EXPERTENKREIS TRANSFORMATION DER AUTOMOBILWIRTSCHAFT

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ACTION RECOMMENDATIONS FOR INCREASING DATA USE AND IMPLEMENTING POTENTIAL SECTOR-SPECIFIC REGULATIONS

Executive Summary

Data is a critical factor when it comes to making mobility more sustainable and more customer focused. To increase data availability, European regulatory initiatives – including, for example, the Data Act and potential sector-specific regulations – are planned or in preparation. Building on the Data Act and with a view towards sector-specific regulation, the Expert Group on Transformation of the Automotive Industry (Expertenkreis Transformation der Automobilwirtschaft, "ETA") is making recommendations for further measures, supplementing the Short Paper, already published in December 2022, setting out data strategy action recommendations (see the Info-Box beneath the Executive Summary). The fundamental aspects of data economics are not analysed in the text that follows. Instead, recommendations are made for increasing data availability and usage.

Key points:

- Supply and demand for data should be brought together in a "Structured Forum" comprising the data holder, data customer and data service provider (such as the ADAXO (Automotive Data Access - Extended and Open) concept of the VDA (German Association of the Automotive Industry)).[1]
- A definition of cross-manufacturer[2] data sets[3] with a standardised data format (syntax and semantics) that data holders (manufacturers) will need to supply should be developed as part of a common approach that includes the data holder, data consumer and data service provider (see "Structured Forum").
- Obligations of public authorities to provide mobility orientated data will need to be operationalised and expanded upon with measurable targets.

[1] https://www.vda.de/de/aktuelles/publikationen/publication/zugang-zu-fahrzeuggenerierten-daten
[2] Manufacturers that market vehicles on the European Market
[3] This refers to specific, consistent data sets generated by multiple manufacturers on the basis of vehicles that are currently in use, insofar as technically and legally available.

- Data to be used for the purposes of driving further product developments and enhancements should additionally be made available to suppliers alongside Original Equipment Manufacturers (OEMs). This should be done in a non-discriminatory manner for the classifiable suppliers concerned (not just Tier 1). To that end, the user consent (GDPR compliant, based on B2B agreements) should be expanded.
- Well-structured data ecosystems require standardised data formats and platforms. The standardised platforms now being offered by numerous OEMs for Apps provided by third-party suppliers serve as an example for an appropriate step. Implementation of those interfaces via open source communities (e.g. COVESA, Eclipse, Digital.auto, SOAFEE) should be supported by the automotive industry.
- A differentiated, use-case based examination of the types of in-vehicle data, functions and resources that are to be potentially made available, as well as of who can access them and by what method, will need to be carried out; for example, to ensure vehicle safety and the protection of business secrets. Such access concepts can be implemented, for example, via a protected in-vehicle software area ("Sand Box"), or via the OEM back end – as described in the ADAXO concept – while ensuring compli ance with cyber security requirements.
- Differentiation could be effected, by way of example, according to the ASIL (Automotive Safety Integrity Level) levels
    a. Safety and Hard Real time
    b. Safety and AD
    c. QM (NON-ASIL)/(Infotainment)
- Third parties should be able to remotely access data, functions and resources in the QM (non ASIL) level on the basis of the ADAXO concept, in order to ensure there is no impact on other functions (irre- spective of the level). By contrast, there should be no obligation to release safety relevant data, func- tions and resources by direct remote access in the case of third-party service offerings, unless this takes place in a safe state based on an agreed process, or via the back end based on an agreed pro- cess; this is to avoid compromising the operational safety of the vehicle.

Info-Box: Action recommendations set out in the Short Paper on data strategy published in Decem- ber 2022.

Potential and action areas for increasing the availability of data:

Increased data availability through greater data sovereignty of the vehicle user

Action areas:

- Data release at the data source
- Obligatory transparency at the data source regarding which data are being used for what purposes and by whom
- Implementation of adequate protection at the earliest possible stage (e.g. by anon ymisation of the data) in the chain running from data generation to the respective subsequent instances of data use or data analysis

Increased data availability as a consequence of the prospective returns on private data investments

Action areas:

- Pricing for data use that focuses on the value added
- Protection of investments by safeguarding the rights of investors

Increased data availability due to increased data reach

Action areas:

- Improved availability of mobility data held by public authorities– regional/supra-regional
- Enhanced availability of data from mobility relevant areas (e.g. from traffic infrastructure systems)

Increased data availability facilitated by technical infrastructure

Action areas:

- Interoperability and technical networking of data rooms
- Expanding the user base of the data rooms

Potential opportunities and action areas for improving the quality of data:

Faster and more efficient use of data based on quality standards

Action Areas:

- Use of open standards to ensure universally uniform data descriptions
- Fiduciary function in cases involving special protection requirements
- Periodic cleaning or marking of outdated data that is no longer relevant

1 Starting position

Data are increasingly being used to make mobility more sustainable and more customer focused.

While mobility orientated data use is currently evolving, not all of the benefits have yet been realised. This is because the availability of the data and its supply to the use cases is not yet aligned, or because there is a lack of customer acceptance for the presented use cases.

There is a particular need for action concerning the use of mobility orientated data held by public and private transport services, and data generated by traffic infrastructure, traffic flow management and multimodal mobility, as well as concerning the establishment of innovative customer-orientated use cases based on use of mobility data. For the automotive industry and its suppliers and associated service providers, there is a need to expand the use of vehicle-generated data. Similarly, use of the data should be increased in order to offer enhanced vehicle-related services. Data should be used along the entire value added chain to avoid competitive disadvantages in the arena of international competition.

Use of the data is subject to the fundamental precondition that the vehicle user consents and releases the data for use, which must take place in a GDPR compliant manner.

The Data Act, which is currently in its final approval stages, is setting in motion a political and regulatory initiative that is intended to boost the availability of data in the European Economic Area.

2 Target vision

The recommendations should contribute to increased data use, in order to:

- develop mobility in ways that make it safer, more sustainable and more customer focused;
- boost the competitive position of the European automotive industry, as well as its suppliers and associated service providers;
- facilitate data access for start-ups, and small and medium-sized enterprises, so that customers can be provided with a broader range of services that are based on their data.

In addition, action recommendations should be made in order to design the expected sector-specific regulations on vehicle data, functions and resources in such manner that they reflect a balanced approach that will bring added value for all participants along the automotive value-added chain and promote customer-focused innovations.

3 Action recommendations for increasing data use

3.1 Aligning data supply and data demand

Challenge

- In-vehicle generated data are generated for specific vehicle functions. Accordingly, they are specified in such a way that they optimally support that vehicle function.
- In other words, use of the data by third parties is not the primary consideration when establishing the data specifications. Consequently, additional information will often be required to make the data usable by third parties.
- In order for the data to be used in additional use cases for which it was not originally intended, it will be necessary to clearly establish the market/consumer's information and quality requirements in respect of that data. Such clarification must involve the data holder, who can make the data available, and the data consumers wishing to use the data for their use cases.
- Depending on the data requirements, the provider of the infrastructure on which the data exchange is to take place should also be involved in that clarification process. The infrastructure provider is referred to below as the 'data service provider'.
- The data holder must understand the requirements that are being placed on the data. The needs will need to be understood so that a suitable offering of appropriate quality and quantity can be provided in a targeted manner.
- In line with the requirements for transparency vis-à-vis product users, as enshrined in the Data Act, data consumers will need an overview of what data is available and in what quantities.

Action recommendations

- Establishment of a “Structured Forum” under neutral management to enable the data holder, data consumer and data service provider (e.g. neutral server or data market) to improve matching of data supply and data demand.
- Data provision should be facilitated via appropriate data markets in a needs-oriented manner.

3.2 Data held by public authorities for improving mobility

Challenge

- A large volume of data relating to traffic flow, traffic infrastructure (e.g. building sites, traffic lights) and their usage rates are held by public authorities, such as municipalities, cities, districts and Bundesländer (federal states), as well as the German highway authority, Autobahn GmbH.
- Public-sector data holders have varying technical capabilities to make available and supply those data, and there are no universally used national or international technical solutions or processes for making the data available.
- Similarly, there are no decision-making structures for determining if, how, and to what extent the data are to be made available. Every public-sector data holder can pursue its own approach to data availability. In particular, suitable capabilities and resources for supplying the data are often lacking.
- Sporadic approaches that resemble pilot initiatives and lack clear deadlines for suitably comprehensive data provision are of no help if the mobility users are expecting a nationwide service offering.
- Equally, there is no transparency regarding the availability of public-sector data or its quality.
- The heterogeneity of the data availability means that scalable and universal data use is not possible.
- In addition to inadequate data availability, there is also a lack of clarity concerning how the quality of the data can be adequately ensured for safety critical applications such as, by way of example, information on red lights or road signs that support automated driving.

Action recommendations

- Widening the obligations of public authorities to make mobility oriented data available. In the same manner that the Data Act imposes a data sharing requirement on the private sector, existing regulations such as the Open Data Directive should be further developed – in the sense of a “Public Data Act” – with a view to broadening data-sharing obligations in the public sector. In this respect, the key features of the Mobility Data Act (Mobilitätsdatengesetz) provide useful guidance.
- Suitably qualified specialist staff will need to be employed to meet this challenge.
- To enable universal use, the bodies responsible for traffic infrastructure will need to provide a “mobility data set” that contains mandatory data elements, to be determined on the basis of joint discussions in a manner similar to the Structured Forum.

- The data are to be provided by means of a uniform infrastructure, such as the Mobilithek[4] or the Mobility Data Space[5], and a uniform data format, such as COVESA VSS[6].
- Infrastructure-related data should contain additional meta data that provides information on the reliability of the data for use in services such as automated and networked driving, in order to facilitate safety critical applications.

3.3 Data to improve the competitiveness of the automotive industry

Challenge

- Customer-owned data on vehicle usage are essential for driving further product developments and improvements. As data holders having direct relationships with the customers, OEMs are in a position to obtain their customers' consent for the data to be used for the purposes of implementing further product developments and enhancements. This possibility is also underpinned by the Data Act. It is also possible for the customer to view his or her consents via a central in-vehicle interface, as well as to withdraw that consent.
- The situation is difficult for suppliers of components and systems, especially in the case of very complex products such as vehicles. Having the possibility to obtain data to enable further product developments and enhancements is also essential for those suppliers. Unlike OEMs, however, suppliers do not have the possibility to directly ask customers to release the data.

Action recommendations

- Extending the user consent via the OEM to the supplier as an authorised recipient (non-discriminatory for the classifiable suppliers concerned (not just Tier 1)) will enable common further product developments and enhancements. Such an extension must be covered by appropriate B2B agreements (GDPR compliant).
- Companies that invest in data availability should also be given corresponding opportunities to use that data, e.g. to develop new customer-oriented business models. Regulating access in this manner, would encourage cooperation between companies.

3.4 Data to boost innovative capacity along the automotive value-added chain

Challenge

- Standardised solutions, e.g. for data formats or interfaces for external applications, may help to drive innovation effects, as they provide a scalable basis for third-party suppliers of software solutions. The power of standards to drive innovative potential is evident from the example of "developing Android or iOS based Apps" for mobile telephones. These developments will pay dividends because there is a

[4] https://mobilithek.info/
[5] https://mobility-dataspace.eu/
[6] https://wiki.covesa.global/display/WIK4/VSS+-+Vehicle+Signal+Specification

large sales market, with uniform technology platforms such as iOS or Android. Standalone solutions are not attractive to developer communities.

- By analogy, uniform platforms in vehicles can produce a similar scaling effect. They are characterised by a uniform platform operating system and have standardised interfaces, as well as safety requirements, which differentiate them from platforms in mobile telephones.
- Today, customers expect open systems with a multiplicity of Apps in order to customise their vehicle. Customers will be willing to share data if it is going to be channelled into digital services that provide them with added value. The added value for customers should therefore be emphasised in order to promote data sharing.

Action recommendations

- Well-structured data ecosystems require uniform data formats and platforms to ensure that the expense of preparing the data does not exceed the added value for the customer. The standardised in-vehicle API, inclusive of the App platform, that is now being offered by numerous OEMs in the corresponding domains of the vehicle operating systems Car OS, serve as an example of an appropriate step.
- Manufacturers and suppliers should play an active role in supporting an implementation of such interfaces and connectors through open source communities (e.g. COVESA, VSS, Eclipse, Digital.auto, SOAFEE). This will facilitate an efficient distribution process and serve as a counterweight to attempts at standardisation – particularly within the infotainment industry – that are mainly supported by Chinese manufacturers or American operating systems manufacturers.
- Utilisation of open source and commonly used platforms by manufacturers and suppliers will present a good opportunity to introduce a de facto standard. This will yield rapid results and promote innovative capacity, especially when compared with standardisation achieved through universally agreed normalisation.
- An additional Short Paper prepared by the Expert Group on Transformation of the Automotive Industry points out the relevant issues associated with use of open source software by the automotive industry.

4 Action recommendations for implementing sector-specific regulations

At the European Commission, measures are being discussed to develop regulations on vehicle data, functions and resources. As a draft version of those measures is not yet available, the “Expert Group on Transformation of the Automotive Industry” has issued fundamental action recommendations concerning the potential measures.

4.1 Cross-manufacturer data sets

Challenge

- Cross-manufacturer data offerings from OEMs and suppliers form the basis for scalable service offerings.
- A uniform data description is necessary to ensure that the data is comparable and aggregable.

Action recommendations

- A definition for overarching data sets with a standardised data format (syntax and semantics) that data holders will need to supply should be developed as part of a common approach that includes the data consumer, data holder and data service provider (see “Structured Forum”), e.g. by means of COVESA VSS.
- This must be compliant with the requirements laid down in the Data Act in relation to the provision of data.
- Based on the discussions in the “Structured Forum”, data should be described uniformly in context and be systemically usable.

4.2 “Safe and Secure”[7] access to vehicle data, functions and resources

Challenge

- To enable third parties to offer new and innovative services and other offerings for OEM services, third parties will require extensive access to the data, functions and resources available in the vehicle.
- The term “functions” refers to the externally controlled execution of actions in or on the vehicle. “Resources” refers to components of in-vehicle hardware that can be externally controlled and operated, e.g. computer processing and storage capacities, or even input and output devices such as microphones and displays.
- A general, direct, remote access to the data, functions and resources available in the vehicle is critical vis-à-vis vehicle safety, data protection, liability, certifiability and cyber security. Protection of intellectual property and business secrets must also be considered.
- For enabled functions, direct vehicle access is non-critical only if effected in safe mode, as is the case, for example, during servicing and maintenance work by a certified service provider.

[7] Data protection and cyber security

Action recommendations

- Vehicle functions and resources involve considerable technical expenditure – and hence costs for the customer. Consequently, they should always provide additional value for the customer. Appropriate care must therefore be taken when developing a regulatory specification that stipulates which functions and resources are to be available in the vehicle. The added value of those functions should justify the costs.
- A potential, sector-specific set of regulations should clearly define the data, functions and resources that are to be made available for third parties and those that are to be excluded, e.g. to ensure vehicle safety or to enable the protection of business secrets.
- Data, functions and resources should not be generally released for remote access by third parties. Instead, a differentiated assessment should be performed on the basis of the use case in question, to determine the type of data, functions and resources that can be made available, as well as who is to have access to them and by what method.
- A classification can be established based on the ASIL classes:
    a. Safety and Hard Real time
    b. Safety and AD
    c. QM (NON-ASIL)/(Infotainment)

Third parties should only be able to access data, functions and resources in the class QM (Non-ASIL). It must always be ensured that the access has no impact on other functions (regardless of their ASIL class) and that the cyber security of the vehicle is guaranteed at all times. One option for accessing those data, functions and resources involves using the Extended Vehicle Procedure[8] to access the OEM back end or a secured “in-vehicle sand box”. (Sandbox: see annex; a further description is also provided in the ADAXO11 concept) Compensation should be set on the basis of the FRAND conditions.

- There should be no obligation to release safety relevant data, functions and resources for third-party service offerings by means of direct remote access, unless this takes place in a safe state based on an agreed process, or via the back end based on an agreed process; this is to avoid compromising the operational safety of the vehicle.
- Access levels or access possibilities other than those described herein should entail declassification of the vehicle or require a clarification of liability.

About the Expert Group

The Expert Group on the Transformation of the Automotive Industry (ETA) is an independent advisory body of the Federal Ministry for Economic Affairs and Climate Action (BMWK). The Expert Group develops targeted and addressee-oriented recommendations for politics, businesses, and society in order to successfully shape the long-term structural change in the industry. The overarching goal is to achieve climate neutrality and to safeguard economic value creation and jobs in the German automotive sector.

The ETA is made up of 13 experts from science, industry and society who have been appointed by Federal Minister Dr Robert Habeck for the 20th legislative period. Other experts as well as relevant institutions and interest groups are involved in the work of the ETA through flexible and agile working formats. The members do not receive any remuneration or expense allowance for their participation in the ETA. The Expert Group is supported by procedural assistance and scientific research commissioned by the BMWK. The ETA

[8] https://www.vda.de/de/aktuelles/publikationen/publication/zugang-zu-fahrzeuggenerierten-daten

has an affiliated committee at the Federal Ministry for Digital and Transport (BMDV), the Expert Advisory Council on Climate Protection in Mobility (EKM). Both bodies are integrated into the federal government's Strategy Platform Transformation of the Automotive and Mobility Industry (STAM).

The ETA is responsible for the content of the document on hand. The Expert Group prepares statements, position papers and reports, some of them in its working groups, which then are discussed, passed and published by the ETA.

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