Parallel Session 1B – Sustainability

Towards a European mobility with rail as backbone
a review of research roadmaps in transport

Jacqueline Kommers

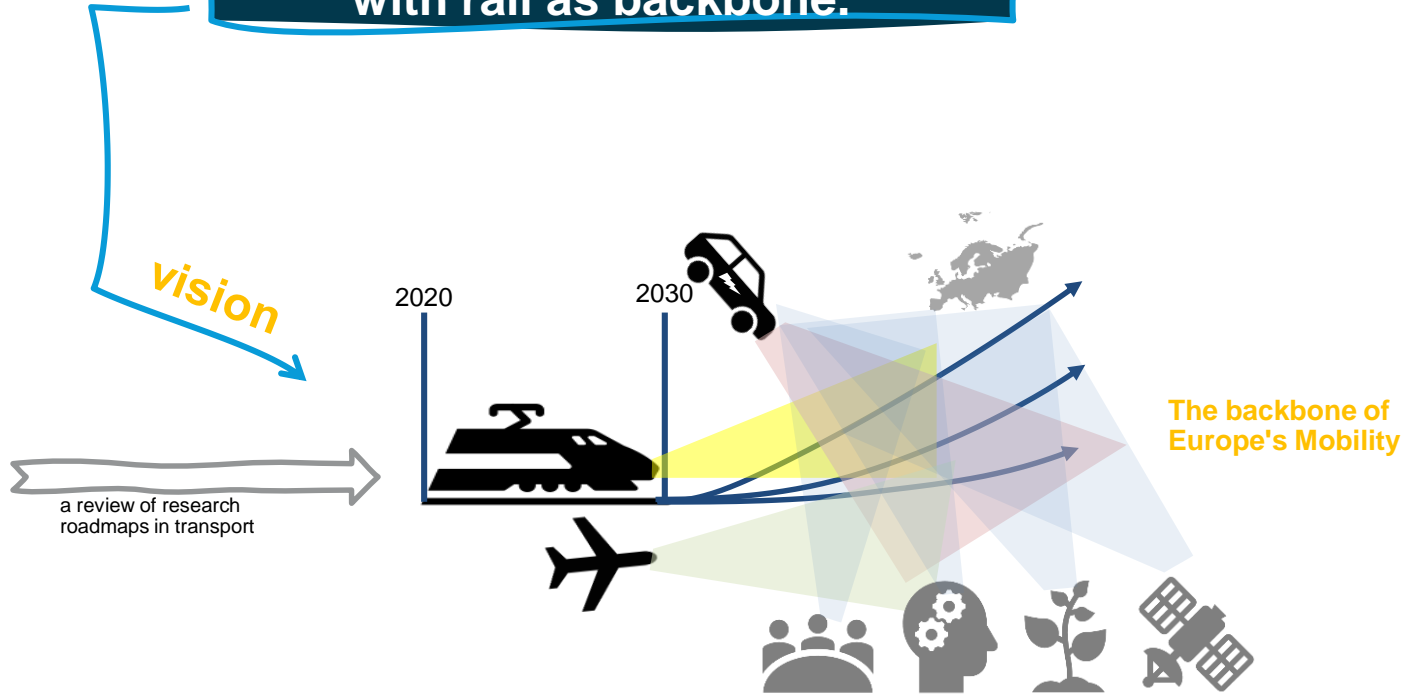EURNEX the European rail Research Network of Excellence

Researcher

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Overview

1. Introduction, higher goal
2. Methodology
   - WCM
   - Delphi study
   - Roadmap analysis
   - Gap analysis
3. Results
4. Conclusion & Discussion

Towards a European mobility with rail as backbone.

vision

2020   2030

a review of research roadmaps in transport

The backbone of Europe's Mobility

1. Introduction

What are the current gaps in the EU mobility roadmaps that need to be bridged to make rail as the backbone of the European mobility?

2. Methodology

"Towards a European mobility with rail as backbone
a review of research roadmaps in transport "

World Cafe Method   Delphi study

55 keywords

≠ GAPs
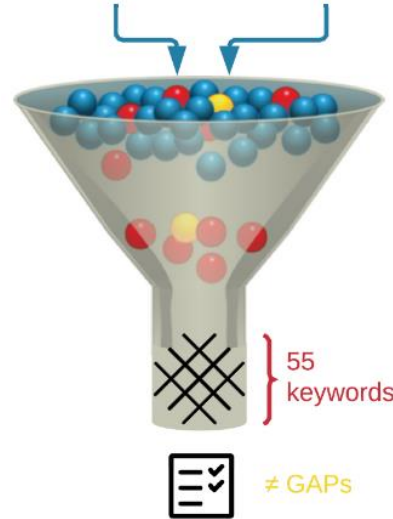
3. Results

- ## World Café Method
  "in 2050 rail in Europe the backbone of urban and rural mobility, with intelligent stations at the heart of smart cities, being life-centric places to work, meet and communicate"

Table 1 Backbone and systems strategy

Table 2 Environment
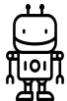
Table 3 European citizens mobility needs

Table 4 Smart vehicles

Hold on the 28th June 2019,
New Castel University in London, UK
30 transport experts

Source; The World Café: Shaping Our Futures Through Conversations That Matter. (2005) Juanita Brown, David Isaacs, and the World Café Community

3. Results

Table 1
- Railways must be considered in terms of cross benefits analyses
- Underestimated in multiple ways
- Self-critical for creating new products or services

Table 2
- Strongly depending on local or national politics (laws and regulation's)
- Disconnection between urban and rail development
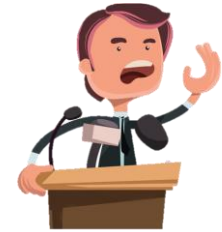- Critical of the use of space in urban areas

Table 3
- MAAS basic should be standard for the urban and national transport network (passenger, freight, incl. IT systems)
- Night trains are not available
- Travel behaviour should be included in cross modes

Table 4
- Well-located ports and terminal for rail freight operations
- Alternative such as shorter autonomous trains is needed
- Ergonomic design of stations and interchanges was viewed as key user facing requirement for new infrastructure.

3. Results

Delphi study

STATEMENT	👍	👎	N.C.	👍%	Stable?
Rail in Europe in 2050 is the backbone of urban mobility, with intelligent stations at the heart of smart cities, being life-centric places to work, meet and communicate.	35	18	4	61.40%	Unstable
The European rail system in 2050 is able to detect, understand and respond to individual and collective European citizens mobility needs, delivering tailored, on demand, integrated end-to-end mobility solutions to which the rail system is a prime contributor, integrating seamlessly with all other available transport modes in an easy and friendly way	25	22	10	43.86%	Unstable
By 2050 European railways are a core part of any smart city planning, mobility management systems, and city fulfilment and delivery services, promoting interconnection by freeing up land which was previously needed by private road vehicles and minimizing pollution and congestion	38	16	3	66.67%	Unstable
Every individual across Europe has easy tailored access to mobility services regardless of demographics, culture, language, location, or technical proficiency by 2050	38	17	2	66.67%	Unstable
Taking into account data privacy management, in the year 2050 relevant information is shared across the European rail stakeholders as a part of the data economy, enabling new services and applications for the benefit of the railways and its customers;	39	12	6	68.42%	Unstable
People feel safe and secure using European rail services in 2050 thanks to non-blocking security systems. Precautions against external threats, aggression and vandalism, supported by technologies are in place.	36	11	10	63.16%	Unstable
The European smart vehicles on rail are aware of themselves by 2050, their passengers/loads and their surroundings, know where they need to be and when and can adjust journeys automatically to meet demand.	36	15	6	63.16%	Unstable
A European rail network of fully smart vehicles that may be self-regulating by 2050 in traffic, negotiating vehicle-to-vehicle and vehicle-to-X to determine movement priority and resolve potential conflicts at junctions in the network and reacting to unexpected situations.	36	14	7	63.16%	Unstable

$$\text{Consensus } APMO = \frac{\text{Aggregate of Majority Agreements} + \text{Aggregate of Majority Disagreements}}{\text{Total Opinion Expressed}} \times 100$$

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3. Results
Roadmap analysis

3. Results
GAP identification

Data	Remark	Mentioned in the roadmaps
Delphi	1. Anticipate on individual citizen's needs	2%
	1. Anticipate on collective citizen's needs	7%
	2. Tailored, on demand mobility solution	13%
	3. Integrating railways seamless with other transport modes.	29%
WCM	1. Benefits for Railways: Promote railways are a green credentials	7%
	1. Benefits for Railways: Promulgate that railways are core part of the mobility network	11%
	1. Benefits for Railways: Proclaim that railways are the core for achieving sustainable objectives	11%
	2. Political vision: Disconnection between urban a rail development.	2%
	2. Political vision: Balance between push and pull measurement for creating the modal shift	15%
	3. Multi modal approach: MAAS	35%
	3. Multi modal approach: Intergrated ICT system	42%

$$GAP = \frac{\text{value of related keywords}}{\text{total of keywords}} \, x100$$

4. Conclusion

Question; *What are the current gaps in the EU mobility roadmaps that need to be bridged to make rail the backbone of European mobility?*

Shortcomings

- Adapting **citizen's needs**, user acceptation and integration of railways;
- the influence of **short-term politics** on transport developments over the long term;
- an absent **multi-modal mind-set in all transport sectors** imagining the integration of railways;
- and the need for tailored and **on-demand mobility in railways**.

Alignment

- cross-sectoral / disciplinary research,
- information management system,
- physical transport network,
- safety and security,
- digitalization and interconnecting rail network

Attention Point
Too frequently non-rail roadmaps do not mention collaboration or integration with railways sufficiently in their transport vision

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Thank you
for your kind attention

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