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Major societal challenges and research solutions in transport safety in Europe

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Objectives

- Summarise the discussions on current and future transport **safety challenges** within and across modes.
- Highlight domains of **good safety practices** with potential transferability between transport modes.
- Identify **research priorities** with high potential of casualty reduction by transport mode and cross modal.

Background of Transport Safety in Europe

Transport mode	Fatalities	billion pkm	Fatalities / billion pkm
Road	30.268	5.457	5,55
Railway	38	407	0,09
Air	6	575	0,01
Sea	-	37	-

European Union, 2011

Comparisons of safety rates between different transport modes are particularly difficult due to **lack of consistent and appropriate exposure data**.

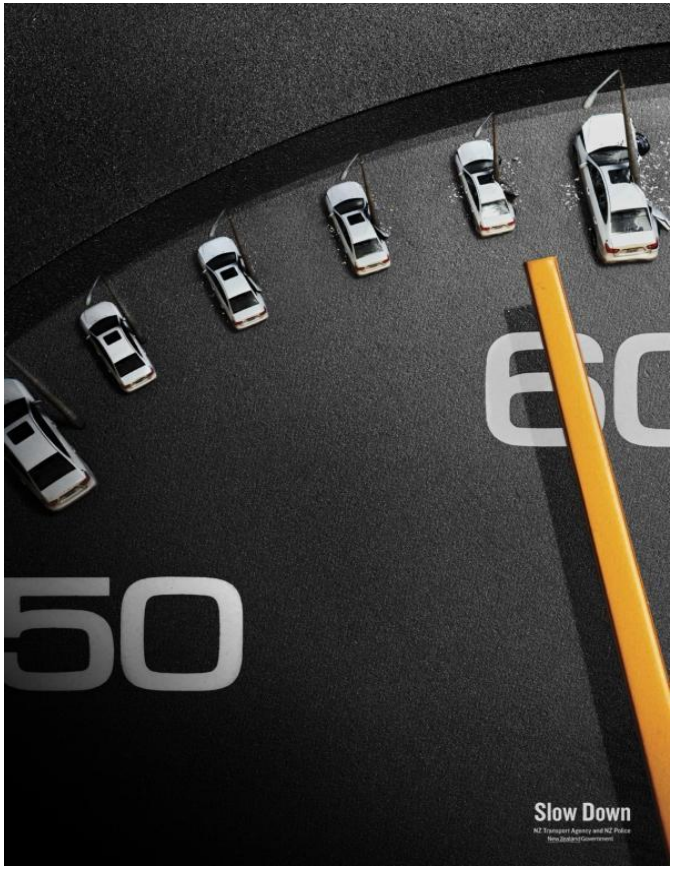
Basic cross modal safety comparisons

- **Public transport** is safer than private transport in all modes.
- **Bus and rail** are the safest forms of land transport having very similar safety rates.
- **Car** travel is ten times safer than walking, but it is also ten times less safe than bus travel.
- **Motorcycling** is the least safe form of transport.

There is **no uniform picture** across and within modes and across and within countries, in Europe and worldwide.

Common safety problems across modes

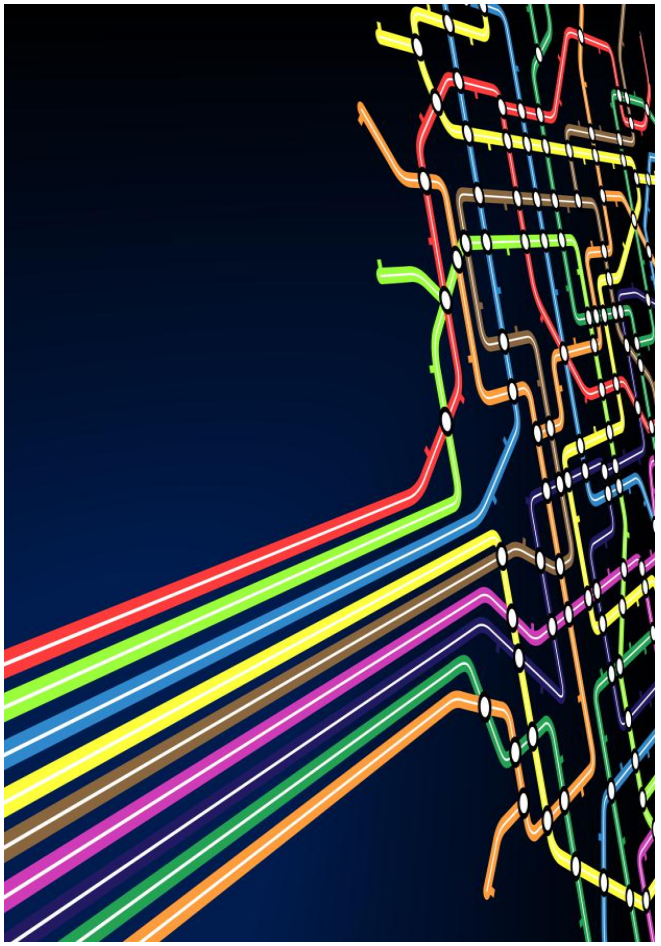
- distraction - inattention - fatigue - alcohol
- speeding - human errors
- vulnerability - protective systems
- inappropriate infrastructure - nodes
- adverse weather



Are cross modal approaches feasible?

- There are common safety problems in different transport modes involving different people, structures and geographic areas. The open questions is "**how far are common solutions appropriate?**"

- Road transport is dominated by **traffic of non professional drivers** (passenger cars, motorcycles, cycles, pedestrians), whereas in all other modes professionals ensure high compliance to safety standards (small private boats?).



Potential common focus across modes

- Human behaviour and performance
- Automation and cooperative systems
- Infrastructure redesign with focus on critical nodes
- Risk and system management
- Accident analysis - Big Data

Tools to be used from different modes

- Safe System Approach
- Accident Investigation - Event Data Recorders
- Regulations and standards
- Vision Zero
- An EU Agency (EASA, ERSA, EMSA, Road?)

<u>Data Management</u>

- exploitation of big data
- appropriate and detailed **exposure** data
- **comparable** data across and within modes and across and within countries

Research & Innovation considerations

- A multi-modal approach needs to be adopted regarding the **collection of accident data**, given that the causes of accidents and incidents can be similar for the four transport modes. Research should help define a common methodology and a European standard for data collection, sharing, processing and analysis, including for road safety, to form the basis for sound legislation.

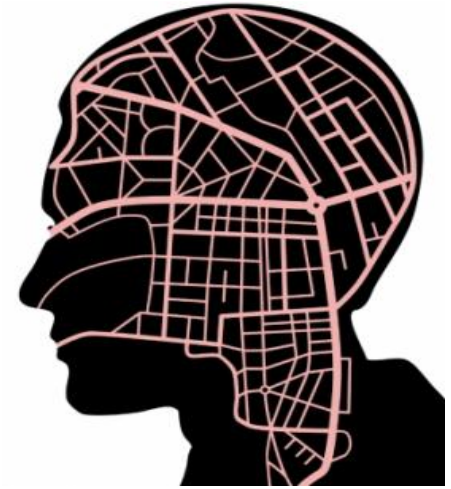
- **Harmonised management of safety-relevant traffic data** is necessary, including validation of sources, ownership of data, privacy and liability issues. Research is needed to achieve an integrated approach to data governance, essential to ensure a seamless and safer transport system.

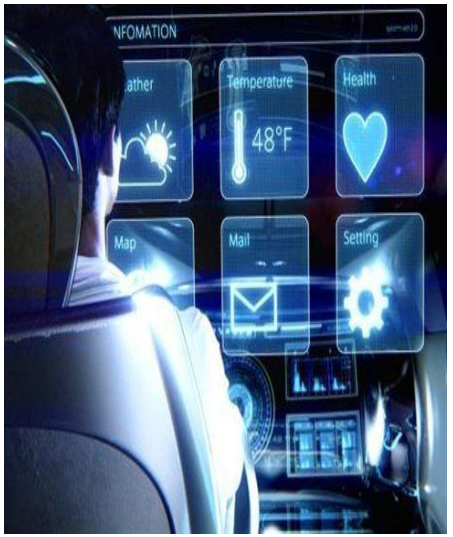
Research & Innovation considerations

- Specific research in the field of **distraction, stress and fatigue** should be supported.

- Increasing support for the **Human Machine Interface** and automation in all transport modes. A roadmap to automation should be defined to determine which technologies should be implemented in priority order.

- The introduction of these technologies should consider:
  - possible **unintended impacts** (over-reliance, distraction, cognitive overload),
  - adequate levels of **cyber-security**,
  - the need to cope with possible **failures**,
  - effective communication, education and training to ensure **social acceptance**.





Research & Innovation considerations

- Due consideration should be taken of the safety impact of **infrastructure** design, construction and maintenance and its overall contribution to safety on a modal and cross-modal basis.

- In prioritising research efforts and in defining a roadmap to implementation, the primary focus should be on those **measures that can be deployed in the short-medium term** and are most likely to yield rapid safety gains.

- While safety is, and should remain, a paramount objective for each mode and for the transport system as a whole, **road safety deserves particular attention**, given the disproportionate occurrence of accidents and casualties.

Fundamental policy and research challenges

- Focus on **applied research** with emphasis on both technological and organisational solutions.
- Appropriate **higher budgets** are necessary.
- **Private sector** should engage and contribute to research budget more actively.
- Need for EU centres of research **excellence**.
- Need for **research syntheses** with clear innovation and policy priorities (widely available).

Summary questions to introductory questions

1. How safe is safe enough?

We are never safe enough. Systematic work is needed and Vision Zero is a great tool for continuous improvement.

2. Time for a European Road Safety Agency?

Certainly Yes; with increased responsibilities to coordinate research with policy making.

3. How do we make sure that policy is based on sound research grounds?

Clear objectives - appropriate data - sound methodologies - applied research - wide dissemination.

4. What can modes learn from each other?

Automation - Big Data - Human behaviour and errors - Safe System Approach -- Risk management - Accident analysis - Infrastructure redesign - Distraction -International regulations

Concluding Remarks (1/2)

- Transport safety and mostly road safety is **a major societal problem** which requires much more serious attention.

- **Political will is weak**, from both public and private sectors, as demonstrated by:

- poor budget allocation,
- slow commitment for major changes
  (due to political cost or companies less profits).

- **Data and knowledge** are piecemeal, not comparable (across countries and modes) and mostly not widely available.

- Transport safety **research** has a great potential to become the catalyst for innovative and efficient solutions.

- Research should be both **by mode and cross-modal**.

Concluding Remarks (2/2)

- This Conference should be seen as rather the **start of the discussion** on cross modal approach on transport safety.
- It is obvious that **bringing together safety experts** from all different transport modes can be very useful, however not easily achievable.
- The exchange of experience between different modes is an area with **great potential** for safety improvement, which should be further explored.

Transport Safety Research Priorities