

BMDV-Workshop Series “Data Innovations for Smart Mobility in Europe”

[Workshop No. 9: Data innovations for autonomous systems in the mobility sector](#)

Date: Wednesday, 25 May 2022

Location: Virtual Room (Zoom)

Time: 09.30 – 12.00 h (CET)

Summary

Automation promises many benefits for the mobility sector. While the medial focus often lies on self-driving cars, there are many other types of autonomous vehicles and systems that offer a variety of benefits. For example, automation can improve the efficiency, sustainability and safety of mobility; and optimize the use, planning and maintenance of infrastructure for all modes of transport. The projects presented in this workshop discussed challenges and opportunities of automation from their diverse perspectives and experiences.

[Thematic overview](#)

Tim Rittmann (Federal Ministry for Digital and Transport, BMDV) welcomed participants to the ninth mFUND workshop of the series Data Innovations for Smart Mobility in Europe and gave a brief overview of the mFUND programme goals, supporting over 390 projects. The mFUND programme aims at making mobility more efficient and environment friendlier and at creating new solutions for the transport infrastructure. Additionally, Rittmann gave a short introduction to the topic of automated systems and how the Federal Ministry for Digital and Transport is supporting these technologies, such as the intensive work to further improving the framework conditions. In 2021 the Act on Autonomous Driving entered into force, establishing the regulatory framework for autonomous motor vehicles (level 4) to be allowed to operate in regular public road transport in determined operational areas all across Germany.

[Innovative solutions](#)

Steffen Henninger, (Frankfurt University of Applied Sciences) presented the project *Kombinom_2* that relies on the sharing concept as an integral part of rural culture. Using data modeling for autonomous minibuses, *Kombinom* combines the transport of passengers and goods in rural areas. Henninger introduced the participants to the research questions the consortium is focusing on, namely the definition of rural areas based on mobility needs, conceptual design & simulation of combined public and goods transport, legal considerations and feasibility considering social, ecological and economic aspects. Some challenges that the project faces lie in the area of current jurisprudence and on how to find

data in appropriate granularity. Furthermore, Henninger explained that the spatial typification needs congruent data sets which can be difficult to acquire. When asked by Tim Rittman about their interactions with municipalities in the rural areas, Henninger answered that they were often met with interest and hopes that partaking in the project could prove prestigious for the community.

InfraROB, the next project presented, is building autonomous robotized solutions to maintain integrity, performance and safety on road infrastructure. Ana Garcia (University of Vigo) explained that the main goal of the project is the reduction of fatal road workers accidents and traffic disruption due to maintenance works. The project is currently in the phase of "Research and technical development". The second and last phase "Demonstration, validation, outcomes" will take place in a fully operational environment, the Graz Living Lab. It offers a very modern infrastructure and Garcia pointed out that a big portion of road infrastructure in Europe does not have comparable equipment like its cameras or connectivity yet. Looking ahead, the goal is to collect insights in a somewhat average infrastructure environment.

After a short networking session in which the participants could get to know each other and exchange ideas, Jörg Zimmermann (Alberding GmbH) introduced project AutonomSOW II. The consortium aims at increasing the efficiency of transport processes on the Spree-Oder Waterway through an information platform. Zimmermann presented inland waterways transport as a more economical and environment friendlier and that is rarely used. To integrate the waterway into the transport process chain a common database with different data sets like traffic, weather and real-time data is created. To access the latter and follow the transport in real time, ships are equipped with Automatic identification systems (AIS). Zimmermann pointed out that there is still a long way to go to fully automated shipping as there are many complicating factors on waterways like swimmers or vacation skippers.

Michael Buchholz (Ulm University) presented ICT4CART, a Horizon 2020 project. The project finalized in February worked towards implementing a versatile ICT infrastructure for connected and automated road transport. Buchholz explained that one of the main tasks was the connection of technological advances from different industries, namely the telecommunications and automotive industry. The specific objects of the project included collecting and managing all data regarding driver, vehicle, vulnerable road users & infrastructure but also important frameworks such as implementing cyber-security and data privacy. When asked about particular challenges, Buchholz pointed out that none were unexpected but there were some conflicts weighing the priorities of telecommunications and automotive experts. While the former prioritize bandwidth and cybersecurity, too much privacy can make some data useless. He emphasized that communication between engineers has to be a priority for a project to succeed.

Challenges for taking full advantage of autonomous systems

After the pitches, moderator Marcia Giacomini led the discussion that focused on different challenges that the participants had experienced in the context of automation. One challenge that was agreed upon were the regulations and standards that are currently different for countries in Europe. A question about synergies between projects was raised, as there are many different approaches being worked out in projects all around Europe and these can sometimes get overlooked. Buchholz pointed out that different projects on European, national, regional and local levels need to be more interconnected. In order to profit from other projects findings, project partners and solutions created need to be integrated on a European level.

Ana Garcia contributed that a concern of hers were latencies, that their work might not be useful in real time. Another challenge that came up was the deployment of sensors throughout the infrastructure. Not every kilometer of road can be monitored. Buchholz agreed and pointed out that ICT4CART focused on special areas like intersections as they sometimes already have a security camera installed.