Raising standards for consumers

POSITION PAPER

SMART AND SAFE MOBILITY IN THE CONTEXT OF EUROPEAN STANDARDS

ANEC POSITION PAPER PREPARED BY MEMBERS OF THE SMART MOBILITY & SUSTAINABLE TRANSPORT PROJECT TEAM.

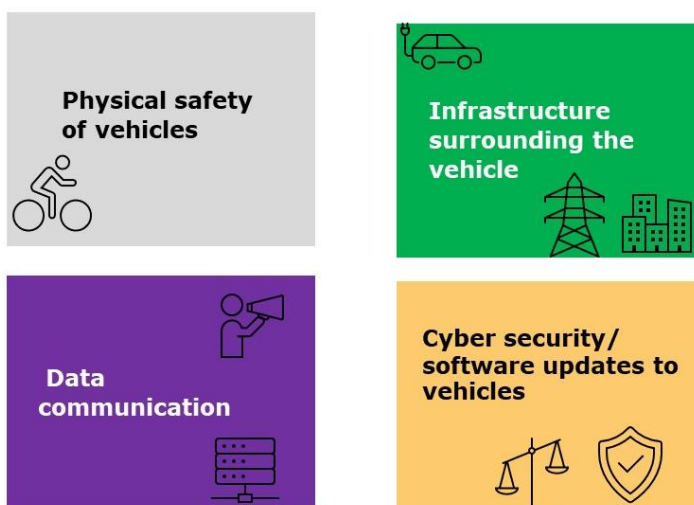**Co-author and contact person:** Alana Valero – ava@anec.eu

SUMMARY

Physical safety of vehicles

Infrastructure surrounding the vehicle

Data communication

Cyber security/ software updates to vehicles

Smart Mobility is a concept that involves the use of digital technologies to make transport and mobility smarter, safer and often more sustainable.

CONTENTS

INTRODUCTION

The transition to smart and sustainable transport and mobility is as much about environmental action as it is about equity and social justice. This requires a systematic transformation across the different socio-economic levels of our society, led by transport decarbonisation and digitisation.

Luckily, the transport and mobility sector has huge potential for transformation, which is characteristic of this sector. Fulfilling this potential requires action by different levels of government, as well as by public and private partnerships that revolve around passenger and freight transport systems and, crucially, behavioural changes in mobility modes chosen by consumers.

Modes of transport are essential components to our way of life. How they are made available, and can be used, is of great benefit and have far reaching environmental, economic and social impacts.

All transport and mobility modes should become 'smart and sustainable' which are two sides of the same coin. The focus of this position paper is on the 'smart' aspect. *Smart mobility systems* should result in mobility becoming more sustainable (without necessarily addressing sustainability directly).

Having sustainable, inclusive and multimodal mobility will contribute to wider EU policy objectives, in particular the target to reduce greenhouse gas emissions by at least 55% by 2030. To do this, the increased efficiency that comes with smart mobility should positively influence the sustainability side of this sector.

In future position papers, ANEC will address sustainability aspects, more concretely including emission reduction etc. This is important as transport should become less polluting, especially in cities. A combination of measures should address emissions, urban congestion, and improved public transport.

1 | ANEC RECOMMENDATIONS IN A NUTSHELL

The physical safety of mobility devices and vehicles needs fundamental improvement and is also relevant to smart mobility actions.

- In the transition to smart and sustainable mobility, action plans must be 'living' and technology-neutral to keep up with the fast-changing available technology. Safety and performance, including durability, maintenance and repairability aspects of the physical (hardware) pieces of a vehicle, are essential.

Consumers must have clear information on the use, re-use, availability and sharing of the mobility data they generate.

- Smart mobility (mobility devices and software) captures personal data and hence consumers must be allowed the right to give consent (opt-in) or not (opt-out). Systems shall be designed to accommodate this. For this to occur, the 'necessary' data needed to support these services and the functioning of these systems should be determined and openly communicated.

- Clear privacy and security measures should be in place when consumer data is being collected and used.

- A closed ecosystem, where data is available only to some transport modes operators or companies, shall be prevented. It should be shared and governed by the same rules within the *EU Mobility Data space*.

- ANEC supports that the European Commission mandates the use of standardised data formats at EU-level, for use in ITS and other mobility services.

- Consumers shall be recognised as stakeholders in this process.

ITS and new e-mobility (or alternative) infrastructure should follow *Design for All* at its core.

- Smart mobility systems shall be designed in a way that as many people as possible can use them, regardless of age or ability.

- Systems covering road safety, traffic efficiency and comfort should help transport users make the right decisions and adapt to the traffic and mobility options available. This process must be inclusive. Mechanisms to ensure that liability claims for accidents are managed fairly and in a timely manner should also be put in place. Governments will play a key role in establishing and enforcing the rules of public use.

- Licensing mechanisms will need to be examined to ensure partnerships with suitable, responsible and competent providers.

- Users who are not able, or deliberately choose not, to use the new systems should not be set aside.

Consumer trust is key.

- A lack of consumer confidence in new smart mobility systems will result in a failure to capture the potential benefits of these systems.

- Digitisation will play a critical role in providing accurate and reliable transport information for consumers. Detailed and in-depth analysis of economic, social and environmental issues that stem for the use of such technology should be carried out.

ANEC TRAFFIC AND MOBILITY PRIORITIES

- ☑ To work towards a safe, efficient and sustainable transport system, which is of key importance for Europe's economy.

- ☑ To call for the highest levels of safety practicable to vehicles occupants and users.

- ☑ To call for a high and dramatically improved level of safety for vulnerable road users

- ☑ Support the transition to sustainable, user-friendly transport infrastructure

2 | PHYSICAL SAFETY

Key concern: The physical safety of personal mobility devices.

ANEC believes an increased use of electrically powered or assisted personal mobility devices is a positive change and is line with the EU Green Deal objectives.

➔ However, electric personal mobility devices, such as e-bikes and e-scooters, have not seen any improvement in safety when compared with passenger vehicles. As these devices are new to market, their safety has been inadequately addressed. We are close to starting from zero.

➔ Therefore, we highlight the importance of prioritising the physical safety of these vehicles or devices. The most secure or effective data communication is useless when the vehicle breaks down or is involved in an accident.

Studies show that injuries caused by these types of vehicles are significant and are increasing[1]. The risks are varied: some personal mobility devices that are used in the standing position may be at higher risk. Bicycle safety is also linked to urban conditions, and different factors influence this including road infrastructure and traffic conditions.

Detailed safety criteria for personal mobility products should be set via safety and performance standards:

• Standards should set minimum safety requirements that determine the mechanical strength of the components and brake performance as well as lighting. The safety and performance components of a vehicle are also essential, including durability, maintenance and reparability.

This aspect is partially covered by standardisation. For example, ANEC worked on *EN 17128 'Personal light electric vehicles (PLEV) – Safety requirements and test methods'*, for which conflicting national standards must be withdrawn by April 2021.

Other examples include bicycle standards in the EN 15194 and EN ISO 4210 series, IEC 60335-2-114 *'Particular requirements for self-balancing personal transport devices for use with batteries containing alkaline or other non-acid electrolytes'*, IEC 63281 *'personal e-transporters'* and also EN 15194:2017 *'Electrically power assisted cycles - EPACS.* The last applies to EPAC bicycles for private and commercial use, with exception of EPAC intended for hire from unattended station. Finally, we note that since 2016, the EU ADCO has decided that the micro-mobility devices, such as hoverboards, fall under the Machinery Directive 2006/42/EC.

Relevant legislation and standards must be future-proof to be able to address the rapid pace of technological development of these devices. The work should include not only physical safety of the device itself, but their use and behavioural aspects of consumers. This may also include speed limits or/and restricting use to bicycle lanes or specific areas.

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[1]https://www.researchgate.net/publication/338245010_Challenges_Caused_by_Increased_Use_of_E-Powered_Personal_Mobility_Vehicles_in_European_Cities

3 | DATA COMMUNICATION

Key concern: Protection and possible misuse of consumer data.

ANEC understands that, for smart traffic and mobility systems to be effective, a high quantity of data is needed. Furthermore, we believe that consumers must have access to reliable information on key aspects when it comes to mobility (e.g. performance, safety, time and costs). These two elements go hand-in-hand. Digitisation must play a vital role in providing accurate and reliable transport information for consumers.

➔ However, we need standardised data communication interfaces and frameworks that protect sensitive data and provide consumers with the option to opt-in (or opt-out), as well as have access and control over the data they generate.

Currently, this is not covered by vehicle related standardisation (such work is just beginning on a horizontal level). An important issue that should be standardised is data types and categories, and how these are communicated to the consumer.

The use of a vehicle – for example, whether it is privately owned or rented – has an influence on the kinds of data that are generated and processed. This also needs to be taken into consideration.

There are a number of options for data communication to users/owners in regards to the digitalisation of privately-owned vehicles:

- information about location, state of charge (displayed in specific app)
- odometer / speedometer (displayed in specific app)
- changing of system parameters, e.g. max. speed / rate of assistance (displayed in specific app)
- anti-theft (locking / unlocking)

Additional options for 'Data communication' to users are required as regards the digitalisation of rental vehicles.

- user account information
- rental process (in addition, process of rental service needs to be examined)
- cost of rentals under way, and start and end of rental (displayed in specific app)

Privacy issues need to be addressed specific to data category, and the required data for Intelligent Transport System (ITS), or other smart mobility options, should be determined. The reasons why personal data is collected, and how it is used, would allow the consumer to decide whether to participate. Minimum levels of data sharing could also be implemented if these are linked to safety, for example. Having this transparency would be part of the 'active participation' of consumers.

Standards need also be developed to govern data types, formats and sharing methods within the EU mobility data space.

ANEC supports the European Commission mandating the use of standardised data formats at EU-level, for use in ITS and others:

- European standardisation is required to ensure interoperability.
- If a new (connected) functionality can be retrofitted, it shall comply with the general requirement for safety and data communication.
- It would be beneficial to develop a complementary set of standards dedicated to smart charging, customer information, and on "real-time" information on charging points, time and costs.
- The engagement and education of the consumer is a key task in the process, as there will be a fundamental change in the nature of transport overall.
- Central to this will be the privacy of the new consumer data created/generated from the smart cars systems. It is not only limited to car data but consumer data that is gathered and collected everywhere, e.g. when a consumer uses car sharing, when searching for the best connection from A to B on the internet, when buying a service or product etc.

The COVID-19 crisis/pandemic is significantly affecting transport demand and consumer use. Digitisation and increased information exchange will support recovery of the transport and mobility system. It will help to address congestion, road safety and air pollution as mobility demand increases again.

4 | CYBERSECURITY AND PRIVACY

🔊 Key concern: Consumer choice, liability and cybersecurity in CCAM

ANEC agrees Cooperative, Connected and Automated Mobility (CCAM) is necessary to reach the EU objective of 'Vision Zero'. This is especially important, as progress in reducing EU-wide road fatalities has stalled[2].

➔ However, modern mobility devices are more and more reliant on IT for their safety and efficiency. But their IT systems present a particular risk to all road users if vulnerable to failure or hack, even at low speeds. A cybersecurity breach could have a direct influence on the physical safety of the vehicle (e.g. sudden and unwanted acceleration or deceleration).

This is partly covered in horizontal standards, such as EN 303 645. This ETSI standard includes a very general set of requirements and recommendations that are applicable to IoT devices, but it can also be the basis for developing car-related requirements. The need for car-related requirements is also linked to UNECE WP29 which will adopt regulations on cybersecurity and over-the-air updates. However, discussions on what should be the lifetime of a vehicle in the context of keeping it up-to-date are ongoing, as well as on legal aspects of automated driving (Vienna Convention).

Cybersecurity must be a key requirement in ITS (Intelligent Transport Systems), Connected, Cooperative and Automated (CCAM) vehicles and Electric/Smart Road Systems (i.e. the prevention of unauthorised access to the vehicle through a wireless connection). This is a potential area for standards which could set guidelines on how OEMs ensure that automated vehicles achieve 'sufficient' cybersecurity.

Options:

- Implement requirements / recommendations of EN 303 645 as necessary; as well as providing complementary standards in the field of ITS

- Implement a means to manage reports of digital vulnerabilities

- Provide system updates over a predetermined period of time with consumer consent

- Securely store sensitive security parameters and ensure software integrity

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2 https://ec.europa.eu/transport/sites/transport/files/3rd-mobility-pack/3rd-mobility-pack-factsheets-safety.pdf

5 | THE INFRASTRUCTURE SURROUNDING THE VEHICLE

👉 **Key concern:** The issue of 'physical' accessibility has not been addressed in the current standards (linked to Alternative Fuels Directive) regarding charging infrastructure. Only general Human-Machine Interface (HMI) issues are subject to standardisation but there is nothing specific on the charging stations themselves.

Consumers do not have adequate information of availability/compatibility and prices/fees. These service aspects are closely linked to the charging infrastructure and relevant suppliers, but lack standardisation.

The lack of interoperability in deployed AFI in EU (location, payment, communication etc.) is a key issue that needs to be addressed in the revision.

There should also be a strong focus on fuels that are emission free and support the complete decarbonisation of transport.

Overall, these aspects of T&M are not standard across the EU TEN-T (over member states), and this does not facilitate door-to-door mobility.

We must ensure AFID considers affordability and accessibility.

Within the ITS directive, the focus is only accessibility of recharging/refuelling points from a digital perspective (i.e. digital information on the location, real-time availability and pricing of refuelling/recharging stations to be used in travel information services), and not the physical position and design of stations. These aspects of infrastructure and usability are crucial and must be considered as well.

How to do this?

- ANEC supports the review of Directive 2014/94/EU. The outcome will allow for greater e-mobility for Europe, which means greater mobility at a reduced cost and reduced air pollution.

- The topic of consumers and access to charging facilities is crucial, and deployment across the Member States needs to be planned and harmonised so no one is left behind.

6 | STANDARDS ROLE IN MEETING THE OBJECTIVES OF THE EU GREEN DEAL ON SMART AND SUSTAINABLE MOBILITY

European standards contribute to safety and performance aspects of transport.

If we look at the role of standards in sustainable and smart mobility, ANEC considers it a priority to provide standardised comparable information that impacts consumers' individual behaviour or choice.

This can be done by introducing EU-wide action plans, standards and rules that:

- Enforce the decarbonisation of transport via connected, cooperative and automated (CCAM) vehicle concepts, and electric and alternative fuel vehicles.

- Prioritise user and consumer safety, rights and needs as a priority by guaranteeing a safe and effective accessibility and usability of the transport infrastructure for all transport modes and options.

- Incentivise and support the transition to sustainable and safe connected, cooperative and automated (CCAM) vehicle concepts and personal micro-mobility options such as e-scooters, e-bikes and cargo bikes, covering door-to-door mobility.

- Standards can help achieve the policy goals outlined in the EU Green Deal for example as they are meant to clarify commonly accepted definitions and data formats, provide methods for measuring and testing and open markets to the safe use of new technologies.

Intermodal transport and the shift to public transport and micro mobility options: Standards play a crucial role to ensure greater intermodality.

→ Potential area for standards: connections to other transport sectors (services, delivery of goods or services such as food), door to door policy focusing on public transport and multimodal trips
→ Connection between stations, mobility hubs, multimodal areas, parking, traffic control systems linked to real-time traffic events and smart infrastructure
→ 'Accessible' urban transport (infrastructure and information for vulnerable consumers)

The standardisation of ITS (Intelligent Transport Systems) and Connected, Cooperative and Automated (CCAM) vehicles

European standardisation has successfully addressed the interoperability of electronic road toll systems, and of co-operative systems for Intelligent Transport in the field of information and communication technologies (CEN TC 278).

→ Potential area for standards: Automated vehicles, cybersecurity and how that links to optimized interfaces and consumer data and privacy.

The standardisation related to the deployment of alternative fuels vehicles and infrastructure

Transport decarbonisation requires a shift to alternative fuels vehicle and infrastructure. Within traditional transport models, CEN and CENELEC have produced key standards in the framework of Directive 2014/94/EU (CEN/TC 268 'Cryogenic vessels and specific hydrogen technologies applications', CEN/TC 326 'Natural gas vehicles - Fuelling and operation', TC 286 'Natural gas vehicles - Fuelling and operation', CEN/TC 301 'Road vehicles' and CENELEC/TC 69X 'Electrical systems for electric road vehicles'). There has also been critical standardisation work in *Identified standards on connectors and fuelling stations* (traditional models adopted as EN standards) as well as labelling (Electric Vehicles).

- Potential area for standards: smart charging, customer information standards, standards on "real-time" information on charging point and standards for interoperable energy services.

- The development of safety standards will have to respect regulations on transport safety, so that they are compatible, as in the case of EPACs . There is a harmonised EU safety standard that complements their lawful use on the highway. E-mobility devices that are electrically-powered and need no physical effort require type approval before use on the road.

7 | EMPOWERING CONSUMERS

Apart from the potential risks associated with the new technology, there are also many benefits to connected cars and ITS. We note that automated vehicles are always connected, but a connected vehicle is not necessarily an automated vehicle. Even today many cars are already connected, allowing the OEM to gather data. CCAM can transform the whole system and change how vehicles are used and how the system itself functions.

Clear transparency of different types of products and services is crucial to ensure consumer trust and acceptance of these technologies.

The use of these technologies (preparing Europe for the digital age) will open new areas for business and market opportunity as new business models emerge such as 'Mobility as a service'. This is the way forward for Europe to seize the opportunity and be a leader in delivering efficient, safe, socially responsible and sustainable mobility for European consumers.

ANEC is the European consumer voice in standardisation, defending consumer interests in the processes of technical standardisation and the use of standards, as well as related legislation and public policies.

ANEC was established in 1995 as an international non-profit association under Belgian law and is open to the representation of national consumer organisations in 34 countries.

ANEC is funded by the European Union and EFTA, with national consumer organisations contributing in kind. Its Secretariat is based in Brussels.

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