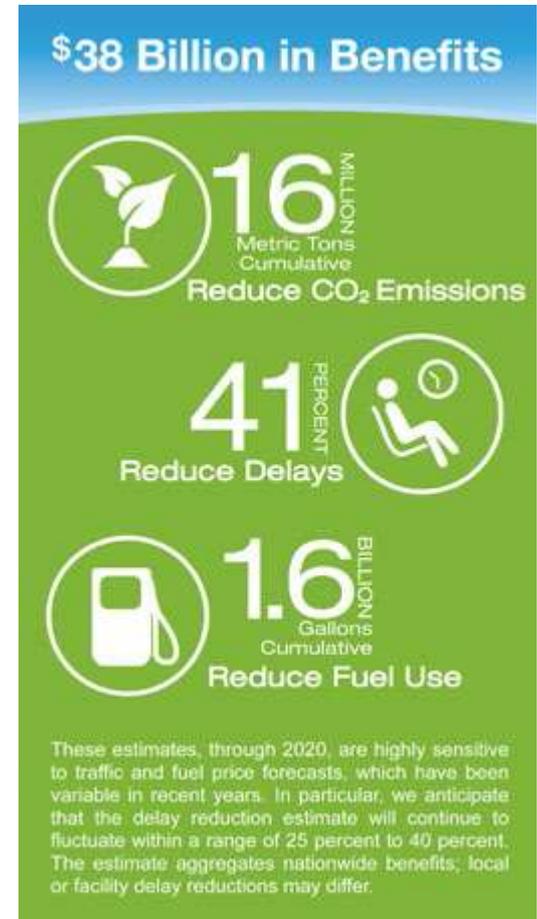


FAA's NextGen

- Impacts
 - Closely spaced parallel operations
(RW Separation <1,300 m)
 - Reduction in aircraft spacing
 - Reduction in taxiing times
 - Larger aircraft at smaller airports

Doubling the number of aircraft in the air



Maritime transport



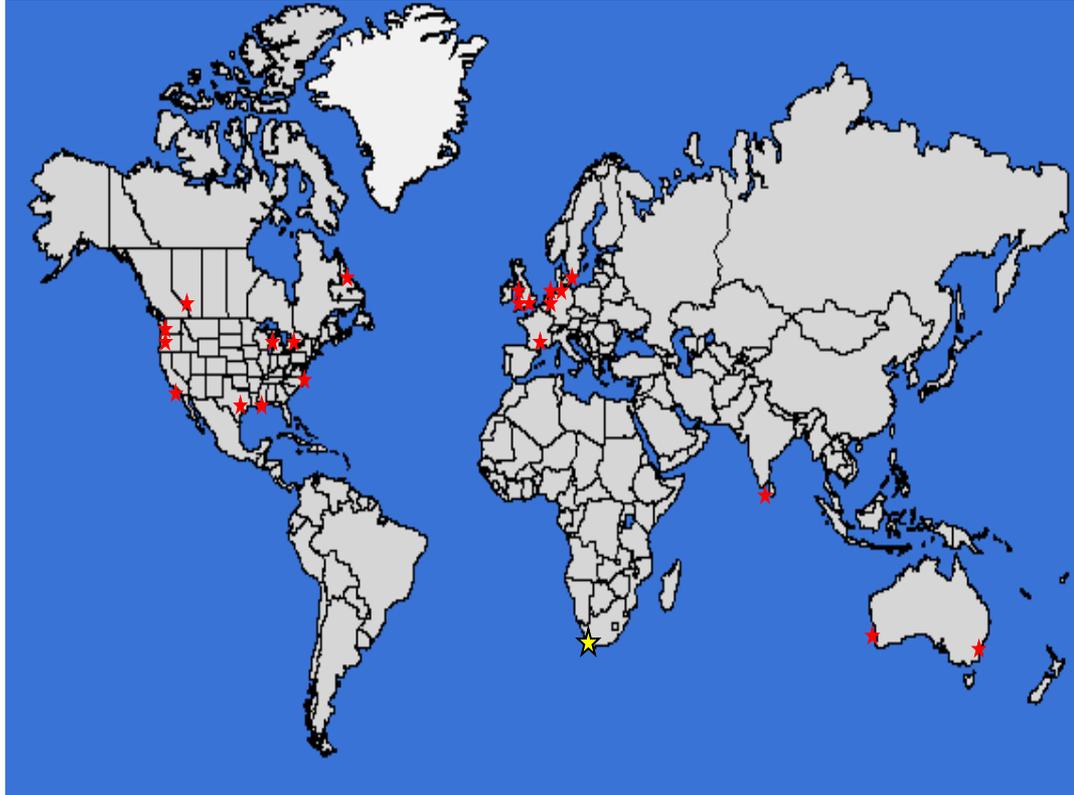
What Impact Next ?

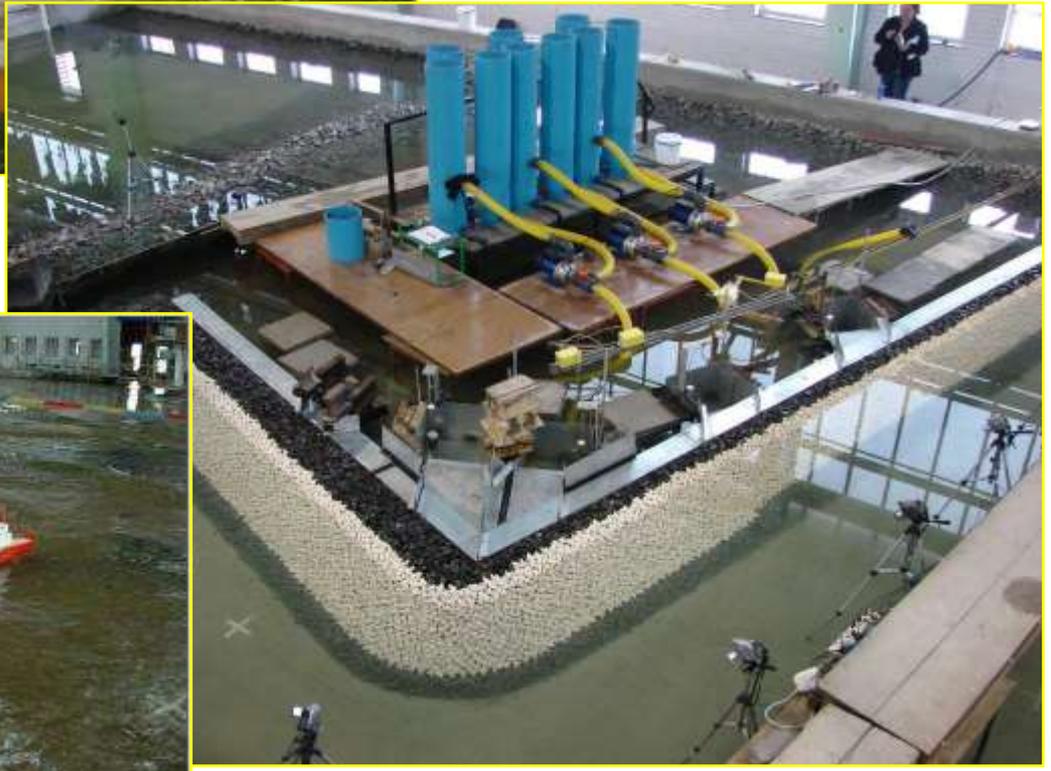
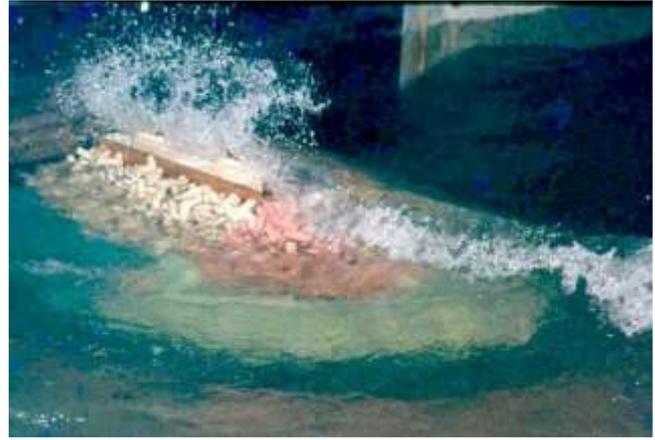
- Global Warming
- Sea level rise
- Increased frequency
- Early warnings
- Infrastructure protection











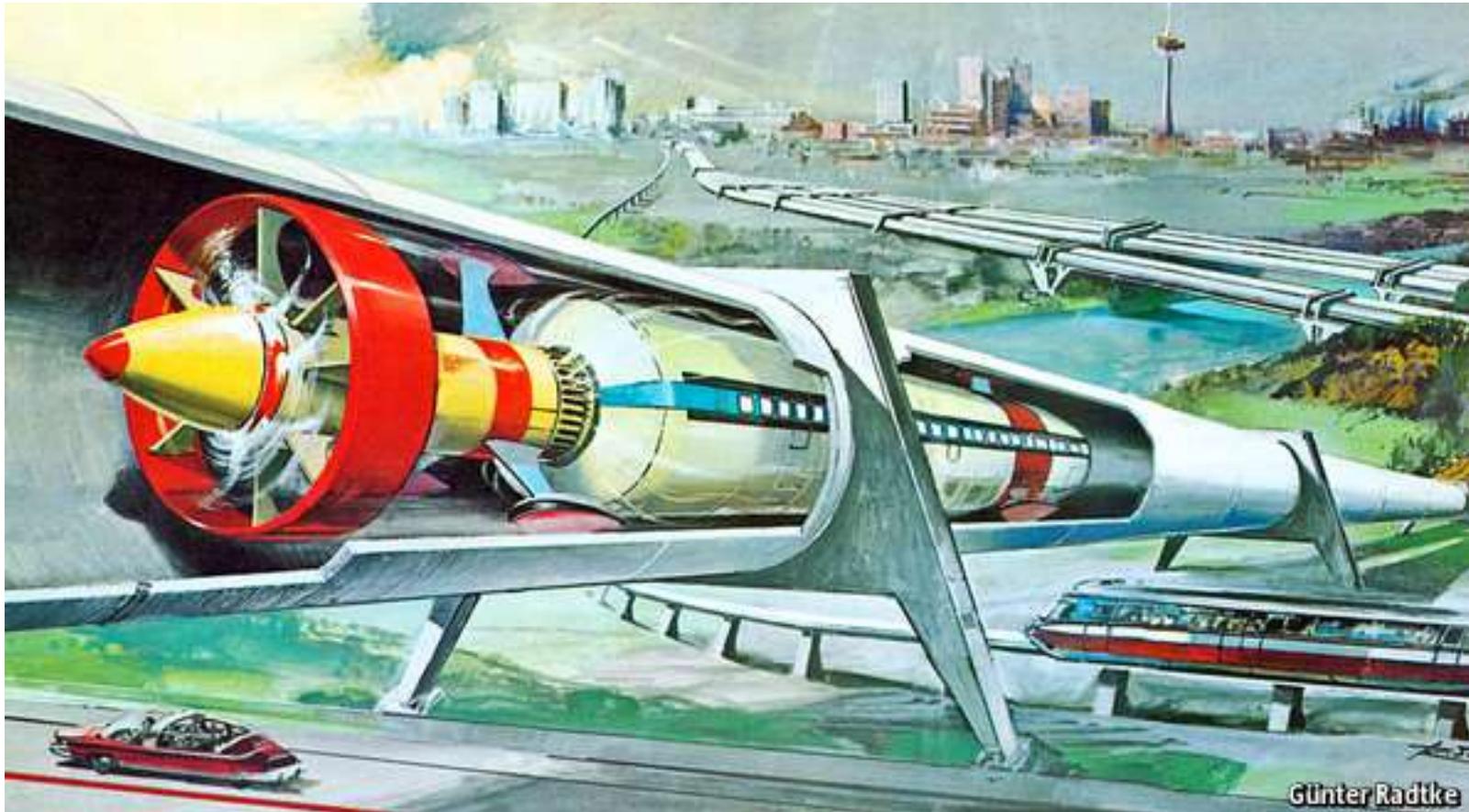
Rail Transport



Challenges

- **Passenger transport:**
 - Faster over longer distances (compete with air transport)
 - Efficiency and reliability
 - Seamless intermodal transfers
- **Freight transport:**
 - Increase in transported mass/volume - heavier gross mass, higher axle loads, longer trains
 - Increase in productivity – higher speed, faster trains

Next Generation?





**Spend less time looking
inward and backward
and more time looking
outward and forward**

*Rowan Gibson, Innovation Summit 2013,
Johannesburg, South Africa*

Moving Forward (from an RI perspective)

- **Map challenges and RDI needs**
 - Identify and reach consensus on global/regional/national current and future transport challenges that have to be resolved
 - International Transport Research Cooperation Observatory (to be established)
 - European Transport Research Alliance (ETRA – established)
 - National transport forums
 - Unpack challenges, define end-objectives and RDI needs/priorities, and identify RI resources required to meet objectives
- **Assess capabilities of existing RI**
 - Identify existing RI and their capabilities, and match with RI resources required to meet end objectives
 - If needs are satisfied: mobilise
 - If needs are not satisfied:
 - Identify the gaps
 - Mobilise resources (collaboratively) to bridge the gap
 - Establish the required RI to meet end objectives

International Alliances

- **International (Transport) Research Cooperation “Observatory”**
 - Mechanism for permanent collection, maintenance and revision of research needs and priorities, and for promoting information dissemination and calls to the countries of interest
 - Issue regular “Research Needs” reports
- **European Transport Research Alliance (ETRA)**
 - Support/complement the activities of IRCO
 - Intent: the creation of an European area where researchers, infrastructure, technologies and knowledge circulate freely and are available to all
 - ETRA’s strategic objective is to promote cooperation, coordination of activities and common focus in European transport research, in full compliance with, and promotion of the objectives of ERA-T

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Actions by ETRA

Create a **Research Infrastructure Task Force (RITF)** with a mandate to formulate recommendations and promote actions for networking and information and knowledge exchange on existing RIs in the transport field

Actions:

- Establish a forum for knowledge sharing on existing RIs
- Organise transport RI specific seminars and workshops, and ensure that transport-related RI is integrated in the ICRI
- Establish an up-to-date catalogue of existing world-class transport-related RIs
- Identify missing RIs that are needed to address current and future needs
- Establish relationships with ESFRI to promote ETRA's priorities for transport related RIs and facilitate the inclusion of essential RI on ESFRI roadmap
- Identify potential sources of funding for establishment of new RIs
- Establish relationships with other actors engaged in this field (e.g. Unit for Research Infrastructures in DG Research and Innovation, ERF, ESF, etc)

Mapping of existing RI



The MERIL database is an inventory of the most excellent research infrastructures (RIs) in Europe of more-than-national relevance across all scientific domains: from archives and statistical offices to biobanks and satellites. The portal is expected to serve the following functions:

- Improving scientists' access to resources, services and facilities offered by modern research infrastructures;
- Promoting individual research infrastructures by raising their profile and fostering a greater sense of partnership across Europe;
- Allowing policy makers to assess the state of research infrastructures throughout Europe to pinpoint gaps or duplications and make decisions about where best to direct funding;
- Stimulating discussion among policy makers and research funders on RI funding and joint investment, where appropriate;
- Supporting the exchange of expertise and best practice among RI coordinators with a view to optimising the operation and exploitation of research infrastructures;
- Contributing with this state-of-the-art analysis to the planning for future needs in cooperation with the European Strategy Forum on Research Infrastructures (ESFRI).

The MERIL database is in the process of being populated; a full version of the MERIL database will be launched in 2013.

Mapping of existing RI



Research Infrastructure Online Catalogue

Infrastructure Online Catalogue

Search

--select research appl-- --select challenge-- --select country--

acronym	type	website	contact person	contact
to	Road surface assessment	TRL, United Kingdom		
	Road surface assessment			
	Information and communication technology (ICT)	CDV, Czech Republic	Radim Striegler	radim.stri@cdv.cz
	Road surface assessment	CEDEX, Spain	Sido Yenguel	zyenguel@cedex.es
	Road surface assessment	CEDEX, Spain	Sido Yenguel	zyenguel@cedex.es
	Noise measurements	CEALIT		
	Road surface assessment	CRTHRD, Bulgaria	Svetoslav Kaytskarski	sv_kayts@crthrd.com
	Road surface assessment	BRIC - Belgian Road Research Centre	Luc Oudart	l.oudart@bric.ac.be
	Truck loading and testing facility			
	Road surface assessment	LAD, Latvia	Arnis Sonnars	arnis.sonnars@lad.lv
	Road surface assessment			

The online catalogue is a tool for facilitating cooperation and networking to solve future challenges in the transport area using available RI. With it, it is possible to identify available RI today, which facilitates cooperation between partners with similar RIs (knowledge exchange and development of RIs) and between partners with complementary RIs (optimise use). The overall benefit will be the identification of gaps and future needs. Attempts will be made to address and find solutions to build up these facilities, with the support of all research organisations interested in this theme. The online catalogue aims to provide:

- An up-to-date overview of existing world-class RIs both in Europe and internationally;
- A tool for identifying missing RIs to address current and future needs;
- A tool for identifying cooperation possibilities among researchers to exchange knowledge, optimise the use of available facilities, develop common research facilities and develop test methods and equipment;
- An effective easy-to-search tool for identifying facilities that have capacity available for extra testing performed in accordance with a specific test method.

Similarities & Differences



MERIL

- Same overall intent
- Reach limited to European RI
- Non-restrictive scope (SET community)
- Advancing science; stimulating new discoveries; creating new knowledge
- Is managed by ESF, with strong connectivity to ESFRI



ETRA (FEHRL)

- Same overall intent
- Wider reach (international)
- Domain specific (transport-related RI)
- Addressing current and future challenges impacting on society and the economy
- Currently managed by ETRA/FEHRL, with no strong connectivity to ESFRI (as yet)



Need to explore synergies?



New World-Class RI

DETRA identified four new RIs that will bring additional value to the transport sector in order to address future challenges in a coordinated approach:

- Naturalistic Road User Behaviour Centre
- European Multi-modal Traffic (EMT) model platform
- Resource centre for European Transport Infrastructure Construction (ETIC) and performance data
- European Road Infrastructure Test (ERIT) Facility



Naturalistic Road User Behaviour Centre

- **Objective**

- Link existing resources for naturalistic driving and further develop them as a common resource

- **Mission**

- Perform research that will give tools to meet the future challenges related to health, safety and security

- **Facility**

- Network of facilities involved in naturalistic road user behaviour studies with the Centre developing, managing and maintaining a common IT resource (data warehouse)

- **Value**

- Opens up opportunities for other countries to perform studies; more efficient use of facilities and collected data; study on interaction between different modes; sharing of costs (vehicles & instrumentation); knowledge sharing

EMT Model Platform

- **Objective**
 - Create a common model platform with open access to data on all transport modes ranging from freight movements to info about pedestrians, accessible to all researchers linked to the RI
- **Mission**
 - Use available data in an efficient way to address the challenges of efficient transport
- **Facility**
 - EMT to be founded using available models from different countries for the different modes, with the umbrella organisation creating linkages and integration, as well as new models to support the EMT Model Platform (e.g. integrated multi-modal transport model for Europe)
- **Value**
 - More efficient use of models and data; study interaction between modes; share cost for development; knowledge sharing

Resource Centre for ETIC and Performance Data

- **Objective**

- Create a multimodal, all-inclusive, pan-European database on the construction and maintenance of transport infrastructures, including data from all relevant transport modes, providing open access to all researchers

- **Mission**

- Provide input for the planning, design and construction of new transport infrastructure, as well as for the maintenance and management of existing infrastructure

- **Facility**

- A common (joint) resource centre/database on infrastructure construction and maintenance across all modes of transport

- **Value**

- Richness and complexity of data will enable the development of new deduced models for predicting purposes, design code improvements and also study the different European regions and climates as influencing factors

European Road Infrastructure Testing facility

- **Objective**
 - Full-scale testing of (innovative) road materials and structures under realistic loading and environmental conditions and monitoring of all relevant pavement, loading and environmental parameters
- **Mission**
 - Support and accelerate implementation of innovative road solutions by the assessment of their functional and structural performance attributes
- **Facility**
 - Circular test track divided into segments/sections, each constructed using different designs, and instrumented with the latest state-of-the-art sensors to monitor behaviour and performance under loading
- **Value**
 - Rapid deployment of innovative materials and pavement structures; enhancement of existing and development of new construction methods; creation of new knowledge; on-line accessibility of data in real-time

Conclusions

- In view of (possible) constraints in research funding, collaboration is the way to go if we want to address Global Challenges in the transportation domain
- Research collaboration on both hard and soft research infrastructures will reduce costs and will generate greater efficiencies
- In order to instil a culture of collaboration, there has to be a willingness
 - to share information openly between partners
 - to incorporate critical RI in collaborative multinational RDI programmes
 - to actively pursue the removal of potential barriers that could impede effective collaboration
- Need to fast-track development and implementation of roadmap for establishment of Observatory, RI Task Force, online RI catalogue

Thank you

For more information, please contact:

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