



Open Data for Smart Mobility Conference 2020 – Content Summaries

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Moderation cards of the ODSMC 2020 (BMVI/Deckbar 2020).



1. Welcoming speeches

In his opening speech, Federal Minister of Transport and Digital Infrastructure Andreas Scheuer stated that the aim of the conference was to collect examples of innovative approaches and projects from across Europe, and to discuss the potential of open data for mobility. Data is the new foundation on which to construct useful information, and is essential to creating new innovations and implementing artificial intelligence, he said. Similarly, data makes mobility smart, connected and climate-friendly. Scheuer cited the Hercules, MobiDig and Limbo projects as examples of cloud-based internet services that facilitate the implementation of mobility applications. These are among the 300 projects that are part of the ministry's mFUND programme, which has been supporting innovative data-based projects with seed money, networking and access to data since 2016. Scheuer then officially introduced Emmett, the new open communication and networking platform, which as part of the ministry's mFUND initiative is intended to close the gap between research and practice by combining knowledge with innovation and project results.

According to Scheuer, the Ministry of Transport and Digital Infrastructure is the ministry with the largest store of data in Germany. The data is provided via the mCLOUD, a central access point for all openly available data relating to the ministry's subject areas, which include road, rail and air traffic, space travel, climate and weather, and waterways. The mCLOUD offers developers in companies, research institutions and public entities direct access to data. This helps to promote the development of innovative ideas in the field of mobility. One of the ministry's most important projects is the establishment of a national mobility data space, intended to serve as the basis



Federal Minister of Transport and Digital Infrastructure Andreas Scheuer at the ODSMC 2020 (BMVI/Deckbar 2020)



for intelligent transport systems, by the end of 2021. In order to build trust with private and public data providers, the ministry is currently crafting a governance based on European values, trust and security principles. Scheuer stated that the German national data ecosystem was intended to contribute to the establishment of a European network of mobility data spaces. A similar goal was recently expressed in the Passau Declaration. As key challenges for the future, Scheuer identified the need to make the EU more competitive in the field of mobility, and the goal of making mobility more efficient and more climate-friendly.

Speaking after the minister, EU Commission Director-General for Mobility and Transport Henrik Hololei underlined the importance of open data – and especially of business-to-business (B2B) data – for competitiveness, economic growth, and the creation of new innovative jobs and activities in the EU. The increasing volume of mobility data can be used for a variety of innovative services, but should be managed in a secure and well-framed way, Hololei said. For this reason, the EU will present a new strategy for sustainable and smart mobility later this year, which will include green and digital components. The Commission will be spearheading construction of the next generation of cloud services in Europe, which will be essential in increasing the competitiveness of European businesses, creating a trusted digital infrastructure, and providing services to EU citizens and administrations. Hololei also stressed that better, faster and broader internet coverage by 2025 will be critical in supporting the digital economy. To make the digital transformation a reality, the EU needs fast and secure deployment of 5G technology, and must facilitate the construction of innovative networks, especially for transport and mobility companies. To this end, the European Strategy for Data has been defined, which aims to create common European data spaces with clear rules for data access and use. The new networks and data spaces must also address the issues of resilience, interoperability, efficiency, sustainability, security, inclusiveness, and safety within the transport and mobility sector, Hololei said. Data plays a key role in the development of smart mobility; thus, the greatest amount of data possible should be open to everyone. The EU's most important role is to set clear rules and provide regulatory support for this process, as was done for the Passau Declaration, the director-general concluded.

Following the welcome speeches, a survey was conducted, asking conference participants how many apps they had on their phones or mobile devices that had something to do with data-driven mobility. The result indicated that 71% of participants had more than five such apps, and 23% had at least two or three apps of this nature.



The hosts Ludwig Reicherstorfer (l) and Dr. Wiebke Glässer (r) in the studio at the BMVI (BMVI/Deckbar 2020).



The view from behind the scenes into the studio (BMVI/Deckbar 2020).



2. First impulse session: Opportunities for Data-Based Companies and Services to Develop and Scale Up Mobility Services Available Across Europe

Andreas Karanas, CEO and founder of Carrypicker GmbH, discussed how transport services could be optimised and CO2 emissions reduced through the use of artificial-intelligence (AI) technology. He presented the Carrypicker approach, which uses AI to plan truck utilisation, thus maximising truck capacity and reducing pollution. By using high-quality data, the AI system can process and optimise very complicated tasks simultaneously. Hence, for such AI systems to function efficiently, they must have access to, and be able to exchange, high-quality data. The public data provided by the mCLOUD initiative of the Federal Ministry of Transport and Digital Infrastructure was an important component in achieving this goal. Karanas stated that AI technology could reduce the CO2 emissions generated by trucks in Europe by 16 megatons. This means that the Carrypicker algorithms could help to save the amount of CO2 emissions produced by a city the size of Berlin over the course of a year.

Daniel Alarcon-Rubio, CTO of Trafi Ltd, spoke about how open back ends can enable multimodality on mobility platforms. He explained that an open back end is basically a system that facilitates the integration of different new mobility service providers. He pointed out that implementing such systems is currently problematic, due to unnecessarily high barriers in exporting data. Most mobility applications are developed in very closed environments, making it difficult to integrate new players into these systems. This makes it harder to develop new services in the mobility space. The creation of open standards and “openness from the beginning” would facilitate integration and foster cooperation between various services, thus promoting the adoption of mobility offerings across Europe, Alarcon-Rubio said.

Following the presentations, the speakers discussed questions posed by the moderators. Asked to share experiences regarding open data, the speakers both indicated that access to open data needs to be improved. For example, costs need to be reduced by opening data further, and data-governance frameworks need to be implemented in order to generate greater trust and transparency in the use of data. Consumers in particular need to be made more aware of the benefits of open data. As developers and data providers seek to determine how the richness and quality of open data can be increased, the end user’s needs must be given a top priority. Karanas concluded by stressing the importance of extending opportunities for cooperation at European level. Alarcon-Rubio added that facilitating a productive exchange of experiences between different levels, stakeholders and interest groups across Europe remains a key challenge.



3. Panel 1: Carbon Neutral Mobility: The Application of (Open) Data

The first presentation on Panel 1 was offered by the Fraunhofer Institute's Holger Flatt, who discussed how open data can be employed to manage urban traffic more efficiently by using optical and radar-based sensor systems to acquire traffic data in real time. This aggregated traffic data is published on a cloud platform. This enables AI-based, adaptive traffic-light control systems to optimise traffic flow at intersections, as Flatt explained.

The second presentation stressed the need for data standards that are both comprehensive and widely accepted. Daniel Rudmark from the Research Institutes of Sweden reported on the ODIN cross-border open mobility platform currently operating in the northern European countries. A useful lesson from this project, he said, was the value of working with an existing specification that was industry-tested and proven in practice (in ODIN's case, NeTEx).

The panel discussion started with a question as to whether the ODIN standard for open traffic data could be implemented in the EU as well. In addition, participants asked whether optimising car traffic via AI would reduce emissions or make car driving more attractive.

Flatt answered questions concerning the focus on small and midsize cities. In cities of this scale, he said, it can be less of a challenge to persuade government representatives and administrations to install and implement traffic technologies, as their infrastructures are easier to manage than are those in big cities, which typically entail numerous districts and district administrations.

In discussing the possibility of using NeTEx as a specification for all EU member states, Rudmark said that a full data model is necessary to make such standards work properly – a fact that is true today, and will remain so in the future.

Overall, the first panel focused on how open-data-related solutions and frameworks could be used to cut the transport sector's emissions, so as to help individual countries reach their contributions to the EU's 2030 climate goals. Both presentations provided ideas on how this goal could be realised in a series of gradual steps.



4. Panel 2: The Data-Driven Railway: Prediction, Analytics and Vision

This panel addressed the challenges faced by the railway sector. These include the need to increase efficiency and effectiveness, reduce operational costs, and increase service frequency and punctuality; however, rail services must also be integrated more deeply into multimodal mobility services, digital payment services, and other apps. Digitalisation affects all facets of rail transport, and that allows data-driven solutions to be applied and implemented at many levels.

Panel members Vasco Paul Kolmorgen from Bahnkonzept and Christian Rahmig from the German Aerospace Centre explained that while larger operators tend to have good infrastructure databases, small operators often still use Excel instead, which creates numerous technological hurdles. Among the 100 small railways in Germany, only a few have inventory systems that are digital or usable in any digital way. Many small railway companies do not have appropriate databases or the methods and means to collect and maintain critical data on a permanent basis. With the Indres project, Bahnkonzept is seeking to create an infrastructure database for small, non-federally owned (NE) railways, so that operators, transport service providers, authorities, and the public can access a uniform, coherent and digital database containing useful service data.

Jana Pieriegud of the Warsaw School of Economics addressed the complex task of integrating digital technologies and business models. Drawing on experiences with smart ticketing, she presented a variety of new mobility concepts (smart mobility), and discussed how railways could engage in a mobility-as-a-service (MaaS) approach. In doing so, she presented research findings regarding passengers' and operators' perspectives. She noted that passengers have a strong interest in shared ticketing services at the national and European levels. By contrast, operators highlight the need for improvement in areas such as open data, revenue allocation, complaints management, and ICT costs.

Railnova CEO Christian Sprauer discussed the challenge of digitalisation in the context of railway-sector maintenance. Railnova initiatives support predictive fleet maintenance and telematics solutions for the railway sector. This requires a massive collection and analysis of data, which then needs to be made accessible. Sprauer highlighted the need to provide access to the data generated by infrastructure managers and railway operators. To collect such data effectively, he said, a mandate is needed at the national and at the European level.

The discussion underscored the point that infrastructure maintenance is the aspect of railway operations lagging the furthest behind in terms of digitalisation. There is a need for data harmonisation and improved data accessibility at the European level. Moreover, across Europe, the sector has a strong need for workers with digital and technology skills.



5. Panel 3: Managing the Data Flow: Mobility Data Platforms and APIs

The third panel focused on technical infrastructures and IT architectures able to support a smooth flow of data in the mobility sector. The solutions presented during the panel all facilitate the critically important exchange of data, thus creating the basis for an ecosystem that offers appropriate applications and services.

University of Aveiro professor Susana Sargento outlined the challenges involved in setting up a city-wide mesh network, while also highlighting the benefits that can be generated once such an infrastructure is in place. This approach enables stationary and mobile sensors to be connected to the cloud, and allows the data collected to be processed and analysed on a single platform. This in turn facilitates the provision of traffic-management and road-safety services. The City Labs project allows innovative solutions for sustainable urban development to be identified and tested. The infrastructure is also used to test new applications – for example, automatic accident detection – as well as third-party applications.

Continental Automotive executive Jörg Lütznier explained that multi-brand truck platooning requires standardisation, as well as demonstrations assessing the practice's impact in real traffic conditions and across borders. Consequently, platooning requires cooperation between multiple stakeholders, including shippers, carriers, OEMs, road authorities, and third-party providers. At the same time, compliance with general regulations and restrictions specific to platooning must be ensured. These requirements can only be met through the use of back-end services and the exchange of (open) data within a trust-based network.

Sebastian Pretzsch of the Fraunhofer Institute for Transportation and Infrastructure Systems addressed the technical concepts and foundations of the Mobility Data Space, the goal of which is to connect data providers with data users in a decentralised architecture, with data exchanged only when it is needed. The key concept, as well as the main challenge behind this, is to ensure that such exchanges take place in an environment of trust. This is accomplished by implementing data apps within which metadata and data are shared, while connectors limit operations on data to those allowed by the data provider. Services such as an app store, a data directory (marketplace), and identity-management functions ensure that the decentralised network can be used effectively by participating stakeholders. Existing data platforms can be integrated into the data space via connectors.

The subsequent panel discussion addressed the practical aspects and future development of the projects presented, including issues such as privacy, open data, market penetration of the required equipment, and public acceptance of innovative technologies.

In summary, Sargento's presentation on the mesh-network project provided an example of a scalable and flexible concept that can be adapted to conditions within a wide variety of city environments. Lütznier, in turn, made it clear that project implementation, especially in cross-border projects, is still frequently impaired by



insufficient standardisation and a lack of (open) data. Finally, Pretzsch offered solutions to some of the challenges identified by Lützner, describing what is already being done to improve German and European data exchange. His findings from the construction of the Mobility Data Space thus complement the specific hurdles and solutions identified by the others – for example, with regard to trust – on a system level. Pretzsch also noted the role played by European values in dealing with data, thus taking a more abstract approach than the other presentations, which were more focused on the practical problems of data applications.



6. Second impulse session: The European Approach: Open Data for Smart Mobility

Claire Depré, head of the European Commission's Unit for Sustainable and Intelligent Transport, discussed the opportunity to create more efficient and sustainable mobility through the creation of the common European Mobility Data Space. In her opinion, data is the key enabler of greater resilience and efficiency in the transportation sector. By shaping the framework, for instance through the Intelligent Transport Systems Directive, the EU Commission is facilitating greater access to data. She said that the biggest challenge ahead will be in helping individual actors in different geographical areas to make data available.

Following Depré's presentation, conference participants were asked, "When you hear the term 'data-driven decision making', do you have a positive or a negative feeling about it?" The results showed that 81% of the participants had a positive feeling, while only 19% expressed negative feelings.

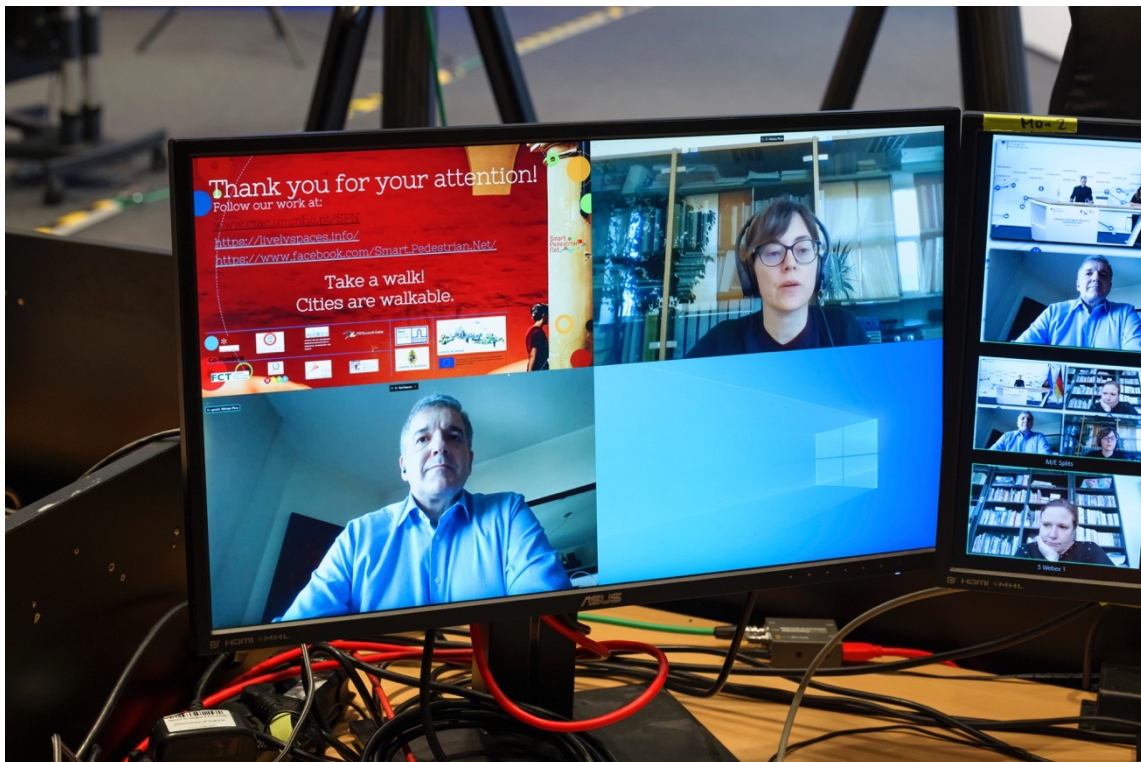
Miriam Pirra, project manager of the Turin pilot of the CIVITAS SUITS project, continued by presenting findings on how data-based decisions could be enabled in medium-sized cities by drawing on mobility data. Assessing such approaches can be a challenge, she noted, as different projects have used different data and methodologies and combined different information in different ways. According to Pirra, three main elements must be considered when making data-driven decisions: 1) the question of how the data is collected, and who is able to collect it; 2) the question of who can analyse the data and how data can be analysed; and 3) the question of how data can be appropriately visualised.

Rui Ramos, project manager of the University of Minho's Smart Pedestrian Net project, presented work that has analysed city data with the goal of creating a pedestrian navigation map to improve walkability. Data on the city and on pedestrians' movement profiles were crucial for the development of this application. To this end, the project used the Smart City Monitor, a cloud-based data platform that drew together data from various sources. The integration of dynamic information flows such as traffic data proved to be a significant challenge for real-time analysis. Ramos said that the quality of open data plays a decisive role in the development of Smart City applications. The app's data analyses and interconnections with other city information are also very important for the process of urban planning, as they generate insights regarding the use of urban infrastructure. In this way, the development of data-based applications benefits both citizens and city administrations.

In the discussion that followed, Depré referred to the Passau Declaration, and stressed the importance of including end users in the development of mobility processes. She indicated that user-centric mobility must be oriented towards user needs anticipated by informational and demand services. For this purpose, data is essential. It is also very



important to ensure a high level of data quality, interoperability, and cooperation between different countries in order to make data easier to use and reuse. Pirra stressed the importance of collaborating with local authorities to determine exactly what data is necessary for what purposes, and to understand how this data can be usefully combined with other information. Local authorities should be learning organisations, she said. Ramos underlined the importance of establishing the right conditions for sharing high-quality data. Asked about the issue of anonymising mobility data, Pirra noted that some anonymisation tools allow pseudonymisation. Ramos also agreed on the importance of anonymisation. However, he said the primary challenge in this regard was aggregating mobility data for specific purposes in such a way that it remains usable. With regard to the “negative feeling” of Data Driven Government (DDG) users, the speakers conceded that while data and data analysis do bring many benefits, there is also a need for better explanations of how the technology works, and benefits must be communicated more effectively.



Rui Ramos (l) and Miriam Pira (r) during the discussion (BMVI/Deckbar 2020).



7. Panel 4: Connected by Data: New Modes of Transport Competing for the City

Panel 4 discussed the importance of open and connected data for new modes of transport in cities – for example, the use of different vehicles and transportation services over the course of a single trip – supported by a single mobility-as-a-service app that draws on open traffic data.

MaaS Global CEO Sampo Hietanen identified several principles that should be followed when treating mobility as a service: 1) Customers own their data and should be allowed to switch mobility operators; and 2) the way that data is shared will determine how mobility as a service grows.

Brodthmann Consulting Managing Partner Marc Lammerding discussed how artificial intelligence and neural networks could be used to provide predictions regarding public-transport usage, with the goal of producing real-time visualisations of bus or train capacity utilisations or delays as useful information for customers.

Humanising Autonomy CEO Maya Pindeus pleaded in favour of collecting data for autonomous vehicles as comprehensively as possible. The more diverse this stock of data is – for example in terms of city maps or types of sensor data – the more such vehicles will be able to make robust analyses and predictions. In this regard, it is important to ensure that all needs are taken into account, she said.

The session's speakers subsequently discussed whether mobility as a service (MaaS) requires a single supplier, or whether competition will remain possible. Hietanen answered: "Mobility is so big that I don't think it will be a game of 'one to rule them all'. There are a multitude of car OEMs as well. Having said that, it is a risk that needs to be mitigated. Being open to all lowers the entry barriers to new entrants. Incentivising outcome is another way. This needs active involvement from cities and governments."

The discussion then touched on "ideal" scenarios or circumstances in which autonomous mobility would actually be beneficial for cities, especially in terms of open data. It was also said that there needs to be more open data exchange between public and private transport modes at European level. Member states could learn from the fact that the missing link between mobility vehicles, public transport and mobility services is usually an open API.



8. Panel 5: Unlocking Accessible Mobility: European Projects

The main focus of the fifth panel was inclusion within the framework of mobility. Speakers discussed how digitalisation and smart cities represent an opportunity to make urban infrastructures and their services accessible to the entire population. Three presentations showcased initiatives using technology to promote accessible mobility.

Okeenea accessibility expert Sylvain Denoncin addressed the social inclusion challenge associated with accessibility, and discussed how digital solutions and open data will play a key role in addressing this challenge. Okeenea is a company focused on inclusive technology. Thus, it researches, develops, oversees manufacturing, and distributes technological solutions that eliminate barriers and ensure safe and independent navigation within public spaces. The company recently won the New York City Department of Transportation's call for innovations, "Enhancing Mobility for the Blind and Low Vision Community," with its aBeacon, a third-generation accessible pedestrian signal technology. In his presentation, Denoncin noted that there are 1 billion people worldwide that have some level of disability (100 million in the EU alone). Mobility determines access to healthcare and education; thus, making it accessible is crucial for social inclusion. There is a need for more information, and we have to make this information available to everyone, Denoncin said. In this context, Denoncin presented EVELITY as an example of an application that uses open data to enhance accessibility within metro stations.

In his presentation, N-Vibe's Charlie Galle noted that many companies have already developed technology for calculating an itinerary. Nevertheless, a considerable amount of information is often incorrect or missing. How reliable are tools with regard to navigating people safely? N-Vibe developed the first vibrating GPS bracelet for blind and visually impaired people. This haptic navigation system helps blind and visually impaired people navigate freely and independently. By means of non-invasive smart bands (one on the left and one on the right wrist) these tools guide the user by using vibrations. This reduces burdens on the hearing, allowing users to focus on their trips or conversations. MedScaler has partnered with N-Vibe to validate and implement this solution in the Netherlands and Flanders.

Holger Dieterich of SOZIALHELDEN e.V. presented several initiatives, including Wheelmap.org (a digital map for finding wheelchair-accessible locations), Brokenlifts.org (an app that provides a visualisation of lift failures in public-transport stations in Berlin), and Accessibility.cloud (a platform that simplifies the processes of sharing and obtaining accessibility data in a standardised, future-proofed, easy-to-use way). He addressed the important question of how we can make everyday life easier to plan for people with disabilities. His answer: through technology and citizen participation. Citizen participation can be crucial in collecting and sharing data on barrier-free places in order to contribute to making urban spaces more inclusive.



The speakers and session participants noted that the EU's data landscape is still fragmented. Moreover, there is a huge gap between technology and those producing the data.

The panel members agreed that decision makers need to become more involved in the issue of data accessibility. They highlighted the need for collaboration and standardisation, both processes that require time. Finally, the panel called for the EU to provide standards and data that could be used by private companies.



9. Panel 6: Autonomous and Always Connected: The Ships of the Future

The sixth panel focused on the question of how the shipping industry and the inland waterway transport industry can use IoT, data platforms, and autonomous technologies to stay competitive. Panellists discussed approaches using a global technical infrastructure as a basis for data-driven technologies and services. They noted that data quality, data availability, the fusion of several data sources, and consequently standardisation are all vital in reaching this goal. Machine learning and intuitive user interfaces can also play important roles, they said.

German Aerospace Centre project manager Sven Jacobsen said that while the polar sea ice is melting due to climate change, this also opens up attractive new seaways featuring shorter distances, no channel fees, and less piracy – thus presenting opportunities to save time, fuel, and money. However, detailed information on sea ice conditions will be crucial in order to be able to use Arctic shipping routes. The aim of the EisKlass2 project is to develop and test a service that automatically generates up-to-date, high-resolution and highly accurate ice information from satellite data, while addressing challenges such as the reliability of ice classification and poor internet bandwidth.

BearingPoint Executive Director Alexander Schmid noted that inland waterway transport outperforms other modes of transportation with regard to ecological performance and cost efficiency. On the other hand, it lacks reliability, and consequently accounts for only 10% of current transport volumes. Digitisation is identified as a means of improving reliability, as it helps with water-level predictions. However, the digitisation of inland waterways navigation is a European-level task, he said, while also depending greatly on the quality of data. As a result, there is a need to improve data quality and increase data provision.

Finally, Kongsberg Maritime Integrated Solutions Research and Innovation Manager Jason Andrew McFarlane dealt with the question of whether inland waterway transport may be a solution to the widespread problem of huge traffic jams. With the goal of relieving road congestion by increasing multimodal transport, the AUTOSHIP project is focused on developing and integrating key enabling technologies for autonomous ships. By building and operating two different autonomous vessels, the project is exploring the possibilities of their use in short-length sea shipping and inland navigation, especially with regard to the mobility of goods. A key finding is that autonomous shipping not only profits from the availability of data, and especially open data, it can also contribute to the provision of data, as the vessels can serve as floating sensors.

The subsequent panel discussion focused on differences between the maritime and inland shipping industry with respect to the ongoing process of digitisation. While the inland waterways industry mainly consists of small- and medium-sized enterprises that find it difficult financially to implement the latest technology, the largest challenge for the maritime industry is developing adequate connectivity



infrastructure. Nevertheless, both sides have a need to improve their access to data.

Overall, this panel indicated that access to information and the exchange of data in (near-) real time can improve safety and diminish emissions in the context of international maritime shipping. Panellists said that strong international cooperation is essential on transnational sea routes. While much of the foundation for digitisation has already been laid in inland navigation, and digital opportunities are being used to optimise business processes, there is often a lack of high-quality data. Particularly in view of the importance of inland navigation within Europe, as well as the international orientation of maritime navigation, the need for uniformity and standardisation in implementing cross-border activities cannot be emphasised strongly enough.



Outlook

In his closing statement, Christian Schlosser, head of DG 21 at the Federal Ministry of Transport and Digital Infrastructure, thanked all participants and stressed that the conference was very insightful and diverse. The ministry intends to continue to support and intensify the dialogue on data innovation, he said, and will establish new formats for such dialogue in the near future.



Christian Schlosser, head of DG 21 at the Federal Ministry of Transport and Digital Infrastructure at the ODSMC 2020 (BMVI/Deckbar 2020).



Speakers

Welcoming speeches

Andreas Scheuer has served as the German federal minister for transport and digital infrastructure since March 2018. From 2009 to 2013, he worked as a parliamentary state secretary at the Federal Ministry of Transport, Building and Urban Development; he subsequently served as the federal government coordinator for freight transport and logistics. Scheuer worked as an assistant to Minister-President of Bavaria Edmund Stoiber from 1998 to 1999. He has been a member of the German parliament (Bundestag) since 2002. Scheuer joined the Christian Socialist Union party (CSU) in 1994; since this time, he has occupied various leading positions, including that of secretary general from 2013 to 2018. As to education, Scheuer passed his first state examination (qualifying him to teach at intermediate schools), then followed with studies in political science, economics, and sociology at Passau University, graduating with a master of arts degree in 2001. In 2004 he obtained a doctorate from the Charles University in Prague.

Henrik Hololei is an economist by training, holding degrees from Tallinn Technical University and Aarhus University in Denmark. He held various positions in Estonia's Government Office between 1995 and 2004. He was mainly responsible for coordinating the work relating to Estonia's accession to the European Union. From 2001 to 2002, he served as minister of economy. In 2004, he moved to the European Commission as head of cabinet for Vice President Siim Kallas until 2013, when he became deputy secretary general. In October 2015, he became director-general for mobility and transport in the European Commission.

First impulse session

After more than 20 years of experience in senior business-development and sales roles at multinational companies such as Bertelsmann and O2 Telefonica, **Andreas Karanas** has successfully launched a number of tech start-ups. At Cargonexx, he led a team of founders that ultimately became the leading digital-freight broker in Germany. The experience he gained during this time was a valuable basis for the development of Carrypicker. With Carrypicker, Karanas uses artificial-intelligence technology to optimise the allocation of truck freight, thus following the example of car-rental companies, hotels and airlines, which are already achieving significant capacity utilisation today. Karanas presented the topic: "How to Optimise your Transport Services by Incorporating (Open) Data".

Daniel Alarcon-Rubio is a leader, technologist, and engineer with more than 20 years of experience in the fields of digital mapping, IoT, radio-frequency engineering, robotics, mobile devices, autonomous cars, and drones. He served as chief technology officer of HERE and AirMap. Prior to this, he was a leader at Nokia and Motorola, and



the chief technology officer and chief architect of the Symbian Foundation. Alarcon-Rubio presented the topic: “The Open Back End: Enabling Public Transport across Europe to Become Multimodal Mobility Platforms”.

Panel 1

An electrical engineer, **Holger Flatt** obtained his PhD from Leibniz University Hannover. Since 2011, Flatt has worked as a postdoctoral researcher and leader of the Smart Sensor Systems group at the Fraunhofer IOSB-INA in Lemgo, Germany. His main research activities focus on the development of smart sensor systems with the goal of enabling processes to adapt dynamically to changing environmental conditions. Flatt’s presentation was entitled “The Use of (Open) Data to Manage Urban Traffic and Decrease Traffic Emissions”.

Daniel Rudmark works as senior researcher at RISE Research Institutes of Sweden on issues relating to open transport data publication and reuse. He has collaborated with a number of entities within the Swedish public-transport sector, with additional international work in Rio de Janeiro, Dar es Salaam, and Mysore. Since 2017, he has served as the coordinator of the ODIN network (“Open Mobility Data in the Nordics”). In Rudmark’s presentation, entitled “How to Create a Cross-Border Open Mobility Data Platform”, he shared lessons derived from the ODIN project.

Panel 2

Vasco Paul Kolmorgen is the CEO of Bahnkonzept GmbH Deutschland, while Christian Rahmig works at the German Aerospace Centre. As project partners, they are currently implementing the mFUND-financed Indres project. Kolmorgen and Rahmig’s joint presentation was entitled “Breaking Up Data Silos: Creating an Open Data Platform for Small Railway Operators”.

Jana Pieriegud is a transport economist with a background in railway engineering and Professor at the Institute of Infrastructure, Transport and Mobility at the Warsaw School of Economics. Pieriegud’s presentation was entitled “Railways’ Contribution towards MaaS: Lessons from Poland”.

Christian Sprauer, CEO and founder of Railnova, discussed Railnova’s initiatives in a presentation entitled “Open Data Models to Manage Train Fleets”.



Panel 3

Susana Sargento is a full professor at the University of Aveiro and a senior researcher at the Institute of Telecommunications, where she leads the Network Architectures and Protocols group. She has been a visiting PhD student at Rice University (2000 – 2001), and a guest faculty member at Carnegie Mellon University (2008). In addition, Sargento has led research projects involving telecom operators and OEMs. She co-founded a vehicular networking company, Veniam (www.veniam.com), and is the winner of the 2016 EU Prize for Women Innovators. Her main research interests are in the areas of self-organised, ad hoc and vehicular networks. She regularly acts as an expert for European research programmes. Her presentation was entitled "City-wide Mesh Networks: A Recipe for Connecting Vehicles with the Cloud".

Sebastian Pretzsch is group leader for data systems and assistance at the Fraunhofer Institute for Transportation and Infrastructure Systems IVI. His presentation was entitled "Connecting Data Platforms: The Mobility Data Space Approach for Smart Mobility Applications".

Jörg Lützner studied electrical and electronic engineering at the University of Nottingham and RWTH Aachen University. Following work at Siemens Semiconductors and Siemens Mobile Phones, he moved to Siemens VDO which was acquired by Continental Automotive GmbH in 2007. His initial responsibility was for technology and innovation within the Commercial Vehicles and Aftermarket business unit. Later, he took over responsibility for portfolio and innovation management for the same business unit. Beginning in 2009, he coordinated the connected services activities of the Interior Division. His current position is head of innovation management for commercial vehicles and services. His presentation was entitled "Truck Platooning: Connected, Sustainable and Safe Logistics".

Second impulse session

Claire Depré is head of the European Commission's Unit for Sustainable and Intelligent Transport. Her presentation was entitled "Setting up the Common European Mobility Data Space, an Opportunity for more Efficient and Sustainable Mobility".

Miriam Pirra is a researcher and assistant professor at the Politecnico di Torino's Department of Environment, Land and Infrastructure Engineering. Since 2013, she has been actively involved in many Horizon 2020 EU projects (METPEX, ecoFEV, SUITS, TInnGo, INCIT-EV) investigating traveller and freight mobility. Her main research interests include data-mining and machine-learning techniques in mode choice and mobility issues. Pirra's presentation was entitled "Integrating Mobility Data Sources to Enable Data-Based Decision Making, and Current Lessons and Outlook from Turin".



Rui Ramos is an associate professor in the Civil Engineering Department of the University of Minho's Engineering School. His areas of expertise include urban mobility, transport and urban development, spatial analysis and application models, regional and urban systems and planning. At the Centre for Territory, Environment and Construction, he coordinates the area of territory. He has published over 100 articles, and 10 PhD students have graduated under his supervision. He maintains collaborations with the universities of São Paulo, Amazônia, Federal São Carlos and Federal Pará in Brazil. He has coordinated projects for JPI-UrbanEurope, the CIVITAS Initiative, VDI/VDE-Innovatio+Technik and Norte-Portugal Regional Coordination and Development Commission. Ramos' presentation was entitled "How (Open) Data Improves Walkability for a Sustainable City".

Panel 4

Sampo Hietanen is the founder and CEO of MaaS Global, the company behind the Whim mobility application in Finland. Sampo is also a recognised expert and a speaker on the future of mobility and on the power of open ecosystems. When Hietanen talks about his vision for the future, he says: "The technology is already here. All we need to do is figure out our customers' dream, and build the services to match it." Hietanen's presentation was entitled "One App is All it Takes: How to Integrate Your City's Multimodal Mobility into One Platform".

Marc Lammerding studied mathematics and IT science, and is currently a strategy consultant and data-science expert serving as managing partner for digitalisation and IT strategy at Brodtmann Consulting. As lead data scientist and global project lead for NV-ProVi, an mFUND project, Marc uses AI and machine-learning algorithms to forecast occupancy and delays based on real-time data. Marc is a certified ethical hacker and AWS cloud solutions architect. His presentation was entitled "Provide and Visualise Prediction AI-based Public Transport Usage Data".

Maya Pindeus is a human experience designer, architect and engineer with a passion for human-machine interactions. Working at the intersection of engineering, robotics and user experience, her work has been widely recognised across the industry. She has received multiple awards, including the European Commission Starts Prize, and has been featured in publications including Forbes and Fast Company. She is co-founder and CEO of Humanising Autonomy, where she focuses on her passion for creating an ethical world in which automated systems are designed around human beings, and not the other way around. Her presentation was entitled "Predictive AI: The Future of AV and Pedestrian Interaction".



Panel 5

Sylvain Denoncin works as accessibility expert at Okeenea in France. His presentation was entitled “How to Create a Platform for Accessible Mobility: The Role of APIs, Standards and Interoperability”.

Charlie Galle is CEO and co-founder of N-Vibe. His presentation was entitled “Insights on Building a GPS- and Vibration-Based Navigation App”.

Holger Dieterich is the chairman of SOZIALHELDEN. He presented a number of his organisation’s initiatives, and discussed its achievements and lessons learned. His presentation was entitled “Open Data and Accessibility: What we Learned from Building Wheelmap.org, Brokenlifts.org and Accessibility.cloud”

Panel 6

Sven Jacobsen is a project manager at the German Aerospace Centre. His presentation was entitled “The Arctic Transportation Challenge: Improved Sea Ice Situation Awareness for Ship Navigation in Polar Waters by Fusing SAR and Optical Data from the Sentinel Satellite Fleet in the EISKLASS2 Project”.

Alexander Schmid, executive advisor at BearingPoint GmbH, focused his talk on “Chances and Challenges for Inland Waterway Navigation”, accompanied by the invitation “Let's go digital!”

Jason Andrew McFarlane holds a degree in engineering, specialising in computer systems, along with a master’s degree in information systems management. He has over 25 years of cross-industry experience, with more than 14 years of experience in the maritime industry. McFarlane has extensive experience in all aspects of systems design and development, as well as with high-level concept and strategy development. He is currently a research and innovation manager for Kongsberg Maritime Integrated Solutions, and is responsible for driving innovation through the strategic utilisation of external funding, IP/IPR management, and creative design. McFarlane’s presentation was entitled “With (Open) Data to the Next Generation of Autonomous Ships”.

Outlook

Christian Schlosser is head of the Funding Initiatives and Data Innovations section (DG 21) at the Federal Ministry of Transport and Digital Infrastructure.



Moderation and speakers at the ODSMC 2020 (BMVI/Deckbar 2020).