Towards a Strategic Transport Research and Innovation Agenda (STRIA)
Meeting the transport stakeholders

23 June 2016

Workshop report

In the context of the Energy Union, on February 2016 the European Commission started a consultation process, involving a wide range of transport stakeholders and experts, with the aim of defining a Strategic Transport Research and Innovation Agenda (STRIA).
As part of this process a number of workshops were held between May and June 2016. The first series of workshops focused on each of the 7 STRIA thematic areas. Those areas, selected on the basis of their potential to transform and decarbonise the EU transport system are:

1. Electrification;
2. Alternative fuels;
3. Vehicle design & manufacturing;
4. Connected and automated transport;
5. Transport infrastructure;
6. Network and traffic management systems;
7. Smart transport and mobility services (incl. urban).

Several stakeholders and experts were invited to take part to the workshops and provide their input on a number of strategic technology issues. Their contributions were used to prepare the 7 STRIA roadmaps which are meant to define the steps needed to support and speed up the research, innovation and deployment process of the considered technology.

The STRIA workshop organised on 23 June brought together around 150 experts and stakeholders involved or interested in the 7 STRIA thematic areas with the goal of taking stock of the key findings of the consultation process to date, gathering additional inputs and start the process of integrating the 7 thematic areas into a single, coherent and integrated agenda for transport research and innovation.

Following the introductory presentations of directors Clara de la Torre (EC, DG RTD) and Magda Kopczynska (EC, DG MOVE) and the contribution of Mr C. Irwin (European Advisor), Mr McKinnon (professor of logistics, Kuehne Logistics University and lead author of the transport chapter in the 5th Assessment Report of the Inter-governmental Panel on Climate Change - IPCC) moderated the debate with panellists and audience where a number of important messages were discussed.

Throughout the discussion the need for developing an **integrated** transport research, innovation and competitiveness strategy was reiterated by all participants who stressed that a deep transformation of the overall transport system could not be achieved by tackling the different transport components in isolation.
At the same time, due account has to be paid to the technological evolution of key transport areas such as vehicles, infrastructure, manufacturing and operational procedures which follow different

dynamics, have specific needs and necessitate a dedicated approach. Their respective R&I agendas need to be brought together under a coherent, cross-modal and long term strategy which allows for an exploitation of synergies between these sectors and therefore a maximisation of their impact. Increasing the number of electric vehicles, for example, can help to tackle the challenge of GHG emissions and pollutants (in particular in urban areas and if the electricity can be provided from green sources), but would not necessarily lead to a more efficient transport system, unless electrification is combined with automation and connectivity.
In line with the **European Union Research, Innovation and Competitiveness (EURICS)**, a transport R&I strategy, furthermore, should thus go beyond purely transport focused technology innovations and consider as well the integration with other sectors, notably **energy,** and other potential game changers stemming from other areas such as **ICT**.

During the discussion three main topics encompassing the 7 STRIA thematic areas, emerged: electrification, digitisation and human-centred design.

Electrification:
On the energy side the progressive decarbonisation of the EU electricity grid and increasingly cheaper electricity from renewable sources along with advancements in storage technologies will have a great impact on **transport electrification** in the coming decades. This transition will manifest itself at different speeds in various transport modes starting from the light duty vehicles segment. At the same time transport electrification needs to be realised in such a way to result in an asset for the power sector rather than an additional burden for grid operators. In this sense it is important that transport research agenda foresees the development of tools such as smart charging which will allow EVs to provide balancing services to the grid.

Key aspects for transport research and innovation in the area of electrification:

- Develop new design tools and manufacturing
- Advanced battery technologies
- Smart charging, electricity grid protocols, price signals and electromobility services
- Focus on urban contexts for high level of penetration of EVs for both passengers and goods

Digitalisation:
New interactions, such as the one between EVs and the electricity grid, would not be possible unless other non-transport technologies come into the play and are fully embedded in future transport R&I agenda. This is the case of **digitalisation,** which was flagged during the workshop as a potential game changer with manifold implications. It represents a key component of an **automated and connected transport,** which has been indicated by the participants as another key trend. Digitalisation will also help in progressing towards multimodality, achieving a more efficient use of transport infrastructures and capacities, changing the concept of mobility and shifting from ownership to assets sharing. A full exploitation of digitalisation, in turn, will rely on **big data** (capacity of gathering, processing and sharing data across modes, operators and countries) and on a system secure from **cyber-attacks**.

Key aspects for transport research and innovation in the area of digitalisation:

- Need for large scale real world demonstrators
- Methodologies and rules to gather, process and share data
- Impact of automation and connectivity on energy consumption and transport system efficiency, based on an optimised use of Internet of Things - IoT
- Safety and security issues related to data provision and use, in particular for automation and connectivity

Human-centred dimension:
The speed at which some technologies, such as automation, can be deployed will to a large degree depend on the level of social acceptance. Starting from this consideration, participants highlighted how in general society and **transport users** ought to play a greater role in shaping future R&I agendas. Their needs and behaviours need to be better taken into account from the outset. The increasingly pervasive use of smart phones with implications also in transport and mobility patterns (i.e. easier access to scheduling, also across modes, new mobility offers), the declining interest in obtaining driving licences or personal cars among young people in urban areas, for example, are to be considered as integral elements of future R&I strategies. The future transport R&I agenda, therefore, needs to put more emphasis on people and the human dimension as a strategic layer in future R&I orientations.

Key aspects for transport research and innovation focusing on users:

- Innovative user-centric mobility concepts
- Impact of user behaviour and social acceptance
- Role of urban contexts

The rapid transformation of transport represents as well a challenge for the **competitiveness** of the European transport industry. In this context vehicle design and manufacturing can play a key role. Advancements and innovative approaches to **vehicle design,** including new modular vehicle concepts and architectures based on new materials (e.g. composites) will be required in order to enable the uptake of new transport technologies, such as electrification and automation. At the same time advancements in **manufacturing processes** (e.g. increased flexibility, decentralised manufacturing, re-manufacturing, additive manufacturing) will help the European transport industry to achieve greater level of sustainability and link its worldwide competitiveness to tomorrow's transport challenges and technologies.

Participants agreed that the development and deployment of the strategy will need to span over decades and will require a solid **governance structure,** involving EU institutions, Member States, local administrations and relevant stakeholders, which can oversee the implementation of the strategy, ensure its integrated approach, monitor progress, and keep updated and synchronise the research agendas of public authorities, the private sector and academia.

Participants finally stressed that a shared R&I agenda and its support need to be complemented by a stable, harmonised and innovation **regulatory framework** in order to support demand for these innovative technologies, lead to new business models and trigger higher level of private investments.

The views provided by experts and stakeholders during the workshop will be integrated in the STRIA roadmaps which are expected to be finalised by the end of **October 2016**.