

The impact of emerging technologies on the transport system



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Mobility is in transition. The combined development of different emerging technologies boost innovations in **Smart Mobility**. This development is expected to accelerate in the coming decade. The increasing pressure on achieving societal goals within the transport sector (e.g. decarbonisation, improving traffic safety, reducing congestion) will be another impetus for the developments in Smart Mobility.

There are a wide range of challenges to implement **Smart Mobility applications** in a way that maximises the benefits for Europe and at the same time minimises any negative impacts. Lack of harmonisation in national legislation and lack of social acceptance are two examples.

Collection, storage, processing and analysis of data are the main building blocks of **Smart Mobility applications** and the most promising emerging technologies are:

The study

This study provides an overview of the impact of Smart Mobility and their underlying emerging technologies on transport, the transport infrastructure and society.

• **Cooperative Intelligent Transport Systems (C-ITS)** are applications which allow Intelligent Transport Systems to communicate and share information in order to improve road safety, traffic efficiency, comfort, sustainability, etc.

- **Connected Cooperative Automated Mobility (CCAM)** comprises different levels of assisted and automated driving.
- **Mobility as a Service (MaaS)** is the integration of various forms of transport services into a single mobility service accessible on demand. Services, which can be easily accessed from smart phones or tablets.
- **Self-organising Logistics (SoL)** refers to decentralised coordination of logistical chains,

allowing individual agents in the chain to make autonomous decisions based on local intelligence and local data.

Main observations

Impacts on transport and the society: Smart Mobility applications are expected to provide significant benefits for transport users, particularly by increasing transport efficiency and improving travel experience. Furthermore, Smart Mobility applications may also have the potential to contribute significantly to the achievement of societal goals, such as less CO₂ emissions, improved traffic safety and less congestion.



Impacts for transport infrastructure: The deployment of Smart Mobility applications requires a well-developed digital infrastructure. The development, availability, security and governance of the digital infrastructure need to be a key priority in Smart Mobility policies.

Challenges for the deployment of Smart Mobility: Improving user and public acceptance, developing viable business cases, guaranteeing data privacy, providing a harmonised and secure data-sharing infrastructure and ensuring interoperability



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between countries/regions and methods are some of the main challenges for the development and deployment of Smart Mobility applications.

Actions to accommodate the Smart Mobility applications: To overcome the various challenges, actions at different levels are needed. Not only by European policy makers, but also by a range of other stakeholders (e.g. Member States, regions and cities, vehicle manufacturers, infrastructure managers, etc.). In addition to specific actions, an over-arching European strategy towards Smart Mobility is also required, because of the common challenges to the various Smart Mobility applications, the fact that they make use of the same technologies and the increasing integration of the various applications in the future.

Conclusions and policy recommendations

- Develop an overarching strategy for Smart Mobility with the view to effectively coordinate all initiatives on the various types of Smart Mobility applications.
- Create uniform conditions for Smart Mobility, e.g. by further investments in the digital infrastructure.
- Define targeted policy set of actions for each Smart Mobility application, stimulating and facilitating actions from all stakeholders. Policies include a clear and consistent legal framework, large-scale pilots, and a good balance between public, public-private and private financing.

- Ensure that policies are proactive, flexible and adaptive, such that they can be quickly adapted when new technological concepts become available, societal developments change or user preferences are different than anticipated.
- Improve the knowledge base on Smart Mobility applications on issues like technical requirements, expectations and concerns related to these applications, potential business cases and the impacts these applications can have on the transport sector and society.
- Organise cooperation between all relevant stakeholders (including end-users), by organising and/or prolonging and/or extending cooperation and consultation bodies (e.g. the CCAM Platform).

Key areas for EU action

1. Develop an overarching strategy for Smart Mobility.
2. Further investments in the digital infrastructure.
3. Define targeted policy set of actions for each Smart Mobility application.
4. Ensure that policies are proactive, flexible and adaptive.
5. Improve the knowledge base on Smart Mobility applications.
6. Organise cooperation between all relevant stakeholders.

C-ITS deployment on highways



Source: EUROSTAT(2017).

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