

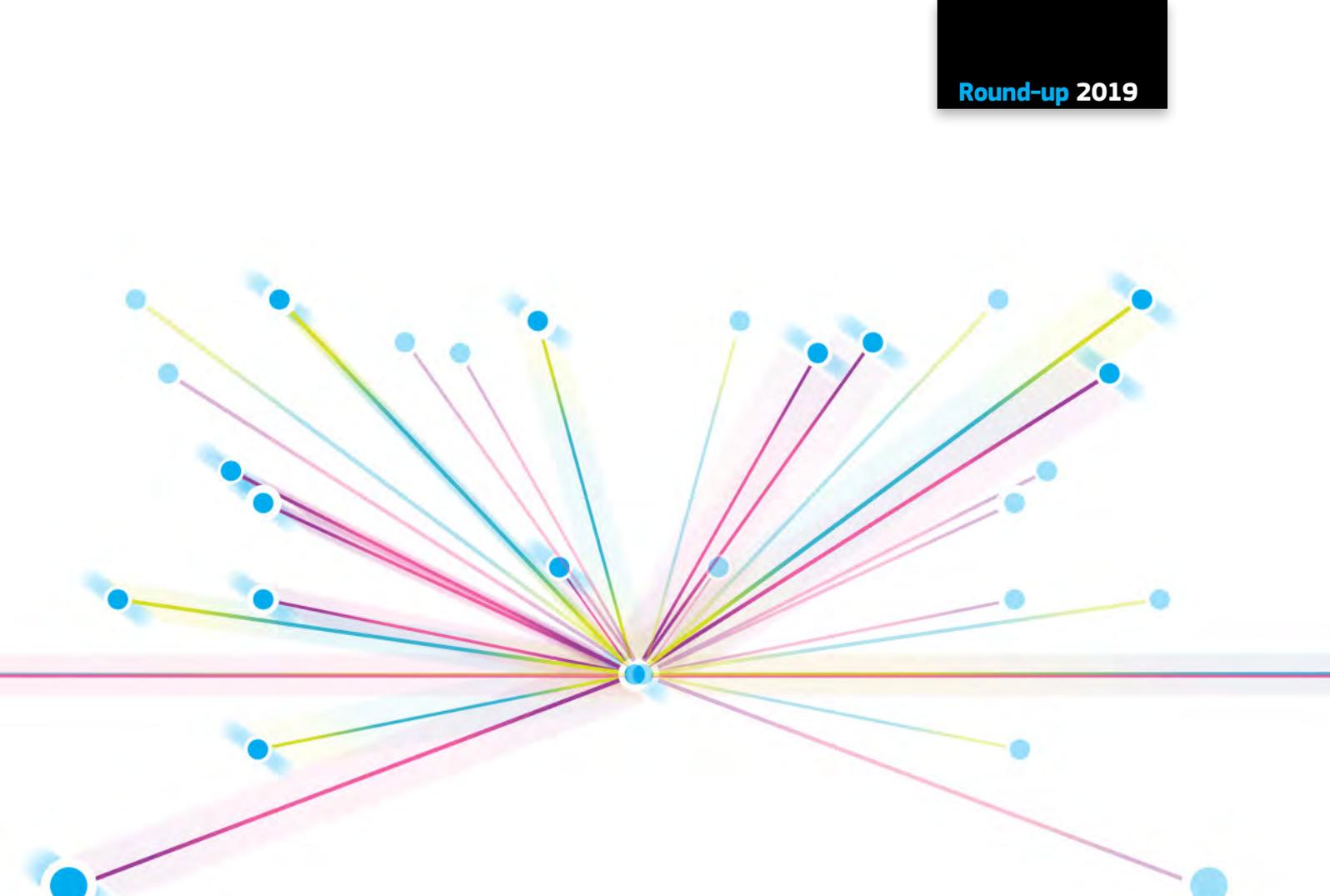
# Digital Transport Days

Helsinki 7-9 October 2019

Round-up

**Disclaimer:**

This report gives an overview of the discussions and statements as they were understood by the authors of the report; it does not commit the speakers or the European Commission.



# Digital Transport Days

Helsinki 7-9 October 2019

Round-up



## DIGITAL TRANSPORT DAYS

Helsinki, 7-9 October 2019

### Results of the conference

Much has happened since the first Digital Transport Days in 2017 and it is time to take stock!

- **What is key to making data available in a re-usable format?**
- **How will the move to digital freight look like?**
- **What do passengers expect from new mobility services?**
- **Where can technologies such as 5G, AI, IoT, big data and blockchain enable innovative solutions for each transport mode?**
- **Will societal impact always be positive?**
- **Can digitalisation really contribute to decarbonisation?**

These are just some of the questions that were addressed over three days, during 2 plenary and 30 parallel sessions. Participants were also able to attend side events, such as the Maas Summit (upon invitation) and the Shift2Rail Dialogue. The event in Helsinki was attended by close to 1000 participants and addressed the potential and challenges of digitalisation of transport and mobility both for passengers and freight.

The conference exhibition showcased the successes of EU funding programmes that contribute to European digital transport infrastructure development. We were particularly honoured by the presence of European Commissioner Violeta Bulc, Director-General Henrik Hololei and Finnish Minister of Transport & Communications Sanna Marin.

The pictures taken during the event, the exhibition guide and the presentations given during the conference are available on the event website (<https://www.digitaltransport.eu/2019>)

### Shift2Rail Dialogue (side event)

With just under 300 participants from 31 countries working on digitalization in rail and other transport modes, this session brought attention to interesting reflections on how Shift2Rail can better use digitalisation and new technologies to move the European railways forward.

The rail sector needs to work together to make the most of the opportunities related to market opening, harmonisation, digitalisation and automation. The transport and mobility sector as a whole has a big challenge ahead. We need to meet the growing demand for mobility in a sustainable manner and help Europe to achieve its ambitious climate goals.

The rail sector is very energy-efficient and largely electrified, and it is for these reasons that it has high potential to help achieve Europe's goal of reducing the transport sector's carbon footprint. In order to realise this goal we need a stronger and better-integrated rail sector to act as a backbone of a smoothly connected and interoperable single EU transport system.



To help us achieve this mission we need to focus even more on innovation and research and reap the benefits of digital solutions and better management of data. It is here that Shift2Rail has a big role to play through providing a wide range of innovative solutions for railway systems of the future. Fully digitalised railways will be based on the state-of-the-art radio communication, in an ecosystem where intelligent locomotives will continuously exchange data with responsive traffic management systems in order to optimize capacity in real time. New technologies will also allow us to optimise speed, reliability and safety by knowing any moment where a train is, at which speed it is traveling, and what is its breaking performance. Such innovations being developed by Shift2Rail and its members include on-board intelligence, satellite positioning, train integrity, 5G solutions and intelligent sensors.

The opportunities that innovation can bring to passenger services is also key. Mobility as a Service is developing fast in many smart urban centres and Shift2Rail's development of an interoperability framework to exchange data among all transport operators, across modes will support the rapid roll out of Mobility as a Service with rail as a key mode. S2R research and innovation will deliver the European-wide travel companion, an easy tool for any traveller to find multimodal information, choose transport services, process payment and get e-tickets, and also allow people to compare the carbon footprint of each transport mode.

Finally, the current share of rail freight is still very modest and has not increased at all in recent years. This is not sustainable and must be addressed in part by innovative solutions, one example of which is the Intelligent Video Gate developed under Shift2Rail,

which is able to identify the content in freight wagons as they go. This and other developing solutions, such as automatic couplers, intelligent wagons and new business models, will eventually lead to rail freight automation and digitalisation.

Under Horizon 2020, Shift2Rail has shown the value of getting the whole industry – manufacturers, infrastructure managers, rail operators and regulators – working together in a coordinated manner. Now it is time to ensure the further development of all the above-mentioned solutions with a system of systems integrated vision by making Shift2Rail2 become a reality.

### Opening session on “data for transport and mobility”

With data, transport can take a customer-oriented approach breaking down silos between different transport modes and creating new business opportunities for European companies. We need to make sure that data is accessible and re-usable, while at the same time maintaining our safety performance, our respect for privacy and our protection against cyber-attacks.

The opening session was an opportunity to discuss with managers from different horizons the right governance and conditions for access to data. In particular, the following questions were asked:

“How difficult is it for you to get access to the data you need for your applications and future developments?”, “Quality of data has a significant impact on the service. How would you measure it?”, “What tools do you use for increasing data quality?”, “Does it have implications in terms of liability?”, “Data is sometimes covered by IPR and in other cases it is the result of work or investment that



the private sector would like to value. Do you think data should be available for free? And if not, should contractual arrangements be developed on a case by case basis?“, “In the transport and mobility sector, safety and security are key objectives of EU policy. Can these objectives become obstacles to data sharing?“ The discussion led to the conclusion that exchange of data can only work if there is sufficient TRUST among the stakeholders. And there is only TRUST if access and user rights are clearly defined. Not all data are worth being shared. Data quality is important but a data owner who shares its data should not be responsible for the use of such data by a third party. In road transport, cars are becoming smart but infrastructure is lagging behind. There are more and more online platforms: this is positive but one should pay attention that platforms do not become monopolies.

There is no one-size-fits-all solution to security threats. There is no full protection against cyber threats: in some cases mitigation measures are necessary. In terms of ethics, GDPR is already a good reference. Panellists somehow agreed that we need an EU model for data sharing, which in turn will provide the EU with a good position at global level.

### Digital Transport and Logistics Forum (DTLF) Plenary (closed session)

The DTLF is an expert group set up by the European Commission to provide a platform for structural dialogue, exchange and provision of technical expertise, as well as cooperation and coordination between the Commission, Member States and supply chain stakeholders. The group assists the Commission in the development and implementation of the activities and programmes aimed at the

digitalisation of transport and logistics. In its current mandate, the DTLF focuses on two main topics:

- support for the Commission in the implementation of Regulation on Electronic Freight Transport Information (eFTI), once adopted. This Regulation is expected to establish a harmonised EU framework for business-to-authority electronic exchange of freight transport information.
- specification, testing and validation of the concept of the freight corridor information systems, aimed to empower individual digital data platforms in transport and logistics, to integrate into a federation based on common principles of interoperability, thus allowing stakeholders to connect, access and use data and services in a fully trusted and secure environment.

This session addressed relevant elements of the DTLF work programme, including the specific tasks, time schedule, milestones and deliverables. It also included presentation of the related projects and initiatives, expected to support the DTLF activities. More information on the results of the session will be shortly available on the Register of the Commission Expert Groups: <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeeting&meetingId=17793>.

### Towards dynamic multimodal travel information services

Digital data is an essential resource for economic growth, competitiveness, innovation, job creation and societal progress in general. Additionally, the availability, accessibility and sharing of data between transport stakeholders is a pre-requisite for improving



passenger experience across modes. Ideally, data must be provided in a digital format, and regardless of the mode of transport, providers of passenger mobility services should ensure that essential, up-to-date data on its services is available. The Commission Delegated Regulation (EU) 2017/1926 provides the establishment of National Access Points by Member States where such data can be retrieved and re-used under certain conditions.

The objective of the session was to better understand the situation in terms of national access points and data availability, discuss potential difficulties in publishing data or in retrieving and re-using data and learn from success stories. Before the discussion, a number of concrete projects were presented.

The question of awareness raising among stakeholders was first debated. Speakers further underlined that interoperability is key and that exchange of data should not only work cross-border but also between the different modes. In this respect, they highlighted the need for further support at EU level in terms of standardisation: creation of minimum standards EU profiles; development of standards for dynamic data; maintenance of the standards and, more importantly, development of standard interfaces.

The question of the quality of the data and common quality standards, which should be accessible through the National Access Points, was also addressed. Questions were raised as regards balancing the costs for data providers and simplifying access to data for data users. The general message was that standardisation in this field is quite complex and that EU support is required in terms of governance and maintenance of standards. Some differences between North and South and between East and West in terms of speed of implementation was also noted.

## Through-ticketing for cross-border rail journeys

After an introduction by the moderator highlighting the importance of through-ticketing for the passenger and referring to the actions already undertaken by the Commission, the panellists gave an introductory statement. There is a clear passenger demand for further development of existing cross-border through-ticketing schemes as well as for improved information provision. The sector is developing standards to facilitate through-ticketing, based on the TAP TSI Regulation. Nevertheless, through-ticketing heavily depends on commercial agreements between individual railway undertakings and apart from the sheer number of agreements needed to cover the EU, these are complex to realise, having to take into account diverging commercial interests.

Subsequently, a discussion evolving around thematic questions was initiated by the moderator. In the discussion the progress already realised by the sector was mentioned, and topics were raised such as the need for standardised commercial agreements between operators, sharing of (real time) data with third-party ticket vendors, opening of data between PSO services and Open Access services and account-based ticketing.

The panellists suggested that the Commission works in the next mandate on a level-playing field between modes, on also addressing other bottlenecks for cross-border services and on advancing step-by-step as regards through-ticketing.

In her closing summary, the moderator concluded that there is agreement at the table that integrated ticketing, cross-border ticketing and ultimately through-ticketing comply with passenger expectations and needs. The sector has made progress and step-



by-step remaining technical, legal and commercial obstacles should be removed.

### Meeting of Director-General Henrik Hololei with the Heads of Administration (closed session)

This was the 4th meeting of the Heads of Transport Administrations of the EU Member States, co-organised between the Commission and the Finnish Presidency. Delegations from the Member States and the Commission had a constructive discussion and exchange of views around the following agenda points:

- Transport Policy Priorities for the future  
As transport will be an important contributor to the priorities of the President-elect Ursula von der Leyen (A European Green Deal, An economy that works for people, A Europe fit for a digital age) Heads of Administration were invited to share their ideas for Transport Policy Priorities over the next mandate period.  
Most delegations agreed that decarbonisation is one of the top priorities also pointing to national CO2 emission reduction targets and plans to phase-out fossil-fuelled cars. It was generally recognised that a basket of measures is needed ranging from the uptake of alternative fuels to financial incentives and taxation. A number of delegations stressed the contribution of cycling in reducing emissions and congestion in urban transport.  
On automation and digitalisation, several delegations mentioned the persisting problems with data sharing and liability that need to be solved, while underlining that digital solutions will also improve the environmental footprint of transport. Delegations also stressed the importance of continuing work on the completion of the TEN-T network. In the context

of road safety, several delegations pointed to the new risks emerging from the proliferation of e-scooters in European cities.

- National experiences with innovative mobility solutions  
The collaborative economy, mobility as a service, shared micro-mobility or just-in-time supply chains and the shift towards alternative fuels have the potential to disrupt mobility habits and existing markets. Regulating too early or regulating too late can negatively affect the market rollout of innovations. Cities, regions and national administrations are best placed to know the transport needs of their citizens and businesses. However, the EU might have a role in giving guidance and in intervening to preserve the single market, which could be impacted by newly created barriers.

Delegations raised the idea of free public transport to incentivise the use of public transport services and to reduce congestion. Some delegations stressed their difficulties in finding the right regulative framework for ride hailing and ride-sharing services. Initiatives on how to promote alternatively fuelled cars ranging from shared mobility solutions to building up charging infrastructure were presented as well.

The question persists on whether EU regulation might be needed or if exchange of best practice is enough. However, a level-playing field for all actors in the market is fundamental.

### How to enable Mobility as a Service (MaaS)

MaaS has an important potential to provide an



attractive and efficient alternative to private car use and to promote a shift towards sustainable transport modes and a more efficient use of transport networks. Hence, MaaS is seen as a tool for the reduction of congestion and negative environmental impact.

However, many challenges remain for the development of MaaS. Those challenges are of different nature: technical, legal and commercial.

On the technical side, the question of availability, accessibility, sharing and re-use of dynamic, accurate and compatible data was largely addressed as well as the issue of capability of cities / regional authorities. The development of a European Framework could help avoiding fragmentation, a patchwork of non-interoperable solutions and provide a level playing field as well as incentives for more services and offers to become available.

On the legal perspective, the need to make sure that the regulatory framework is properly implemented and enforced was debated. Clarification is also needed on the application of current legislations, including competition rules, to online platforms or to new mobility services. Importantly, on the governance framework, we need to look at how to integrate public transport to ensure MaaS can remain affordable to serve all. This is key to avoid discriminatory services that would only serve the areas where there is less demand. Against this background, the question of the business model of MaaS services was addressed.

## Digital and automated railways

This session addressed the key game changers enhancing railways' performances and better integrating them in the logistic chain. The event dealt with the crucial points 2 and 3 of the Tallinn declaration:

2. Digitalisation can and must enable the safe automation and the seamless integration of all transport modes and increasing the capacity and quality of the different transport modes. The technology is becoming available now and we must use it.

3. Data access, sharing and re-use in the mobility, transport and logistics sectors, including between public and private partners is essential - and this will not happen without trust.

Key elements harvested:

- Railways' evolution and competitiveness depends on an enhanced and far more performing CCS, with ATO and ERTMS Level 3 gradually deployed.
- Rail expected efficiency by digitalisation gains is underpinned by the deployment of automation, Galileo-based satellite services, as well as other game changers.
- Technologies are ripe for the deployment in Railways of Enhanced signalling systems, allowing for more capacity, efficiency and reliability; this will notably be enshrined in 2022 CCS TSI, and notably linked to: ATO up to Grade of Automation 2, Satellite Positioning and New radio system (FRMCS).
- A digital multimodal transport environment imposes real-time reliable data sharing - we have some promising outcome from ELETA: its generalised deployment must be pursued.



### Towards the multimodal and integrated Single Window environment

The movement of goods and means of transport must comply with several pieces of EU legislation and international agreements in the field of customs, transport, environmental protection and waste management, border control, safety, security and social aspects. This creates numerous and burdensome reporting obligations for the trade and transport community. Today, the lack of coordination and harmonisation for this reporting generates costly processes and redundant procedures such as multiple submissions of information or duplicate information requests from authorities.

Digitalisation offers a large potential to improve the efficiency, reliability and cost-effectiveness of cross-border operations for both businesses and administrations – especially if implemented in a harmonised and coordinated manner, enabling interoperability and simplification. Several ongoing sectoral initiatives at national and at EU level aim at cutting this red tape.

The purpose of the session was to engage in a discussion on these topics with a wider transport and logistic audience and to collect views and needs of both public administrations and industry. The discussions can be summarised as follows:

The Finnish authorities shared their vision for a digital environment based on the following principles: share data, not documents; data should be in machine readable format, of good quality, and, possibly, real-time; not all data needs to be shared to all parties, but necessary data should be shared according to various roles and access rights; focus not on the ownership of data, but on the rights to use it; data should be findable, accessible, interoperable and

reusable. As for the architecture of the system, it should be a decentralised data sharing infrastructure based on APIs (open and interoperable programming interfaces).

The representative of the Ministry of Transport and Public Works of the Netherlands reminded the great advantages of a digital environment in terms of lower administrative costs, re-use of data, and more efficient controls. Government and customs are part of the logistic chain and should contribute to seamless multimodality. In the future, we should move from data distribution to data sharing, adopting a logic of 'data pulling' rather than 'data pushing'. We should also provide a framework where existing systems/platforms coexist under the condition of harmonized data interconnectivity.

The representative of the European Commission, DG TAXUD, presented ideas for an integrated SW environment for transport and trade that goes beyond sectorial Single Windows in the supply chain. Starting from the continuously increase of the international flow and taking into account that WTO trade facilitation agreement pushes for the development of Single Windows, different initiatives started in order to create Single Windows for transport and for customs purposes. The advantage for traders in reduction of time release for the goods are evident and the possibility to create an EU Single Window integrated environment for the international trade in goods for maritime, air, rail and road sector creates additional value in the supply chain by increasing the predictability and decreasing administrative complexity. The EU SW Integrated environment is the facilitator enabling electronic data exchange



and information sharing between government to government partnerships (G2G) and business to government exchange (B2G) for the international trade and transport in goods and related transport activities.

From a Private company perspective, Vedia presented their concept of 'corridor as a service' (CAAS) merging real-time traffic information (weather, traffic, road pricing, etc) with real-time logistic information (freight, itinerary, waybill, etc). Vediafi will integrate CaaS to the FEDeRATED project, a CEF funded EU project (2019-2023) aiming at data sharing in 7 core network corridors. The FEDeRATED project looks at ways to ensure data sovereignty, creating trust among platforms and participants, providing a framework to enable interoperability, and is open to any participating party.

The ensuing debate and questions from the audience confirmed the large potential of a data-sharing environment to increase efficiency and reduce costs for all stakeholders in the logistic chain.

Based on the survey conducted among the participants, the majority considered that the public cross-border trade and transport systems should be fully interoperable. However, it is important to keep in mind that the ultimate goal is these systems is to facilitate trade. Therefore, the interoperable environment should be implemented in such a way that the industry can easily re-use their data for optimisation of their business processes.

## Establishing a European partnership on connected and automated mobility on roads

The development and establishment of an innovative connected and automated road transport system poses a multitude of challenges and the coordinated support of the EU can play an important role. The proposed European Partnership should stimulate research and innovation, and address both technical & non-technical challenges for the overall system (vehicles, infrastructure and services).

The aim of the session was to give an overview on the state of play of the work and provide input to the further preparation. As to state of play, the preparation of the CCAM partnership is part of the big exercise to prepare the 44 partnerships that the Commission has announced under the new Horizon Europe programme.

The CCAM partnership is one of the 13 candidates for an "institutionalised" partnership, which will require a Commission proposal for a Council Regulation. The European Single Platform for Open road testing of CCAM is currently working on the definition of the objectives and priorities for a future EU agenda for research, testing and pre-deployment of Safe and Automated Road Transport. This includes the definition of the scope of a possible future European partnership on Safe and Automated Road Transport. At the same time, an Impact Assessment is analysing in which way a European Partnership could support these efforts. The focus of the European partnership is on road transport, but it takes into consideration relevant interfaces with other modes (for instance rail-way crossings, but also transfers and integration with public transport) in order to make sure that safety is ensured, that efficiency and the optimal



use of available infrastructure are improved and that new multi-modal services can be developed for the benefit of users and society as a whole.

The panel supported the need for a common European vision, asked the Member States to play a role in the partnership and raised the issue of user acceptance. A plea was made that the partnership would need to embrace a systemic view and that all players of the system should be involved (avoid the “closed club”), including local and regional authorities. The position of the EU industry vis-à-vis other continents was discussed and all agree that the EU industry needs to maintain its current good position.

The audience raised the evolving nature/role of the car, the importance of safety validation and certification, the need for prioritising use cases and ODD (Operational Design Domains), the definition of targets in terms of decarbonisation, the difficulty for OEM to cooperate while at the same time compete. Several participants insisted that the output of the partnership should be immediately usable and accelerate deployment, such as guidelines, standards, technical solutions, testing and operational rules. The quality of the infrastructure was also discussed, as well as the need to classify infrastructure according to an agreed scale (ISADs- Infrastructure Support levels for Automated Driving).

### Building a data layer: Network of national (data) access points – NAP

Moving towards a Single European Transport Area requires a data layer/infrastructure interlinking all of the elements of transport and allowing the development of ITS services.

In line with the ITS Directive requirements, the Member States are setting up their National Access Points (NAPs) to facilitate access, ease the exchange and re-use of transport related data, in order to support the development of EU-wide interoperable travel and traffic information services and their provision to end users.

Building up this data infrastructure involves open and common standards and interfaces as well as an efficient, but secure data ecosystem. It also requires an unprecedented level of cooperation and harmonisation efforts across local, regional and national administrations, to ensure a level playing field with clear roles and responsibilities for public and private transport, mobility and service providers, or operators. More should be done in terms of governance to ensure proper cooperation of the different NAPs at national level but also between Member States. This governance should also make sure that private stakeholders are on board, fully participating and making their data available through the NAPs.

National (Data) Access Points established under the ITS Directive are the backbone of a EU Transport and Mobility data infrastructure which supports the provision of multimodal mobility services, including road traffic information and management services or services such as Intelligent Speed Assistance or future automated mobility.

There is a strong need to coordinate the development and evolution of this data infrastructure, the design and development of common tools (e.g. standardisation of data exchange for micro-mobility services) related to data accessibility and exchange, and the planning and coordination of collection initiatives for essential data.



### Mobility as a Service (MaaS) Summit (closed session)

The 5th MaaS Summit was jointly organised by the MaaS Alliance, the European Commission and the Finnish Ministry Transport and Communications. At the Summit nearly hundred policymakers, experts and leaders of the industry agreed on the components for an environmentally, societally and economically sustainable MaaS.

After a welcome by the Transport Finnish Minister Sanna Marin, the EU Commissioner for Transport and Mobility Violeta Bulc highlighted the four pillars to achieve the Transport Union: decarbonisation, digitalisation, investment and innovation.

Maya Ben Dror, from the World Economic Forum, provided insights at the question "How sustainability can boost the business?", Krista Huhtala-Jenks of MaaS Global, focused on the business aspect speaking about MaaS and the Circular Economy, while Jari Kauppila, International Transport Forum, looked in detail at the environmental impact by addressing challenges and opportunities for a greener transport.

Mr Herald Ruijters, Director for Investment, Innovative and Sustainable Transport, DG MOVE, European Commission gave his final remarks. He emphasised the need for a level playing field as well as availability and accessibility of accurate and compatible data. He mentioned that the revision of the ITS directive could be an idea to improve further the preconditions for MaaS, e.g. to give a push for access to dynamic data. As regards, ticketing and payment systems, and the need to enhance interoperability, there could be a minimum level of governance to ensure

fair, reasonable and non-discriminatory access to markets, to be complemented by a code of conduct.

Mr Jacob Bangsgaard concluded the event, thanking both the European Commission and the Finnish Ministry for their support in organising this annual event. Even more, he expressed his gratitude in showing their strong thought-leadership in MaaS, helping the whole mobility industry to grasp the potential of digitalisation. He promised that the MaaS Alliance, with its wide international public private partnership, will actively support the development of better, more sustainable and inclusive services. As next steps, the Alliance will start working on the MaaS Market Playbook, to establish a code of conduct for the development of the market, and to create a model to measure and prove the environmental impacts of MaaS.

### Electronic Freight Transport Information-towards paperless freight

The aim of the session on Electronic Freight Transport Information – towards a paperless freight was twofold: firstly, to raise awareness of the forthcoming EU Regulation on electronic freight transport information (eFTI) and answer the question of how will eFTI affect the transport and logistics industry; and secondly, to gather feedback with a view to best prepare its future implementation. Keynote interventions from the Commission, the Finnish EU Council Presidency and a panel of representatives of the main stakeholder groups – shippers, carriers and logistics service provider and IT service providers, as well as of the Digital Transport and Logistics Forum (DTLF) expert group – served to kick-start and orient the exchange with the audience.



The discussions can be summarised as follows:

- Currently, the major obstacle is that authorities do not accept information/ documents in digital format, due to lack of harmonised and secure way to verify their authenticity.
- It is therefore essential that Member States' authorities are to be obliged to accept the electronic form, while the operators may, for the time being, use it on a voluntary basis, in both B2A and B2B relations.
- Under eFTI, the authorities shall accept electronic information on freight transport under a uniform acceptance regime throughout the Union. But, it should also ensure the interoperability of the systems and solutions used by the industry to exchange the information with the authorities.
- The continuing use of existing IT systems currently accepted by authorities should be allowed, with the caveat that there will be no guarantee that the authorities would continue to accept these systems if not adapted and certified according to eFTI.
- The security of data and a balance between easy accessibility and security needs to be ensured. Aligning the different datasets is also very important, particularly for multimodal transport.
- There is high need to move forward, as digitalisation in transport will lead to more efficient and swift supply chain. It also brings further functionality such as alert notifications and real time exchange, which is not possible otherwise, and further improves the quality of data.
- Digitalisation in transport is also a consequence of global responsibility towards sustainability, which may constitute a challenge at the same time.
- A mind shift from paper to digital is a very important aspect of a successful transition. In order

to achieve that, a good communication on the eFTI regulation should be provided.

Participants were also asked to summarise their recommendations to the European Commission in two words, visualised in a world cloud. The recommendations focused on harmonisation, working together and speed in implementation.

### Automation: What legislative implications for road professional transport?

The aim of this session was to approach the impact of automation and the legislative changes needed in the field of professional transport to allow for and incentive the uptake of highly automated vehicles.

It was generally agreed that, in order to support the uptake of automated vehicles in professional transport, some legislative changes and, above all, European harmonisation and clarification, are urgently needed. The main pieces of legislation analysed in this respect were:

- Driving times and resting periods: Current legislation is considered a barrier to the development of highly automated vehicles. It is essential to analyse the need for revision of the legal framework, including the general definition of "driver", which is affecting this legal framework. The need for revision is considered relevant for automation levels 4 and 5, where the vehicle is fully autonomous and no intervention nor attention to driving is required from the driver. It was also stated that the analysis has to examine the effects of automation on driver's fatigue.
- Driving licence Directive, CPC Directive and drivers training: It is clear that drivers will need to update their skills and that the training schemes



should be revised accordingly, even re-think the whole training system (more practical, more harmonised, more focused on the concrete type of vehicle and taking the ADAS systems into account).

- Traffic rules' compliance: Responsibility for traffic rules' compliance has to be clearly established, as well as defining the "obligations" that autonomous vehicles should have in this respect.

- General Data Protection Regulation: A revision will be necessary in order to provide the legal framework and a European Approach to data access for (remotely) enforcement purposes, for example ("extended vehicle" concept).

Education and training were mentioned as indispensable throughout the session. One concrete example was the announcement of programs to provide the drivers with feedback on their own driving performance to help them improve in efficiency and sustainability.

At the same time, there was a general call for more efficient enforcement, in line with the Mobility Package philosophy in this area, moving towards remote control, allowing for compliance rather than repression and taking the driver out of the equation as much as possible. The objective would be to provide benefits to carriers that have demonstrated to be in compliance with the legislation. Vision Zero was mentioned like the indisputable approach to follow. Automation is expected to contribute to its achievement.

Regarding insurance of automated vehicles and businesses, the insurance sector showed some caution on the prospects for the evolution of accidents, possible fraud and as such premium prices for vehicles insurance, while it is clear that customers will expect a reduction in prices.

## Blockchain for transport and mobility

Blockchain is a technological solution for digital record keeping and smart contracts, with a strong potential for application in transport and logistics to improve transport flows of both people and goods, increase cyber security and create new business opportunities. 70% of the participants surveyed during this Digital Transport Day session believe that using block chain technology would lower the cost of transport and supply chain management.

There is a consensus that any solutions developed for global trade should be built on trust and openness to allow engaging the large range of participants involved in the different transport and logistic operations. However, accepting that we need to share – rather than monopolise – data will require a shift in mind-sets in the competitive business environment of global logistics. Depending on the chosen approach and need, Block chain can facilitate data sharing between all community participants, or limited sharing in private networks, and different combinations of these two options.

The technology has already demonstrated its maturity in other industry sectors, such as finance. The next step is to create conditions for its deployment in the transport sector. To that end, more efforts are needed to raise awareness and create better understanding of the technology and how it can be implemented and applied in practice. 72% found the lack of information still being a major obstacle for the take-up.

A dedicated regulatory framework would help give certainty to the businesses for their investment and build trust. A public network or 'data-infrastructure-



as-a-service' concept could facilitate the uptake by providing equal connectivity potential to all in an unambiguous, secure and trusted way, be that transport related or any other data.

The EU has already taken some steps to address these issues. The EU Strategy 'Block chain holistic approach' has been put in place with the aim to establish global leadership in block chain and distributed ledger technologies by joining up the political vision of the European Commission and the Member States. It is backed up with public support to innovation and skills development. An analysis of the need to develop a supporting legal framework along with interoperable standards is currently ongoing.

In addition, the EU Block chain Observatory and Forum has been created to support knowledge development and sharing in this domain. In the transport sector specifically, the Digital Transport and Logistic Forum, an expert group coordinated by the European Commission, is also looking into the use of block chain technology as one of the possibilities for optimisation of the transport flows.

### Freight corridor information systems for seamless data sharing in the supply and logistic chains

Digitalisation and new digital technologies can change profoundly the way cargo and traffic flows are organised and managed, paving the way for new business models and opportunities. The vast amount of data available need to be shared and combined effectively across transport modes and business sectors in order to provide added value services. By that, digitalisation can significantly improve efficiency and supply chain visibility, optimise the use of assets

and infrastructure, avoid penalties on late deliveries, reduce stock, simplify administrative compliance, handle unexpected events, and enhance the environmental performance of transport and logistic operations. However, sharing information requires interoperability, a trusted and secure environment and harmonised procedures and data models. The Digital Transport and Logistics Forum (DTLF), an expert group set up by the European Commission, addresses these issues and aims to provide answers. The DTLF developed a generic concept for Freight Corridor Information Systems to empower individual digital data platforms to integrate into a federation based on common principles of interoperability, thus allowing stakeholders to connect, access and use data and services in a fully trusted and secure environment easily.

The purpose of the session was to engage in a discussion on these topics with a wider audience and to raise relevant needs and possible ways forward from the business perspective. The discussions can be summarised as follows:

- Digital transformation paves the way for innovation and creates new business opportunities in the transport and logistics' sector, in particular data sharing provides for better visibility, agility and predictability of supply chains. It is a key enabler to move towards an efficient and climate neutral transport environment.
- Digital transformation is already taking place, but its benefits are not materialising to the extent possible as in the case of fully interoperable IT systems and standards. Smart connection of various IT proprietary systems is achievable but it needs a change of mind-set and enhanced collaboration of all supply chain actors.
- Interoperability for data sharing requires a



common technical and organisational framework, based on clear rules and legal requirements, harmonised and preferably global standards, common datasets and an appropriate governance model. It should create trust and values for each party involved in the flow of goods.

- The private sector undertakes strong efforts to put in practice the principle of seamless data sharing, but the public sector has a role to play and is required to make this framework operational at a broader scale.

### New mobility and freight transport services in smart cities

Today's cities face challenges in terms of congestion, lack of space, growing population, air quality, noise, liveability, social inclusion, health, economic development and creation of jobs. Citizens want to be mobile and move from a to b - within and between cities - easily, cheap, smart and clean.

Freight needs to be transported equally easy, cheap, smart and clean. Expanding infrastructure in the urban environment is almost never an option and is also not a sustainable long-term solution: It is not cost-effective; there is no space; it raises environmental issues and citizens want custom-made and flexible solutions instead of strictly regulated public transport.

The objective of the session was to share knowledge on new mobility services, enabled by digitalisation, and to discuss how they can be integrated in urban mobility and urban space strategies.

In terms of passenger mobility, the paradigm has completely changed, moving from traditional market

division between public transport and private cars, to mobility-as-a-service and new shared micro-mobility people movers. Urban freight and logistics have not yet evolved although a lot of promising research is ongoing.

The session concluded that smart cities need tools for managing mobility and make it smart. Open software is available for managing mobility and can provide interfaces with all operators: public transport, shared mobility, parking, air mobility, urban logistics, emergency services, etc.

Standardisation and functional specifications need to be developed and there is a clear role for the EU.

Participation of the competent authorities in freight and mobility management is important, be it at local, regional or national level.

### Future delivery models for Air Traffic Management data and market opportunities?

In 2019, the Airspace Architecture Study produced by the SESAR Joint Undertaking recommended the creation of a new virtualized and common air traffic management (ATM) data service layer, with a new ecosystem enabling ATM data to be shared between European air traffic service providers in a secure and expeditious way. This ecosystem may also drive the development of a new European market for ATM data services.

This session aimed to discuss the potential future delivery models for ATM data service provision, including the associated market opportunities and challenges. Several key points were made by stakeholders:



- To enable more flexible matching of supply and demand, the provision of European air navigation services need to shift away from the notion of 'sectors' to a more dynamic and cross-border airspace configuration. Cross-border sharing of data will be necessary to enable the temporary delegation of air traffic services' provision to an alternate area control centre with spare capacity. This would allow scalable, resilient and flexible services to airspace users.

- New technology is crucial to ensure the ATM system can meet future traffic demands whilst ensuring that environmental needs are taken into account. Digitalisation and automation are enablers for increased capacity.

- The business models of ANSPs are changing and have to change. There is a need to move from a vertically integrated approach to an information-centric approach. The role of ANSPs will evolve with the development of such services. To support this evolution, a regulatory change towards performance-based regulation is needed. Stakeholders stressed the need to have incentives to reward those that adopt the new service delivery models.

- The common data layer should be fed from various sources, including space-based surveillance data. It should not lead to a monopoly as regards the ownership of data. Some stakeholders explained that the raw data feeding this data layer should be open data, to be provided under specific rules. Ultimately, there is a need to further analyse issues concerning the ownership of, and access to, the raw data.

- It is also key to ensure the reliability and quality of the data.

In conclusion, stakeholders agreed that a common data layer is urgently needed to enable more flexibility in air navigation services.

### Business to Government (B2G) access to vehicle data (closed session)

This closed session (for public authorities only) provided the opportunity of a first open discussion on public authorities' needs to access vehicle data for road operation purposes, in the context of the implementation of the new working programme of the ITS Directive.

Several aspects were discussed, such as current national experiences with mobile data, raw vs aggregated data, access to fleet data, priority use cases for such data (e.g. emission calculations, information on dangerous goods entering critical areas, travel time calculations, etc.), possible rules/agreements to make the access to data possible.

It was reminded that a Commission study on several actions of the working programme of the ITS Directive, including this access to vehicle data for road operation purposes, would be launched in the coming months, and participants were invited to actively contribute.

### Towards Maritime Autonomous Surface Ships (MASS) – Technological and Regulatory Aspects

This session aims to better understand:

- what is required to allow the autonomous (MASS) ship to sail from a regulatory and technical stance as well as to identify MASS potential in view of zero accidents/zero waste/zero emissions

- essential developments to advance European MASS ecosystems that enable trust between stakeholders, building common rules and intermediary data exchange platforms and trials in test areas



Main outcome of the session:

- MASS (Automated/Autonomous ships) evolution and competitiveness depends on an enhanced use of digitalisation, not only on-board but also ashore in port and for onward transport. While the technology may be more or less available for MASS, the regulatory side is not yet there and there is still a lot of work in testing and trials to be done. IMO is advancing well with its thorough Regulatory Scoping Exercise. However, the Panel pointed out that even if sailing with crew on board, but in high level of automation, most of the legal challenges already kick in.
- The Panel saw only a gradual introduction of MASS; in the short term, prospects are mostly in-port/close vicinity services; in the medium term, most promising for short feeder and short sea shipping services. They believed deep sea to come only much later.
- The panel saw MASS becoming a tool, especially with fossil free propulsion, also in connection to maritime sustainability goals (and could form part of the European Green Deal). On the question what they thought of MASS in relation to the aim for zero accidents/zero waste/zero emissions, out of +-60 answers given, an overwhelming 86% (Panel, speakers and audience) thought it in fact necessary, while the remaining 14% thought it realistic.
- One area of key importance identified was that of (secure) Communication between vessel and shore and between vessels, using agreed, preferably International, standards. To enable reliable data sharing.
- The most prominent areas expressed for enabling MASS to become reality on a bigger scale were, in order to making the business case (as yet there is no real business case made for any type of service (even if there are interesting projects

ongoing), and hence no commercial ongoing MASS services), cooperation of all parties involved, safety and efficiency.

A remaining challenge in maritime is that there will be a situation of 'mixed traffic' (manned and unmanned sailing on the same routes and ports) for quite a long time still (+- 50 years); that requires new type of interactions not only between vessels but also between vessels and authorities, in their capacity of exercising vessel traffic monitoring. EU-wide system and services hosted in EMSA - the Union Maritime Information and Exchange System - is being developed to support such a future scenario, not only from a maritime safety perspective but also from an environmental perspective.

### Digitalisation of TEN-T: from research to deployment

The aim of the session was to demonstrate how the results of research Actions financed under the H2020 programme are implemented by Actions financed under the CEF programme, hence promoting the synergies between the two programmes and advancing the digitalization of TEN-T network.

Beneficiaries presented examples from different transport modes, such as ports, roads, ATM as well as logistics and C-ITS.

All speakers supported the idea that the enhancement of synergies between research and deployment can significantly support the transport policy objectives, including the digitalisation of transport infrastructure.

The involvement of industry in high Technical Readiness Level (TRL) research projects is a catalytic factor for the dissemination and implementation of



research results and their introduction to market oriented solutions.

Joint Undertakings like the SESAR JU or the Shift2Rail JU are examples of a structured “pipeline” approach where research involves the industry, the regulation and the implementation.

The national authorities can also play a significant role in the promotion of synergies. This is the case, for example, of C-Roads in the ITS sector, where national pilots are implemented and the experience gained is transferred to EU level through the collaboration between industry and national road authorities in the C-Roads platform.

The implementation of the next generation of funding programmes, namely Horizon Europe and CEF2 provides an opportunity to foster those synergies for an efficient, safe, secure and sustainable transport system.

All participants agreed that technologies becoming available through research actions can be taken up by CEF infrastructure projects and this enhances the seamless integration of all transport modes while increasing their capacity and quality.

### Artificial Intelligence, Internet of Things, algorithms, big data: what for transport and mobility?

Emerging digital technologies, such as Artificial Intelligence (AI), the Internet of Things (IoT) and big data, create new opportunities and benefits for the transport sector. The aim of the session was to explore some use cases that can profoundly transform the mobility sector and discuss potential issues such as data availability, data sharing, connectivity, trust, and ethics and EU industry position.

IoT enables real time communication through the Internet, among devices, vehicles and infrastructures. A digital infrastructure in the port of Livorno is able to generate dramatic direct and indirect benefits for the port operator, including better traffic monitoring, increased safety, sustainable growth, “responsible logistics” and a positive environmental impact.

The use case of an automated shuttle provides a safer, faster, and better travel experience for customers, while fostering new business models and opportunities. AI based on learning and autonomous decision making is central to driverless cars.

The full potential of data technologies can also be achieved in the railway sector where collection of data about equipment, infrastructure and trains in a data processing centre – a rail health data hub - is preserving reliable operation and at the same time reducing significantly maintenance costs.

The roundtable expanded on the feasibility of a common IoT framework to link different vertical sectors like transport, logistics, energy and infrastructures and confirmed the need for connectivity standards, including on data access, transfer and sharing. Standards have been identified as key elements, though there are a variety of those developed at different levels – maybe too many. Trust has been identified as instrumental for European players to successfully engage in the field of data-driven mobility services and new business models so far largely dominated by a few US internet companies.

The potential of data analytics is amplified by advances in Artificial Intelligence (AI) but only if the algorithms are applied and tested on large trusted data sets. Trust and data quality are fundamental for learning algorithms.



Promoting IoT, AI and automation are among the central means of improving the competitiveness of the European transport industry, which still retains leadership in key industrial sectors like automotive, aerospace, railway, energy and manufacturing. Finnish authorities call for an adapted regulatory framework that would enable to seize the full potential of data technologies.

### 5G for connected and automated mobility

The purpose of the session was to report on the testing of use cases in the field of connected and Automated Mobility solutions (CAM) on the basis of large-scale 5G trials funded under Horizon 2020, and to get the views from the different stakeholders involved in the deployment and use of 5G corridors for CAM, in particular thanks to the participation of representatives from telecom equipment suppliers, telecom network operators, car manufacturers and public-private road operators.

Europe has a strong leadership in mobile communications and automotive industries and it enjoys a very dense network of highways throughout its territory. Yet, the provision of CAM services across intra-EU borders will require addressing a number of challenges in order to enable road users and solution providers to take advantage of the EU's single market.

The participants mentioned in particular the need to validate CAM use cases, to ensure business continuity of CAM services across physical borders and to tackle the investment gap triggered by heavy upfront costs required for the deployment of 5G connectivity infrastructures over highways on the one hand and the prospect of revenues associated with the building

of a complex 5G ecosystem for CAM in the medium to long term on the other hand.

In this context, the Strategic Deployment Agenda for 5G CAM, which is currently being developed by stakeholders, was briefly presented and discussed, as an input to the proposed EU Connecting Europe Facility (CEF) Digital Programme for the deployment of 5G Corridors.

### Towards optimising port ecosystems

The objective of this session was twofold:

- stocktaking of best practices: to share information on the state-of-the-art of processes, initiatives and policies aiming at optimising port ecosystems;
- Identification of needs: to give the different actors, notably shipping lines and shippers, the opportunity to express their requirements for (further) improving those processes.

On the state-of-play of port ecosystems, there was consensus that port infrastructure is not enough and that there is a need for enhanced cooperation between the different actors of the port community. At present, the different partners act in a system, but not yet in a fully developed ecosystem where data is shared among all actors. However, several examples of formalised cooperation between actors were mentioned. The demographic pressure that cities exercise on ports has to lead to an optimization of flows in order to ensure throughput growth. The only chance to continue growing is that all actors cooperate. Ports are not in isolation, but part of the supply chain.

The majority of panellists acknowledged that there



is pressure for data sharing from customers and consumers. There is also pressure to integrate systems between the partners (hinterland operators, customs, port authorities, shipping lines, terminal operators). Without data exchange (through an open system) the logistic chain actors will not survive. Panellists also recognized the need to protect business sensitive data.

Panellists pointed to high optimization requirements of hinterland operations. As an example, the lack of unique identifiers of trucks and barges was mentioned as obstacle. There were calls for a “control tower” or a mandate to coordinate all end-to-end cargo flows. However, additional costs will have to be paid by the end customer. Panellists indicated that there is a difference in the level of data sharing between transport modes, road haulage and inland waterway transport being more advanced in data sharing than rail.

The panel then discussed whether data sharing – labelled as a common good – is a burden or a benefit. Consensus emerged that investment costs into data sharing need to be borne by the data beneficiary. Finally, the panel debated concrete needs to make a port ecosystem happen. If just-in-time is aimed for, Estimated Time of Arrival needs to be published. There is a need for a common understanding of concepts, e.g. “transit time”, does it e.g. include customs clearance or cancellation of port calls? Panellists called for a real single window, internalization of external costs, data standards, open software, private initiative and public finance.

### Digitalisation and decarbonisation: two sides of the same coin

Challenges in terms of decarbonisation are huge since transport represents 25% of the EU greenhouse gas emissions and within that share, 70% are due to the road sector. The transition to a sustainable transport system will deeply affect the way we operate, travel and do business.

Digitalisation has a huge potential to support decarbonisation in the short, medium and long term since it can optimise assets, vehicles and infrastructure use. System optimisation will bring benefits in the long run. MaaS for example will have a significant impact by integrating modes (ITF simulation has shown that shared mobility powered by MaaS could deliver 30% CO2 reduction if properly supported by public policies). Already today, we can perceive signs of encouragement in the road sector with changes in car ownership and car usage. Another example is the collection of more and more real time data, which will help to manage assets, prioritise traffic. In the shipping industry, digitalisation enables to orchestrate the logistic chain and enable just in time arrival of ships.

Digitalisation and decarbonisation are also bringing their share of challenges as regards managing business transition and the broader sectoral transition. To bring digitalisation to the next step, there is also a need to build a coherent EU vision and a digital data platform, where data on vehicles could be exchanged with authorities. We need better data infrastructure with investment and skills. At the same time, we need to make sure that public transport remains the backbone of the global transport system. Finally, digitalisation is not enough to respond to



challenges; we also need to look at green fuels, electric and at an appropriate charging and storage infrastructure as well as impacts on the grid. The longer we wait, the more radical solution will need to be deployed.

On governance, we need to coordinate between Member States so that then private sector can have more visibility and look at what the private sector needs. Corridors can be used as a key tool for this purpose. 2030 will be a key step - we have a similar agenda there for digitalisation and decarbonisation.

### What can 5G bring to each mode of transport?

5G is expected to be a major enabler in the digitisation of transport and the emergence of innovative ecosystems in the fields of transport and mobility in Europe. The purpose of this session was to bring together user's needs and mobility solutions based on 5G connectivity. It started with a presentation on state-of-play of 5G development and deployment, followed by presentations on use cases (with railways and drones) and solutions (use of satellites) being validated in ongoing EU-funded projects. The session was followed by an interactive roundtable discussion with representatives of the transport and telecom communities in order to reflect on potential use cases from both a user and provider perspective.

5G brings a lot in terms of spectrum bands, high reliability, multi-access, mission critical services, distributed and flexible architecture, speed and slicing. Standardisation of protocols is progressing well: standards are already available for traditional mobile applications. For mission critical services they will be available in 2020 and for massive machine-to-machine communications in 2021. A pilot for

railways is being prepared in Catalonia and a pilot with drones will test an application for emergency services (forest fires).

Satellites will enable 5G coverage everywhere, including in the sky and on the sea. The roundtable confirmed that railways have already decided to go for 5G, which will enable automation and multimodal applications. Drones, flying taxis and helicopters are also looking at 5G for mission critical applications and emergency services. River operators are studying the use of 5G for inland navigation but also for barge operators who need coverage for business and private use. 5G will not replace immediately previous generations: it will first ensure full coverage by complementing 2G-4G (3G will be dismissed before 2G!). Deployment has already started and the champion is Korea. As regards health, there are a lot of studies but still no evidence of risks, taking into account the requirements of the WHO.

5G is an end-to-end solution (not only wireless), a network of networks. Stakeholders of all transport modes are invited to join standardisation activities (3GPP).

### Managing the transition towards digitalisation and automation – social aspects

Jobs in the transport sector are at high risk of automation. At the same time, the ongoing transformation presents new opportunities. The social dimension of the transition to automation was already addressed at the 2017 Digital Transport Days. The 2019 edition discussed possible measures to manage the transition towards digitalisation and automation for the labour force in transport, the role played by social partners, and whether such measures should



be horizontal (i.e. relevant for the whole economy) or specific to the transport sector or transport mode. Gender aspects were also addressed.

The speakers highlighted, in particular, the following:

- As we have learned from the past, it is not possible to know how things will develop in the future.
- The threat is the shortage of labour rather than the lack of jobs.
- Education and training of the current and future workforce are essential. The education system today is not able to prepare for future needs; it is always lacking behind. Stakeholders need to send a strong joint message to public authorities to improve the situation.
- Social dialogue (employers, workers) is key to managing the transition, for instance through collective agreements. However, new services, such as ride sharing, are not necessarily unionised and are often too cheap to allow for a decent living of its labour force. Here, consumers are also socially responsible.
- Digitalisation is an opportunity to improve the attractiveness of professions that are not well considered, such as truck drivers, especially for women and young people. Thanks to digitalisation

and communication technologies, mobile workers are already less isolated than in the past. The introduction of autonomous cranes has improved working hours.

- Regarding women in transport, digitalisation alone will not resolve the problem; working conditions in general must be improved (removing violence at work, providing appropriate rest facilities, etc.). In the maritime sector, women usually stop working on board ships when they have children, but they should

be able to continue their career on board ships.

- In order to attract ICT specialists, a good reputation of a company is essential.
- When managing the transition, safety aspects (testing the technology), cybersecurity, data protection and sustainability need to be considered.
- Exchange of experience and good practices, also with other sectors, is very important (for instance within the CCAM platform). Since conditions differ between countries, good practices are not always transferable.

The main conclusion was that for managing the transition towards digitalisation and automation in transport, learning from each other's good practices and dialogue are key.

### Towards Digital Inland Navigation

The aim of the session was to present new, innovative digital solutions in the inland waterways sector and to have a discussion about actions needed at European level to further develop Digital Inland Navigation (DINA) in Europe.

The panellists called for the European Union to establish an appropriate framework, rules and standards for digitalisation, along all inland waterways in Europe (to prevent a two-speed approach, e.g. between Rhine/Danube). Emphasis was put on the importance of re-using existing solutions. Lessons learned from the development of these should be taken into account in order not to reinvent the wheel. The timing of establishing standards for digitalisation is important to enable the take up of solutions/services based on new technologies. Data financed by public money should be made open/public, while safeguarding data security and privacy rules.



A barge operator needs to make various investments - in vessels, equipment and more and more in IT - which are often subject to long payback times; therefore one should consider integrating additional functions into existing devices wherever possible, in order to reduce development costs. Moreover, the panellists agreed that the way forward should be defined in cooperation among all relevant actors, such as authorities, IT developers, barge operators, terminals, etc. based on the lessons learned from pilot projects and existing commercial solutions.

The participants concluded that many services and projects are being developed across Europe for inland waterways transport and that these are transforming the sector. These initiatives make the sector more competitive and allow for administrative simplification. Expectations were for the European Union to extend its legislative framework in a flexible manner in order to foster innovation and to accommodate the future developments in digitalisation in inland waterway transport.

Finally, it was stated that further digitalisation of the inland waterways sector will also contribute towards the goal of sustainable transport and the objectives of the "Green Deal" to be put forward by the new Commission.

### Funding and financing transport digitalisation

The session opened by setting out the funding and financing possibilities for transport digitalisation within the EU. National schemes such as the Smart Mobility Finland programme, can support companies developing digitalisation products and programmes while also attracting international enterprises to join EU testbeds. EU programmes such as the Connecting Europe Facility (CEF) play a significant role with €3.2

billion of EU funding already allocated in the current programme to digitalisation projects (SESAR, ERTMS and ITS the main areas receiving funding). The next CEF programme (2021-2027) will continue to support transport digitalisations projects particular those that enable more efficient cross-border services across all modes. The European Investment Bank can also provide financing support, including through blending with CEF. Finally, CEF Digital 2021-2027 will also play a role in the digitalisation of the transport sector through the co-funding of cross-border 5G corridors.

During the panel discussion and the question and answer session with the audience that followed, several key themes were raised. Digitalisation projects are often relatively small in financing terms but complex in their financial structuring. The private sector plays a critical role in developing digitalisation projects. The focus of EU supported digitalisation actions should be the ensuring of efficiencies; decarbonisation may only be a side impact. EU supported actions should be future proofed including climate proofed. Digitalisation can also be a tool to assist in pricing transport fairly e.g., the polluter pays principle though the measurement and collection of data.

### Cybersecurity for transport and mobility

The session underlined that transport digitalisation leads to a growing exposure to cyber-attacks, which could have serious consequences, including possible loss of human life, and significant harm to economies. In this context, interventions noted the importance of the transport system being able to deter attacks and show resilience if they occur.



Since the previous edition of the DTD, transport cybersecurity has progressed in Europe – the implementation of the Directive on security of network and information systems (NIS) has had a catalytic effect. At the same time, the NIS Directive has seen uneven and disparate implementation.

Therefore, and while recognising the progress made, cybersecurity in transport still has some way to go. Additional measures, specific to each mode of transport, will likely be required. These should take into account the Safety-Security nexus and be “holistic” in approach.

Non-regulatory cross-modal actions are important, including information sharing, exchange of good practices among and between the modes. Sectorial initiatives, such as the creation of Information and Sharing Analysis Centres (ISACs) should be encouraged. The human element is equally important in addressing cyber issues, and points to the need for training and the development of a cybersecurity culture for transport staff.

### NRAs and digital (road) infrastructure for future mobility

The aim of the session was to discuss the challenges and opportunities of digitalisation for National Road Administrations (NRAs), and the consequences for digital and physical infrastructure managers. The panel expressed the following views:

- NRAs have a leading role in keeping the infrastructure in good condition but their role goes beyond that. Even if NRAs leave mobility services to others, they need a close cooperation to facilitate the provision of such (private sector) services. NRAs need a holistic approach to mobility services

based on the provision of both physical and digital infrastructure.

- The responsibility for the societal and environmental effects of roads (noise, water and air quality, soils, biodiversity etc.) should be a joint effort between NRAs and different actors. The new digital tools to manage the effects should be widely available and commonly shared.

- Digitalisation is no panacea but an opportunity which needs to be approached wisely and managed well. Otherwise, the potential risks and adverse effects might be too high. Digitalisation is a broad term which includes many elements such as automation, cyber security, AI, etc... And these elements need to be clearly defined as their expected effects are totally different.

- Although road congestion costs are primary related to urban areas, congestion is also present in motorways and NRAs and other actors should now find new digital ways of managing traffic.

The panel concluded that digitalisation will influence many different aspects of land transport, such as traffic operations (connected driving), integrated network management (intra-modality) and management of infrastructure (BIM and IoT). Digitalisation will also heavily affect the relation between land transport providers and users (e.g. social media and data transparency). It is therefore essential for NRAs to develop a harmonised European digital infrastructure that will help them have a leading role and harvest the potential benefits.



### Closing Plenary: What digital initiatives to support a sustainable TEN-T network?

Developments on digitalisation are progressing at a quick pace (with big data, artificial intelligence, automation, the Internet of Things etc.). They entail vast changes in the transport and mobility system overall and challenge the TEN-T as an enabler of future-oriented mobility solutions. The objective of the closing session was to present and discuss the main conclusions of the Digital Transport Days of 2019 and pave the way towards the next conference to be held in 2020 under German Presidency.

The discussion with the panellists was mainly oriented to identify initiatives that the Commission should take in its new mandate in the field of digitalisation. Digitalisation is not an end in itself and decarbonisation and the new Green Deal were considered to be the main long term objective that transport digitalisation need to serve. Some challenges were identified, such as the need to facilitate cross-border transport and mobility, quality life in urban nodes and social transition.

As to the transition to zero-emission vehicles, there is a need to accelerate deployment of charging infrastructure but charging has to get quicker and smarter (no badges, no ID, no cards, choice of the supplier), with good information systems for the users. The panellists concluded that an EU framework to enable transport digitalisation might be needed (enabling regulations, guidelines, good examples), that we should avoid each city re-inventing the wheel and that energy, transport and digital infrastructures should be reconciled.



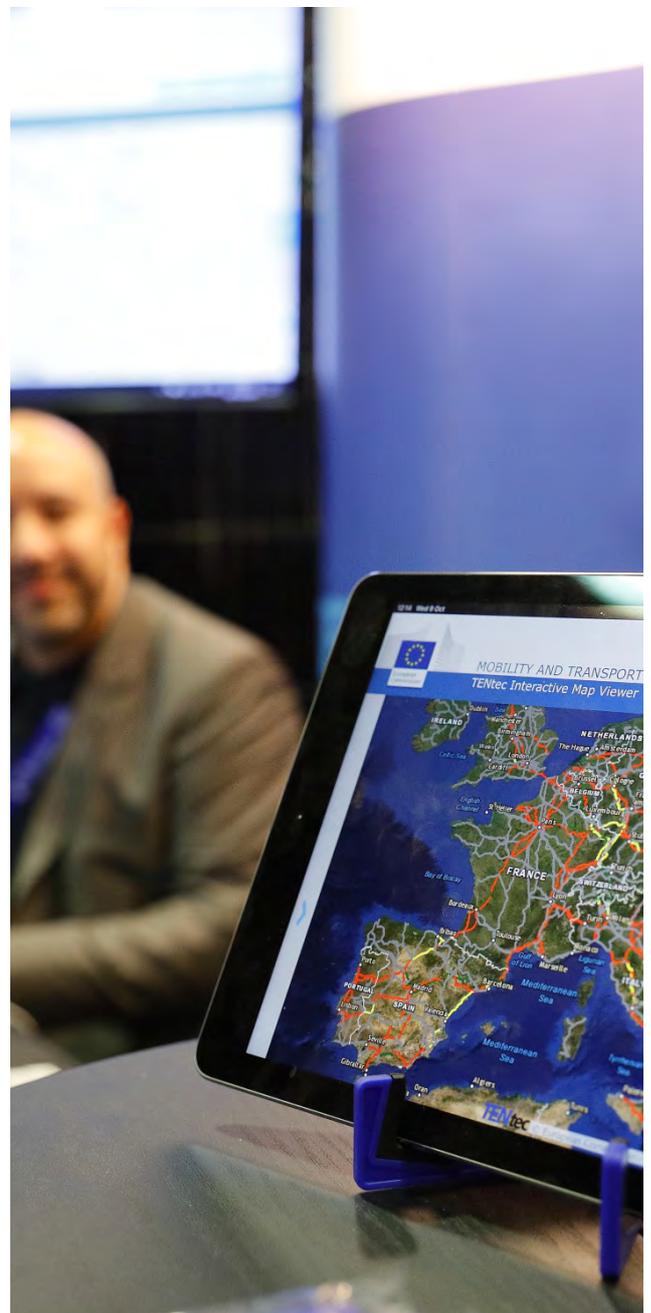
## Exhibition

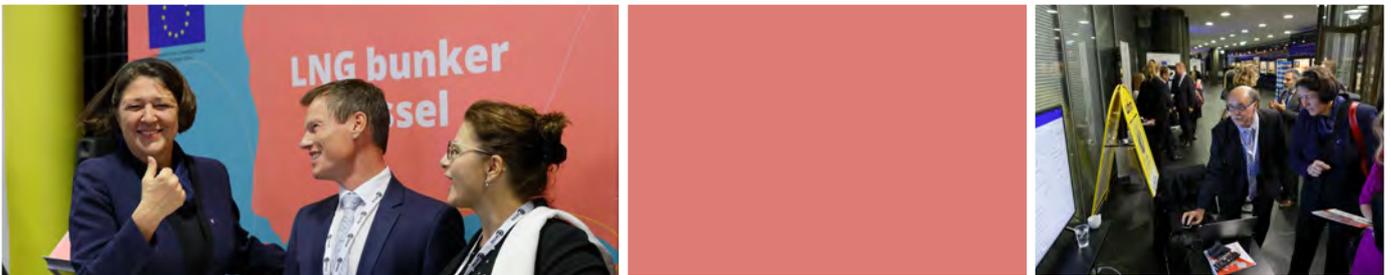
The conference featured an indoor and outdoor exhibition that showcased the successes of EU funding programmes that contributed to European digital transport infrastructure and services development.

Around 40 project beneficiaries and funding bodies showcased EU transport projects at the conference venue and different innovative technologies.

A practical demonstration of drone flight took place during the conference, to demonstrate the possibilities of this type of technology to answer evolving societal needs.

The full list of exhibitors is provided in annex.





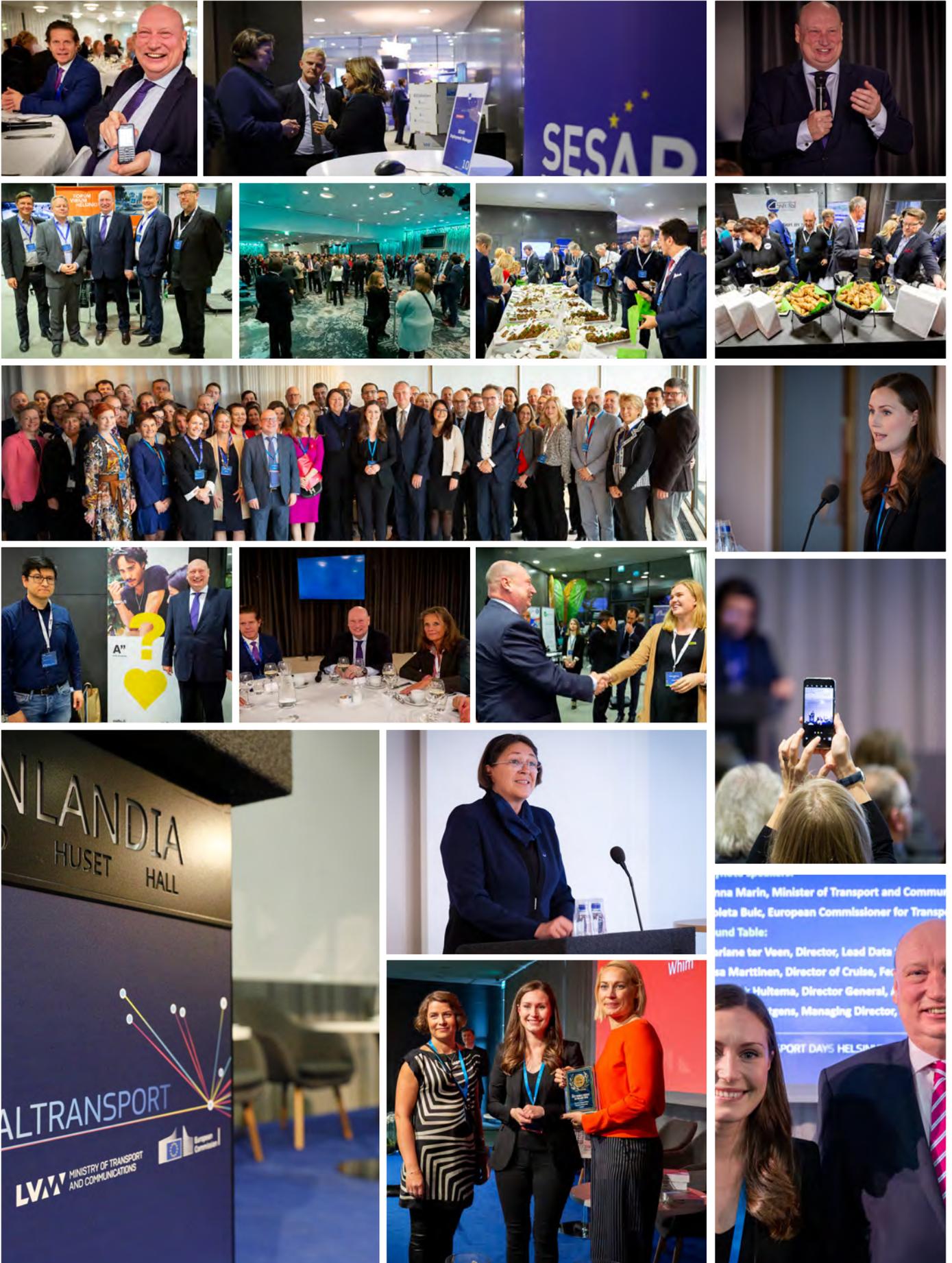
outdoor exhibitors

GOF U-space  
ELVIRA Automated Passenger Car  
Skycorp  
Sharelt Bloxcar  
Virta  
24 Rental Network  
Third Space Auto  
Zyga  
Rolan  
Parking Energy

indoor exhibitors

INEA  
DG MOVE - TENtec  
Shift2Rail Joint Undertaking  
Meritaito Oy  
MaaS Global Ltd  
Elenger  
Kyyti Group  
Fleetwork.ai Oy  
Fundación Valenciaport  
SESA Deployment Manager  
Sieć Badawcza Łukasiewicz  
Irish Maritime Development Office  
Vaisala Oyj  
Sensible 4  
Néovia Innovation  
Enel X srl  
RB Rail AS / Rail Baltica  
Aalto University  
Traficom  
Grupo Alonso  
ERTICO - ITS Europe  
Virta Ltd  
RNE - RailNetEurope  
OLTIS Group  
FIER Automotive & Mobility  
CommuteApp  
PUSH  
Port of Helsinki Ltd  
Forum Virium Helsinki  
Cycling Industries Europe  
Swedish Maritime Administration







Contact details:

European Commission – Directorate General for Mobility and Transport

Directorate B – Investment, Innovative & Sustainable Transport

Unit B1 – Transport networks

[ec.europa.eu/transport/index\\_en.htm](http://ec.europa.eu/transport/index_en.htm)

**[digitaltransport.eu/2019](http://digitaltransport.eu/2019)**  
**[#digitaltransport](https://twitter.com/digitaltransport)**