



## **TRANSPORT CHALLENGE IN HORIZON 2020**

### **ECTRI POSITION ON THE SECOND WORK PROGRAMME (2016-2017)**

**July 2014**

The European Conference of Transport Research Institutes (ECTRI) is an international non-profit association that was officially founded in April 2003. It is the first attempt to unite the forces of the foremost multimodal transport research centres across Europe and to thereby promote the excellence of European transport research. Today, it includes 24 major transport research institutes or universities from 19 European countries. Together, they account for more than 4,000 European scientific and research staff in the field of transport. ECTRI as the leading European research association for sustainable and multimodal mobility is committed to provide the scientifically based competence, knowledge and advice to move towards a green, safe, efficient, and inclusive transport for people and goods.

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## The importance of transport system integration in Horizon 2020

Building upon previous contributions<sup>1</sup>, ECTRI constructively supports the preparation of the second Work Programme of Horizon 2020 by putting forward **five main areas of research** for advancing the transport system as perceived by our community which comprises the leading European research centres for multimodal transport.

Being aware of the substantial input being prepared by European Technology Platforms and other advisory bodies, we are firmly convinced that **integrative and multimodal research** solutions in each main area will advance sustainable solutions for the transport and mobility challenges of the 21<sup>st</sup> century and create significant added value for the European economy, the European cities and their citizens. While at this stage we outline the main areas for discussion, at a later stage we will give a more detailed contribution in the form of specific topics to be addressed and impact to be expected.

ECTRI has continuously stressed the importance of an integrated transport system in order to cope with the grand economic, environmental, and societal challenges faced by the European Union in the coming decades. Although economic recovery seems to be taking place, a smart, robust and adaptive transport system based on (1) an interconnected and resilient infrastructure, (2) transport means integrated within real-time information systems, and (3) an economically efficient and responsive traffic management for people and goods is a competitive advantage for Europe's innovative and productive cities in a globalized economy. Considering the 'canonical' modes of road, rail, water and air transport as the cornerstones of this system, ECTRI calls for a new guiding theme **"Towards an integrated transport system"** for the second Work Programme.

Transferring this new theme into the existing programme structure has two major implications. Firstly, the **mode-specific research in the Work Programme** and the related JTIs/JUs continue developing new vehicle concepts that are at the forefront of performance and energy efficiency, while at the same time consolidating the links with other modalities at the level of, e.g., infrastructure, traffic management, sharing economy, and pricing systems. Ambitious overarching goals, e.g. "90% of travellers within Europe are able to complete their journey, door-to-door within 4 hours" (as formulated by ACARE), form user-oriented guiding principles. Such goals also draw the attention to the intersections of different modes of the transport network: ports, airports, railway stations, parking lots, logistic hubs, etc. – considered to be core elements for achieving seamless transport. Furthermore, they call for reliable data, shared information, interoperability, synchronized timetables, and diversified intermodal transport services to respond but also to shape an increasingly sophisticated demand.

Secondly, the **systemic research areas** of urban mobility, logistics, intelligent transport systems, infrastructure, and socio-economics address cross-modal issues and follow an integrated approach. In this context, we underline the importance of accompanying research and evidence-based evaluation studies for policy making, including socio-economic and behavioural research as well as forward-looking activities. These principles ought to be consistently applied throughout the Horizon 2020 programme to shed light on both sustainable and replicable solutions which meet the challenges raised by transport – such as resource efficiency, better mobility, less congestion, greater safety and security, and competitiveness – and address likewise the external benefit of transport and mobility to other societal challenges.

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<sup>1</sup> See ECTRI's following position papers:

- ECTRI Position on the draft Work Programme (2014-2015) – October 2013
- ECTRI Suggestions for the First Work Programme (2014-2015) – May 2013
- ECTRI Reflections on the Transport Challenge of Horizon 2020 – September 2012
- ECTRI Position on the Horizon 2020 Specific Programme – December 2011
- ECTRI Position on the EC Transport White Paper 2011 – July 2011
- ECTRI Answer to the EC Green Paper Consultation – May 2011
- ECTRI Contribution to the "Strategic Transport Technology Plan" – March 2011
- ECTRI Position on FP8 – February 2011
- ECTRI Position on the EC Communication on "The Future of Transport" – September 2009

## Five main areas of research for advancing an integrated transport system

### Individual users' mobility behaviour (I)

- To better understand our increasingly dynamic and complex transport system we need to update our knowledge about key factors that lead to travel choices and users' behaviour, to take into account the evolution of these factors due to new lifestyle, new technologies and changing socio-economic patterns. This is especially true for transport systems with multimodal and intermodal travel options. Here, transport research thrives on the trans-disciplinary combination of technology, economic, and societal research offering a way to break off from simplistic supply-matching demand to arrive at governance models that link technological factors and user behaviour as well as decision-making and planning practices that shape the demand side towards sustainable transport systems and travel behaviour. Filling the critical knowledge gap will not only help to better understand current mobility behavior, but also allow for a better forecasting of possible future trends in the short- and mid-term and to develop scenarios for the long-term, taking full account of different stakeholder perspectives and economic realities and the influence of transport provision on society and the economy.

### Multimodal mobility systems and services (II)

- Following growing public awareness and policy regulation on European to regional levels, there is a shift towards sustainability and energy efficiency in transport. Mastering the realization and interplay of efficient, safe, sustainable and inclusive mobility systems and services is a key competitive advantage, most of all for urban areas of the future. The challenge is not only to combine urban design, land use, infrastructure, traffic management, and vehicles, but to achieve cross-modal solutions which exploit lessons learned at the modal level and make innovative connections between seemingly disparate modal approaches. To this end especially service operators need to advance their perspective from network to system providers if mobility issues are not simply transferred from one mode to another, but instead validated solutions are identified and replicated that can cope with diversifying mobility patterns and improve several key elements of future mobility systems due to cross-cutting research and research on multiple challenging combinations: technology, data and information availability and management, economy, society, and the environment.

### Advanced logistic services (III)

- Logistic systems and economies of scale have been a driving force for economic development and welfare over centuries. Current global competition calls for the development of more advanced logistic services being able to serve the needs of complex and time-critical supply chains for industrial production, business, and consumers, especially in cities and urban agglomerations. Logistic solutions matching such demands do require a system approach to handle the diversity of responses to complex issues such as the performance, the transit times, the sustainability of transport chains and the potential for modal transfer. These solutions include the optimization of the load capacity of vehicle fleets, the introduction of 'green' vehicles, the development and innovation of novel servicing concepts for cities, the targeted management of intermodal operations and multimodal freight terminals, and integrated mobility services for goods.

### Resilient and secure transport systems (IV)

- The functioning and efficiency of transport chains are increasingly affected by a rising number and extent of threats and hazards. Moreover, the existing transport infrastructure is frequently under-maintained due to lack of public funds or low priority given. Though a variety of measures for the protection of transport infrastructures have been developed, the critical combination of measures, their cross-effectiveness and extent of replicability have been almost left out – despite their growing importance and relevance. Therefore, an integrated approach is vital to achieve to protect the EU transport systems and to keep the most important goods moving: in-detail analysis of hazards and threats, categorization of effects and impacts for supply chains and affected transport modes as well as gap analysis, targeted development and trialling of maintenance and upgrading technologies through demonstrators on a European scale. Another related and important aspect are flexible information and decision systems concerning the current capacities and performances of different transport modes in real-time.

### Research support for decision-making (V)

- There is a huge gap in the ability to interpret, transfer and exploit research outcomes for policy making with short- to long-term perspectives. This gap leads to suboptimal effectiveness and efficiency gains of what research can contribute for agenda and policy making. Realizing smart, low-carbon transport systems in Europe up to 2050 and beyond will require a reform of institutions and governance practices opting for more collaborative decision-making procedures between stakeholders which are based on sound research results. Accompanying research significantly improves our understanding of the transport system, corresponding technologies and the transport users. Such research facilitates evidence-based policy making from a holistic point of view taking into account different stakeholder perspectives, science, research and technology, society, economy, and institutions – towards a sustainable and user-friendly mobility.

ECTRI will further elaborate and detail these ideas during the upcoming months. Meanwhile, we would be pleased to present and discuss our point of view with European Commission representatives at any time.