ERRAC
The European Rail Research Advisory Council

ERRAC Plenary

Brussels, 16 May 2018

Agenda

1. **Welcome from the Chairman**
2. Keynote speech from the European Commission
3. Approval of the New ERRAC Terms of Reference
4. Approval of new ERRAC Chair and Vice-Chairs candidates
5. Shift2Rail – state of play and next steps
6. Networking lunch
7. Reporting from ERRAC Working Groups activities
8. Reporting on ERRAC Academia PAG activities
9. SETRIS – Results and next steps for the rail sector
10. Transport Research Arena event 2018
11. Concluding remarks

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ERRAC
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Keynote speech from the European Commission

Elisabeth Werner, Director – Directorate C Land, DG MOVE

ERRAC

Brussels, 16 May 2018

'Horizon Europe'

Jean-François AGUINAGA
DG Research & Innovation
European Commission

Next EU budget

1. Equivalent to **1.114 per cent** of the EU27's gross national income.
2. Two largest EU spending programmes (farm and regional aid), **down 5 and 7 per cent** respectively, to make room for **more spending on research and defence.**
3. Tougher conditions are also placed on Member States in receipt of funds, including economic reform and **adherence to EU "values"** such as rule of law.

What about the next budget for R&D&I?

€100 billion budget for its next research and innovation programme, between 2021 and 2027:

- **€97.6 billion for Horizon Europe;** and
- **€2.4 billion for the Euratom** nuclear research programme.

For Horizon Europe, + 27% (when adjusted for inflation) on H2020 (€77 billion).

Defence R&D

- **€4,1 billion** funding for **defence research**;
- An increase on the €3.5 billion originally proposed; and
- A way up from a current €90 million pilot programme.

The EU among the top four defence research and technology investors in Europe.

Next steps

Time for…influence

FP9 legislative package, early June:

- Legal base and RfP: co-decision;
- Specific Programme.

"Mission": open discussion until December;

"Partnership":

- Selection criteria unveiled: early June;
- List of (confirmed or new) ones: Dec;

Technical work to start: H2 2019.

Horizon Europe

"Evolution, not revolution"

- Three pillars:
  - **European Research Council;**
  - **Societal Challenges + Industry leadership;**
  - **European Innovation Council.**
- "Clusters" and "intervention areas"
- Flexibility in budgeting.

Horizon Europe

Great to see the support for R&I in the EU Budget (2021–2027)
investing €100 billion in our common future

#HorizonEU #InvestEUresearch
#EUBudget #FutureofEurope

European Commission

Thank you for your attention

jean-francois.aguinaga@ec.europa.eu

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Approval of the New ERRAC Terms of Reference

- The ERRAC Steering Committee has prepared the new ERRAC ToR.
- The final draft version has been circulated to ERRAC Stakeholders on 25 April 2018.
- No comments received from ERRAC Stakeholders
- **Decision needed**: ERRAC Plenary approval?

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Approval of new ERRAC Chair and Vice-Chairs candidates

- The ERRAC Steering Committee is proposing to ERRAC Plenary for approval:
  - ❖ The nomination of Alberto Parrondo from Thales Ground Transportation as new ERRAC Chair
  - ❖ The nomination of Carole Desnost from SNCF as new ERRAC Vice-Chair
  - ❖ The nomination of Sebastian Stichel from KTH as new ERRAC Academia Vice-Chair (extension of his mandate)
- **Decision needed**: ERRAC Plenary approval?

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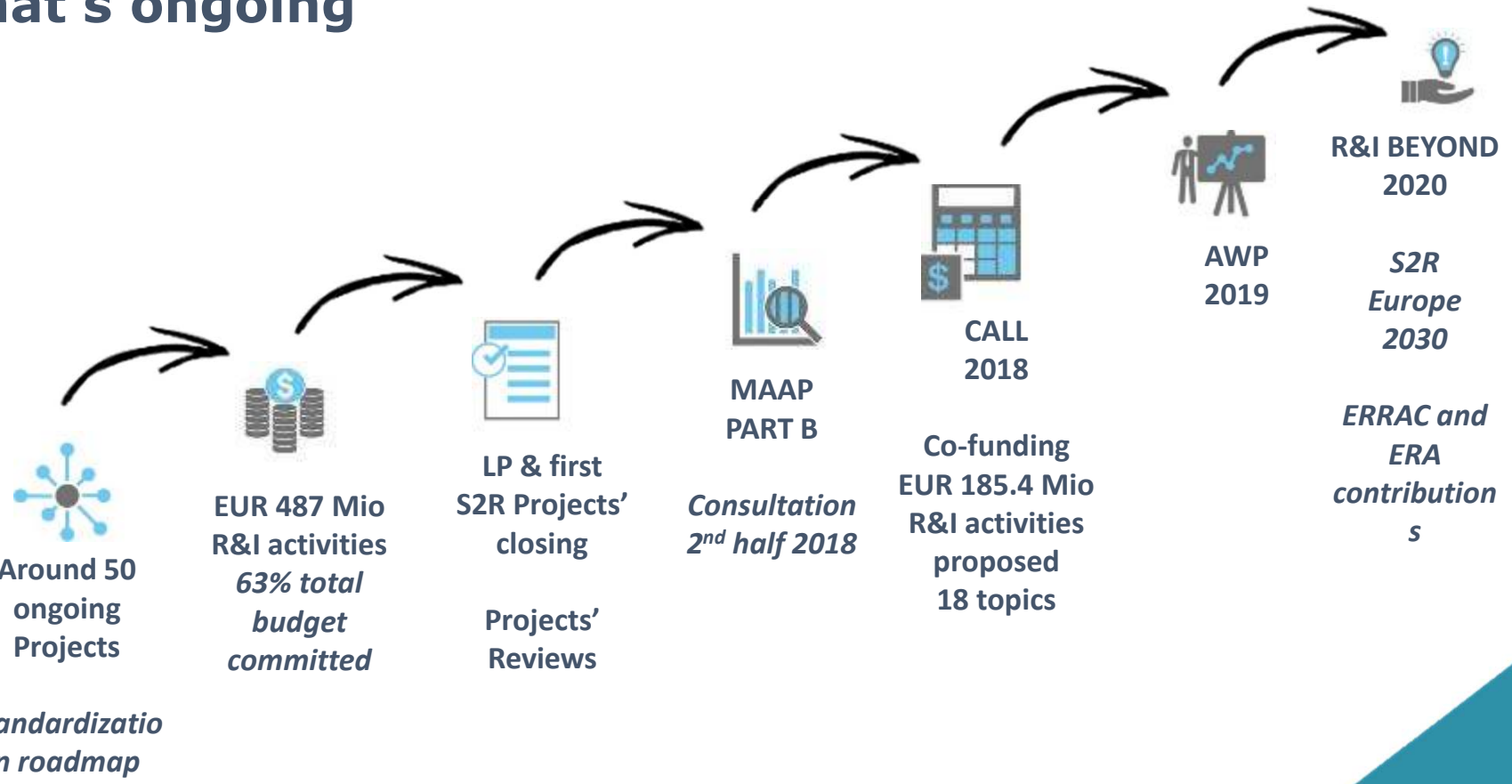
State of play, next steps @ERRAC

Brussels, 16 May 2018

@Shift2Rail_JU
#Horizon2020

What's ongoing



LP Summary of Results

Roll2Rail	
Silicon Carbide technology - Traction	Significant reduction of energy consumption(-10%), traction maintenance costs (-20%), weight (-10%) and noise (-5%) to compare to Regional case baseline
TCMS	New LTE apps and wireless, simplified architecture for V2V comms, significant increase in safety and reliability
Car body shell nextgen	Recs for new lightweight materials, new geometry, weight reduction up to 16% HSP, up to 20% Urban
Homologation process for brakes	Recs for harmonisation to facilitate introduction of improved performance brakes
Noise levels	Reliable noise prediction methodologies, noise from traction motors and traction converters, prevent operational and speed limits due to non-compliance with noise restrictions

LP Summary of Results

In2Rail	
New design concepts for switches and crossings systems	Significant decrease in failure rates Estimated reduction of maintenance costs up to 25%
Improved tunnel and bridge inspection methods	Analysis of relevant key performance indicators for an improved inspection methods for bridges and tunnels with improved reliability due to continuous monitoring, prediction of faults and reduction of maintenance cost
Intelligent Mobility Management	Data set definitions for modelling the TMS operations; Integration Layer providing data management and data access facilities; Application Framework establishing a platform for plug-and-play microservice architecture => capacity increase; reliability and reduced cost for Rail Freight Operations via ETA and advanced slot planning tools. Innovative nowcasting and forecasting scenarios, resulting in optimized real-time traffic management based on network asset status to avoid and recover faster from disruptions
Smart Power Supply & Smart Metering for Railway Distributed Energy Resource Management System	Definition of interfaces to integrate the TMS with the Electrical Traction System (ETS), evaluation of limitations in the ETS during major outages is enabled and can be communicated to the TMS => new opportunities in energy purchasing by now-casting of peak power and energy demand Increased energy efficiency

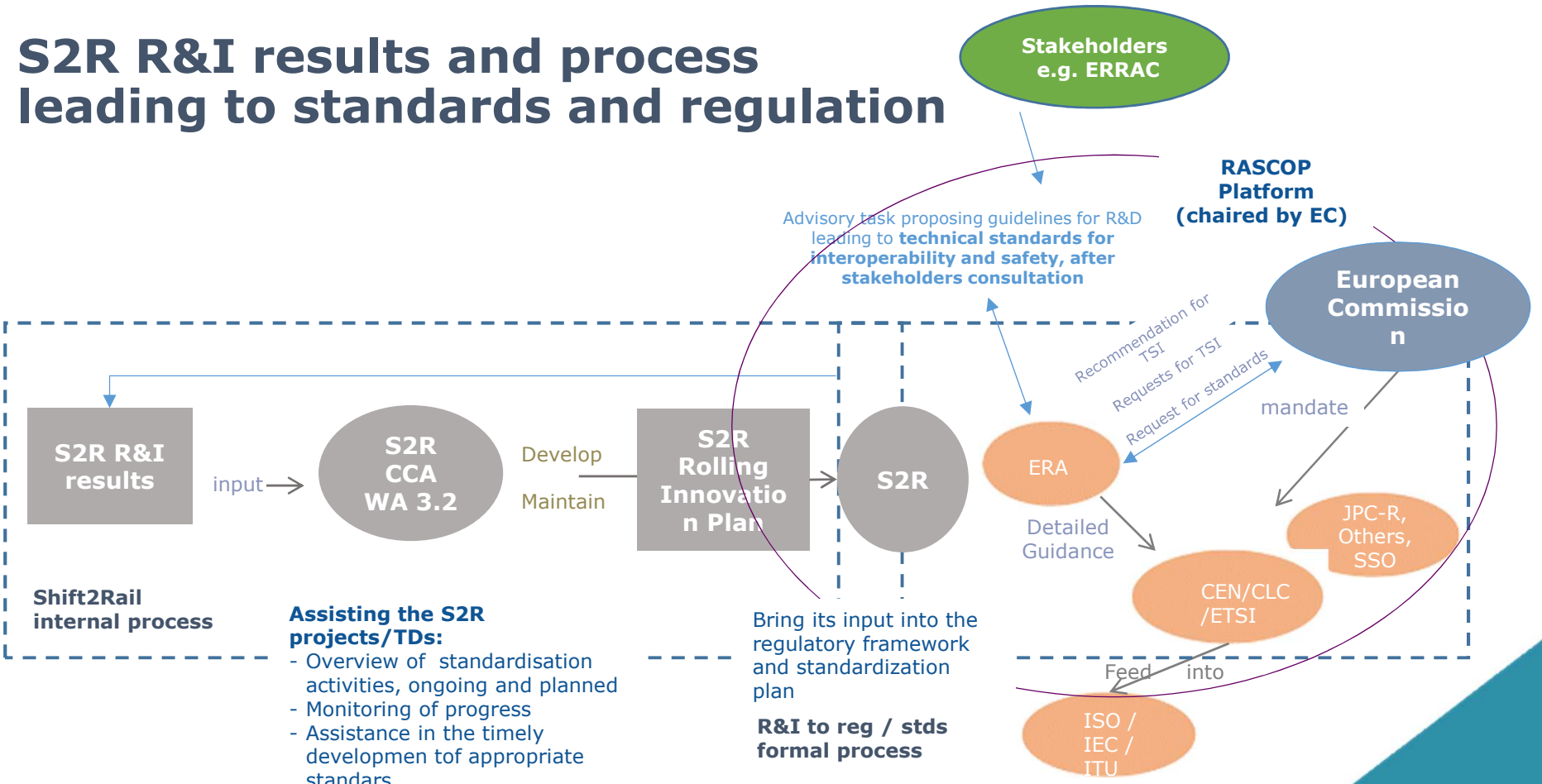
LP Summary of Results

IT2Rail	
TD4.1 Interoperability Framework	Semantic interoperability Packaged resolvers/brokers *Get Stop Places within a requested radius* *Generate meta-routes operated by Transportation Service Providers* *Identify Travel Expert and Booking Engine web services* *Mediate the interactions between the IT2Rail ecosystem and Transport Service providers' services*
Assets Management	Allows independent transportation service providers to participate in the 'web of transportation' environment
IT2Rail solutions	Book and pay for journeys including different modes (air, rail, coach and urban public transport) and operators in a one-stop shop Provide complete travel solutions, hiding the multiplicity, heterogeneity and complexity of the interactions needed to produce them Options for re-routing and re-accommodation in case of a disruptions Personalized Travel Companion responding to costumer's needs

LP Summary of Results

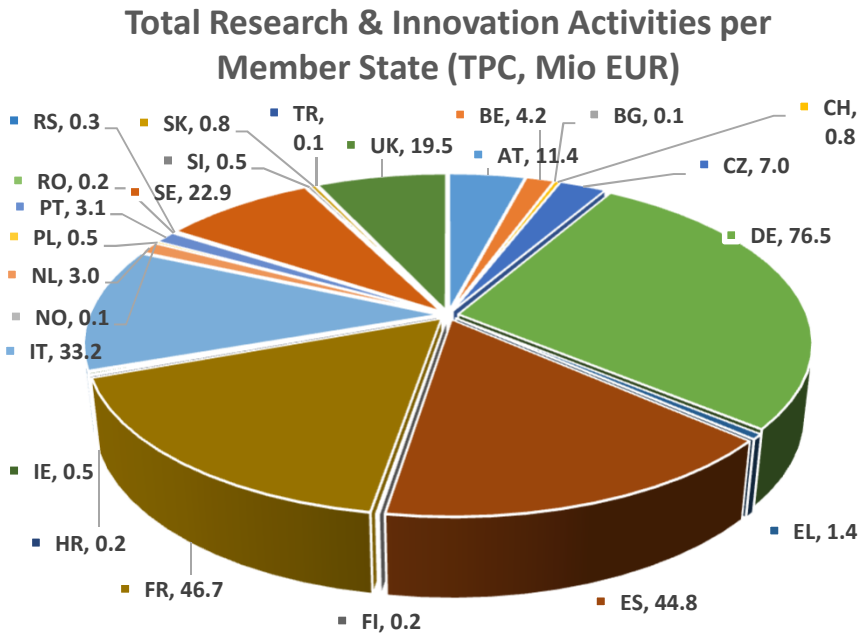
Smart Rail	
Recommendations	New Business models supporting cooperation within the rail freight sector Business models enabling collaboration in the supply chain Business model for cooperation in CIT 1 (Continuous Improvement Track, one of the three living labs) "Single Wagon Load" Analysis of challenges on cross-border rail freight traffic, for some of the problems recommendations and solutions were provide Architecture for data sharing solution

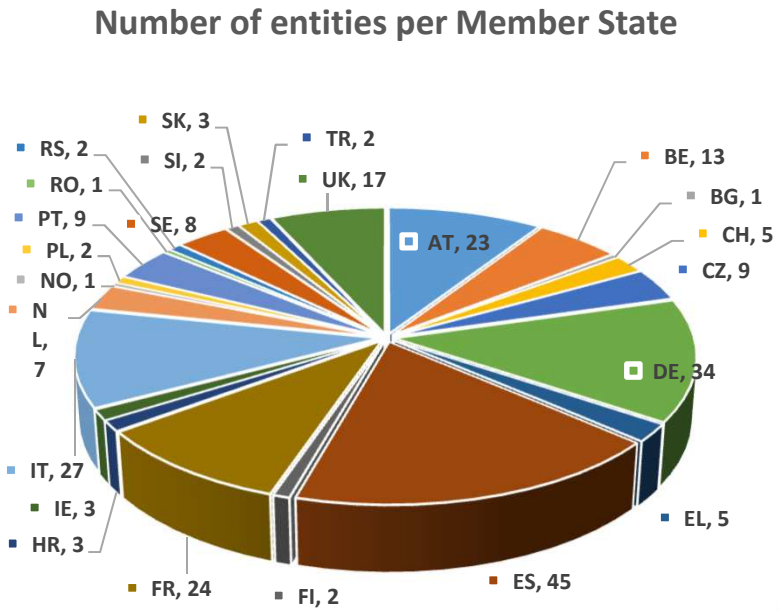
S2R R&I results and process leading to standards and regulation



Participation per MS

excluding Lighthouse Projects





Towards S2R Europe 2030

Role of ERRAC *Council Regulation (EU) No 642 of 16 June 2014*

Art 1.4 *"… S2R Master Plan' refers to a common, forward-looking strategic roadmap, to be established and developed by the S2R Joint Undertaking, in consultation with the European Railway Agency and the* ***European Rail Research Advisory Council (ERRAC)****"*

Art 2(k) *"liaise with a broad range of stakeholders … in particular via ERRAC"* but not only ERTRAC, ACARE, ECTP, ALICE, EuMAT, etc…

S… …nnovation beyond 2020

S2R 2 requires revised

Governance
membership vs participation

Content
ERRAC Vision 2050, Master Plan

Regulation & Administrative Simplification
No matrix approach, flexibility, clarity, … while maintaining legality/regularity and sound financial management

T-UPS
KY APPS

PP
SE
L: 3

ad-hoc governance
open to all

PPP members
par

Funding type: FP9 rules

Flat rate
account

19 JUNE 2018

DIALOGUE CONFERENCE ON

S2R: THE FUTURE OF RAIL RESEARCH AND INNOVATION

a journey towards 2020 decision

Shift2Rail

@Shift2Rail_JU
#Horizon2020

carlo.borghini@s2r.europa.eu

Shift2Rail

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Working Group 1

ERRAC Plenary

Brussels, 16 May 2018

Nicolas Furio
ERRAC Secretary

Overview

- Ulrich Meuser (DB) is the chair
- RAIL 2050 Vision published in December 2017
- Printed copies handed over to Decision-Makers (TRA)
- Next Steps to be discussed during the next meeting (to be fixed – probably in July)

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Working Groups 2 and 3

ERRAC Plenary

Brussels, 16 May 2018

Simon Fletcher
ERRAC Secretariat and ad-interim leader of WGs 2 and 3

Content

1. **Overview**
2. WG2 – projects group feedback
3. WG3 – communications group feedback

Overview

- **Both groups now have chairs**
- **WG2 is now taking shape and has focussed on the future possible TER4RAIL project**
- **WG3 has developed a communications plan and issued some materials, used at TRA 2018**

Content

1. Overview
2. **WG2 – projects group feedback**
3. WG3 communications group feedback

WG2 – projects groups feedback

- Next step: Based on the 2050 Vision, **extracting – in close collaboration with WG1 – some 20-25 key topics that need to be pushed forward**

- WG2 could be the **"translator" of the above-mentioned high-level elements into topics for calls** to be submitted to funding decision-makers

- Some ERRAC stakeholders have put together a project – **TER4RAIL – to answer the S2R call *S2R-OC-IPX-02-2018 - Transversal exploratory research activities and knowledge transfer***

- A new chair: **Mr Johan Jonsson, Trafikverket**

ERRAC R/I Collaboration

ERRAC Plenary
Brussels, 16 May 2018

Johan Jonsson, Trafikverket
WG 2 leader

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The European Rail Research Advisory Council

Some ideas for future work …

- Initiate and promote joint pre-competitive R/I activities with a unique contribution to/of ERRAC stakeholders
- Critical mass: focus on projects that are too large for one country to do alone
- Link to other EU / National / Sectors programmes
- Encourage knowledge exchange throughout EU
- Ambition to include stakeholders from all regions
- ERRAC position-driven approach
- Cooperate with the ERRAC WG 1 and Academia PAG

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The European Rail Research Advisory Council

Thank you for your attention!

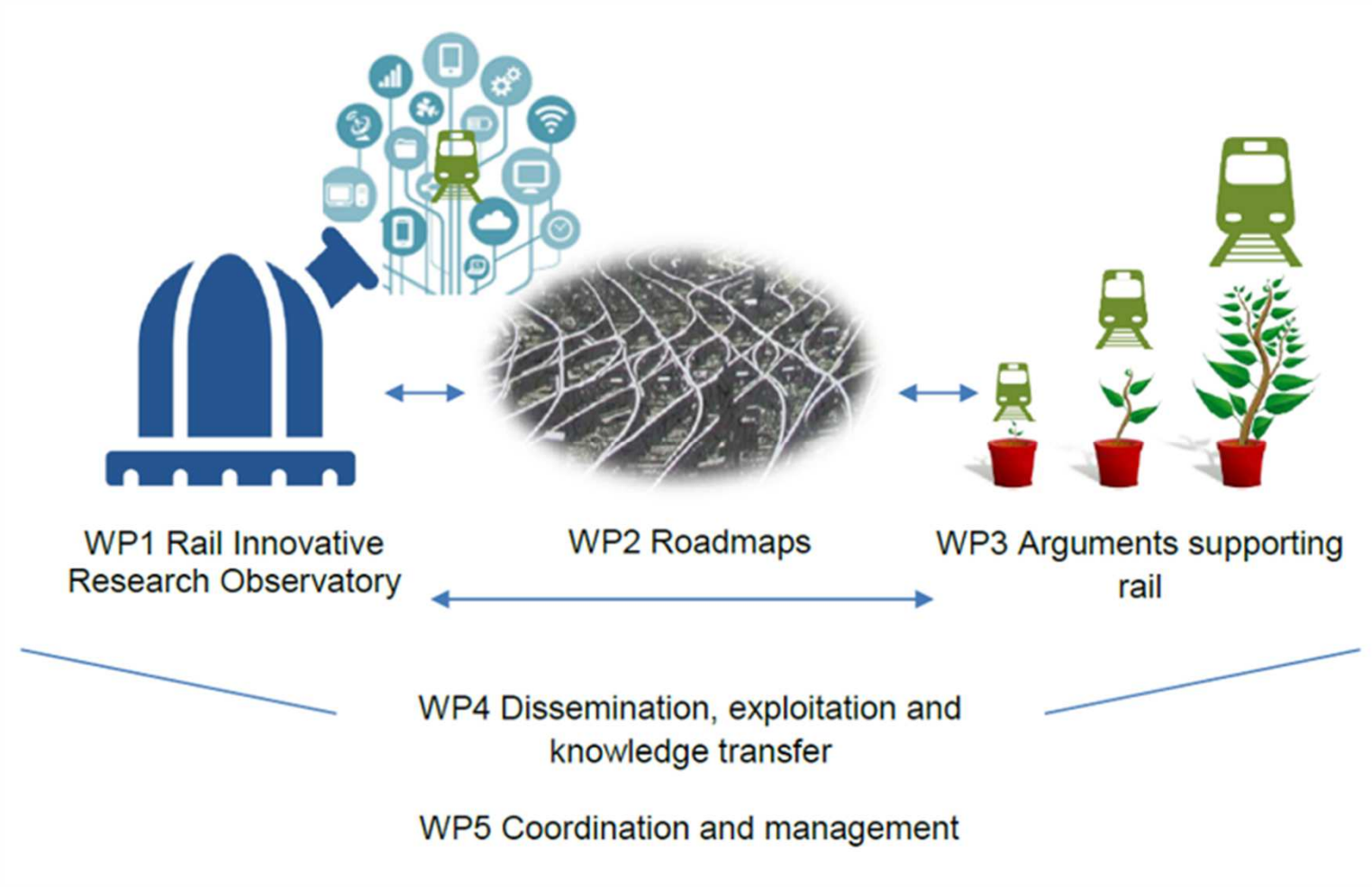
You are most welcome to contact me for suggestions and ideas!

Johan Jonsson
Trafikverket

johan.jonsson@trafikverket.se

TER4RAIL

1 (CO)	EURNEX
2	UNIFE
3	UIC
4	NEWRAIL
5	UITP
6	NEWOPERA
7	FFE



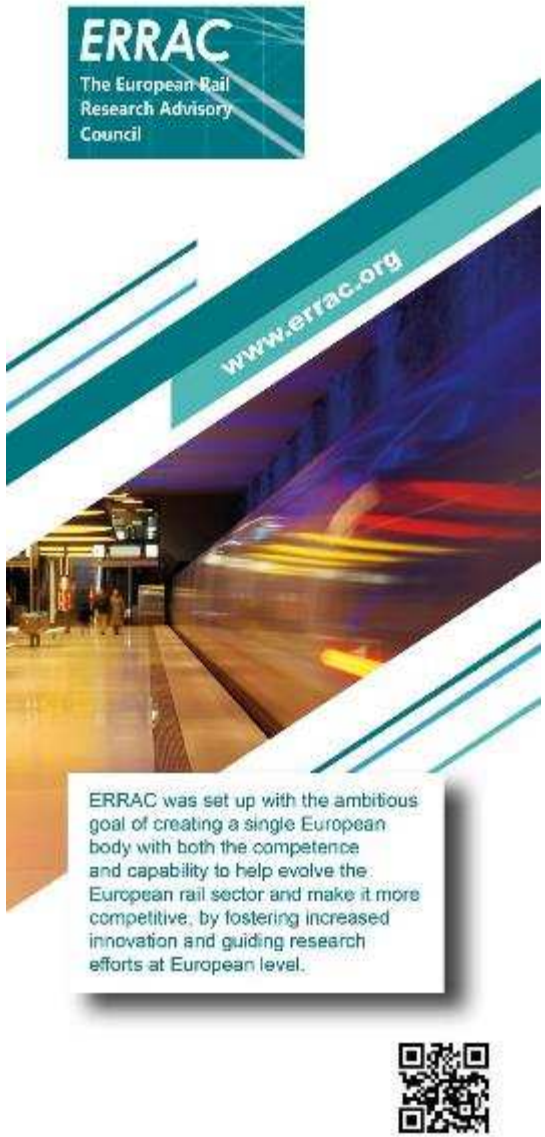
TER4RAIL's ambition is to be the CSA of reference for the evolution of EU railways.

Content

1. Overview
2. WG2 - feedback
3. **WG3 Communication feedback**

WG3 – communications group feedback

- ERRAC now has **a "timeless" roll-up ready** for all other events
- An **ERRAC flyer** has been produced and printed in small numbers for TRA – a second, refined version will be prepared this year for
- **ERRAC presence was ensured throughout TRA 2018 in partnership with Shift2Rail**



WG3 – communications group feedback

- **ERRAC agreed on a 2018 Comms plan**
- **An online repository has been created on the UIC Extranet for working/final documents**
- Next step: **undertake the ERRAC website migration and potential its re-design**
- A new chair: **Mrs Lotta Andersson, Trafikverket**

COMMUNICATION PLAN – ERRAC

CONTEXT

Background

ERRAC was set up in 2001 with the ambitious goal of creating a single European body with both the competence and capability to help evolve the European rail sector and make it more competitive, by fostering increased innovation and guiding research efforts at European level.

Mission

The ERRAC mission is to underpin the role of rail in the European transport system. It is furthermore to support the competitiveness of the European rail sector by enabling rail, through research and innovation, to play a new, broader role within the European transport system. It is destined to be the transport backbone and to place rail in a strong market position both in Europe and globally.

It has an objective to support the concept of a "European Research Area" in the transport sector where railway research and innovation potential within the Union is optimised. With a view to promoting the development of sustainable transport solutions with rail as the central focus, the task is to support the growing demand for connected mobility in the European Union. For this ERRAC needs to actively collect, understand and channel the needs of end-users of passenger and freight services and the business requirements of sector stakeholders (e.g. the railway operating community, the railway suppliers, etc).

Strategy documents

ERRAC is notably in charge of defining and updating the rail sector strategic documents – of which the **Rail 2050 Vision** is the latest document – drawing together the existing strategies and needs of the railway sector stakeholders to extract and produce the Research, Development and Innovation requirements within a multimodal arena for the next 20 years. Making the vision a reality, ERRAC is the framework "club" where the sector can develop and establish together a common long-term programme to influence all European railway research stakeholders in the planning of sustainable transport solutions with railways as the central focus. Taking national and EU programmes into account, it will enable delivery of the ambitions set out in the **SRRIA** and the Rail 2050 Vision.

ERRAC has a role to support the implementation of the strategy through communication with the relevant political bodies, fostering joint research initiatives and common innovation projects amongst stakeholders. Innovation can become live thanks to the sources of funding that can be used for railway research, which ERRAC attempts to identify – both existing and new financial streams.

Communication in ERRAC - An important driving force for progress

ERRAC Plenary
Brussels, 16 May 2018

Lotta Andersson, Trafikverket
WG 3 leader

ERRAC
The European Rail Research Advisory Council

Transparency does not mean that everything should be shared everywhere with everyone, it means to ensure that our stakeholders understand what we are doing, why we do it and what benefits it contributes to.

What will WG 3, Communication do?

Based on the input so far and with support from the WG3-group, we plan for:

- a communication strategy that forms the basis of a platform for communication that contributes to progress in our mission
- an action plan and a message template aimed at communicating and visualising ERRAC's work in a coordinated manner
- a plan for how the web page can be used and run on regular basis
- eventually provide standard packages and models for different communication needs and opportunities

Areas to illuminate

- Specific expected benefits which are important to communicate - dissemination of the WG1 and WG2
- Identification of the most important stakeholders relevant to ERRAC
- What should be achieved with the communication – essential objectives
- Important communication opportunities, channels and events (TRA, Innotrans, TEN-T Days etc.)

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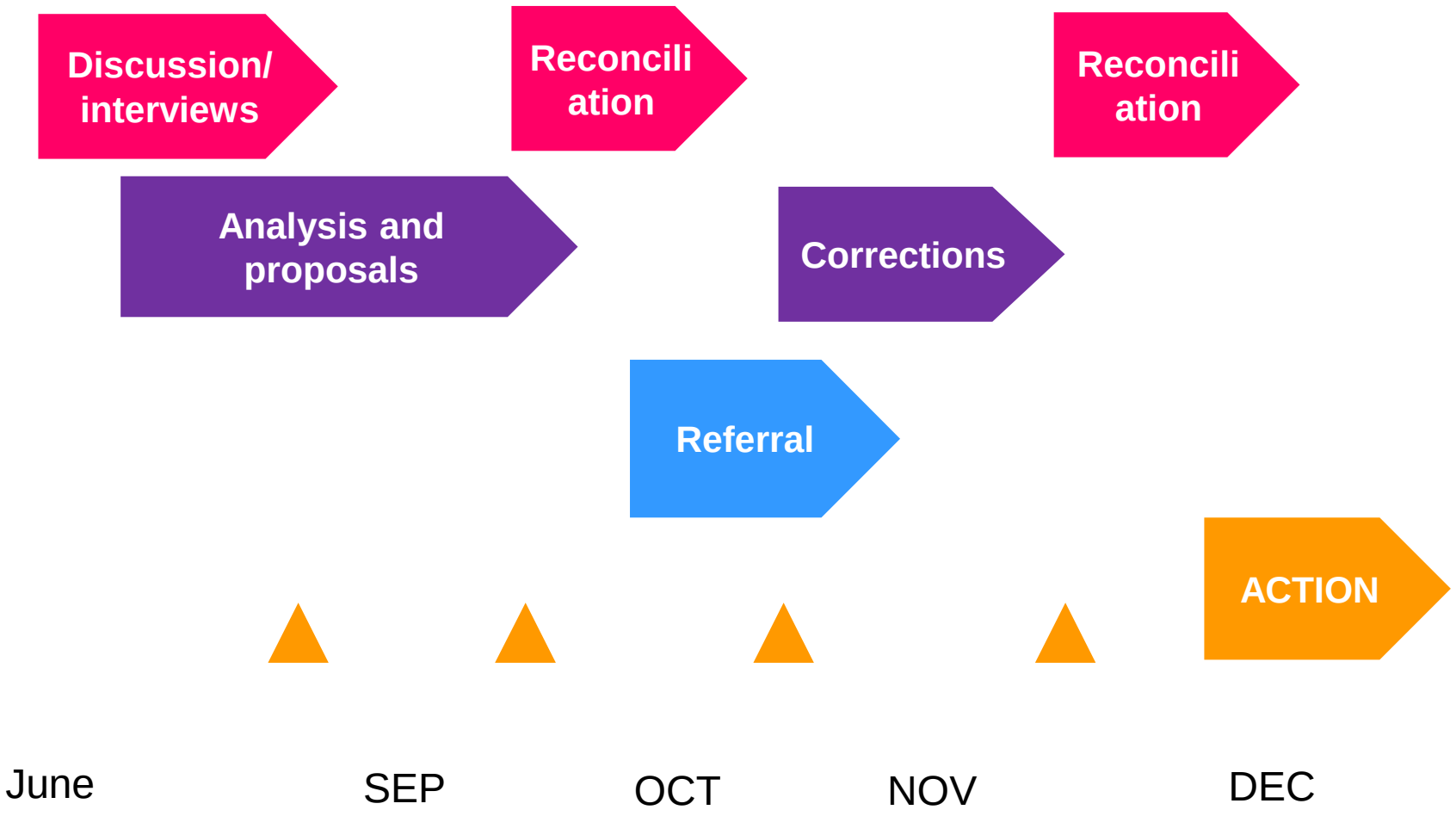
Rough Schedule



ERRAC
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Lotta Andersson
Trafikverket

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ERRAC Academia PAG

Sebastian Stichel

Brussels, 16 May 2018

ERRAC Academia Permanent Advisory Group

Mission

This PAG is largely autonomous but shall systematically report to the Steering Committee.

This PAG shall establish an agenda that follows the aims and missions of ERRAC and which will be communicated to the Steering Committee. Likewise, the Steering Committee will propose topics on which it seeks the advice of the PAG.

This agenda shall ensure coordination and foster harmonisation between the objectives proposed and the work carried out by ERRAC.

Meetings

First meeting to re-establish group held:

ERRAC Permanent Advisory Group Academia n° 1 – 2018

Date: 17 April 2018 – 9:00-14:00

Place: Vienna (Austrian Ministry for Transport, Innovation and Technology)

14 participants from 11 countries

Net meeting will be held during Innotrans in Berlin

What can the PAG Academia do for ERRAC?

- Guide railway research in Europe by defining future research activities
- Provide advice for the European Commission
- Provide a wider academic perspective (e.g. for Shift2Rail), formulate ideas on blue sky research
- Support other ERRAC working Groups, e.g. contribute to the vision/input ideas
- Ensure research capability for future railway research needs
- Help to provide the next generation of railway professionals, e.g. discuss railway education and make proposals for educational need in the sector

How can it be achieved?

- Be a think tank for a longer-term railway vision
  e.g. derive a research agenda based on for example
  - Vision 2050 from ERRAC
  - Shift2Rail Multi-Annual Action plan (Part A)
- Work closely together with other stakeholders, i.e.
  - ERRAC Steering Committee and WGs
  - S2R Scientific Committee
  - ERRAC and S2R State Representatives Groups
  - ERA
  - EURNEX
  - …
- Include non-railway experts
- Directory of experts

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The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

ERRAC Plenary

Brussels
16 May 2018

SETRIS
Towards a truly integrated transport system

Dr Emmanuel Matsika

ECTRI and Newcastle University

SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

The Target for the ETPs

- **To deliver a cohesive and coordinated approach to research and innovation strategies of air, road, rail and waterborne transport modes in Europe.**
- **To address the challenges but also to exploit the opportunities such as DIGITALISATION**

SETRIS Project coordinated by:

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Background

- **Achieving a truly integrated transport system is a must for Europe**
- **Responding to the needs of the citizens and industry**
- **Answer the major challenges of decarbonisation and congestion**

SETRIS Project coordinated by:

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Ambition

- **Transport integration is a complex topic and requires the smooth operation of different transport modes.**
- **First time that all of the European Transport ETPs have been funded to collaborate – under the framework of SETRIS**

SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

SETRIS

- **SETRIS is timely, 2018 is the year of Multimodality– promoting and combining different modes.**
- **SETRIS is a cross-sector framework involving all of the European Transport ETPs**

SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

Challenges identified by all ETPs

- **Competitiveness** of EU transport stakeholders
- Decision to **decarbonise transport**
- Information technology - **new opportunities and threats** e.g. cyber security and big data
- **New mobility** systems/services concepts
- Progress towards an **integrated transport system** is slower than expected
- **Security and Resilience** of transport systems

This forms part of the multimodal challenge

SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

Specific Challenges

	People Mobility	End to End Freight
Urban	•Customer satisfaction by **improving systems** e.g. ticketing and charging. •**Passenger behavior** (and needs) •**Safety and security**, reducing injuries and fatalities	•**Customer satisfaction** – delivery time and reliability of the systems. •Increase **safety and security**, cargo loss or damage.
Long Distance	• Understanding the market for long distance passenger transport with **changing demographics**	• Seamless network and transport integration including **cross border co-modal** transport operations

SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

Integrated transport Enablers – People Mobility

Integrated transport infrastructure data/information systems

- Active infrastructure;
- Common data meta-information architecture;
- Data/information sharing - developing the meta-information layer;
- Data/information security

User information management

- Transport user expectations and acceptance factors;
- Market opportunities and acceptance factors;
- Coordinated travel process management;
- Disruption and recovery management

Safe and secure transport infrastructures and operations

- Advanced safety technology;
- Advanced safety management systems;
- Advanced security systems

ACARE alice ERRAC ERTRAC WATERBORNE

SETRIS Project coordinated by: ECTRI Newcastle University

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

Seamless Urban– People Mobility

Steps and actions for a **fully connected travel experience**

D1.6 Urban mobility Transport SRIA Implementation Plan – Intermodality at urban level

- 1st inputs from ERRAC & ERTRAC key actors (interviews)
- Reviewed by ERRAC (survey)
- Review by ERTRAC (survey)
- Beyond the ETPS – TRA workshop
- Integration of the results

SETRIS Project coordinated by:

The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

Seamless Urban– People Mobility

4 concrete and **specific** priority areas underpinning an **implementation** strategy for collaborative urban inter-modality

1. Travel information and connectivity

1. Cooperation between private-public
2. Data sharing: qualitative, reliable and compatible
3. Transparency – not biased
4. Single ticketing and single contact point
5. Sharing revenues challenge

2. Automation

1. Basis for business models / Pilots
2. Bross-modal platform
3. Acceptance
4. Interdisciplinary research
5. Legilative framework
6. Skills generation

3. Infrastructure evolution

1. Intermodal hubs
2. Ambient information – all transport modes investigated

4. Decarbonisation

1. Energy role: collaborative initiative: smart-grids supporting a cleaner transport system including trials
2. Change in mind-sets: mixed system bottom-up and top-down
3. Whole system approach: deeper understanding of sharing economy and other dematerialization trends, business opportunities

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Seamless Urban– People Mobility

4 concrete and **specific** priority areas underpinning an **implementation** strategy for collaborative urban inter-modality

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Long Distance Travel – People Mobility

- Efforts towards synergetic approach are less developed than in the urban space

  (e.g. ERTRAC-ERRAC Urban WG)
- Five action topics identified:
  1. Towards zero carbon footprint
  2. Fully integrated physical transport networks
  3. Fully integrated mobility services
  4. User information management
  5. Secure and resilient network

SETRIS Project coordinated by:

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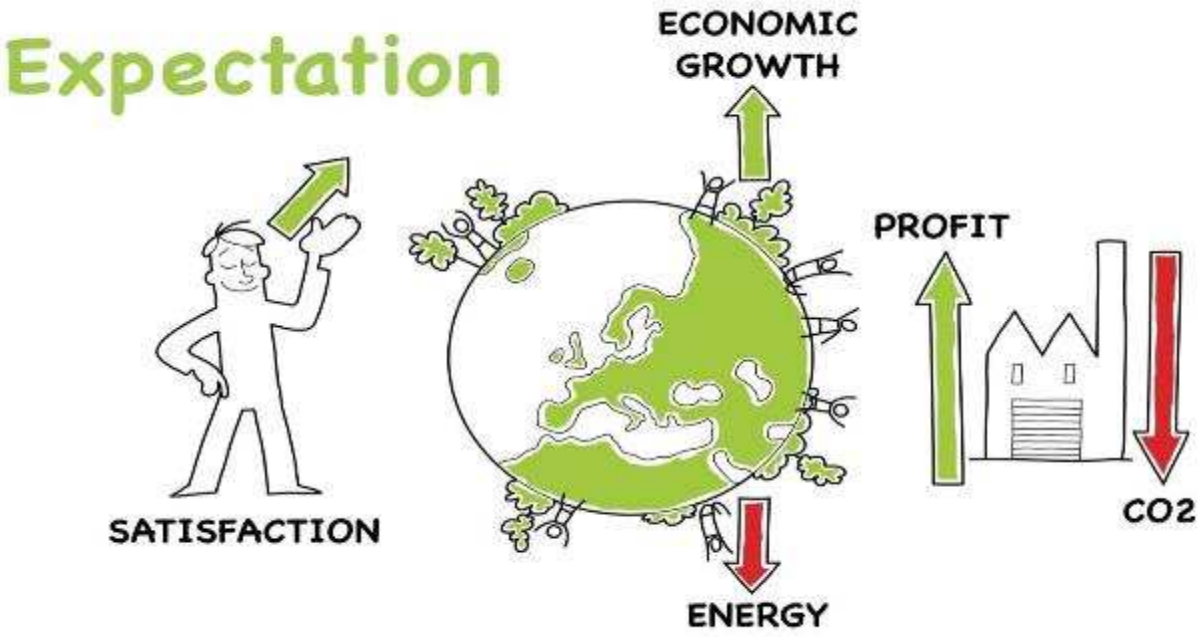
End to End Freight

End-to-end Logistics

- **Key characteristics, components and requirements of the system in the urban and long distance contexts**
  - **Balance expectations from people, planet and profits perspectives**



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The SETRIS project has received funding from *the European Union's Horizon 2020 research and innovation programme* under grant agreement No 653739

End to End Freight

End-to-end Logistics

For Success the Intervention Areas for Freight:

1. **Integrated data frameworks and big data analytics**
2. **Integration of urban freight and personal mobility services and networks**
3. **Improving the link between urban and long distance freight transport**
4. **New business models for logistics based on the sharing economy**

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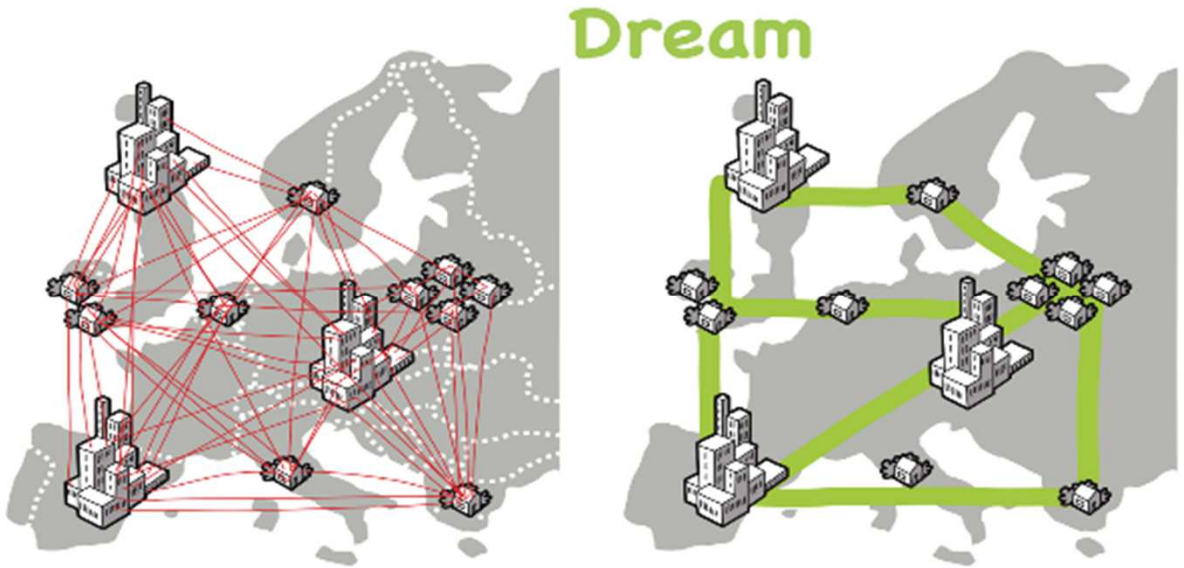
End to End Freight

End-to-end Logistics

- **Common vision for Urban and Long-distance**
  - Seamless and fully operational long distance and last mile transport links



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End to End Freight

End-to-end Logistics

Example Interventions:

1. **Considering logistics in the full circular economy: new business models for horizontal and vertical collaboration**
2. **Bringing logistics into urban planning**
3. **Interoperable standard for modular loading units and autonomous deliveries.**
4. **Safety and Security in Freight Transport**

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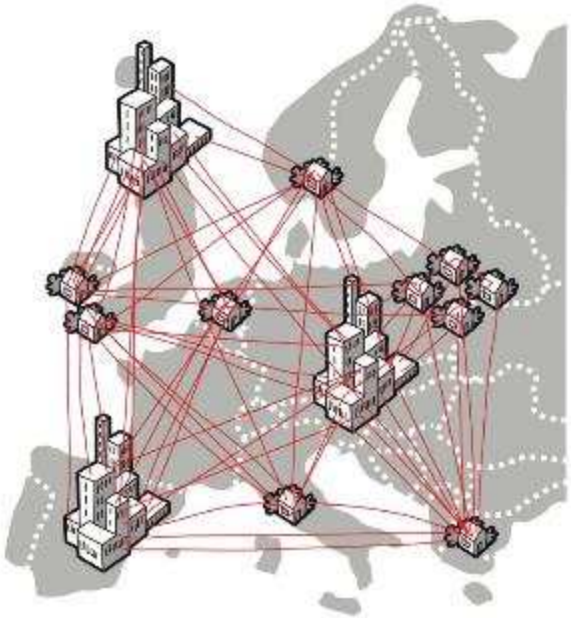
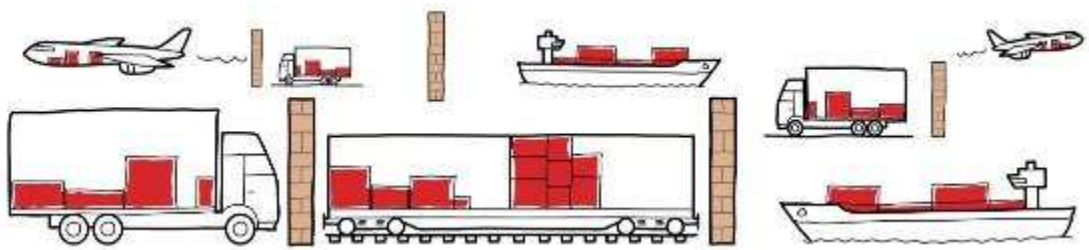
Barriers

- Market dynamics
- Too many regulations
- Lack of transhipment and modularization technology
- Lack of trust on sharing information
- Lack of IT/ICT Systems interoperability
- Lack of industry well recognized business and operational models





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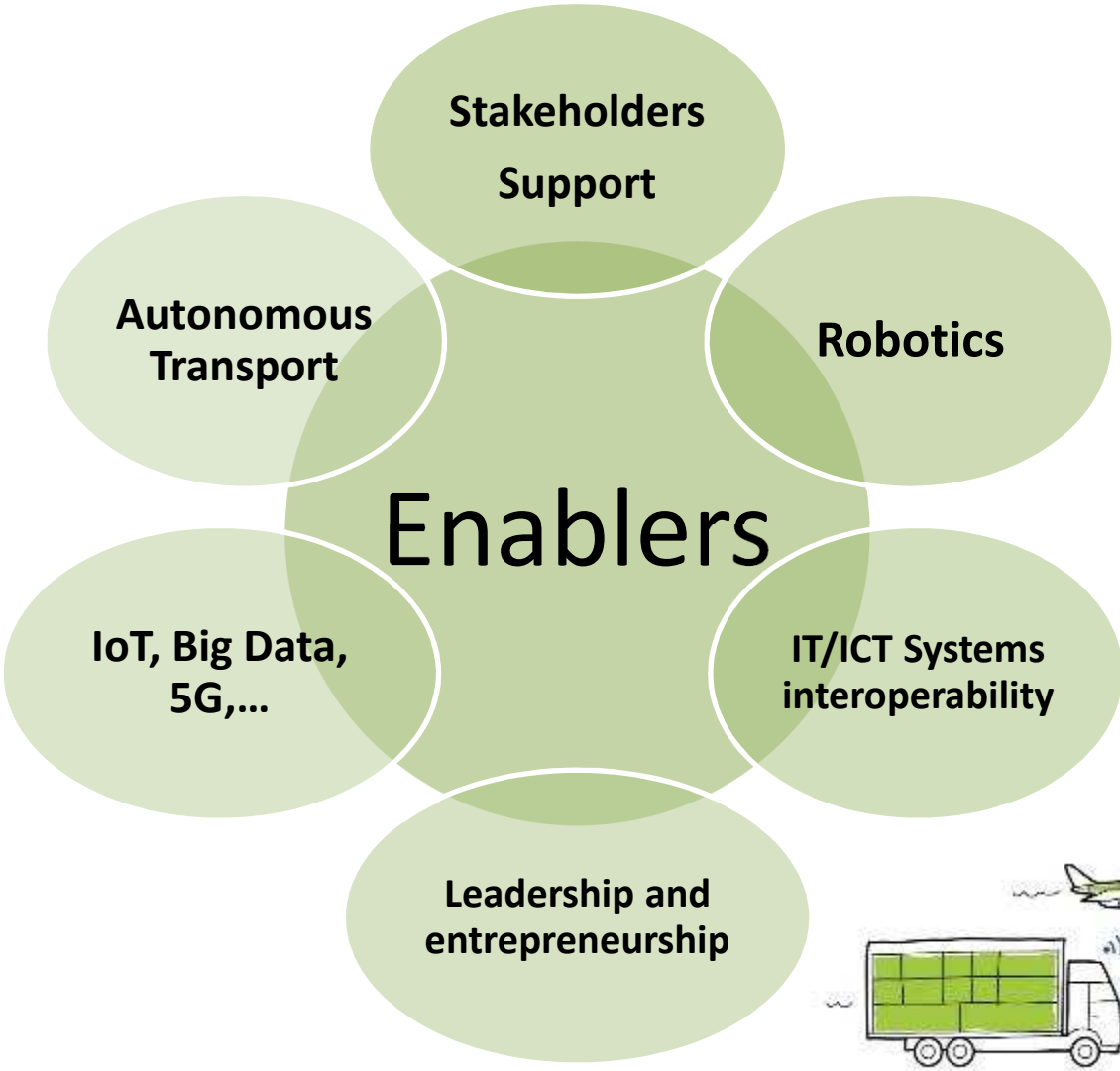

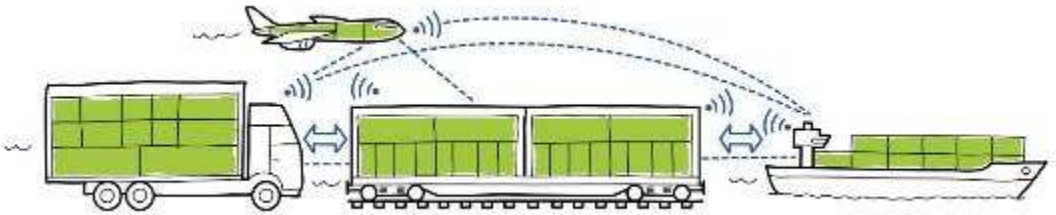

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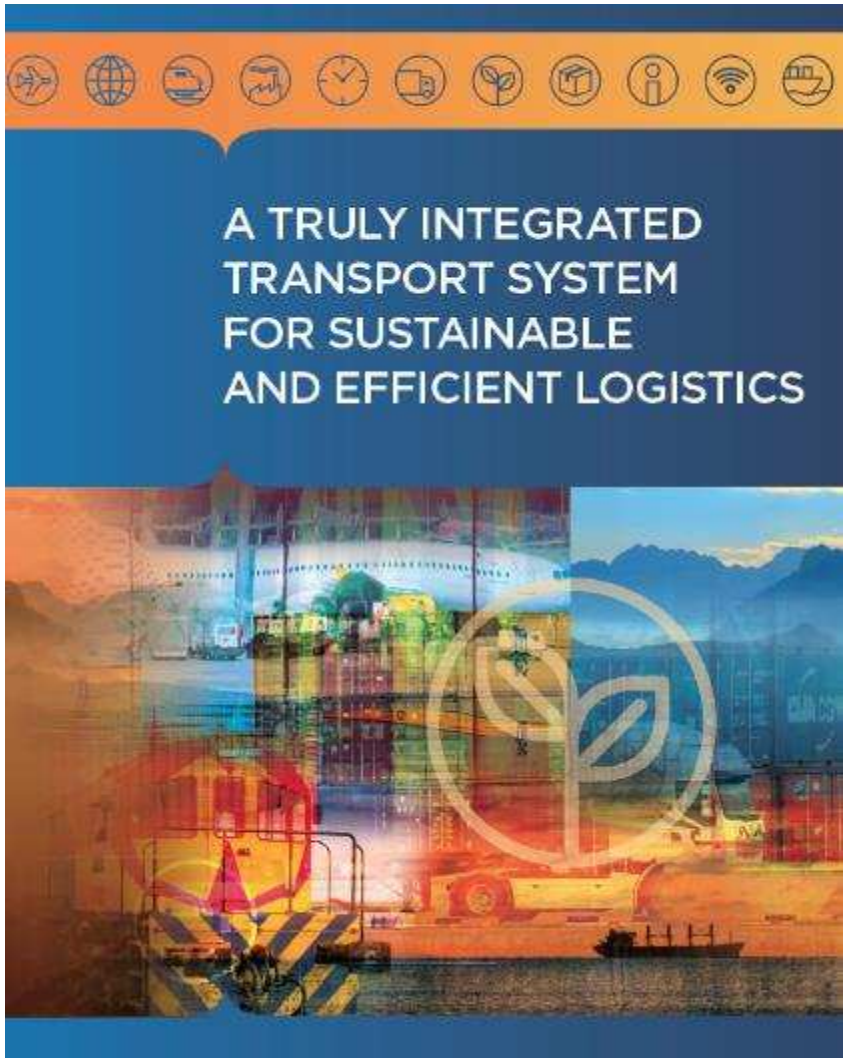

TOWARDS A FULLY INTEGRATED TRANSPORT SYSTEM

Summary of the SETRIS Project Outcomes and Results

APRIL 2018

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ERRAC Specific SETRIS Outputs

D3.8 Alignment of ERRAC priorities with national rail strategies

Review of national and EU priorities

Recommandations to support the alignment of national strategies with ERRAC priorities

D3.9 Update of ERRAC Technology roadmaps' implementation plan

Gap analysis between Shift2Rail and the ERRAC roadmap

R&I topic proposals for FP9 and Shift2Rail2

D3.10 Knowledge and Dissemination strategy

ERRAC Dissemination strategy

ERRAC new structure

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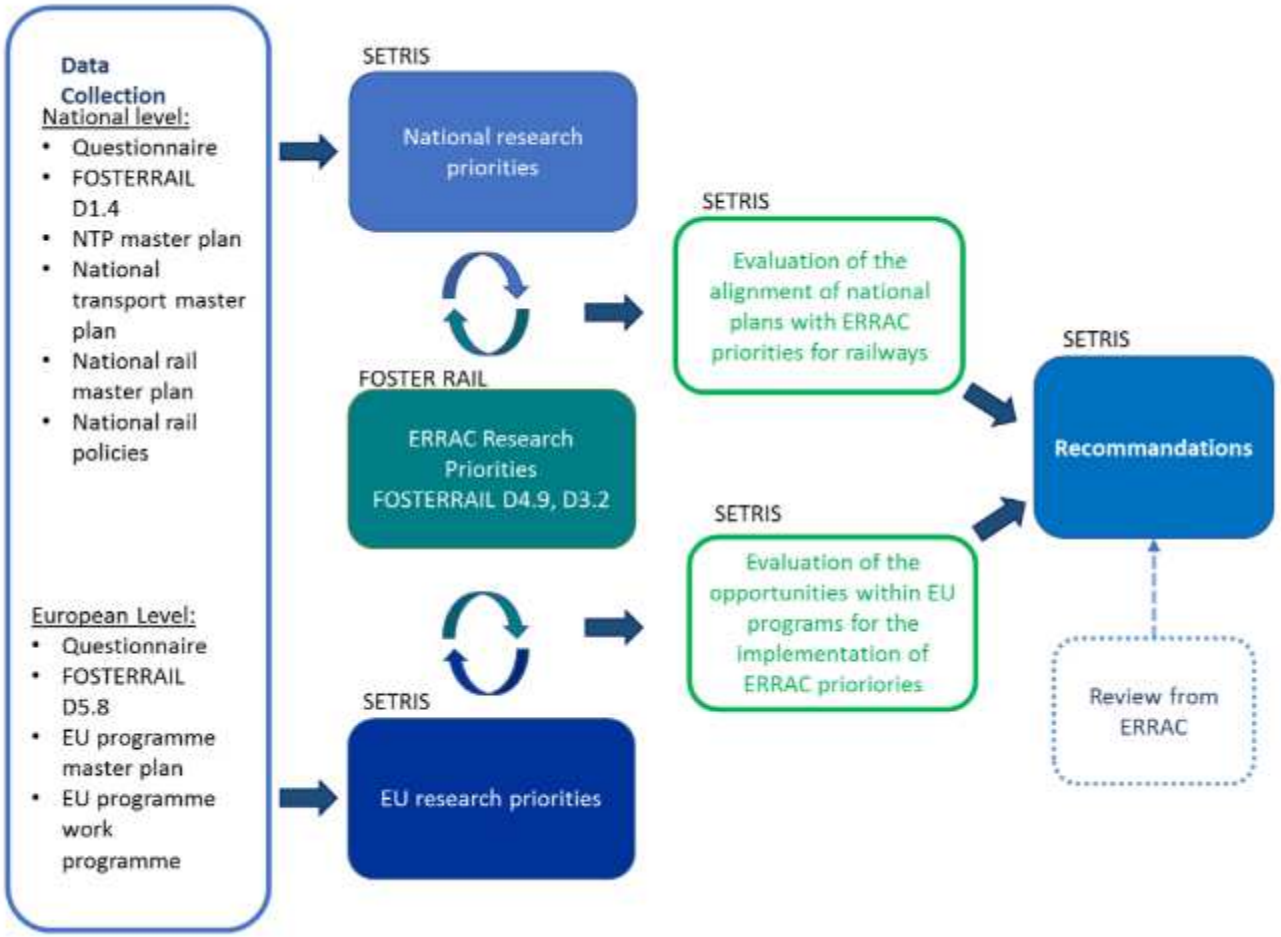
Deliverable D3.8



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Deliverable D3.9

D3.9 provides:

- An overview of EU and national strategies for railways and transport
- An identification of current funding programmes and source of funding that could support the implementation of ERRAC priorities
- A detailed comparison between ERRAC technology roadmaps and the topics adressed by SHIFT2RAIL and H2020
- A classification of topics (railways/transport, Operation and asset management/ Technology and Innovation / Policy and society / Economy and Business)
- An indentification of the barriers which prevent the adoption of innovative technologies and approaches
- Recommendations on SHIFT2RAIL2.0 and FP9

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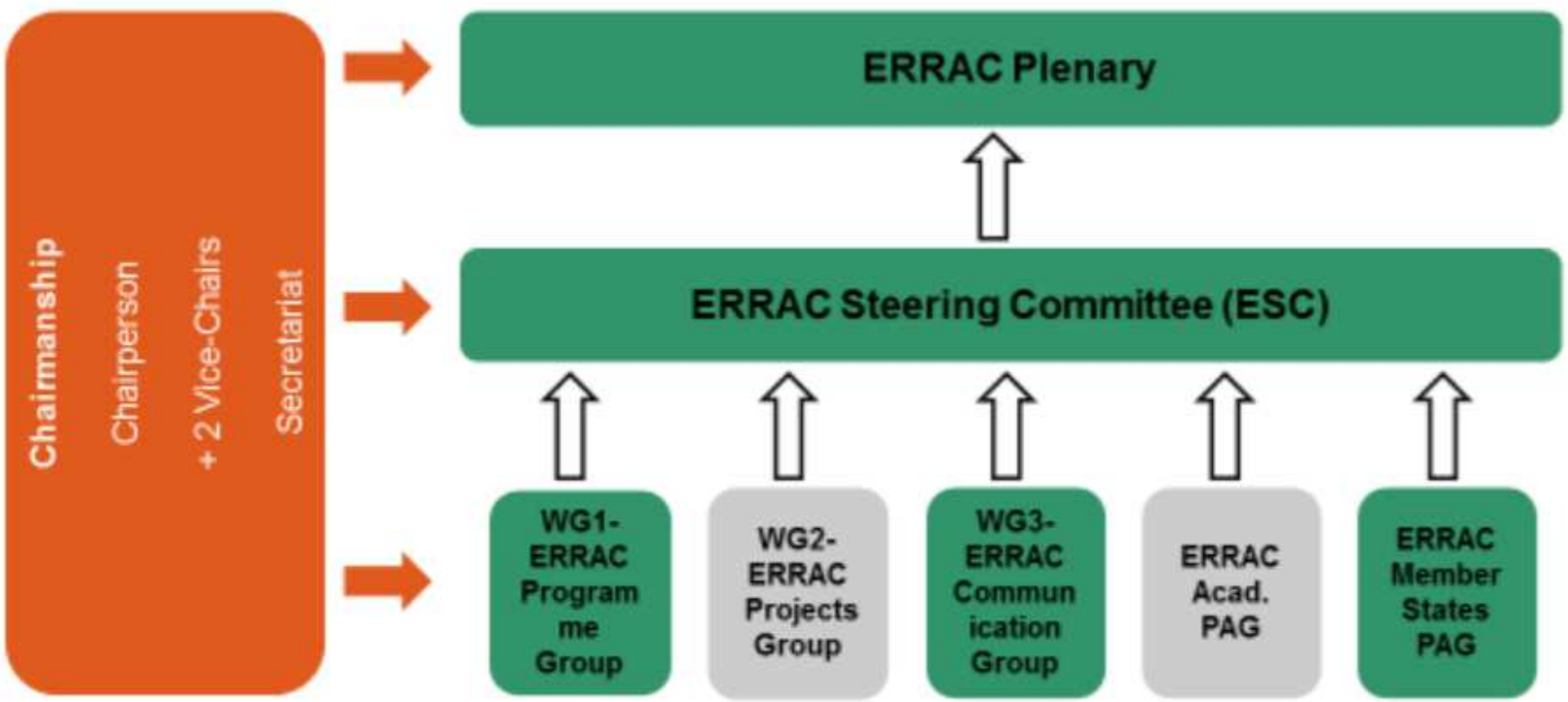
Deliverable D3.10



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Priority Drivers of Future Research

Topics agreed by all ETPs

1. Increased competitiveness of European transport stakeholders;

2. A holistic approach to identifying the means and opportunities for meeting the targets for decarbonising transport;

3. Information technology, new opportunities and threats such as cybersecurity and Big Data;

4. Implementing new mobility system concept;

5. Mitigation scenarios where progress on integration is slower than expected;

6. Transport system resilience.

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Joint ETP Position

Topics agreed by all ETPs

1. The need to prioritise decarbonisation including the electrification of transport modes.

2. Make efficiency gains in freight transport and longer-term efficiency improvements.

3. Propose developing, promoting and following up of the cross-modal transport research agenda, including topics not identified in SETRIS.

4. Importantly the long term cooperation of ETPs needs support so that they can work together improving their Joint Implementation Strategy, monitoring cross-modal systems and their impact on ETP agendas

5. Without support there is a risk that the Joint Working Groups fruitful cooperation may not continue.

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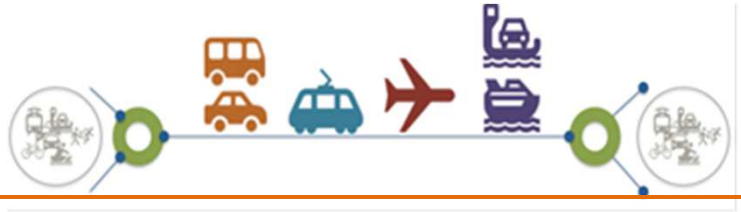

Thank You for your attention!

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1. Welcome from the Chairman
2. Keynote speech from the European Commission
3. Approval of the New ERRAC Terms of Reference
4. Approval of new ERRAC Chair and Vice-Chairs candidates
5. Shift2Rail – state of play and next steps
6. Networking lunch
7. Reporting from ERRAC Working Groups activities
8. Reporting on ERRAC Academia PAG activities
9. SETRIS – Results and next steps for the rail sector
10. **Transport Research Arena event 2018**
11. Concluding remarks

VIENNA 2018 TRA
A digital era for transport
solutions for society, economy and environment

ERRAC Plenary

Brussels, 16 May 2018

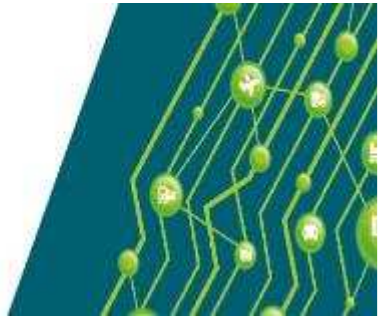
Transport Research Arena 2018

Conclusions

Dr Emmanuel Matsika
Prof Mark Robinson
ECTRI and Newcastle University

Be part of THE European Research and Technology Conference on Transport and Mobility

Transport Research Arena 2018



A Digital Era for Transport

Digitalisation, Automation and Decarbonisation are major trends that will drastically change the way we live, work and use mobility and transport in the future.

The Transport Research Arena 2018 has explored, discussed and demonstrated these major paradigm shifts specifically directed at important areas of our life, such as transport, mobility, logistics and industrial production.

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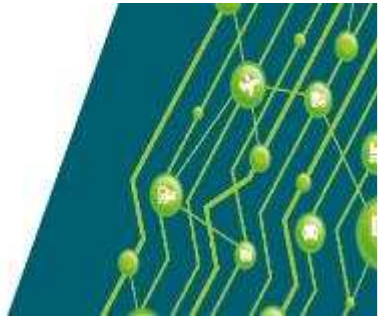
Transport Research Arena 2018



Objectives and Scope of TRA 2018

- TRA 2018 is an arena for researchers, companies and public authorities active in the field of transport.
- Together they discuss new ideas, research results, technological solutions and new business models.
- Together they experience and shape the future of transport and mobility for people and goods.

Key focus areas:

- How digitalisation is transforming transport & mobility systems
- Decarbonisation & future growth – how to change our mobility system & remain competitive
- Shaping the new mobility landscape – a vision for transport & mobility for Europe

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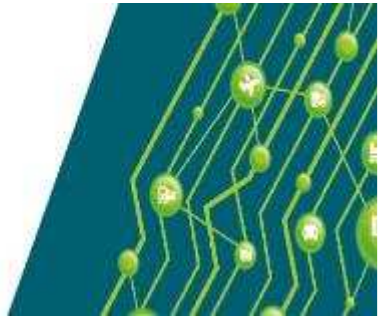
Transport Research Arena 2018



A wealth of sessions and opportunities in:

- Opening and closing sessions
- Keynote by Futurist Gerd Leonhard –

"Autonomous, On-demand, Sustainable, Intelligent and Fluid"

- *NEW: High Level Industrial Round Table*
- 4 Plenary Sessions
- 12 Strategic Sessions
- 23 Invited Sessions
- 52 Scientific & Technical Sessions with more than 650 papers
- 2 TRA Visions Awards for young and senior researchers
- Focus on Women in Mobility & Talents with various sessions and events
- *1815 minutes of conference programme in 4 days*

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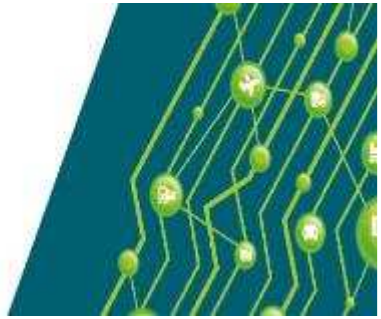
Transport Research Arena 2018



TRA 2018 Exhibition

- 7000m² *Exhibition Area*
  - with over 90 Exhibitors
  - 26 external technical tours all around Vienna
- All new *Interactive Zone* with a Networking-, Demo- and Startup-Zone, presenting first-hand research and business insights including
  - 17 Interactive Presentations & 10 Startups
  - 40 Indoor & Outdoor Demonstrations
- *Marketplace*
  - featuring more than 100 application-oriented Marketplace posters
  - and a place for additional presentations and B2B networking

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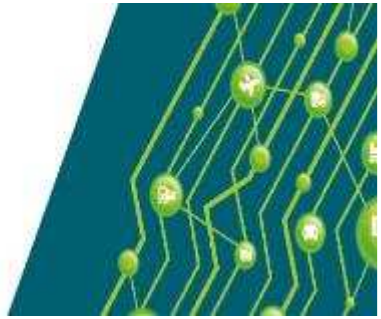
Transport Research Arena 2018



TRA 2018 Associated events

- *Project workshops and final events*
  - INFRALERT, HubHarmony, SocialCar, Harmony, AutoCITS, AM4INFRA, REWARD, DIEPER, EMPOWER, XCYCLE, FUTURE-RADAR, eCAIMAN, SPICY, FIVEVB, FAIRSTATIONS, DESTINATE
- *Committee and organization meetings:*
  - CEDR, ACARE, Shift2Rail, EGVIA, ECTRI…
- *Associated conferences:*
  - Interactive Symposium on Research & Innovation for Connected and Automated Driving in Europe, 19-20 April 2018 in Vienna, starting right after the end of TRA
  - Connnecting Europe: TEN-T days in Ljubljana, 25-27 April 2018

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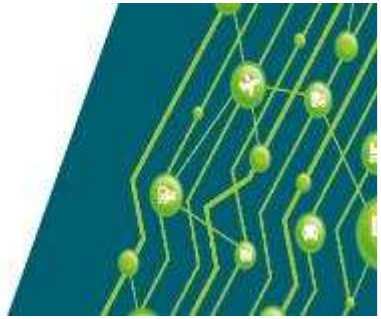
Transport Research Arena 2018



Shaping the New Mobility Landscape - a Vision for Transport & Mobility for Europe

- Time of exponential change, hyper-connectivity, business as usual is dead, data is the new oil
- Future smart transport infrastructure is not only physical, but also made of data/networks/services, how to benefit from citizen participation and citizen engagement, consent and trust
- Smoother relationship between research and policy makers, in both directions
- Transport Sectors (ETPs) working together with other stakeholders (IT, Energy) for fully integrated transport systems
- Digitalisation is a concept with many dimensions: not only technological, but also cultural, social (new interaction schemes among people), and political
- There can be a change in our traditional transport planning approach: digitalization provides us with improved information and knowledge. Overcome the traditional demand vs. supply approach
- Could there be a new transport paradigm ahead? Beyond our current sustainable mobility paradigm, the perspective of full ownership of the transport system by citizens.

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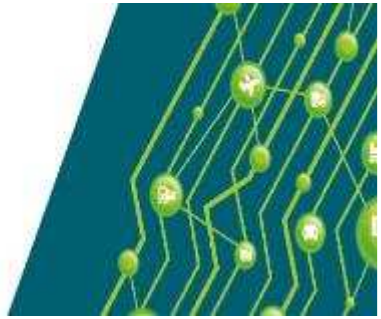

How Digitalisation is Transforming the Transport & Mobility System

- *Digitalisation is more than a vision – digitalisation is becoming reality*
  - But we are lacking an environment of trust, where we can share and use data across stakeholders
  - We can only imagine the overall potential with digitalisation
  - We need to ensure that the traveller is the key beneficiary of digitalising the mobility system
  - Social and economic dimension and impacts of new technologies needs to be emphasised
- *Digitalisation is supporting policy goals*
  - As digitalisation is key for several new services it forms the basis for active contribution to reach the policy goals (safety, efficiency, environment)
  - Commitment to a digital transport infrastructure is key
  - But digitalisation is faster than governance - how will the roles of transport operators and service providers evolve? Who is responsible for doing what? How to finance a digital transport infrastructure?
- *Digitalisation is the tool for living multimodality*
  - The traveller expects a convenient and informed trip – this especially when he goes multimodal
  - When speaking about multimodal services, integrated traffic management is key

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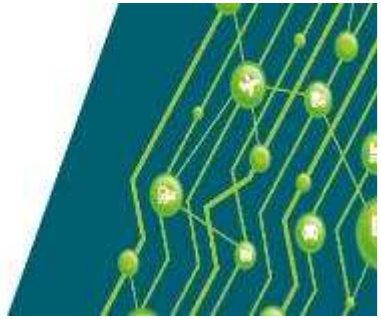
Transport Research Arena 2018



Decarbonisation & Future Growth

- *A Systems approach*
  - Efficient, low or zero emission vehicles and decarbonized fuels
  - Shift to public transport and low-emission/soft modes
  - Make freight trains as easy to use as trucks
  - Flexible shared mobility coupled with efficient traffic management
  - Low-carbon supporting infrastructure
  - Avoiding unnecessary mobility demand
  - Electrification of road traffic needs coordinated action

- *Decision making*
  - Transparency – what are the real costs of the mode you are using (micro- vs. macroeconomics)
  - Thinking of carbon budgets instead of emission targets - Paris targets will be tough to achieve!
  - New taxation models, internalize external costs
  - Infrastructural investment needed but reducing CO_2 often saves you money – makes business sense
  - Price and convenience still main factors for decision-making

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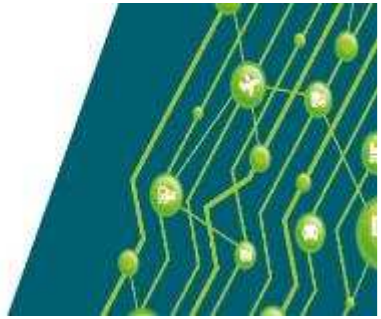

Shaping Future Transport Research in Europe

- Multimodality is the only way to address current problems – **break the mode silos** and put the citizen (users) at the centre
- Transport is the backbone of the economy, vital we have a functioning transport **system**
- As the Vision of the new multimodal transport system is realised the nature of work will change and we will need **new skills and training**
- An holistic approach to providing the means of **decarbonising** transport
- Standards for validation and regulation of **automated** systems
- Sharing information between modes in **real time** along with integrated payment and ticketing
- Integrated open data frameworks – **data is the new oil**
- The **zero carbon** transport footprint
- **Fully integrated** physical transport networks and mobility systems
- A **resilient transport network** due to automated inspection and predictive planned maintenance
- **Seamless network** and transport integration including cross-border
- Deliver a cohesive and coordinated approach to multimodal transport substantially funded research and innovation strategies in Europe with the **full collaboration of the transport sectors (ETPs)** and other stakeholders

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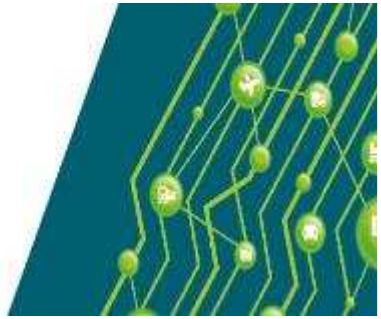
Strategic Session Highlights

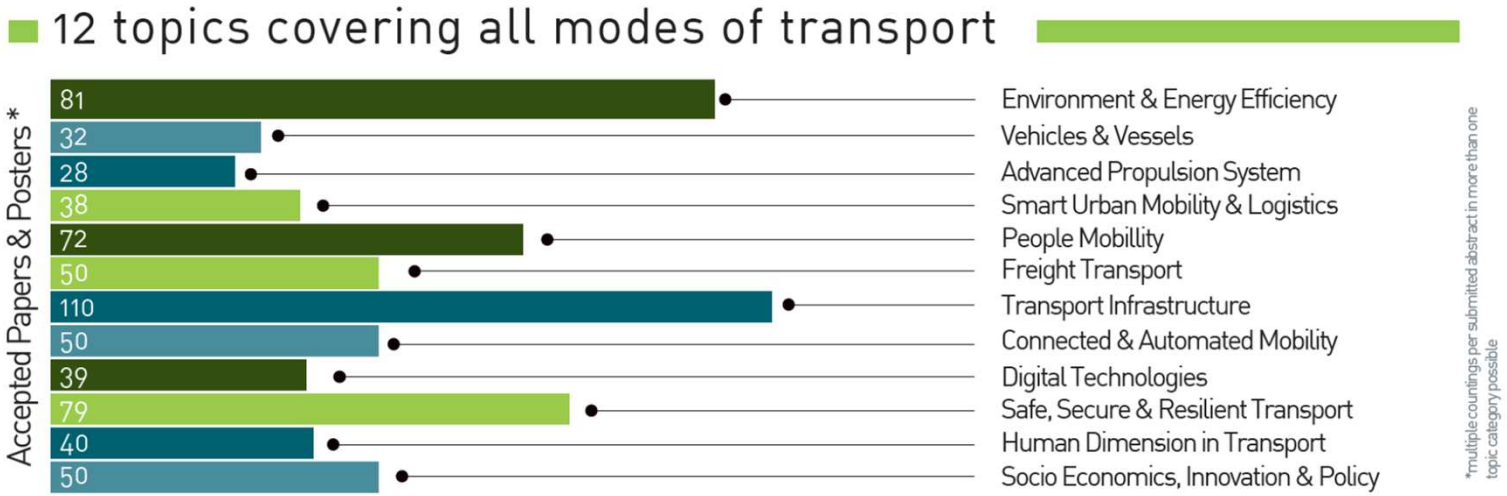


- Digitalisation is the glue, once we are connected we are vulnerable, there needs to be responsibility for data security, the hacker is always first
- Specific issues of transport: vehicles were not designed as cybersecure systems in the past, today: start with securing the gateways, building trust, securing only communications is not enough, create interoperability layers
- Success story in Vienna: 40% of modal share for public transport
- Helsinki: open interfaces for ticketing, deregulated taxis, initiate two way digital dialogue with users, important that what users say has impact
- Make mobility easy to use, data exchange between regional and international Apps needed
- Artificial Intelligence as a enabler of future mobility – keep humans at the centre
- Inclusive, what about persons without smartphones – digital divide, improve services for all, we take our habits along as we age
- Establish a joint working group to discuss cross-cutting research needs. This would monitor multimodal and user-centric transport research projects and their impacts on ETPs programmes.

Transport Research Arena 2018

TRA 2018 Statistics

- More than 3500 visitors
- 12 topics with more than 650 scientific and technical papers* presented as podium presentations and posters in 52 sessions
- Authors from more than 40 different countries



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Next TRA….. 2020

TRA 2020
HELSINKI

Enabling the transformation

Transport and mobility (r)evolution
for smart, green and integrated society

26–30 APRIL 2020

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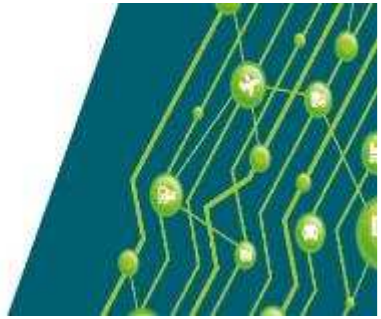

"Dream, manifest and deliver"

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VIENNA 2018 TRA
TRANSPORT RESEARCH ARENA

A digital era for transport

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Dr. E. Matsika and Prof. M Robinson

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ERRAC
The European Rail Research Advisory Council

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www.errac.org