Report: High-Level Dialogue on Connected and Automated Driving 2024

Take-aways break-out sessions 18 June 2024, Ghent, Belgium

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Break-out session Heads of Delegation: Aligning the Introduction of CAD with Policy Goals

Introduction:

Aligning policy goals is essential to maximize the societal impact of Connected and Automated Driving (CAD). This involves ensuring sovereignty of local mobility policies, cybersecurity and safety, equitable access to mobility, environmental sustainability, economic efficiency, and social acceptance and inclusion. The discussions focused on collaborative frameworks, large-scale demonstration projects, and the importance of National Access Points (NAPCORE) for data access and exchange.

Key Takeaways:

1. **Collaboration:** Collaborative frameworks and large-scale demonstration projects are essential to advance AV adoption. Reliable and resilient transportation systems must be supported through partnerships among various stakeholders, including OEMs, logistics companies, infrastructure managers and tech players and should include both rural and urban interests, as well as both passenger and freight transport.
2. **Harmonization:** National Access Points (NAPCORE) play a critical role in facilitating data access and exchange, requiring EU-wide harmonization and standardization
3. **Evaluation:** The FAME project supports EU policy making by providing a common evaluation methodology and sharing knowledge and best practices across member states
4. **Public/Private Partnerships:** Adapting legislation (on national/regional/local level) to support AV deployment, with an emphasis on public/private partnerships, ensuring inclusion and public acceptance, is crucial for success
5. **Regulatory Frameworks:** Clear regulatory frameworks, mutual recognition of regulations among member states, and addressing biases in algorithms are necessary for effective implementation

Heads of delegation highlighted:

- the need to adapt legislation for AV deployment, promote public/private partnerships, and enhance public acceptance
- fundamental changes in traffic laws and the importance of mutual recognition among member states
- the importance of public and industry funding for broad trials, technological advancements as well as deployment and administrative support for AV innovations, improving the capabilities of CAD technology
- prioritized safety for the active mobility user, overall transport system optimization and sustainability, and investment in digital infrastructure and driver education
- clear regulatory frameworks, with consistent safety regulations and independent assessment methods and metrics to verify and evaluate compliance
- the need for coordinated testing and deployment, ensuring safety and reliability, scaling up and addressing liability and insurance frameworks
- the importance of building knowledge and interest in CAD among the general public, in particular by providing opportunities for the public to experience CAD systems in action through public demonstrations

Conclusion:

Developing a shared European vision of the transport problems that could potentially be solved through CAD deployment and the transport system benefits that could be gained from CAD, it is key to ensure that CAD technology is treated as a problem solving tool with specific and joint objectives and determining the added value to attract investments and rather than as a solution in search of a problem (avoiding "technology push" for the sake of it). The most popular recommendations were associated with removing national legal barriers to CAD public road testing and deployment, which represent different kinds of impediments in different countries. Specific examples that were cited most frequently included the need to change traffic laws and to clarify and harmonize how liability is treated throughout Europe when CAD systems are involved in crashes. Aligning policy

goals requires coordinated efforts and strategic roles defined for governments to foster the growth and integration of CAD into public transport systems. By addressing these barriers and aligning policy goals, significant progress can be made towards the successful implementation of connected and automated vehicle systems in Europe.

Break-out session Heads of Delegation: Shared Autonomous Mobility

Introduction:

Cooperative, Connected, and Automated Mobility (CCAM) in public transport is effective, providing societal value and reinforcing the existing mobility landscape. Public acceptance depends on the service's reliability and trustworthiness, and public transport operators are investing in and testing AVs, indicating readiness for deployment. However, the need for predictable regulation remains a significant challenge.

Automated private cars and robotaxis contribute to congestion and compete with public transport, respectively. Integrating AVs into a Mobility-as-a-Service (MaaS) model offers a citizen-centered approach, enhancing efficiency and flexibility for transport operators while improving service and performance for cities. The challenges include the lack of viable business models due to market fragmentation and insufficient high-risk investments, underscoring the need for a common long-term vision and coordinated procurement strategies.

Heads of delegation highlighted:

- **New Strategies**: Various regions are formulating new strategies for integrating AVs with public transport.
- **Cooperation Models**: Emphasis on involving multiple stakeholders through alliances (with e.g. citizens, insurance companies,...) to foster collaboration.
- **Broad Focus**: Recognizing the need to address mobility in rural areas (a.o. transport poverty, linking with Social Climate Fund) and exchange insights on the specific needs there, ensuring it extends beyond urban centers and that rural-urban divide is not worsened even.
- **Public Acceptance**: On-demand mobility is seen as more acceptable to the public compared to shared services.
- **Regulatory Challenges**: Many regions face regulatory hurdles, including traffic laws and permits, that need addressing. Removing the national and local legal impediments to CAD deployment in public transport services are important.
- **Safety and Efficiency**: Emphasis on end-to-end safety and reducing individual transport to enhance public systems.
- **Economic Viability and Market Fragmentation**: Limited commercial availability in Europe of CAD vehicles that are suitable for providing the desired public transport services, with particular obstacle of the low-speed of the current automated shuttle vehicles (which mostly suffices in urban and closed circuit environments but not beyond) and the limited primary sensing of current vehicles as challenges to integrate efficiently with existing (public) transport networks. High costs and lack of viable business models are significant challenges, with a need for economies of scale and high-risk investments.
- **Data and Procurement**: Effective data sharing and strategic procurement processes are crucial for successful implementation.
- **Complementing Public Transport**: AVs should complement, not replace, existing public transport systems.
- **Pilot Projects**: Several countries are conducting or planning pilot projects to test AVs in controlled environments.
- **Driver Shortages**: Automated public transport is seen as a solution to staffing shortages although it will also require new profiles and reskilling/upskilling as human interference will be required in the next phases of development and deployment. This human interference and the costs it brings about, also has an impact on the return on investment and business cases for deployment, which as a consequence will remain negative or low in its next phases.
- **Public Sector Role**: The public sector is key in enabling technology development and aligning it with societal goals. It is important to identify how stronger regulatory pushes can be applied to overcome the currently fragmented and under-developed market for CAD transit vehicles for example.
- **Learning from Rail**: Insights from the rail sector can inform the implementation of shared AM.
- **Sandboxing**: Testing in controlled environments helps address initial challenges and build public trust.

Conclusion:

Implementing shared and/ or "on demand" autonomous mobility is an end goal, though it is not surprising that many member states are struggling with this challenge. Some have attempted to scale these initiatives, but the difficulties of doing so have become evident with market fragmentation, the current lack of economic viability and other elements mentioned. Despite these challenges, significant efforts are being made to make shared autonomous mobility feasible, even at a small scale. While these efforts are not easy to replicate, the initial steps are being taken.

There is a crucial need to share information and learnings to train the next generation of autonomous vehicles. By incrementally addressing and removing limitations, it will be possible to build scale and reduce costs over time. This collaborative approach will enhance the development and deployment of shared autonomous mobility, making it more accessible and efficient.

Break-out session experts: Shared Autonomous Mobility

Introduction:

Governments, in all their forms, must focus on maximizing the different forms of societal impact of Connected and Automated Driving (CAD). Concretely, this means governments need to intervene to ensure (1) sovereignty of local mobility policies, (2) cybersecurity and safety, (3) quality of the service, (4) environmental sustainability, (5) value creation, and (6) social accessibility & inclusion and (7) congestion.

The Flanders strategic study for the introduction of shared automated transport suggested seven roles for the Government, which were generally agreed upon:

1. **Network Architect:** Developing a smart network and an integrated set of nodes
2. **Infrastructure Operator:** Operating and maintaining public parking, charging and maintenance infrastructure
3. **AV Fleet Operator:** Overseeing the operation of autonomous vehicle fleets focused on pooled transport and specific needs
4. **Multimodal Traffic Manager:** Monitoring and directing traffic flows, including through smart pricing
5. **Digital & Physical Infra Coordinator:** Establishing and ensuring the rollout of a roadmap for digital and physical infrastructure.
6. **Customer Platform Provider:** Linking supply and demand for pooled transport and specific needs
7. **Regulator:** Definition of a robust regulatory and fiscal framework for the support and steering of Shared Autonomous Mobility

Of course, it is crucial to define the right level of government intervention for every role.
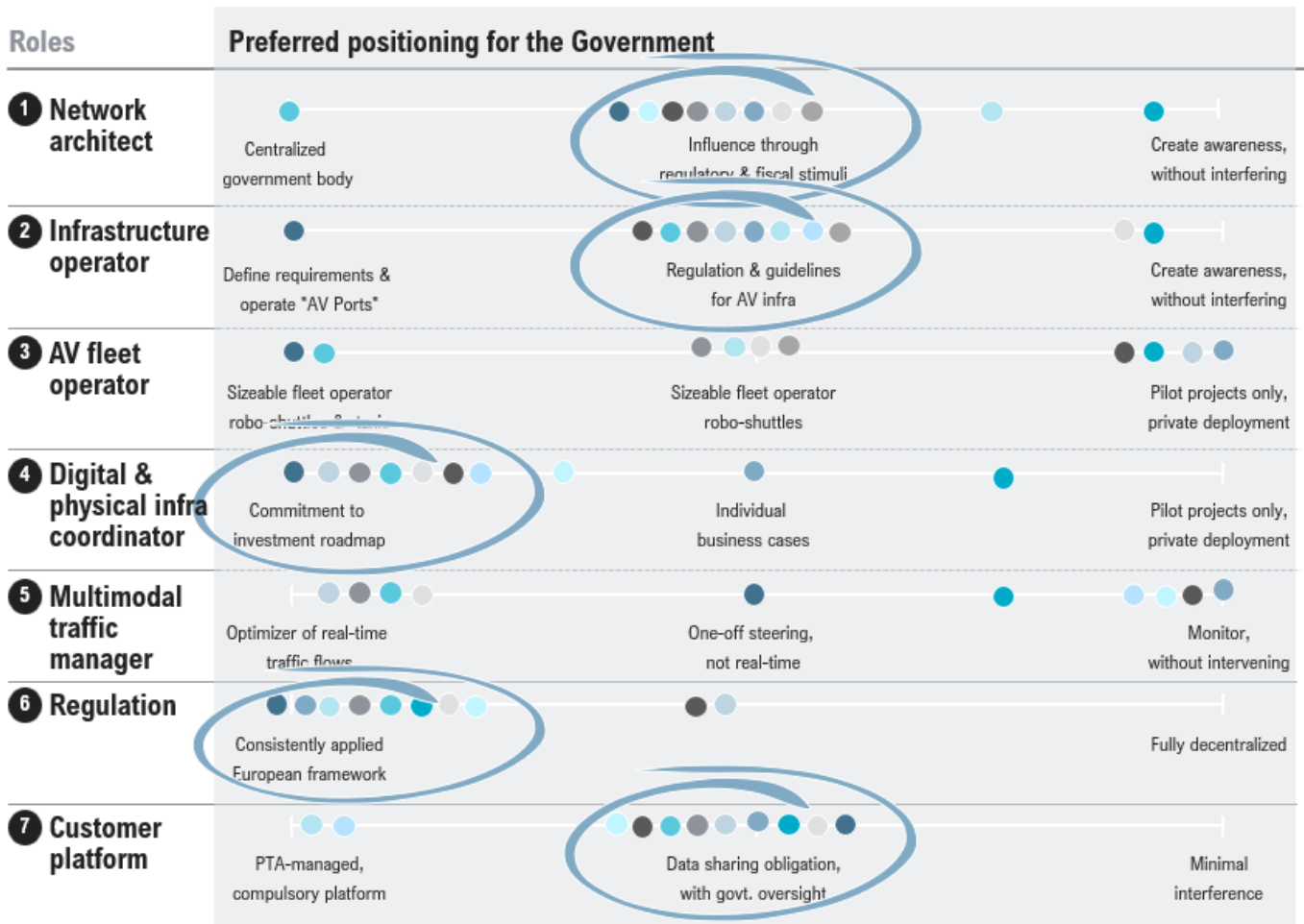
Key takeaways:

There was a strong convergence of opinions on the role of the government to:

*   Shape the mobility network and infrastructure of the future.
*   Adopt consistent regulations across Europe.
*   Maintain oversight on customer and traffic data to avoid closed ecosystems.

On the other hand, opinions were more diverged on:

*   To what extent public transport operators should invest in their own autonomous fleets.
*   How intrusive steering of traffic flows should be.
*   Whether digital infrastructure is really required for CAD, apart from its benefits for safety and congestion.

Each participant of the break-out session was asked to position him/herself on the preferred positioning of the government on each role. Every color represents a sub-group of ~2 participants. The figure 1 below illustrates the result.

Roles	Preferred positioning for the Government		
1 Network architect	Centralized government body	Influence through regulatory & fiscal stimuli	Create awareness, without interfering
2 Infrastructure operator	Define requirements & operate "AV Ports"	Regulation & guidelines for AV infra	Create awareness, without interfering
3 AV fleet operator	Sizeable fleet operator robo-shuttles & …	Sizeable fleet operator robo-shuttles	Pilot projects only, private deployment
4 Digital & physical infra coordinator	Commitment to investment roadmap	Individual business cases	Pilot projects only, private deployment
5 Multimodal traffic manager	Optimizer of real-time traffic flows	One-off steering, not real-time	Monitor, without intervening
6 Regulation	Consistently applied European framework		Fully decentralized
7 Customer platform	PTA-managed, compulsory platform	Data sharing obligation, with govt. oversight	Minimal interference

It became clear that Government actions should create a CAD market push, promoting innovation and adoption through supportive policies and investments. At the same time, CAD should not alter the fundamental layout of governments; instead, current institutions should be supported and adapted to cope with the changes brought by CAD.

Following up on the discussion about the role of the government, best practices and ongoing initiatives from all participants were discussed:

- Engaging highway operators and setting up consortiums for digital infrastructure, preparing for AV future with collaborative projects involving multiple partners, including both large and small cities
- Learning from deployments in major cities and replicating successful models in other areas, emphasizing shared knowledge and best practices
- Implementing mobility data programs and smart traffic services, with ongoing tests of AVs in both private and public settings. A task force on autonomous mobility is focusing on regulation, fleet operation, infrastructure, and ecosystem development
- Launching a study to examine data ecosystems, infrastructure, and government models. Investing in 5G and multi-modal transportation projects to support CAD
- Testing AVs with test plate certificates and providing support through a national agency, with an emphasis on local maintenance and testing
- Addressing legal framework challenges and focusing on digital regulation and geo-fencing for shared mobility

In conclusion, there is a common conviction to support CAD through the governmental institutions in place.

Break-out session experts: Removing Barriers for Connected and Automated Vehicle Testing

Introduction:

The current process for getting Connected and Automated Vehicles (CAVs) on the road – even for testing purposes - is inefficient and often takes 6-12 months due to national/ local community authorizations required. Historical regulations designed for human drivers are insufficient for automated systems, whereas related vehicle-type approval processes involving track testing, real-world testing, and continuous evaluation through monitoring are complex, but remain pivotal. A EU-wide collaboration framework and harmonized approaches are crucial for effective CAV development and deployment in Europe, as regulatory fragmentation and hurdles complicate industrial competitiveness and growth of European solutions.

The EU type approval framework includes three levels of driving automation (L2, L3, and L4) whereas efforts are being made to foster CCAM deployment with guidelines for harmonized testing and moving from small series to large series approval. In addition, the evolution of automated driving from infrastructure changes to vehicle-centric solutions calls for harmonized admission procedures and better user education about automated driving functions. As such European member states are encouraged to implement consistent policies based on advice from the European Commission as integrating national legislation with European type-approval is essential for effective deployment, supported by a strong ecosystem involving various public administration sectors.

Key Takeaways:

1. **Data and Testing:** Real-life testing in diverse environments is necessary; Guidelines for pre-homologation permits are being developed to harmonize testing requirements across member states, focusing on L4 automation levels.
2. **Legislation:** Historical regulations designed for human drivers are insufficient for automated systems, necessitating new European legislation for CAV. National legislation needs to integrate with European type-approval for effective deployment
3. **Model Systems:** A centralized approval system, like the one developed in Germany, can serve as a model for other member states. Simplification and harmonization of permit processes across Europe are crucial for CAV deployment
4. **Harmonization:** A harmonized framework for on-road testing and vehicle-type approval is needed, involving continuous evaluation through track testing, real-world testing, and monitoring. This framework should be implemented consistently across European member states
5. **User Education:** There is a need for better user education about automated driving functions to increase public awareness and acceptance

Conclusions from discussion with national governments, European Commission, car manufacturers, etc.:

- Real-life testing is crucial for AV deployment and economic consequences could be possible in case of testing restrictions
- Safety and simplicity in regulation are key for European competitiveness
- First steps towards a harmonized framework are made
- Member states are encouraged to adopt the guidelines jointly developed at EU level and the recommendation for a collaboration framework