

European Conference of Transport Research Institutes

ITS and research *Challenges and opportunities*

Jorge Alfonso – ECTRI

Technical University of Madrid, Spain

ITS: a Tool or a Toy?

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Basic Features

- Non-profit organisation established in 2003 to
 - Promote **integrated transport R&D** in Europe
 - Tie together the foremost **multi-modal transport research centers** across Europe
 - Promote the **excellence of European transport research**
- **28** major European transport research institutes / Universities from **21** European countries
- More than **4,000** research staff including in 200 ITS
- Offices and staff (2,5) located in **Brussels**

Vision and Mission

Vision

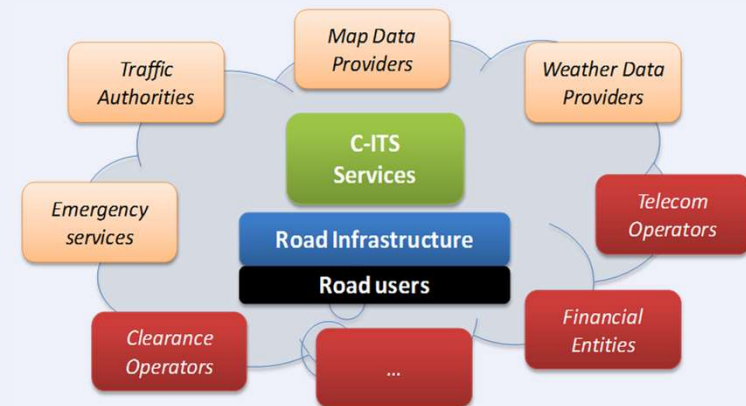
- ECTRI is the „leading European research association for sustainable and multi-modal mobility“

Mission

- ECTRI is pushing for green, safe, efficient, and inclusive transport for people and goods by
 - Promoting transport research and enhancing its scientific quality and effectiveness
 - Providing independent, evidence-based advice to decision-makers in Europe
 - Incorporating and representing the foremost European transport research institutes and universities

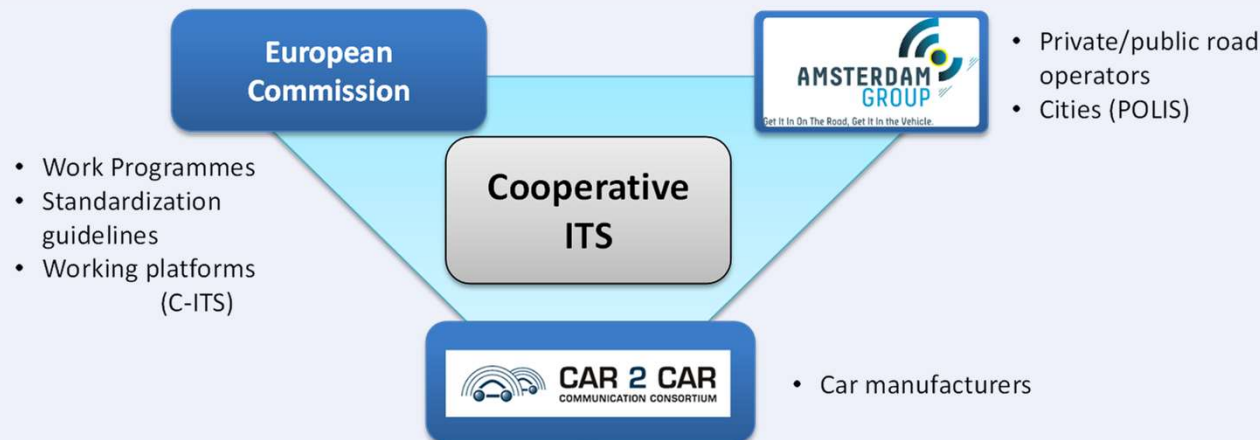
The ITS environment

- It is necessary to understand that the ITS environment is a complex network of entities and users.
 - Both ITS and non-ITS related.
 - Each with their own needs, requirements, operational and functional structures.
 - With differences in the local/regional regulations and administrative procedures.
 - We are looking therefore at both technical and non-technical issues.
 - The quality of the ITS solution depends on the awareness of this complex environment and its data.



ITS – Where are we?

- ITS has been advancing fast in the last decades.
 - With the European Commission push on R&D, standardisation and regulatory initiatives.
 - With the ISO, CEN, IEEE and ETSI work on specification of different parts of the ITS solutions and their integration.
 - With the R&D initiatives, from partial communications solutions, to actual deployment of complex services, as FOTsis, DriveC2X, OPTICITIES, HeERO, ...



ITS challenges – A scenario

■ ITS in Urban environments

- Development of ITS and Cooperative ITS solutions has been focused on interurban traffic.
- But mobility in the cities account for a significant proportion of the passenger and freight traffic.
- Mobility in urban areas must consider all the relevant modes and users: “traditional” (bus, metro, train, ...), active (walking, cycling), shared (car-sharing, bike-sharing)

■ The key aspect in the urban environment is the big number of actors involved in the mobility landscape.

- Models do not integrate yet all of the modes
- The behaviour of users in this complex mobility environment is not fully understood.

ITS challenges – A scenario

■ ITS in Urban environments

- Urban mobility plays a critical role in cities' operations across many sectors.
- It is necessary to guarantee a robust, integrated and flexible management system(s) able to deal with incidents and events, and recover quickly from them.

■ The key aspect in the urban mobility management is the awareness of the road traffic status and the involved entities.

- Transport network layers, scales, agents and users...



Interoperability

In deployment: standardisation, conformance, certification...

ITS challenges – A game-changer

■ The Autonomous vehicle

- Development on different areas along three roadmaps: conditional automated driving, automated commercial vehicles, automated urban road transport.
- Requires advances on HMI issues, cooperative controls, HGVs platooning, infrastructure adaptation, sensorization, safety perception, regulatory frameworks, ...



- Impacts are complex and are a consequence of the relevance of automation to all aspects of driving, from real-time operation of vehicles to daily mobility patterns, to ownership and license issues.
- Impact areas: safety and liability, cybersecurity, network operations, urban traffic management, inter-urban mobility...

ITS challenges – Is it all about the data?

■ Quality of services depends on the data available

- There is a need of more localized data: crowd-based and social-based information, vehicular, floating, mobile and ad-hoc sensor networks data, and the corresponding BigData processing tools.
- It is necessary to extend and integrate the current mobility and safety data structures to facilitate a more comprehensive view of the environment, including aspects relevant to the vulnerable road users.
- But what about considering data not directly related to mobility? Mobility demand models have considered limited parameters for users' mode choice. What are the additional parameters and how to use them in mobility models?

ITS challenges – Is it all about the data?

- **Impacts of improvement of data collection and processing cover many different areas:**
 - Increase the awareness on the road traffic status
 - Improve the road operators/managers decision making process
 - Increase the efficiency of road transport, reducing congestion
 - Improve safety levels, reducing the number of crashes
 - Improve sustainability, cutting down pollutant emissions
 - Enable citizen-centred mobility services, and in the end, mobility as a whole.

ITS challenges – Is it all about the data?

- As we advance towards the SmartCities and Mobility-as-a-Service concepts, issues appear to shift from purely technical, to those related with deployment of complex solutions.



***It is not so much about what can be done,
but how we can facilitate it***

- Are all the entities involved in deployment aware of the issues and the solutions being proposed?
- Is the regulatory framework adequate for large-scale deployment?
- Are the administrative and public sector aware of their role in large-scale deployment of urban and interurban ITS solutions?
- Are the business models frameworks ready for production and commercialization?

ITS challenges – Are we being too pushy?

- How do we guarantee access and use of ITS services to the users?
 - ITS services and solutions have proven the value and impact on macro levels. It has shown further potential, but as of yet, wide adoption and acceptance by individuals is not so clear.



- Individual users need to see the benefits of ITS in their daily life. Services must adapt to their needs and circumstances at all moments.

Mobility in the future must be citizen-centred

- But are all the users willing and prepared to make the most of all ITS services? And if so, how can we attract both users and providers to those services?

More information

www.ectri.org

Contact: info@ectri.org

Jorge Alfonso: jak@gatv.ssr.upm.es