FIGIEFA
Automotive Aftermarket Distributors

Shaping competition policy in the era of digitalisation

1 Introduction

Digital technologies are transforming the way we live and the way we work. This is also true for the automotive industry sector: The 'connected car' as part of the 'Internet of things and services" becomes a part of our daily connected mobility.

Fair digitalisation opportunities must be created for all service providers in the industry value chains "around the car" so that these can "go digital". The markets for vehicle sale, rental and leasing, breakdown services, testing and periodic inspection, servicing and repair, test equipment, replacement parts and lubricants all help to keep vehicles safely 'on the road'. These markets account for more than 500.000 companies directly employing around 4,7 million people[1]. These companies offer a safe and environmentally friendly, competitive and affordable mobility solution, including leasing & rental, fleet management, insurance or mobility services for the 285 million vehicle owners, drivers and business operators in the EU - throughout the entire lifetime of the vehicle.

The following document outlines current developments on access to in-vehicle data and resources and presents the views of FIGIEFA, as representative of the independent distributors of automotive replacement parts and components, on the role that European competition policy should take in preserving digital innovation in automotive digital products and services along the upstream and downstream automotive value chains.

2 Requirements for competition and innovation for competitive products and services in the digital era – the role of Competition Policy

The Commission Communication on "Building a European Data Economy"[2] pointed out that access to (large) data sets are essential for innovation, economic growth and social progress – and for the creation of a European Digital Single Market. The ability to offer competitive services in the digital economy depends on the possibility to access data and apply own functionalities (algorithms) and know-how.

Moreover, a series of Studies[3] highlighted that in the era of "Internet of Things((IoT), innovation takes place when new software systems are designed and implemented using raw data, and when interoperability is enabled (see in particular McKinsey 2015 "Unlocking the potential of IoT"): "The real value of IoT applications comes from analyzing data from multiple sensors and making decisions based on those data (…) and interoperability is required to capture nearly 40 percent—and in some cases, 60 percent—of the total potential of IoT (…)" (p.104). "Using real-time data to predict and prevent breakdowns can reduce downtime by 50 percent" (p. 1). One of the latest Commission Studies carried out by EVERIS[4] in April 2018 on the "economic benefits of B2B data sharing" confirmed the vital importance of machine-generated data and access to real-time or geo-localised data for new business opportunities.

The automotive aftermarket servicing industry is a perfect showcase for these findings.

FIGIEFA
International Federation of Automotive Aftermarket Distributors
Boulevard de la Woluwe 42, Box 5
BE-1200 Brussels

Tel.: +32 2 761 95 10
Fax: +32 2 762 12 55
E-mail: figiefa@figiefa.eu
Web: www.figiefa.eu

IBAN: BE37310149413028
BIC: BBRUBEBB
V.A.T.: BE-0472205007
EC Transparency Register ID: 69678928900-56

FIGIEFA sees the role of the Commission's digital competition policy in helping to unblocking the potential of digital vehicle-related products and services: In an increasingly digitalised automotive sector, competition and innovation starts in the vehicle where the data quality, and the ability to interact with the car's electronic systems and the driver become an 'essential facility' to determine the service quality. In markets however where current embedded telematics systems can be designed in a manner which enables one market participant, the vehicle manufacture, to become the data controller, B2B arrangements are not sufficient to avoid potential competition restrictions within the entire automotive upstream and downstream value chains. This requires in our opinion a legal framework for a mandatory access to in-vehicle generated real-time data and resources as well as interoperability (interfaces) to avoid market 'dominance by technical design'.

2.1 Specifics of the automotive sector and of the 'vehicle' as a product

In the automotive sector, it is the vehicle and its systems/sensors which generate the basic vehicle- and driving-related measurement (raw) data/values. These data are agnostic[5]. Applications directly applied on the vehicle-generated measurement data/values are the basis for innovation in new business models.

In the digitised automotive industry, actions that for decades have had to be carried out stationary in a workshop (e.g. a guided diagnosis) can now be applied *remotely* to the car in motion and conducted in close co-operation with the driver for safe and secure execution. Thus, the connected car needs abilities for remote service applications to access the car's resources/ functionalities and communicate with the driver.

As the University of Leuven Report highlights "….the existence of dynamic data creates a business case for real-time data access" and "this (r)evolution will profoundly change the procedures for maintaining and repairing cars while also creating the possibility of entirely new services".[6]

Vehicle connectivity functionalities create a multitude of new business models benefiting both consumers and corporate customers. Competing for the "connected customer" means the ability to offer new 'smart' functionalities and services in new ecosystems. Data-based, driving-related functionalities allowing for personalised schemes and enhancing mobility in the widest sense (e.g. mobility services, parking spot finders, connected navigation, personalised car insurance, remote and more predictive after-sales services etc.) thereby offering one of the widest potentials for added value creation and for new business opportunities.

The 'automotive connected customer' expects much more than in the past smart combined interoperable remote functionalities and services in, for and from the vehicle[7]. In the automotive servicing market, this means that consumers expect for example innovation through new combined ecosystems, for example *more combined repair and mobility services.* They also expect *more predictive information* about the 'health status' of their vehicles, *or to receive an alert before a problem even occurs and thus to avoid a breakdown.* Remote monitoring and 'prognostics' will be more widely needed to ensure the highest level of reliability and predictability. It is the ability to deliver these levels of services which will decide about competitiveness in the digital era!

For the connected car , the ability to offer added-value digital services/ products depends on the possibility to have *direct access to in-vehicle generated measurement data and functions* (i.e. the latter being the ability to communicate and interact with functions such as e.g. the Human Machine Interface (HMI) or Electronic control Units (ECUs)). Applications (algorithms) based on these data become the foundation for ➔ innovation in new digital business models.

In an increasingly digitalised automotive sector, competition and innovation starts in the vehicle where the data quality and the ability to interact with the car's electronic systems and the driver determine the service quality. Both become an 'essential facility' for competitive services 'around the car'.

Therefore, in order to be able to continue offering the high level of competitive services demanded by their customers, *access to the vehicle, its data and functions* in an independent and undistorted way are key to competitive and innovative services.

In summary, the following three key abilities are needed:

- Direct real-time access to time-critical in-vehicle generated data,
- the bi-directional communication with the vehicle and its functions, and
- the ability to safely and securely interact with the driver (via the dashboard or voice commands) to fulfil their service offers.

2.2 Current state of affairs of direct real-time access to in-vehicle-generated data and functionalities : The OBD connector

The basis of vehicle-related services starts with the direct analysis of vehicle generated data using embedded applications and algorithms in the vehicle. This is ever more critical as high levels of data are being generated, especially by dynamic automated systems, which require direct, real-time data access/ handling in the vehicle. In the automotive servicing sector, the monitoring of component with time-critical data frequencies (often milli-seconds) require that the application are in the vehicle and calculate there a given service. A transfer via an external server would be too slow.

The ability to 'talk' directly to a vehicle and its data is not new - it is current practice today through the standardised On-Board-Diagnostic **(OBD)** connector.

No workshop can identify defects or maintain and repair a vehicle without communicating with its electronic control units. This type of communication has taken place for more than 25 years through this standardised physical data link (16 pin OBD) connector. With the help of a generic diagnostic tool, between 5.000 and 10.000 vehicle data (values) can be accessed in practice today, be read and interpreted; actuators can be triggered to support independent verification which allows test procedures and remedies to be applied.

Today the OBD connector provides today de facto a standardised, direct, unmonitored and free-of-charge access to real time in-vehicle raw, data both stationary in the workshop, and remotely through the (limited) use of plug-in devices, thereby supporting innovation and independent competitive SME entrepreneurship.

It is this physical access to the vehicle-generated measurement data which is the basis for the application of expert engineering know-how from independent diagnostic test equipment producers and other automotive service providers. It offers the ability to design innovative product and service solutions for the entire supply chain (for example different diagnostic test routines, alternative repair methods or fleet management schemes (e.g. fast fit methods, Smart Repair or Spot-Repair, SmartLease etc.).

However, due to the design and functional constraints of this OBD connector, it cannot provide the abilities required to offer digital vehicle-related services in a truly competitive manner compared to the vehicle manufacturers' high speed communication via the in-vehicle networks using embedded applications. It was never designed to support a truly competitive digital access for digital products and services, but at present it is the only available interface to the vehicle.

But even this OBD access to the vehicle and its (raw) data is under threat, as there are first examples are found where vehicle manufacturers started *to factually close the OBD port for independent service providers through the compulsory use of proprietary electronic certificates.*[8]

3 Vehicle manufacturers' own full-fledged proprietary telematics systems

3.1 The new remote telematics communication technology

The entry of *remote telematics communication technologies* has changed the entire setting: With the technical evolution, today's connected cars evolve in a mobile computer network (made up of actors, sensors and electronic control units) that communicates internally as well as with the driver and the outside world, may this be other cars (Vehicle-2-Vehicle Communication) or roadside infrastructure (Vehicle-2-Infrastructure Communication).

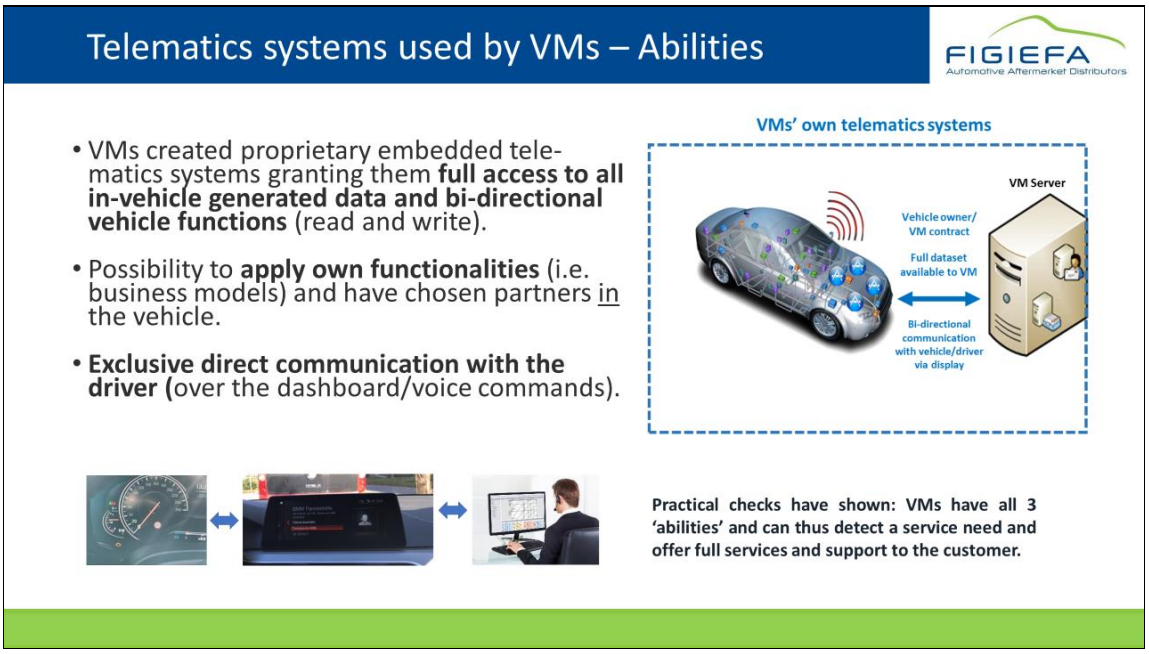
A full telematics system is not only the unit responsible for transferring data from the vehicle to a backend server and vice versa. Instead and on the contrary, it is the complete network of computers in the car and outside the car (the backend server, the App store) and of the software components in these computers that increasingly control the mechanical parts of the car, that offer new ways of interaction with the customer (via Apps, Touchscreens or speech control) and also allow real time diagnostics and prognostics as well as big data analytics for the car.

3.2 Functioning and design of vehicle manufacturers' proprietary telematics systems

Vehicle manufacturers have currently designed their embedded telematics systems as proprietary 'closed black boxes', which are programmed to communicate exclusively with the manufacturer of the vehicle concerned. These systems are full-fledged telematics systems granting full access to all vehicle system sensors/ECU's and to all in-vehicle generated data as well as providing bi-directional remote communication with the vehicle.

Technical checks showed that the proprietary design of their embedded telematics systems provides vehicle manufacturers with a timely privileged access to the vehicle data, information and functions. Diagnostics is shifted away from the current test equipment in the workshop, to a continuous remote diagnostics connection into the vehicle, where the manufacturers pre-process the data (according to their business models) before sending the result to their own server, enabling them to offer exclusive online services.

Vehicle manufacturers also have the sole ability to be in direct privileged contact with the driver through the in-vehicle dashboard display or by using in-vehicle voice commands.



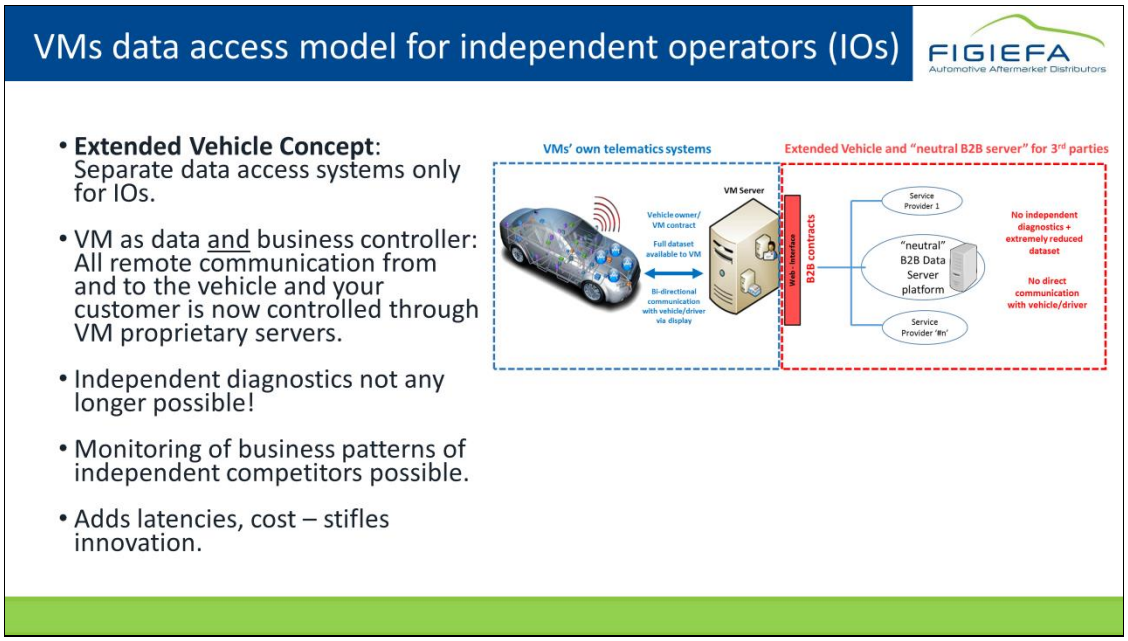
This has the potential to not only bypass the traditional client relationship established through their authorised dealer networks, but also provides the ability to directly address clients from all other industry sectors - throughout the entire life of the vehicle. **For the first time in the history of the automotive sector, vehicle manufacturers have the capability to control entire vertical supply chains and to move towards a fully integrated mobility and ownership management model. This will potentially result in the creation of "market dominance by technical design".**

4 Extended Vehicle ("ExVe"): A discriminatory access is given to independent service providers

4.1 Functioning and design

Whilst vehicle manufacturers themselves make use of their fully-fledged telematics systems, they are proposing to provide third party access to vehicle data through the so-called **"Extended Vehicle (ExVe)"**. It grants access only to small data silos, and the data is only accessible via the back-end of the vehicle manufacturer's external server.

As a result, this technical architecture cuts off *all* current independent market operators from the direct remote connection and real-time data access, as all online communication to and from the vehicle is routed through the backend server of the vehicle manufacturer, i.*e. the business models of any independent operator is dependent on, and controlled by its direct competitor***.** It introduces significant latency and restrictions to data sets that will preclude many competitive services, as well as requiring the details of the customer and the service being proposed by the independent service provider to be given to the vehicle manufacturer.



Note: In the latest version of this ExVe concept, a so-called "neutral server" is linked behind the ExVe backend server (the so-called "**NEVADA**"[9] concept). It is a B2B data brokering platform of third party service providers which is hooked behind the ExVe system. As such, it does not remedy any of the systemic failures created by Extended Vehicle, but instead, adds further costs, contractual conditions and latencies.

4.2 Practical implications of Extended Vehicle

4.2.1 Exclusive control over in-vehicle generated data

The vehicle manufacturer is the only one who has *full remote real-time access to all in-vehicle generated data at any time, needed for innovation.* This is particularly important with 'time-critical' data. This can be both 'real-time' to enable the analysis of dynamic data generated when the vehicle is being driven (e.g. multiple concurrent engine sensor data), or more basic, but still highly important 'time relevant' data (such as e.g. battery voltage or motor management).

Since vehicle manufacturers offer their own competing products for numerous telematics services, exclusive control of access to data via the vehicle manufacturer has in principle an immediate significant competitive relevance. It is immediately evident that this causes an unjustified disadvantage to competing market players when vehicle manufacturers become the *upstream and downstream controller and the competitor all at the same time*!

First practical examples of the Extended Vehicle model revealed the serious limitations**:** As an example of ExVe, BMW CarData only offers some 75 data points (status: Juli 2017) through its backend server. Out of these aggregated data points, only some 11 were according to our opinion suitable for Repair and Maintenance purposes.

4.2.2 Independent diagnostics and prognostics are prevented /hampered

Independent diagnostics of high speed in car systems and processes, which is key to an efficient and effective detection of problems and subsequent repair of vehicles, *is technical impossible when routed through a backend server*, as real-time access to dynamically generated data is needed to fulfil these services.

Diagnostics requires direct analysis of multiple and concurrent data values to test and identify the cause of a fault, whilst prognostics continuously monitors the components of a vehicle system to monitor their performance and predict (via trend and comparative analysis) their degradation or failure. All independent market operators are prevented from implementing their own remote monitoring, diagnostic test methods and prognostics based on applications implemented directly inside the vehicle (as in many cases the vehicle manufacturers are doing themselves for their own remote services business models). As such, **innovation through the application of own know-how and business models is prevented.**

4.2.3 Control over the vital direct safe and secure communications with the driver

Likewise, the vital direct safe and secure communications with the driver via the car's dashboard or voice commands (as opposed to the unsafe communication via the smartphone) is increasingly critical to inform the driver that he has a problem. It is also the new 'shop window' for services where in an ideal telematics future the Apps from an aftermarket provider would sit next e.g. to the 'Repair and Maintenance' **(RMI)** App of the OEM offering different diagnosis and different proposals for a problem with his car by just using the two Apps. However, this so vital direct communication with the driver over the safe and secure dashboard/voice commands is in privileged control by the vehicle manufacturer via its the proprietary embedded telematics system.

4.2.4 Control via telematics communication contracts [10]

Concluding a basic telematics communication contract with the vehicle manufacturer is the precondition for using any telematics services. If the user does not sign this contract, the external communication of the vehicle is deactivated by the vehicle manufacturer. *As such, the vehicle is linked – by design and for its entire*

life(!) and even if it is sold as second/third hand car - to a telematics communication contract with the vehicle manufacturer.

Often, these telematics contracts are presented to the customer for signature along with the vehicle sales contract and include various mandatory or 'bundled' services. Due to the link with services offered by the vehicle manufacturer, third parties have effectively no more opportunity to afterwards offer their comparable services to the consumer. The initial contact to the customer and the content of the initial telematics contracts thus represent a considerable competitive advantage for vehicle manufacturers. As a result, consumers are effectively dependent on a monopolistic offer by the vehicle manufacturer.

4.2.5 Exposure of business models and (potential) monitoring of competitors

When doing first practical checks of the Extended Vehicle model, it turned out that the registration processes for the independent service provider and his customer are so burdensome to the extent of being a true access barrier. The service provider must fill in a request template for the release of the (pre-selected) data where he/she must also describe the details of the Use Case, as well as the identity of his/her customer to the competitor, the vehicle manufacturer. As under the 'Extended Vehicle system' the manufacturer is the technically the data holder, any release of any vehicle data, as consented by the driver, will (technically and according to the GDPR) unavoidably have to pass through the vehicle manufacturer. As such, Extended Vehicle exposes independent service providers and 'their' customers – by default - to their competitors – the vehicle manufacturers. **[In contrast to that, a telematics system giving consumers direct choice of the service provider (e.g. through an interoperable telematics platform) would terminate this dual exposure of the independent service provider and the consumer].**

5. Solutions to ensure competition and innovation in digital products and services

5.1. Digital interfaces for interoperability needed!

Vehicle manufacturers claim that they need to create closed telematics systems and de-couple independent operators from the direct communication with the vehicle for security reasons. They state that third party access would introduce massive security problems when being allowed to send software into the car and that only they have the competence to ensure a high level of security.

FIGIEFA does of course care about a safety and security, but establishing a safe and secure communication with the vehicle and its data is technically possible!

A stakeholder consortium of 11 European automotive industry, SME and motorist consumer organisations advocated in April 2018 in its **"Manifesto for equal digitalisation opportunities"** [11] that an 'in-vehicle interoperable, standardised, secure on-board application platform' ("interoperable open access telematics platform - **OTP**), as referenced in the eCall Regulation, is the right way forward. It is also the only solution which according to the **EU Commission's comprehensive TRL Study**[12], meets the five principles emanating from the co-operative intelligent transport system (C-ITS) Forum.

An "interoperable on-board application platform" is an in-vehicle telematics system that allows applications to be safely and securely implemented in the vehicle. This makes decentralised communication to/from the vehicle with multiple service providers possible by using a standardised application programming interface (API) as part of the platform. It also provides the ability to safely and securely run multiple (verified and certified) applications concurrently **('Interoperability by design')**.

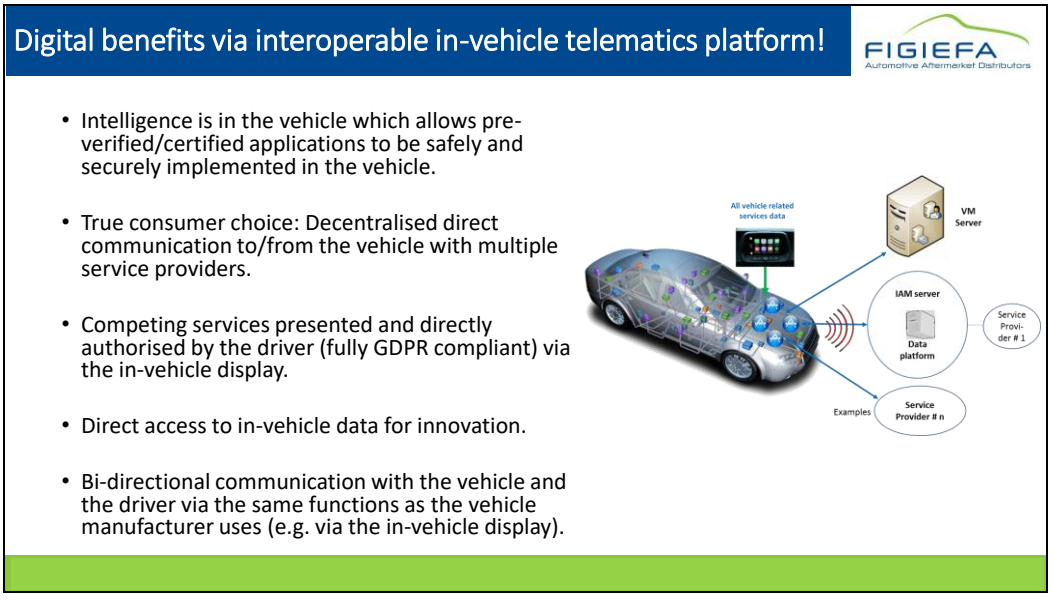
By displaying competing services on the in-vehicle dashboard display, the vehicle driver can select and authorise the service provider of their choice. The communication then emanates directly from the vehicle to

the chosen service provider – without routing through or being monitored by the vehicle manufacturer. **It fully ensures the data protection rules and is full compliance with the GDPR: customers would give their consent to use vehicle-generated personal data needed for the execution of the desired service *directly* to the respective service provider of their choice without the obligatory routing through the vehicle manufacturer imposed by the ExVe system.**

Access to real-time data is enabled for innovation. The secure operation of such applications would be ensured through a rigid validation process of applications and through run time security in-vehicle functionalities preventing the execution of possible safety-detrimental functions. A security survey from the University of Flensburg[13] demonstrated that such an interoperable platform could be established according to the highest safety and security norms. Equally, in TRL's view, it is possible to achieve safety and security for an OTP, as there are existing standards and technologies available that can be combined and implemented.

Real life checks of currently existing OEM systems show that there are first proprietary in-car platforms that enable chosen service providers a real time access to the car as well as an equal access to the customer. Moreover, many vehicle manufacturers have already today chosen partners, such as **Google and Apple**, to operate their own systems using third party applications in their vehicles. Some of these systems seem to have already a (limited) access to in-vehicle data, and are not just restricted to infotainment functions, as vehicle manufactures pretend. This shows that safe and secure concurrent direct access to vehicle generated data and vehicle functions is possible, and that 3rd party applications can be implemented without interfering with the vehicle's functions.

As such, the justifications tabled by vehicle manufactures, namely that the Extended Vehicle concept is needed to ensure safety, security and liability, are not justified. An OTP would ensure the same high level of safety, security, liability and data protection as the vehicle manufacturers' ExVe concept (or the vehicle manufacturer's proprietary solutions), whilst safeguarding competition, innovation and consumer choice.



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Brussels, 28 September 2018

7 Footnote Explanations and referenced study reports/institutional documents

[1] GEAR 2030 High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the European Union, FINAL REPORT, October 2017. More than 4,3 Mio. people are employed in the wider 'Automobile Use' (dealers, repairers and aftermarket service providers), p. 7

[2] Commission Communication "BUILDING A EUROPEAN DATA ECONOMY", COM(2017) 9 final, Brussels, 10.1.2017

[3] For example:
• „Big data and B2B digital platforms: the next frontier for Europe's industry and enterprises. Recommendations of the Strategic Policy Forum on Digital Entrepreneurship", April 2016, Ares (2016) 4935147 – 02/09/2016
• McKinsey Global Institute: "Unlocking the potential of IoT – Mapping the Value beyond the Hype", June 2015
• Oliver Wyman: "Digital Industry – The True Value of Industry 4.0" 2016 showing that i.a. algorithms are needed to predict future demand from customers.
• Oliver Wyman: "Perspectives of Manufacturing Industries" 2016

[4] EVERIS Study Report commissioned by the EU Commission on "Data sharing between companies in Europe", 24th of April 2018 https://ec.europa.eu/digital-single-market/en/news/findings-commission-funded-study-data-sharing-companies-europe

[5] According to the overwhelming legal doctrine in the EU, these data are not "owned" by anyone as they legally do not qualify for general data ownership. Vehicle-generated data simply enjoy no IP protection, as it neither qualifies as creative results of human work, structured databases, computer software nor as a patent. Nobody owns such data. This conclusion is also shared by the European Commission for all EU Member States: "Under the law of different Member States, legal claims are applied to data only when that data meets specific conditions for it to qualify, for instance, as an intellectual property right, database right or a trade secret. Cf. Commission Communication on a "European Data Economy" of January 2017 and Legal Study on Ownership and Access to Data" prepared by Osborne Clark Law Firm for the European Commission DG Communications Networks, Content & Technology, 2016, 164 pages

[6] Analysis of attempts to restrict access to telematics platforms by vehicle manufacturers by leveraging their position as upstream gatekeepers of telematics data. Prof. Dr. Stijn Kelchtermans/ Prof. Dr. Stijn Vanormelingen, KU Leuven "Economic Analysis of the Introduction of a Telematics Platform in the Motor Vehicle Industry", October 2015

[7] Customers want an omni-channel, anytime and anywhere. Interview with Dr. Julie Saini, Global Vice President for Mobility Aftersales and Retail about Frost & Sullivan Report "OEM Disruption in Automotive Retail and Aftersales," quoted in "OEMs Taking Multi-Faceted Technology Approach to Gain Aftermarket Share" by Brian Albright 7.11.2017

[8] First examples have shown that communication with the vehicle and access to the full vehicle diagnostic, OBD, Repair and Maintenance Information data via the OBD connector is now only accessible with the vehicle manufacturer's proprietary electronic certificate and its own proprietary diagnostic tool. Multi-brand diagnostic tool can only read emissions data and DTCs, but cannot conduct any diagnostics, control service functions (i.e. withdraw brake calipers to replace brake pads), delete DTCs, re-set service indicators, code replacement parts, conduct pass-through programming to update vehicle systems etc (when the vehicle is stationary). This makes therefore regular repair process impossible and excludes all independent multi-brand test equipment and all independent operators who are operating with multi-brand tools!

9 NEVADA (Neutral Extended Vehicle for Advanced Data Access).

[10] Source: CECRA Digitalisation Brochure February 2018

[11] "Manifesto for equal digitalisation opportunities" April 2018, signed by 11 European Federations, namely ADPA, CECRA, CITA, EGEA, ETRMA, Insurance Europe, FIA, FIGIEFA,UEAPME, UEIL under https://www.figiefa.eu/wp-content/uploads/PR-on-Manifesto-for-equal-digitalisation-chances-1.pdf

[12] TRL Study on "Access to In-Vehicle Data and Resources", London August 2017
[13] See above.