This workshop, organised by DG Energy in cooperation with DG Mobility and Transport and DG Connect, is a first step to discuss with relevant stakeholders public and private authorities - on how to better cooperate between energy and mobility sectors and set up a coherent governance framework between energy and mobility and data spaces.

With growing electrification of transport, and the expected additional 36 Million EVs before 2030, the impact on the energy sector and electricity grids cannot be neglected. The Commission has recently put in place the legislative proposals to face this challenge, with the Renewable Energy Directive, the Alternative Fuels Infrastructure Regulation and the provisions in the Energy Performance of Buildings.

There is a greater need for sector integration and collaboration of actors between energy, mobility and new digital technologies, for 3 reasons:

1. **To foster collaboration on the planning of the network and investments for the deployment of** charging infrastructure and the indispensable coupling with the energy system.

2. **To enable new energy and mobility market services based on the flexibility and demand-response** stemming from the available flexible energy and energy storage capabilities in the electric vehicles’ batteries. This capability would allow to support vehicle–to—grid (V2G) features, as well as the storage, aggregation and other mobility services.

3. **To enable all citizens and stakeholders to benefit from the data** made available by grid operators, automotive, aggregators, from buildings and appliances and by consumers, for example information on the share of renewable and low carbon electricity.

Some issues that were raised in the debate were:

i. Importance of new legislative proposals at EU level such as the access to in-vehicle data that are expected to open-up for example on energy and power capability related battery data to relevant mobility and energy stakeholders for new services, such as aggregation and demand response;
ii. Ensure a balanced level-playing field for charging services, which respect issues related to the fairness for access to data, i.e. data accessible to other market participants at fair and non-discriminatory conditions;

iii. Management of real time data exchanges: establish consent on hierarchical management of time-critical data:
   1. which (energy and linked mobility) data is processed and aggregated locally, requirements of central processing (e.g. data hub)
   2. certification/ verification of data sources,
   3. how to provide real-time information to the grid and from the grid (both ways) on multiple variables (renewable resources, congestions, tariff data, and overall charging demand) with the aim of allowing mitigation of peak loads at local and distribution level.

iv. Recognition of the enabling role of an aggregator. A data hub or cloud model should be built on open data formats and data exchange standards.

It was concluded that 6 key challenges require additional cooperation on technical and governance aspects:

1. Create the right legal and economic framework across energy, transport and ICT domains for smart and bidirectional charging, developing a level playing field in the market with the required incentives to offer innovative services and invest in charging infrastructure;

2. Interoperability of open protocols and standards. Without interoperability the market risks to remain fragmented and businesses and consumers will not enjoy the full benefits of electromobility and of new energy and mobility services. It is important to consider three aspects:

   i. Interoperability for efficient integration of electric vehicles into the grid should go beyond the electric-vehicle charging ecosystem. The necessary protocols, standards connecting DSOs, TSOs and energy aggregators with mobility actors shall be quickly developed.

   ii. At data level, defining the relevant data types, semantics and other quality aspects supported by standards and security protocols.
iii. At the system level, agreement on a reference architecture model that adequately reflects the most prominent charging use cases, both public and private (e.g. charging at home and offices).

Emerging standards have to be mapped to the architecture model and gaps need to be identified. Some protocols are only at the very early stage of development. For the evolution of electromobility, open standards that avoid lock-in based on strong cooperation between the industry, the standardisation organisations and the legislator are essential.

3. Access to data ensuring security and privacy. Availability of data from involved stakeholders is key to create the data spaces and enabling corresponding data sharing schemes. For that, it is important to consider:

i. the development of a standardised charging taxonomy, metadata, and general common understanding on how to communicate data on charging flexibility across different actors of the value chain (e.g. a standardized flexibility function);

ii. Demonstrate data spaces for Mobility and Energy that support data storage, analytics and data exchange whilst preserving sovereignty, security and data control. Identify communalities and consensus across mobility and energy data spaces;

4. Set up of the governance for data exchanges between Energy and Mobility and Data Spaces that addresses the issues of fragmentation at national levels and between the sectors

i. building on the complementarity with the emerging Mobility Data Space and future secondary legislation under the AFIR proposal, as well as taking into account the challenges identified by the work of the Sustainable Transport Forum.

ii. recognising the complexity at national level: energy, mobility, and ICT are often dealt with different Ministries. The governance should be simple and empowering equally public authorities and industry to participate and interact in the future data exchanges.

iii. Data for publicly accessible infrastructure is being made available to the general public with the support of legislation (e.g., synergies between alternative fuels and ITS frameworks).

iv. Future data governance should build and learn on existing best practices, developing specific vertical approaches that work under a common horizontal framework at EU level;
v. Some speakers indicated the need for a pan-European authority to deal with some of the aspects of the governance of energy and mobility data.

5. **New and complex services need to clearly demonstrate the value added to the citizens as end users and end consumers.** Exchange of data is not an objective in itself but requires incentives for both industry and citizens and should be built on a transparent legal and technical framework.

6. **Other challenges**, that were not the scope of this workshop but also have great implications:
   i. **Permitting processes** for deployment of charging infrastructure with the adequate grid capacity and the need to streamline the planning and development of procedures.
   ii. **Cybersecurity of the grid and of the operators** (linked to the Directive on the NIS and to the ongoing Code on the Cross Border Electricity Flows). Charging infrastructure can be an entry vector for future cyber attacks with possible devastating consequences for the energy system.