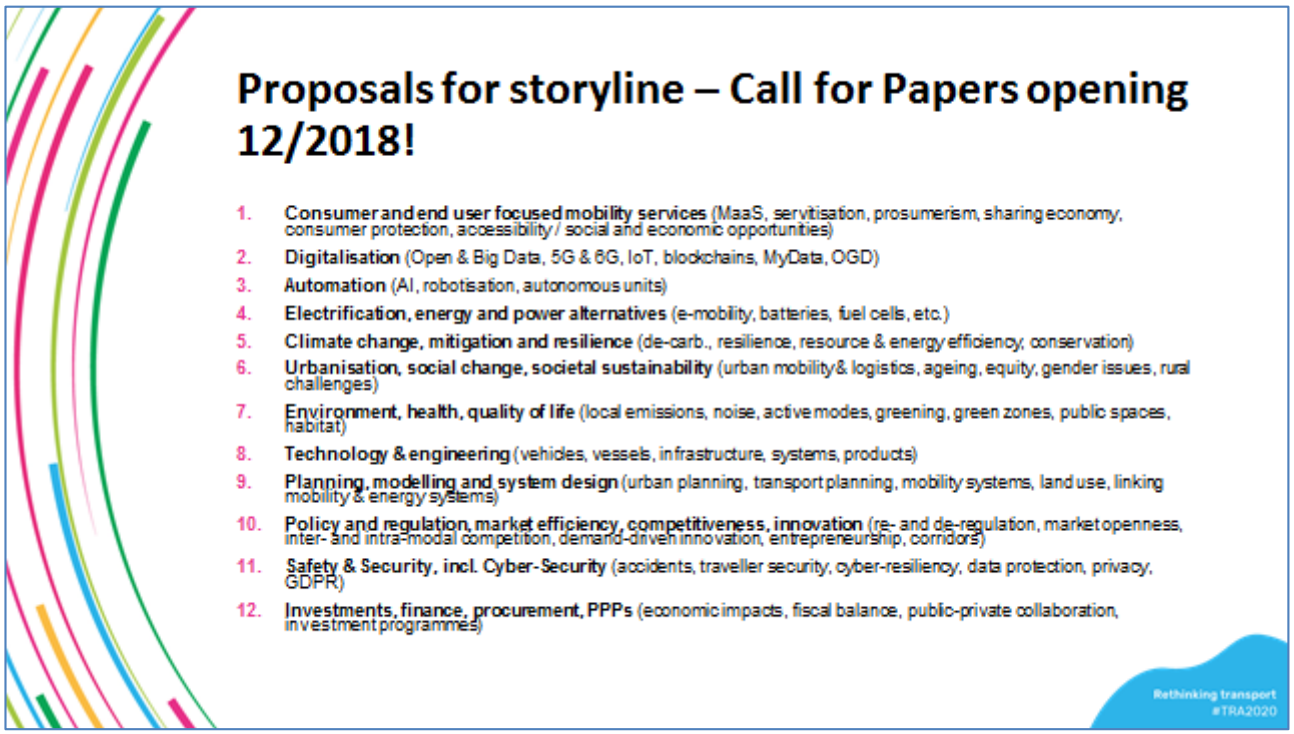

Staged content development
Demarcation transport infrastructure
Future transport infrastructure capabilities
Guiding objectives
Innovation focus areas
Innovation pathways / Key topics
Concerted programme calls
4th CONFERENCE
At TRA 2020
Endorsement from Stakeholders
Initiating Roll-out
Recommendation for calls 2021-2023
Description of innovation needs
Allocation to programmes

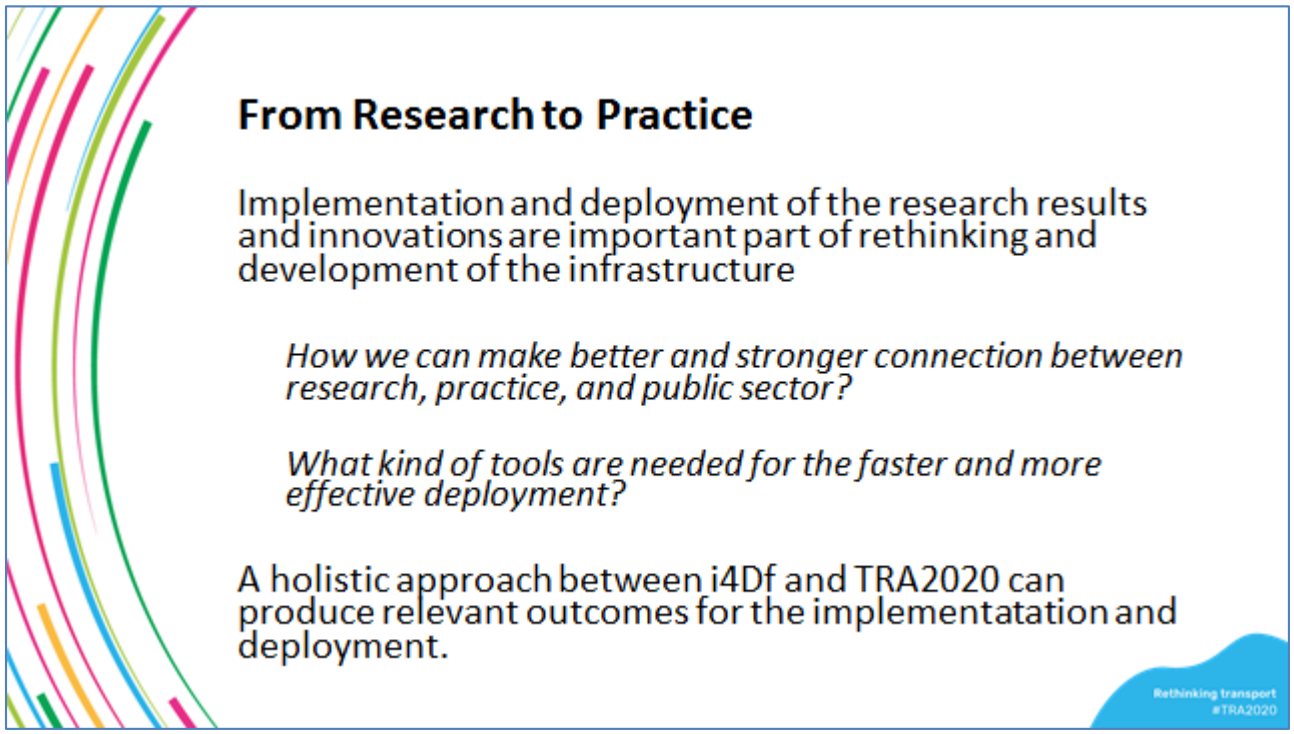
infra
4D
future
TRA 2020 and i4Df
Ari-Pekka Manninen
Development Manager
Finnish Transport Agency

Rethinking transport–
Towards clean and inclusive mobility
27–30 April 2020, Helsinki
Dr. Ari-Pekka Manninen
Finnish Transport Agency
TRA 2020
HELSINKI
Organised by:
Trafi
VTT
BUSINESS FINLAND
Rethinking transport
#TRA2020


SERVICES
INFRASTRUCTURE
ENABLING GOVERNANCE AND REGULATION
Mobility Services
Mobility-as-a-service operators (big & small).
Multiple customized services
All Transport modes with single User Interface,
Internet of traffic.
Integrated online services and interfaces
Online services platform: Open Data, Interfaces and APIs, Cloud Services, Internet of Things
Intelligent traffic infrastructure
Traffic management systems
Digital ticketing, routing services
Seamless connectivity
Telecommunications and information networks
Mobile data networks 4G/5G
Static networks enabling international interoperability, broadband for all
Core infrastructure
Roads, rails, airports and ports.
Growth Corridors

TRA2020 – Rethinking transport, rethinking infrastructure
Transport, as we know it know it now, is undergoing a massive transformation. Transformation covers every single aspect of mobility from the way we book our journeys to the value proposition of transport assets, enabled and fuelled by digital technologies, leading towards measures against climate change and increased European competitiveness.
TRA 2020 offers the right moment to think together how, with digital technologies, we can shape and direct this transformation to respond to the demands.
Citizens want action on the climate change and transport sector has a huge role to play in order to achieve sustainable European future.
Disruptive business models for moving people and goods are contributing to the user-centric approach to innovative mobility and transport solutions.
Rethinking the existing infrastructure assets opens up new opportunities to further develop multimodality, energy and power alternatives as well as connectivity and automation.
Last but not least, transport research shapes the policy making at national and European levels, we need to grasp the moment to transform the results of the research to strengthen the European competitiveness.
Plenary 1: Climate change
Plenary 2: Innovative mobility and transport solutions
Plenary 3: Rethinking infrastructure
Plenary 4: European competitiveness
Rethinking transport
#TRA2020


Proposals for storyline – Call for Papers opening 12/2018!
1. Consumer and end user focused mobility services (MaaS, servitisation, prosumerism, sharing economy, consumer protection, accessibility / social and economic opportunities)
2. Digitalisation (Open & Big Data, 5G & 6G, IoT, blockchains, MyData, OGD)
3. Automation (AI, robotisation, autonomous units)
4. Electrification, energy and power alternatives (e-mobility, batteries, fuel cells, etc.)
5. Climate change, mitigation and resilience (de-carb., resilience, resource & energy efficiency, conservation)
6. Urbanisation, social change, societal sustainability (urban mobility& logistics, ageing, equity, gender issues, rural challenges)
7. Environment, health, quality of life (local emissions, noise, active modes, greening, green zones, public spaces, habitat)
8. Technology & engineering (vehicles, vessels, infrastructure, systems, products)
9. Planning, modelling and system design (urban planning, transport planning, mobility systems, land use, linking mobility & energy systems)
10. Policy and regulation, market efficiency, competitiveness, innovation (re- and de-regulation, market openness, inter- and intra-modal competition, demand-driven innovation, entrepreneurship, corridors)
11. Safety & Security, incl. Cyber-Security (accidents, traveller security, cyber-resiliency, data protection, privacy, GDPR)
12. Investments, finance, procurement, PPPs (economic impacts, fiscal balance, public-private collaboration, investment programmes)
Rethinking transport
#TRA2020


From Research to Practice
Implementation and deployment of the research results and innovations are important part of rethinking and development of the infrastructure
How we can make better and stronger connection between research, practice, and public sector?
What kind of tools are needed for the faster and more effective deployment?
A holistic approach between i4Df and TRA2020 can produce relevant outcomes for the implementatation and deployment.
Rethinking transport
#TRA2020

Thank you!
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infra
4D
future
Wrap-up
Cees Brandsen